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GUIDELINES FOR INCLUSION OF TRAINEES WITH DISABILITIES IN VOCATIONAL AND TECHNICAL TRAINING



OCTOBER 2020





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Foreword

Sense international Kenya is part of Sense international, global charity supporting children and adults with deafblindness in 8 countries in the world. Sense International Kenya is geared at helping children and young adults with deafblindness/multiple sensory impairments to live, thrive and learn. In its disability inclusive business endeavour to have youth with complex disabilities acquire vocational skills identified a gap in facilitating training of these youth in vocational and technical training programmes. In view of this, Sense International Kenya has developed guidelines for inclusion of trainees with disabilities in vocational and technical training programmes. The guide is meant to fill the gap and ensure youth with disabilities have the same likelihood as everyone else to access quality education in a safe environment.

This guide has been developed to provide practical information to instructors in vocational and technical training programmes on how to include trainees with disabilities. The guide provides useful information on; Skill areas, methods of skill delivery, adaptation of materials, tools and equipment, assistive devices required, modification of the learning environment and adaptations in assessment. The tutor is encouraged to use various methods and resources to meet the learning needs of each learner as one strategy used for one learner may not be applicable for another learner even if it is the same task. It is therefore important for the instructor to base the work on what the learner can do and on what he/she enjoys doing. In addition, the instructor needs to be enthusiastic, determined, flexible, creative and positive.

Information provided will enable the Instructors to equip trainees with knowledge, skills, attitudes and values to facilitate trainees with disabilities in an inclusive set up for meaningful learning. This is important in providing vocational skills to youth with disabilities to become independent and contributing members to the society.

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1.0 OVERVIEW OF TECHNICAL AND VOCATIONAL EDUCATION FOR TRAINEES WITH DISABILITIES

Vocational skills are abilities which allow a person to master a particular competence or procedure that is applicable to a career. Vocational competencies are attained in a hands-on environment that is designed to assist learners with disabilities acquire effective technical skills which will lead to progress in specific occupation for employment or entrepreneurship. Training of these skills could be in one or more of the following technical areas: tailoring, carpentry, weaving (cloth, baskets, mats), designing and making of bags, cane chairs, poultry keeping, agriculture, gardening, masonry, cookery, knitting and sewing.

1.1 General learning outcomes of Technical and Vocational Education for Trainees with Disabilities

The general learning outcomes of technical and vocational education for trainees with disabilities are to:

- a) improve the skills of learners with disabilities in doing a job that is in accordance with the interests, abilities and needs of the community, and areas of arable according to disability;
- b) improve the skills of learners in achieving and creating the type of work that is appropriate and not hindered by disability;
- c) instill a high entrepreneurial attitude and spirit to continue entering the world of work both as a worker and as an entrepreneur;
- d) increase the confidence of the business world and industry in order to be able to employ them as a provision to face a decent life as any other ordinary person.

1.2 Technical and Vocational Education for trainees with disabilities focus

Technical and Vocational Education for trainees with disabilities should focus on the following:

- **Hard skills:** These are applied abilities which complement other jobs and are acquired through formal learning.
- **Soft skills:** These are abilities of an individual not precisely related to specific jobs but apply to all jobs. For example, communication skill, management skills, interpersonal relationship, etiquette.
- **Technical skills** which are the practical abilities and knowledge needed to perform specific tasks in areas such as carpentry, joinery, building, plumb-

ing, and electrical/electronic.

- Living skills or life skills which help Persons with disabilities make the transition to independent living through gaining employment or earning income.
- Entrepreneurial skills which are useful to persons with disabilities who choose to be self-employed in their daily responsibilities.

2.0 INCLUSION OF TRAINEES WITH DISABILITIES IN TECHNICAL AND VOCATIONAL TRAINING

Persons with disabilities are not a homogeneous group and face diverse challenges in daily lives. In vocational and technical training, individual trainee's reasonable adjustment needs may vary depending on the requirements of the industry and the vocational course. This guide is designed to provide practical information to trainers in vocational and technical training programmes on how to include trainees with disabilities.

Inclusion in vocational and technical training implies that people with and without disabilities participate in activities together and interact on an equal basis. Inclusion may involve support or reasonable accommodations so that persons with disabilities are able to participate in an activity or event with people without disabilities. Support may be provided in form of physical assistance or guidance, presenting information in alternative formats such as braille or sign language, modifying the training environment to accommodate needs of individual trainees, modifying training methods (Andragogy) and assessment. Accommodation may also include provision of suitable training resources and assistive devices and technologies based on individual needs of trainees.

2.1 Characteristics of a disability-inclusive vocational training system

An inclusive vocational training systems has the following characteristics:

- The involvement of trainees with disabilities in all aspects of that system, including designing and development of programmes;
- A barrier-free environment in terms of physical, learning, social and psychological. Infrastructure should be designed and built with accessibility for persons with physical and visual impairments, sign language interpreters provided for those with hearing impairment and transport made accessible for all;
- Training methods adapted to suit individual trainees needs;
- Assistive learning devices and technologies are available;
- Career guidance is offered so that trainees with disabilities can make appropriate choices. This includes individualized assessments of trainees' skills and proactive guidance that does not discriminate against those with a dis-

ability;

- A market-driven approach that ensures the quality of training and maximizes employment outcomes and the active involvement of employers to ensure that skills are developed in line with their needs;
- Recognition of the importance of cultivating positive attitudes – including the attitudes of non-disabled trainees and staff – to ensure a welcoming and supportive atmosphere for trainees with disabilities;
- Trainers and disability specialist support staff who adapt instructional methods and techniques to ensure that all students, including those with disabilities, develop the vocational competencies they require;
- Adequate resources to support the training of all types of trainees;
- Adequate preparation of people with disabilities to ensure that they succeed in vocational training. This includes children with disabilities attending and succeeding in their basic education and building linkages between secondary schools and vocational education and training systems.

2.2 Reasonable Accommodation for Trainees with Disabilities

One of the main factors to consider in providing reasonable accommodation is the training methods or andragogy. By using specific strategies that address specific learning challenges, you can create a learning environment where everyone experiences success. These strategies include the following:

2.2.1 Multi-sensory approach (using many senses)

By using several senses (seeing, hearing, touching and even, tasting and smelling) during your instruction, both in your presentations and in what trainees are asked to do, you naturally accommodate many trainees and by doing so help them learn. Additionally, when trainees are able to use multiple and preferred senses their ability to learn, retain, and apply knowledge is enhanced.

2.2.2 Task Analysis (TA)

This is breaking down an activity or task into manageable units. the trainer may follow the following guidelines when doing task analysis:

- Do the task yourself a couple of times
- Determine the easiest way to do the task
- Write down the steps
- Get the learner to do the task - to find out what they already know
- Respect the individual's method of accomplishing the task if this method would be acceptable in the workplace. If it results in slow pace, then intervene.
- Train the learner on the steps he/she cannot do independently.
- Provide feedback on every step performed.

2.2.3 Use of cues

The fundamental purpose of cueing should be to give trainees information they can use to successfully perform a task. Some learners with disabilities do not attend to the natural cues and it is necessary for the trainer to provide additional cues. These may include:

- Highlighting key concepts
- Color coding similar ideas
- Using labels or pictorial representation on materials, tools and equipment.
- Providing pictures and graphics to go with written material
- Summarizing procedures in to simple steps.

2.2.4 Learning by doing

This involves learning through demonstration, discovery and practice. Verbal and physical guidance may be necessary during demonstration. The trainee with disability should also be allowed enough time to practice and figure out or discover different ways of accomplishing the task successfully with minimal support.

2.2.5 Behaviour Management Strategies

Some trainees with disabilities may have inappropriate behaviours that could affect their work performance. During training it is necessary to decrease these behaviours through the appropriate behaviour modification strategies.

2.2.6 Individualized training

Trainees of disabilities may require individualized attention during training. There is therefore a need to reduce the trainee: trainer ratio to enable the trainer to provide individualized support. However, the trainer needs to gradually decrease the amount of support to enhance mastery and independence in performing the tasks.

2.2.7 Reasonable Accommodation in Assessment

Learners with disabilities should receive assessment modifications to ensure they are fully accommodating in the entire training process.

Examples of modifications include:

- Environmental modification such as changing the location to minimize distractions or maximize lighting; change height or size of work surfaces; use of prosthetic devices and other assistive devices.
- modification of assessment Formats for example use of large prints, colour codes, use of readers or recorded audios, verbal presentation of assessment tasks.
- Practical assessment for example concentrating on performance of the task and not theory.
- Pacing for example allowing extra time to complete tasks, giving breaks during the assessment period and rescheduling assessment sessions on need basis.

2.3 Strategies for Accommodating Trainees with Specific Disabilities

The following are examples of accommodations that trainees with a certain type of disability may require to fully participate in the training process.

2.3.1 Strategies to accommodate trainees with visual impairments

- Provide notes ahead of time, preferably in an electronic format if the trainee has appropriate equipment to use such formats
- Provide recorded or brailled notes
- Provide a braille note taking device
- Use large print notes for those with low-vision
- Explain what is being shown on visual presentations such as chalk boards or computer projections
- Explain verbally what is being demonstrated
- Use the same sequence when presenting instructions and directions

2.3.2 Strategies to accommodate trainees who have intellectual disability

- Use simple language and words
- Illustrate concepts with pictures or other visual representations
- Present tasks in simple logical sequence
- Break down tasks into manageable components and ensure mastery of one component before moving to the next.

2.3.3 Strategies to accommodate trainees who have hearing impairment (completely or partially deaf)

- Use writing, if your trainees can read
- Use sign language, if you and the trainee know sign language or if you can get an interpreter
- If you have a student who is able to lip read, make sure they can see you
- Incorporate pictures and drawings to facilitate understanding
- Use captioned videos
- Repeat information when talking to a trainee who is hard of hearing
- Do not use exaggerated lip movements
- Do not talk with your hand in front of your mouth.
- Maintain eye contact with the trainees, even if a sign language interpreter is facilitating the communication
- Minimize or eliminate irrelevant visible and audible distractions when talking to the trainee.

2.3.4 Strategies to accommodate physical impairments

- Determine if the trainee can get to where he or she needs to get to on time
- Determine if the trainee can navigate easily, safely, and independently to where he or she needs to go
- Determine necessary changes in the physical environment so he or she can use it and can do so safely
- Determine what the trainee needs in order to participate in activities and make appropriate adaptations to instructional resources
- Visuals should be in large print and well-spaced between words and lines
- Provide physical assistance where necessary
- Provide necessary assistive devices.

There are many other types of disabilities that could require accommodations depending on the individual and the training situation. For example, someone with an amputation of a limb or finger, many require some adaptations to a piece of equipment to operate it properly and easily. An individual with respiratory problems might need to avoid certain types of environments that will affect their breathing ability. It is important to discuss specific needs with the individuals to determine the needed adjustments or accommodations.

3.0 HAIRDRESSING AND BEAUTY THERAPY

Introduction

This course is intended to equip the trainee with knowledge, skills, attitudes and values for professional hairdressing and beauty therapy. The trainee will acquire skills in hair dressing and beauty therapy as a means of earning income. The trainee is also expected to develop positive attitude towards personal grooming and beauty.

3.1 Hairdressing

The following are the skill areas in hairdressing: Hair shampooing and conditioning, hair setting and styling, hair colouring, hair braiding and weaving, Hair relaxing, hair cutting and shaving.

Hair shampooing and conditioning

Introduction

The learning materials and equipment that the trainer should guide the learner with disability to identify and manipulate for hair shampooing and conditioning include; Shampoo, Conditioner, Water, Basin/sink, Water heater, towels, aprons, comb, drier, gloves, disinfectant and dummy in preparation for hair shampooing and conditioning. Guide the trainees to manipulate the materials and equipment used for hair shampooing and conditioning. This can be done by seeing, hearing, smelling, touching, feeling, tasting, using residual vision and residual hearing. The trainer can also describe and Show a video (with captioning if you have trainees who are deaf or hard of hearing and (with audio description if blind and visually impaired trainees are present) and ask questions. Learners with visual impairment and those who are deaf blind should be given orientation on the material and equipment by touching them to feel their features, parts and sharp edges. Learners with intellectual disability and those with autism could be guided to identify the materials and equipment by relating them to their use. Learners with physical impairment may be supported to use alternative functional parts of the body or use prosthesis or provide physical assistance to manipulate the materials and equipment while those with hearing impairment should be guided to use the correct signs for the items.

Practical activities

Guide the trainee in hair shampooing using a dummy as follows:

- i. Checking to ensure the working environment is disability friendly. Learners with visual impairment and those who are deaf blind would be guided to walk around the place to experience the work environment accompanied by verbal instruction. Learners with physical impairment may also be supported to use assistive devices to move around the place. Learner with intellectual disabili-

ty and those with autism should be given explanation on what is required for the place.

- ii. Work with the trainee through the following steps while observing safety; soak hair, massage the scalp, apply shampoo, rinse hair, apply conditioner while observing safety measures and rinse the hair again. Trainer can use purposive pairing so that trainees can benefit from each other. Use cueing to give trainees information they can use to do the right thing as they continue with practice and at the same time keep repeating the tasks. Trainees with intellectual disabilities may need to learn one step at a time.
- iii. Guide the trainee to dry hair by using towel or a dryer through the following steps
- iv. Guide the trainee to reach out for the towel, hold the towel appropriately, dry the hair and place the used towel at the appropriate point.

If using a drier work with the trainee while observing safety to set the drier heat and time, place a seat next to the drier for the client or self to sit.

Assessment

The trainer may assess the trainee's ability to:

- Identify materials and equipment used in hair shampooing
- Carry out specific tasks involved in hair shampooing
- Answer oral and signed questions.

Hair Setting and Styling

Introduction

The learning materials, tools and equipment that the trainer should guide the trainee with disability to identify for hair setting and styling include: Tongs, hair oil, hair dyer, hair spray, mirror, disinfectant, apron, towel, gloves, dummy in preparation for hair setting and styling. Guide the trainees to manipulate the materials and equipment used for hair setting and styling. This can be done by seeing, hearing, smelling, touching, feeling, tasting, using residual vision and residual hearing. The trainer can also describe and Show a video (with captioning if you have trainees who are deaf or hard of hearing and (with audio description if blind and visually impaired trainees are present) and ask questions. Learners with visual impairment and those who are deaf blind should be given orientation on the material and equipment by touching them to feel their features, parts and sharp edges. Learners with intellectual disability and those with autism could be guided to identify the materials and equipment by relating them to their use. Learners with physical impairment may be supported to use alternative functional parts of the body or use prosthesis or provide physical assistance to manipulate the materials and equipment while those with hearing im-

pairment should be guided to use the correct signs for the items.

Practical activities

- i. Guide the trainee to choose the size of rollers depending on the size of curls required. Guide the trainee to manipulate the rollers to identify key features and parts. Learners with blindness and those who are deafblind should touch and feel the rollers. Learners with hearing impairment should be guided to identify the rollers by using the correct signs. Guide learners with physical impairment to use the functional part of the body or assistive devices to manipulate the items.
- ii. Support the trainee to Prepare hair for setting with a styling product to hold the curls once they are set.
- iii. Work with the trainee to section hair into 3 sections, 1 on top and 1 on each side of your head, leaving the back hair loose and start placing curlers in 1 of these sections at a time.
- iv. Guide the trainee to fill a spray bottle with water and keep the hair wet as you are rolling it.
- v. Work with the trainee to begin rolling the topmost section of hair. Split each of the 3 sections into smaller sections about the width of your roller and no more than 2 inches
- vi. Guide the trainee to choose the direction of the curls. Place the roller on whichever side you've chosen, and wrap from there.
- vii. Guide the trainee to roll the hair on the sides of the head. Start on either side of the top and put the hair in rollers.
- viii. Guide the Divide the back area into 3 sections, if it is not already done. Roll from the top of each section of hair to the bottom.
- ix. Work with the trainee to ensure rolled hair is to completely dry. Client to Sit under a hair dryer for 30 minutes before checking to see if the hair is completely dry. Remove 1 roller first to be sure it is dry. If not, add 10 to 15 minutes with the hair dryer before removing the rollers.
- x. Work with the trainee to remove the rollers 1 roller at a time when hair is completely dry. Work slowly to avoid tangling of hair.
- xi. Guide the trainee to style curled hair once the rollers are out, brush out the curls to loosen carefully not to overdo it, since curls should keep their shape for 2 or 3 strokes, but any more might cause them to fall out.
- xii. Guide the trainee to finish hairstyle once the desired curls and volume are reached.
- xiii. Work with the trainee to set the style once everything looks as desired, complete setting style by applying hair spray

Assessment

The trainer may assess the trainee's ability to:

- Identify materials and equipment used in hair setting and styling
- Carry out specific tasks involved in hair setting and styling
- Answer oral and signed questions.
- Project work

Hair colouring

Introduction

The learning materials, tools and equipment that the trainer should guide the trainee with disability to identify for hair colouring include: Combs, hair colours, hair dyes, hair dye, mirror, disinfectant, apron, towel, gloves, dummy, brush, mixing containers, water and basin/sink. Guide the trainees to manipulate the materials and equipment used for hair colouring. This can be done by seeing, hearing, smelling, touching, feeling, tasting, using residual vision and residual hearing. The trainer can also describe and Show a video (with captioning if you have trainees who are deaf or hard of hearing and (with audio description if blind and visually impaired trainees are present) and ask questions. Learners with visual impairment and those who are deaf blind should be given orientation on the material and equipment by touching them to feel their features, parts and sharp edges. Learners with intellectual disability and those with autism could be guided to identify the materials and equipment by relating them to their use. Learners with physical impairment may be supported to use alternative functional parts of the body or use prosthesis or provide physical assistance to manipulate the materials and equipment while those with hearing impairment should be guided to use the correct signs for the items.

Practical activities

- (i) Work with the trainee to mix colours in readiness for hair colouring while observing safety precautions
- (ii) Guide the trainee to apply colour on the hair
- (iii) Guide the trainee to wash and dry hair

Assessment

- Identify materials, tools and equipment used in hair colouring
- Carry out specific tasks involved in hair colouring
- Answer oral or signed questions

Hair braiding and weaving

Introduction

The learning materials, tools and equipment that the trainer should guide the trainee with disability to identify for hair braiding and weaving: Combs, braids, weaves,

wigs, thread, needle, hair extensions, hair bands, hair pins, water, basin/sink, water heater, mirror, brush, apron, towel and a dummy. Guide the trainees to manipulate the materials and equipment used for hair braiding and weaving. This can be done by seeing, hearing, smelling, touching, feeling, tasting, using residual vision and residual hearing. The trainer can also describe and Show a video (with captioning if you have trainees who are deaf or hard of hearing and (with audio description if blind and visually impaired trainees are present) and ask questions. Learners with visual impairment and those who are deaf blind should be given orientation on the material and equipment by touching them to feel their features, parts and sharp edges. Learners with intellectual disability and those with autism could be guided to identify the materials and equipment by relating them to their use. Learners with physical impairment may be supported to use alternative functional parts of the body or use prosthesis or provide physical assistance to manipulate the materials and equipment while those with hearing impairment should be guided to use the correct signs for the items.

Practical activities

- (i) Work with the trainee to get the appropriate type of braids and weaves. Guide the trainee to manipulate the rollers to identify key features and parts. Learners with blindness and those who are deafblind should touch and feel the braids and weaves. Learners with hearing impairment should be guided to identify the braids and weaves by using the correct signs. Learners with physical impairment may be supported to use alternative functional parts of the body or use prosthesis or provide physical assistance to manipulate the materials and equipment
- (ii) Guide the trainee to prepare the braids and weaves in readiness for braiding and weaving. Trainees with visual impairment and those who are deaf blind should be given orientation on braid and weaves by touching them to feel their features and parts. Learners with intellectual disability and those with autism could be guided to identify the braids and weaves by relating them to their use.
- (iii) Work with the trainee in hair braiding and weaving
- (iv) Guide the trainee to finish hair braiding and weaving by applying oil, brushing and styling. Trainer can pair trainees to benefit from each other. Use cueing to give trainees information they can use to do the right thing as they continue with practice and at the same time keep repeating the tasks. Provide physical assistance to those who may need it. Use rewards to motivate trainees for every step accomplished. Trainees with intellectual disabilities may need to learn one step at a time.

Assessment

The trainer to assess the learner's ability to:

- Identify materials, tools and equipment used in hair braiding and weav-

ing

- Carry out specific tasks involved in hair braiding and weaving
- Answer oral or signed questions
- Carry out project work.
- Hair Relaxing

Introduction

The learning materials and equipment that the trainer should guide the trainee with disability to identify for hair relaxing which include: Comb, hair relaxing chemical, blow dryer, hot combs, hair oil, hair lotion, hair spray, disinfectant, body powder, gloves, rollers, hair bands, shampoo, hair conditioner, hair pins, water, basin/sink, water heater, mirror, apron, towel, dummy, source of heat in preparation for hair relaxing (Perm, curly kit, straight kit, blow out, blow drying, use of hot combs). Guide the trainees to manipulate the materials and equipment used for hair relaxing. This can be done by seeing, hearing, smelling, touching, feeling, tasting, using residual vision and residual hearing. The trainer can also describe and Show a video (with captioning if you have trainees who are deaf or hard of hearing and (with audio description if blind and visually impaired trainees are present) and ask questions. Learners with visual impairment and those who are deaf blind should be given orientation on the material and equipment by touching them to feel their features, parts and sharp edges. Learners with intellectual disability and those with autism could be guided to identify the materials and equipment by relating them to their use. Learners with physical impairment may be supported to use alternative functional parts of the body or use prosthesis or provide physical assistance to manipulate the materials and equipment while those with hearing impairment should be guided to use the correct signs for the items.

Practical activities

- i. Guide the trainee to comb hair
- ii. Work with the trainee to apply a relaxing chemical while observing safety precaution to self and others
- iii. Guide the trainee to wash hair
- iv. Work with the trainee to set a drier for drying hair or use a blow drier
- v. Guide the trainee to apply hair oil
- vi. Guide the trainee to style hair and apply hair spray

Trainees with intellectual disabilities may need to learn one step at a time.

Assessment

The trainer to assess the learner's ability to:

- Identify materials and equipment used in hair relaxing
- Carry out specific tasks involved in hair relaxing
- Answer oral or signed questions

Hair cutting and shaving

Introduction

The learning materials and equipment that the trainer should guide the trainee with disability to identify for hair cutting and shaving which include: Scissors, adjustable blade clippers, detachable blade clippers, trimmers, shears, hairstyling razors, clipper combs, mirror, after shave lotion, shave cream, pre-shave oil, shampoo, antiseptic, water, soap, towel, combs, body powder, gloves, basin/sink, water heater, apron. Guide the trainees to manipulate the materials and equipment used for hair cutting and shaving. This can be done by seeing, hearing, smelling, touching, feeling, tasting, using residual vision and residual hearing. The trainer can also describe and Show a video (with captioning if you have trainees who are deaf or hard of hearing and (with audio description if blind and visually impaired trainees are present) and ask questions. Learners with visual impairment and those who are deaf blind should be given orientation on the material and equipment by touching them to feel their features, parts and sharp edges. Learners with intellectual disability and those with autism could be guided to identify the materials and equipment by relating them to their use. Learners with physical impairment may be supported to use alternative functional parts of the body or use prosthesis or provide physical assistance to manipulate the materials and equipment while those with hearing impairment should be guided to use the correct signs for the items.

Practical activities

Guide the trainee to apply pre shave oil or cream

- (i) Work with the trainee to hold blade clippers appropriately. Trainees with blindness and those with deaf blindness could hold to feel the size, shape and features of the blade clippers Trainees with physical impairment may be supported to use alternative functional parts of the body or use prosthesis or provide physical assistance to manipulate the equipment while those with hearing impairment should be guided to use the correct sign for the item. Guide trainees to observe personal and safety for others when handling materials and equipment for hair cutting and shaving, in the barber shop to avoid any injury.
- (ii) Work with the trainee to cut or shave. Trainer can pair trainees with those without disability to benefit from each other. Trainees with blindness and those who are deafblind could work with sighted peers. Provide physical assistance to those who may need it.
- (iii) Guide the trainee to wash hair after cut or shave. Use cueing to give trainees

- information they can use to do the right thing as they continue with practice
- (iv) Guide the trainee to dry hair after washing using a towel
 - (v) Guide the trainee to apply oil and comb hair after cut or shave.

Assessment

The trainer to assess the learner's ability to:

- Identify materials equipment used in hair cutting and shaving
- Carry out specific tasks involved in hair cutting and shaving
- Answer oral or signed questions

3.2 Beauty Therapy

The following are the skill areas in beauty therapy;

Manicure and pedicure, facial treatment and facial make –up, Body massage and salon management.

Manicure and Pedicure

Introduction

The learning tools, materials and equipment that the trainer should guide the trainee with disability to identify for hair cutting and shaving which include: Scrubbing brush, nail cutter, mirror, pillow, cuticle removers, nail files, cutex, haena, shampoo, body lotion, antiseptic, water, soap, towel, gloves, basin/sink, water heater, apron, cotton wool, scissors, pumice stone, razor blade and hair remover. Guide the trainees to manipulate the tools, materials and equipment used for Manicure and Pedicure. This can be done by seeing, hearing, smelling, touching, feeling, tasting, using residual vision and residual hearing. The trainer can also describe and Show a video (with captioning if you have trainees who are deaf or hard of hearing and (with audio description if blind and visually impaired trainees are present) and ask questions. Learners with visual impairment and those who are deaf blind should be given orientation on the tools, material and equipment by touching them to feel their features, parts and sharp edges. Learners with intellectual disability and those with autism could be guided to identify the materials and equipment by relating them to their use. Learners with physical impairment may be supported to use alternative functional parts of the body or use prosthesis or provide physical assistance to manipulate the materials and equipment while those with hearing impairment should be guided to use the correct signs for the items.

Practical activities

- (i) Trainer to ensure the working environment is disability friendly. Learners with visual impairment and those who are deaf blind would be guided to walk around the place to experience the work environment accompanied by verbal instruc-

tion. Learners with physical impairment may also be supported to use assistive devices to move around the place. Learner with intellectual disability and those with autism should be given explanation on what is required for the place.

- (ii) Guide the trainee removing cutex using a nail remover
- (iii) Work with the trainee in cutting nails and filing. Trainer can pair trainees to benefit from each other. Use cueing to give trainees information they can use to do the right thing as they continue with practice and at the same time keep repeating the tasks. guide the trainees with disabilities to observe personal and safety for others when handling materials and equipment for manicure and pedicure, in the salon to avoid any injury.
- (iv) Work with the trainee to set the water heater and placing feet in water heat
- (v) Guide the trainee in drying and applying lotion. Trainees with intellectual disabilities may need to learn one step at a time.

Assessment

The trainer to assess learner's ability to:

- a) Identify materials tool and equipment used in Manicure and Pedicure
- b) Carry out specific activities involved in Manicure and Pedicure Answer oral or signed questions
- c) Carry out project work

Facial Treatment and Facial Make-up

Introduction

The learning tools, materials and equipment that the trainer should guide the trainee with disability to identify Facial treatment and Facial make-up which include: Eye pencils, razor blades, tweezers, eye shades, face powder, lip sticks, face creams, face lotions, facial masks, facial mask brush, powder brush, facial cleansers, concealer, foundation, mascara, sun screen lotions/cream, moisturizing creams, facial cleansing sponge, mirror, pillow, antiseptic, water, soap, towel, gloves, basin/sink, water heater, apron, cotton wool and scissors. Guide the trainees to manipulate the tools, materials and equipment used for Facial treatment and Facial make-up. This can be done by seeing, hearing, smelling, touching, feeling, tasting, using residual vision and residual hearing. The trainer can also describe and Show a video (with captioning if you have trainees who are deaf or hard of hearing and (with audio description if blind and visually impaired trainees are present) and ask questions. Learners with visual impairment and those who are deaf blind should be given orientation on the tools, material and equipment by touching them to feel their features, parts and sharp edges. Learners with intellectual disability and those with autism could be guided to identify the materials and equipment by relating them to their use. Learners with physical impairment may be supported to use alternative functional parts of the body or use prosthesis or provide physical assistance to manipulate the materials and

equipment while those with hearing impairment should be guided to use the correct signs for the items.

Practical activities

- (i) Guide the trainee to identify different skin types which include; Normal skin, Dry skin, Oily skin, Combination skin and Sensitive skin
- (ii) Guide the trainees in purposive pairs to carry out Facial treatment and Facial make-up through the following steps: Guide trainees to observe personal and safety for others when handling materials and equipment for facial make up , in the salon to avoid any injury. Trainees with intellectual disabilities may need to learn one step at a time.

- Cleansing face
- exfoliate face
- Massage face
- Take steam
- Mask it
- Get toning
- Moisturize

Assessment

The trainer to assess learner's ability to:

- Identify materials tool and equipment used in Facial treatment and Facial make-up
- Carry out specific activities involved in Facial treatment and Facial make-up
- Answer oral or signed questions
- Carry out project work

Body Massage

Introduction

The learning tools, materials and equipment that the trainer should guide the trainee with disability to identify body massage which include: Massage oils, Massage table/bed, Massage chair, Massage stone, Lubricants, Vibrators, Knobbers, Bongers, Thumpers, Mirror, Pillow, Antiseptic, Water, Soap, Towels, Basin/sink/shower, Water heater and Apron. Guide trainees to manipulate the tools, materials and equipment used for body massage. This can be done by seeing, hearing, smelling, touching, feeling, tasting, using residual vision and residual hearing. The trainer can also

describe and Show a video (with captioning if you have trainees who are deaf or hard of hearing and (with audio description if blind and visually impaired trainees are present) and ask questions. Learners with visual impairment and those who are deaf blind should be given orientation on the tools, material and equipment by touching them to feel their features, parts and sharp edges. Learners with intellectual disability and those with autism could be guided to identify the materials and equipment by relating them to their use.

Learners with physical impairment may be supported to use alternative functional parts of the body or use prosthesis or provide physical assistance to manipulate the materials and equipment while those with hearing impairment should be guided to use the correct signs for the items.

Practical activities

- (i) Guide the trainees to have the client on the massage table/bed
- (ii) Guide the trainee to apply massage oil
- (iii) Work with the trainees in purposive pairs in massaging through the following steps: Trainees with intellectual disabilities may need to learn one step at a time.
 - Circular stroking movements.
 - Kneading movements.
 - Friction-Rubbing Strokes.
 - Vibration-Shaking movements to loosen the body.
 - Tapping.

Assessment

The trainer to assess learner's ability to:

- a) Identify materials tool and equipment used in body massage
- b) Carry out specific activities involved in body massage
- c) Answer oral or signed questions
- d) Carry out project work

Salon management

The learning materials and equipment that the trainer should guide the trainee with disability to identify saloon management which include: Seats, sinks, basins, towels, blow dryers, water heater, assorted combs, assorted brushes, dryer, lockable cabinet, scissors, assorted rollers, hair chemicals, shampoos, weaves, braids, blades, lotions, oils, creams, make-ups. Guide the trainees to manipulate the materials and equipment used for salon management. This can be done by seeing, hearing, smelling, touching, feeling, tasting, using residual vision and residual hearing. The trainer can

also describe and Show a video (with captioning if you have trainees who are deaf or hard of hearing and (with audio description if blind and visually impaired trainees are present) and ask questions. Learners with visual impairment and those who are deaf blind should be given orientation on the tools, material and equipment by touching them to feel their features, parts and sharp edges. Learners with intellectual disability and those with autism could be guided to identify the materials and equipment by relating them to their use. Learners with physical impairment may be supported to use alternative functional parts of the body or use prosthesis or provide physical assistance to manipulate the materials and equipment while those with hearing impairment should be guided to use the correct signs for the items.

Practical activities

- (i) Guide the trainee to identify the different ways of acquiring materials for starting a salon which include:
 - Purchasing
 - Borrowing,
 - Donations

- (ii) Guide trainees in pairs to practice on how to Purchase materials, tools and equipment for starting a salon by Borrowing and receiving
- (iii) Guide trainees to brainstorm on the importance of serving clients appropriately
- (iv) Guide trainees to discuss on the importance of managing staff in the saloon appropriately
- (v) Guide trainees to prepare a price list for services according to;
 - Lighting
 - water
 - Materials used
 - Nature of the service required
 - Equipment and tools
 - Time spent

- (vi) Work with trainees in pairs on how to keep daily records on the following:
 - Stock
 - Daily purchase
 - Daily income
 - Staff wages

- (vii) Guide trainees to practice cleanliness in the salon; Surfaces, Tools, materials and equipment, Staff
- (viii) Guide trainees to practice proper waste disposal by:
- Use of dust bins
 - Appropriate disposal
- (ix) Work with trainees in pairs to practice different ways of making the salon attractive to customers by use of:
- attractive paints
 - attractive business name
 - charts and drawings
 - TV/radio/music for entertainment.
- (x) Work with trainees on Caring for materials, tools and equipment used in a salon through:
- Safe storage
 - Locking to ensure security
 - Appropriate use of tools and equipment
 - Repair and maintenance.

Assessment

The trainer to assess learner's ability to:

- Identify materials tool and equipment used in salon management
- Carry out specific activities involved in salon management
- Answer oral or signed questions
- Carry out project work

4.0 HORTICULTURAL FARMING

Horticulture is also called market farming. It is the growing of flowers, vegetables and fruits mainly for sale. Horticultural farms are small and carefully cultivated. Farmers specialize in growing one main crop. This is because the land is very valuable and farmers want to make maximum use of it. Horticulturists apply knowledge, skills and technologies to grow intensively produced plants.

Persons with disabilities can benefit greatly by learning about horticulture. Horticulture is a vocational skill which is a source of income both in formal employment like hotel and food industries as well in self-business enterprises.

This handbook is intended to equip the trainer with competencies in adapting trainee assessment and learning resources to accommodate trainees with disabilities in the vocational and technical training

Areas covered

This handbook will focus on the following areas in horticulture.

1. Choice and adaptation of materials, tools and equipment used in horticulture.
2. Horticulture and the activities involved.
3. Assessment

Choice and adaptation of materials, tools and equipment used in horticulture.

When choosing horticulture activities, materials, tools and equipment to be used by trainees with disabilities, consider the following:

- a) Clear instructions on how to assemble, use and maintain tools for horticulture activities.
- b) Safety measures to be put in place for self and others in use of tools materials for horticulture activities
- c) Trainees with disabilities to be given opportunity to improvise tools, materials and equipment where necessary in horticulture activities.
- d) Tools to be adapted for manageable use while addressing specific needs for trainees with disabilities.

Horticulture Activities

Horticulture activities can be very interesting for trainees with disabilities only if they get the necessary support through reasonable accommodation strategies.

The trainer should use a variety of strategies to enhance acquisition and application

of the horticultural skills. The following steps may be used to introduce trainees with disabilities to the horticulture activities.

- (i) break the processes into manageable tasks. The tasks include:
 - State the terminologies used in horticulture
 - Name the tools, materials and equipment used in horticulture
 - Identify the tools, materials and equipment used in horticulture. Trainees with visual impairment and those who are deafblind should be guided to familiarize themselves with the tools, materials and equipment through manipulation.
 - Identify crops grown in horticulture
 - Make a seedbed with trainers guidance and ensuring safety for all learners as they work with tools and equipment. Trainees with visual impairment and those with deafblindness should be paired with sighted peers.
- (ii) Use multi- multi-sensory approach to guide the trainee in identifying horticulture activities, tools, materials and equipment through seeing, hearing, touching and smelling. Provide trainees with horticultural activities materials to manipulate. Always allow trainees to use the most preferred sensory modality.
- (iii) Explain each step at a time keeping within the pace of individual trainees. You may use realia or videos as you discuss each step. Videos should be captioned for trainees who are deaf. For trainees with visual impairment, video should be accompanied by audio description.
- (iv) Demonstrate each step allowing trainees to participate in the demonstration individually. Ensure the classroom management accommodates trainees with low vision and those who are hard of hearing to enhance their participation.
- (v) Ensure that preceding skills are mastered by trainees before introducing new ones.
- (vi) After demonstrating a specific skill adequately, let the trainees try it out. Give physical and verbal prompts where necessary.
- (vii) Once all the skills are mastered, give the trainees the opportunity to practice what they have learnt.
- (viii) Trainees may use the learnt skills in the horticultural activities for commercial use. Some trainees especially those with intellectual disabilities may require individual attention throughout the training session.

Greenhouse construction

Greenhouse technology is the unique technique of providing favorable conditions to the crops. This technology has just one purpose which is to provide and maintain a growing environment that will result in optimum crop production at maximum yield.

Persons with disabilities can benefit greatly by learning about greenhouse construction. Green house construction is a vocational skill which is a source of income both in formal employment like hotel and food industries as well in self-business enterprises.

Green house construction process

The trainer should use a variety of strategies to enhance acquisition and application of greenhouse construction skills. The following steps may be used to introduce trainees with disabilities to the Green house construction processes.

- i. Break the processes into manageable tasks. The tasks include:
 - name materials, tools and equipment used in greenhouse construction
 - identify materials, tools and equipment used in greenhouse construction
 - state different types of greenhouse
 - prepare materials tools and equipment for construction of the green house
- construct the green house.
 - ii. Use a multi- sensory approach to guide the trainee in identifying greenhouse construction tools materials and equipment through seeing, hearing, touching and smelling. Provide trainees with Greenhouse construction materials to manipulate. Always allow trainees to use the most preferred sensory modality.
 - iii. Explain each step at a time keeping within the pace of individual trainees. You may use realia or videos as you discuss each step. Videos should be captioned for trainees who are deaf. For trainees with visual impairment, video should be accompanied by audio description
 - iv. Demonstrate each step allowing trainees to participate in the demonstration individually. Ensure the classroom management accommodates trainees with low vision and those who are hard of hearing to enhance their participation.
 - v. Ensure that preceding skills are mastered by trainees before introducing new ones.
 - vi. After demonstrating a specific skill adequately, let the trainees try it out. Give physical and verbal prompts where necessary.
 - vii. Once all the skills are mastered, give the trainees an opportunity to practice what they have learnt.
 - viii. Trainees may use the learnt skills in the construction of greenhouse for commercial use. Some trainees especially those with intellectual disabilities may require individual attention and assessment throughout the training session

Carrot growing

Carrots are easy to grow as long as they are planted in loose, sandy soils during the cooler periods of the growing season. Depending on the variety and the local growing conditions, carrots may take 2-4 months to mature.

Persons with disabilities can benefit greatly by learning about carrot growing. Carrot growing is a vocational skill which is a source of income both in formal employment like hotel and food industries as well in self-business enterprises.

Carrot growing process can be very interesting for trainees with disabilities only if they get the necessary support through reasonable accommodation strategies.

The trainer should use a variety of strategies to enhance acquisition and application of carrot growing skills. The following steps may be used to introduce trainees with disabilities to the carrot growing processes.

(i) break the processes into manageable tasks.

The tasks include:

- prepare a seedbed appropriately
- apply appropriate amount of fertilizer to the drills
- plant seeds into rows 20 - 30 cm apart
- thin carrots seedlings after 2 weeks of germination
- water the carrot seedlings appropriately
- weed the carrots
- top dress the crop
- practice procedures of controlling pests.
- harvest when mature.
- store carrots correctly
- sell carrots to customers

(ii) Use multi- multi-sensory approach to guide the trainee in identifying carrot growing tools materials and equipment through seeing, hearing, touching and smelling. Provide trainees with carrot growing materials to manipulate. Always allow trainees to use the most preferred sensory modality.

(iii) Explain each step at a time keeping within the pace of individual trainees. You may use realia or videos as you discuss each step. Videos should be captioned for trainees who are deaf. For trainees with visual impairment, video should be accompanied by audio description.

(iv) Demonstrate each step allowing trainees to participate in the demonstration individually. Ensure the classroom management accommodates trainees with low vision and those who are hard of hearing to enhance their participation.

- (v) Ensure that preceding skills are mastered by trainees before introducing new ones.
- (vi) After demonstrating a specific skill adequately, let the trainees try it out. Give physical and verbal prompts where necessary.
- (vii) Once all the skills are mastered, give the trainees an opportunity to practice what they have learnt.
- (viii) Trainees may use the learnt skills to grow carrots for personal use in the kitchen before they move to a more complicated skill of growing it for sale. Some trainees especially those with intellectual disabilities may require individual attention and assessment throughout the training session.

Kale growing

Kale is a leafy vegetable that is usually grouped in the cooking greens category. It is more similar to cabbage except that its leaves do not form a head. The leaves come from a central stem that elongates as the plant grows. Kale plants can be quite ornamental, with textured and curly leaves that come in shades of green, purple and more. Kale is easy to grow from seeds either directly planted in the garden soil or started indoors and then transplanted. It also grows well in raised garden beds. It can be grown as a cut- and- come- again vegetables, meaning you harvest what you need while the plant continues to grow.

The kale growing processes can be very exciting for trainees with disabilities only if they get the desired support through reasonable accommodation strategies. The trainer should use a variety of strategies to enhance acquisition and application of kale growing skills. The following steps may be used to introduce trainees with disabilities to the kale growing processes.

- i. Break the processes into manageable tasks. The tasks include:
 - Prepare a seedbed for planting kales seeds
 - Plant Kale seeds in the seed bed
 - Water the seedbed as required
 - Weed the kale plants
 - Transplant the seedlings when ready
 - Control weeds, pests, and diseases.
 - Harvest when ready
 - Store appropriately
 - Sell kales to customers
- ii. Use multi- multi-sensory approach to guide the trainee in identifying kale growing tools materials and equipment through seeing, hearing, touching and

- smelling. Provide trainees with kale growing materials to manipulate. Always allow trainees to use the most preferred sensory modality.
- iii. Explain each step at a time keeping within the pace of individual trainees. You may use realia or videos as you discuss each step. Videos should be captioned for trainees who are deaf. For trainees with visual impairment, video should be accompanied by audio description.
 - iv. Demonstrate each step allowing trainees to participate in the demonstration individually. Ensure the classroom management accommodates trainees with low vision and those who are hard of hearing to enhance their participation.
 - v. Ensure that preceding skills are mastered by trainees before introducing new ones.
 - vi. After demonstrating a specific skill adequately, let the trainees try it out. Give physical and verbal prompts where necessary.
 - vii. Once all the skills are mastered, give the trainees an opportunity to practice what they have learnt.
 - viii. Trainees may use the learnt skills to grow kale for personal use in the kitchen before they move to a more complicated skill of growing it for sale. Some trainees especially those with intellectual disabilities may require individual attention and assessment throughout the training session.

Pepper growing

The bell pepper (also known as sweet pepper, or capsicum) is a plant that produces fruits in different colors including red, yellow, orange, green, white and purple. They are commonly used as vegetable ingredients or side dishes.

Persons with disabilities can immensely benefit by learning about pepper growing. Being a vocational skill, pepper growing can be a source of income both in formal employment like hotel and food industries as well in self-business enterprises.

The trainer should use a variety of strategies to enhance acquisition and application of pepper growing skills. The following steps may be used to introduce trainees with disabilities to the pepper growing processes.

- i. Break the processes into manageable tasks. The tasks include:
 - identify different types of pepper
 - prepare a seedbed for pepper planting
 - Plant pepper seeds in the seed bed.
 - Water regularly
- Prepare land well before transplanting the seedlings
 - transplant the seedlings

- protect the plants from wind and heat
 - apply fertilizer and manure appropriately
 - weed the pepper plants
 - control pests, diseases and fungi
 - prune pepper plants
 - train the pepper plants appropriately
 - harvest pepper
 - store and preserve pepper appropriately
 - sell pepper to customers
- ii. Use a multi- sensory approach to guide the trainee in identifying pepper growing tools, materials and equipment through seeing, hearing, touching and smelling. Provide trainees with pepper growing materials to manipulate. Always allow trainees to use the most preferred sensory modality.
 - iii. Explain each step at a time keeping within the pace of individual trainees. You may use realia or videos as you discuss each step. Videos should be captioned for trainees who are deaf. For trainees with visual impairment, video should be accompanied by audio description.
 - iv. Demonstrate each step allowing trainees to participate in the demonstration individually. Ensure the classroom management accommodates trainees with low vision and those who are hard of hearing to enhance their participation.
 - v. Ensure that preceding skills are mastered by trainees before introducing new ones.
 - vi. After demonstrating a specific skill adequately, let the trainees try it out. Give physical and verbal prompts where necessary.
 - vii. Once all the skills are mastered, give the trainees the opportunity to practice what they have learnt.
 - viii. Trainees may use the learnt skills to grow pepper for personal use in the kitchen before they move to a more complicated skill of growing it for sale. Some trainees especially those with intellectual disabilities may require individual attention and assessment throughout the training session.

Lettuce growing

Lettuce is the most widely planted salad vegetable. Many varieties reach maturity in as little as thirty days and some can be harvested much earlier as microgreens.

Persons with disabilities can benefit greatly by learning about lettuce growing. Lettuce growing is a vocational skill which is a source of income both in formal employment like hotel and food industries as well in self-business enterprises.

The Lettuce growing process can be very exciting for trainees with disabilities only if they get the desired support through reasonable accommodation strategies. The

trainer should use a variety of strategies to enhance acquisition and application of lettuce growing skills. The following steps may be used to introduce trainees with disabilities to the lettuce growing processes.

- i. Break the processes into manageable tasks. The tasks include:
 - prepare a seedbed for planting lettuce seeds
 - plant lettuce seeds in the seedbed
 - water regularly
 - prepare the land for transplanting lettuce seedlings
 - transplant the lettuce seedlings
 - water seedlings regularly
 - control weed, pests and diseases
 - harvest at maturity
 - dispatch to market immediately
- ii. Use multi- multi-sensory approach to guide the trainee in identifying lettuce growing tools materials and equipment through seeing, hearing, touching and smelling. Provide trainees with lettuce growing materials to manipulate. Always allow trainees to use the most preferred sensory modality.
- iii. Explain each step at a time keeping within the pace of individual trainees. You may use realia or videos as you discuss each step. Videos should be captioned for trainees who are deaf. For trainees with visual impairment, video should be accompanied by audio description.
- iv. Demonstrate each step allowing trainees to participate in the demonstration individually. Ensure the classroom management accommodates trainees with low vision and those who are hard of hearing to enhance their participation
- v. Ensure that preceding skills are mastered by trainees before introducing new ones.
- vi. After demonstrating a specific skill adequately, let the trainees try it out. Give physical and verbal prompts where necessary.
- vii. Once all the skills are mastered, give the trainees an opportunity to practice what they have learnt.
- viii. Trainees may use the learnt skills to grow lettuce for personal use in the kitchen before they move to a more complicated skill of growing it for sale. Some trainees especially those with intellectual disabilities may require individual attention and assessment throughout the training session

Cabbage growing

Cabbage is a leafy green, red (purple) or white (pale green) plant. It is closely related to broccoli and cauliflower. Smooth leafed, firm headed green cabbages are the most common with smooth leafy purple cabbages and crinkle leafed savoy cabbages of

both colors being rare.

Persons with disabilities can benefit greatly by learning about cabbage growing. Cabbage growing is a vocational skill which is a source of income both in formal employment like hotel and food industries as well in self-business enterprises.

Cabbage growing process can be very interesting for trainees with disabilities only if they get the necessary support through reasonable accommodation strategies. The trainer should use a variety of strategies to enhance acquisition and application of cabbage growing skills. The following steps may be used to introduce trainees with disabilities to the cabbage growing processes.

- (i) break the processes into manageable tasks. The tasks include:
 - prepare seed bed for planting cabbage
 - plant cabbage seeds in the seed bed
 - water the seed bed regularly
 - thin the seedlings to 3 cm apart
 - control weeds, pests and diseases
 - prepare seed bed for the transplanting of the seedlings
 - transplant the cabbage seedlings
 - harvest when ready
 - sell cabbages to customers
- (ii) Use multi- sensory approach to guide the trainee in identifying cabbage growing tools, materials and equipment through seeing, hearing, touching and smelling. Provide trainees with cabbage growing materials to manipulate. Always allow trainees to use the most preferred sensory modality.
- (iii) Explain each step at a time keeping within the pace of individual trainees. You may use realia or videos as you discuss each step. Videos should be captioned for trainees who are deaf. For trainees with visual impairment, video should be accompanied by audio description.
- (iv) Demonstrate each step allowing trainees to participate in the demonstration individually. Ensure the classroom management accommodates trainees with low vision and those who are hard of hearing to enhance their participation.
- (v) Ensure that preceding skills are mastered by trainees before introducing new ones.
- (vi) After demonstrating a specific skill adequately, let the trainees try it out. Give physical and verbal prompts where necessary.
- (vii) Once all the skills are mastered, give the trainees an opportunity to practice what they have learnt.
- (viii) Trainees may use the learnt skills to grow cabbage for personal use in the kitchen before they move to a more complicated skill of growing it for sale.

Some trainees especially those with intellectual disabilities may require individual attention and assessment throughout the training session

Spinach growing

Spinach is a leafy green flowering plant. Its leaves are a common vegetable consumed either fresh, or after storage using preservation techniques by canning, freezing, or dehydration. It may be eaten cooked or raw and the taste differs considerably.

The trainer should use a variety of strategies to enhance acquisition and application of spinach growing skills. The following steps may be used to introduce trainees with disabilities to the spinach growing processes.

- (i) break the processes into manageable tasks. The tasks include:
 - prepare a seedbed for planting spinach seeds
 - sow seeds thinly and cover lightly with soil
 - make a top shade and mulch the seed bed
 - water twice daily
 - thin seedlings to 3 cm apart
 - prepare land for transplanting of seedlings
 - transplant in rows at 90 x 25cm apart
 - control weed, pests, diseases and fungi
 - harvest the crop when ready
 - sell spinach to customers
- (ii) Use a multi- sensory approach to guide the trainee in identifying spinach growing tools, materials and equipment through seeing, hearing, touching and smelling. Provide trainees with spinach growing materials to manipulate. Always allow trainees to use the most preferred sensory modality.
- (iii) Explain each step at a time keeping within the pace of individual trainees. You may use realia or videos as you discuss each step. Videos should be captioned for trainees who are deaf. For trainees with visual impairment, video should be accompanied by audio description.
- (iv) Demonstrate each step allowing trainees to participate in the demonstration individually. Ensure the classroom management accommodates trainees with low vision and those who are hard of hearing to enhance their participation.
- (v) Ensure that preceding skills are mastered by trainees before introducing new ones.
- (vi) After demonstrating a specific skill adequately, let the trainees try it out. Give physical and verbal prompts where necessary.
- (vii) Once all the skills are mastered, give the trainees an opportunity to practice what they have learnt.

(viii) Trainees may use the learnt skills to grow spinach for personal use in the kitchen before they move to a more complicated skill of growing it for sale. Some trainees especially those with intellectual disabilities may require individual attention and assessment throughout the training session.

Onion growing

The onion also known as the bulb onion or common onion is a vegetable that is widely cultivated. Its close relatives include garlic, scallion, shallot, leek, chive and Chinese onion. The taste of these vegetables can range from sweet and juicy to sharp, spicy and pungent, often depending on the season in which people grow and consume them. Onions also provide potential health benefits.

Onion growing process can be very interesting for trainees with disabilities only if they get the necessary support through reasonable accommodation strategies. The trainer should use a variety of strategies to enhance acquisition and application of Onion growing skills. The following steps may be used to introduce trainees with disabilities to the onion growing processes.

(i) break the processes into manageable tasks. The tasks include:

- prepare nursery for planting onion seeds
- water the nursery bed regularly
- prepare seed bed for seedlings transplanting
- transplant the seedlings apply double superphosphate during planting
- practice methods of keeping the field free of weeds
- practice crop rotation
- keep field free of weeds
- bend leaves after the fifth month to allow the onions to mature
- lift the onion bulbs lightly and allow them to dry for three days
- harvest the onions when ready
- selling onions to customers

(ii) Use multi- multi-sensory approach to guide the trainee in identifying onion growing tools, materials and equipment through seeing, hearing, touching and smelling. Provide trainees with onion growing materials to manipulate. Always allow trainees to use the most preferred sensory modality.

(iii) Explain each step at a time keeping within the pace of individual trainees. You may use realia or videos as you discuss each step. Videos should be captioned for trainees who are deaf. For trainees with visual impairment, video should be accompanied by audio description.

(iv) Demonstrate each step allowing trainees to participate in the demonstration individually. Ensure the classroom management accommodates trainees with low

- vision and those who are hard of hearing to enhance their participation.
- (v) Ensure that preceding skills are mastered by trainees before introducing new ones.
 - (vi) After demonstrating a specific skill adequately, let the trainees try it out. Give physical and verbal prompts where necessary.
 - (vii) Once all the skills are mastered, give the trainees an opportunity to practice what they have learnt.
 - (viii) Trainees may use the learnt skills to grow onions for personal use in the kitchen before they move to a more complicated skill of growing it for sale. Some trainees especially those with intellectual disabilities may require individual attention and assessment throughout the training session

Okra growing

Okra is a flowering plant. It is valued for its edible green seed pod. Okra is a warm season vegetable. It is a good source of minerals, vitamins, antioxidants and fiber. It contains a sticky juice that people use to thicken sauce.

The trainer should use a variety of strategies to enhance acquisition and application of Okra growing skills. The following steps may be used to introduce trainees with disabilities to the okra growing processes.

- i. Break the processes into manageable tasks. The tasks include:
 - Identify okra
 - prepare the land early for direct planting of seeds
 - plant the seeds by spacing at 70 by 30 cm apart
 - digging holes 1.5 cm deep for planting
 - apply fertilizer when planting
- ii. Use multi- multi-sensory approach to guide the trainee in identifying okra growing tools, materials and equipment through seeing, hearing, touching and smelling. Provide trainees with okra growing materials to manipulate. Always allow trainees to use the most preferred sensory modality.
- iii. Explain each step at a time keeping within the pace of individual trainees. You may use realia or videos as you discuss each step. Videos should be captioned for trainees who are deaf. For trainees with visual impairment, video should be accompanied by audio description.
- iv. Demonstrate each step allowing trainees to participate in the demonstration individually. Ensure the classroom management accommodates trainees with low vision and those who are hard of hearing to enhance their participation.
- v. Ensure that preceding skills are mastered by trainees before introducing new ones.
- vi. After demonstrating a specific skill adequately, let the trainees try it out. Give

- physical and verbal prompts where necessary.
- vii. Once all the skills are mastered, give the trainees the opportunity to practice what they have learnt.
 - viii. Trainees may use the learnt skills to grow okra for personal use in the kitchen before they move to a more complicated skill of growing it for sale. Some trainees especially those with intellectual disabilities may require individual attention and assessment throughout the training session.

Pumpkin/ cucumber growing

A **pumpkin** is a round smooth with a slightly ribbed skin. Most often it's deep yellow to orange in coloration. The thick shell contains the seeds and pulp. Pumpkins are widely grown for commercial use and as food, esthetics and recreational purposes.

Cucumber is a widely cultivated creeping vine plant that bears cucumiform fruits which are used as vegetables. Cucumbers have a mild refreshing taste and a high water content. They can help relieve dehydration and are pleasant to eat in hot weather. People eat cucumber as a savoy food, but it's a fruit. It also features in some beauty products.

Pumpkin/cucumber growing process can be very interesting for trainees with disabilities only if they get the necessary support through reasonable accommodation strategies. The trainer should use a variety of strategies to enhance acquisition and application of Pumpkin/cucumber growing skills. The following steps may be used to introduce trainees with disabilities to the pumpkin/cucumber growing processes.

- i. Break the processes into manageable tasks. The tasks include:
 - prepare a nursery bed for planting cucumber seeds
 - prepare a seed bed for transplanting seedlings
 - water the nursery bed regularly
 - transplant seedlings
 - control weeds, pests, diseases and fungi harvest the crop when ready
 - sell the cucumber to customers

Note: Pumpkins, melon and marrow can be grown using the same procedure

- ii. Use multi- multi-sensory approach to guide the trainee in identifying pumpkin/cucumber growing tools materials and equipment through seeing, hearing, touching and smelling. Provide trainees with pumpkin/cucumber growing materials to manipulate. Always allow trainees to use the most preferred sensory modality.
- iii. Explain each step at a time keeping within the pace of individual trainees. You may use realia or videos as you discuss each step. Videos should be cap-

tioned for trainees who are deaf. For trainees with visual impairment, video should be accompanied by audio description.

- iv. Demonstrate each step allowing trainees to participate in the demonstration individually. Ensure the classroom management accommodates trainees with low vision and those who are hard of hearing to enhance their participation.
- v. Ensure that preceding skills are mastered by trainees before introducing new ones.
- vi. After demonstrating a specific skill adequately, let the trainees try it out. Give physical and verbal prompts where necessary.
- vii. Once all the skills are mastered, give the trainees an opportunity to practice what they have learnt.
- viii. Trainees may use the learnt skills to grow pumpkin/cucumber for personal use in the kitchen before they move to a more complicated skill of growing it for sale. Some trainees especially those with intellectual disabilities may require individual attention and assessment throughout the training session

French Beans

French beans are smaller than common French beans and have a soft velvety pod. Quite freshly for their size, only tiny seeds inhabit these delicate pods. French beans are sweet, tender and wonderfully crispy. French beans are delicious. The tasty beans are picked while still small. French beans generally grow as bush, which grows 12-20 inches tall depending with the variety one decides to grow. However, there some varieties that climb similar to runner beans, these varieties grow up to seven foot tall.

Persons with disabilities can benefit greatly by learning about French beans growing. French beans growing is a vocational skill which is a source of income both in formal employment like hotel and food industries as well in self-business enterprises.

French bean growing process can be very interesting for trainees with disabilities only if they get the necessary support through reasonable accommodation strategies. The trainer should use a variety of strategies to enhance acquisition and application of French beans growing skills. The following steps may be used to introduce trainees with disabilities to the French beans growing processes.

- i. Break the processes into manageable tasks. The tasks include:
 - Name materials, tools and equipment used in growing French beans
 - Prepare seedbed for planting French beans
 - Plant French beans appropriately
 - Water the crop regularly
 - Control weeds, pests and diseases
 - Apply fertilizer

- Harvest mature crops
 - Store harvest appropriately
 - Dispatch the French to the market immediately
- ii. Use multi- multi-sensory approach to guide the trainee in identifying French beans growing tools materials and equipment through seeing, hearing, touching and smelling. Provide trainees with French beans growing materials to manipulate. Always allow trainees to use the most preferred sensory modality.
 - iii. Explain each step at a time keeping within the pace of individual trainees. You may use realia or videos as you discuss each step. Videos should be captioned for trainees who are deaf. For trainees with visual impairment, video should be accompanied by audio description.
 - iv. Demonstrate each step allowing trainees to participate in the demonstration individually. Ensure the classroom management accommodates trainees with low vision and those who are hard of hearing to enhance their participation.
 - v. Ensure that preceding skills are mastered by trainees before introducing new ones.
 - vi. After demonstrating a specific skill adequately, let the trainees try it out. Give physical and verbal prompts where necessary.
 - vii. Once all the skills are mastered, give the trainees an opportunity to practice what they have learnt.
 - viii. Trainees may use the learnt skills to grow French beans for personal use in the kitchen before they move to a more complicated skill of growing it for sale. Some trainees especially those with intellectual disabilities may require individual attention and assessment throughout the training session

Tomato growing

Tomato is an edible often red berry of the plant commonly known as tomato plant. The tomato is consumed in diverse ways, raw or cooked, in many dishes, sauces, salads and drinks. Tomatoes are typically grouped alongside vegetables.

The trainer should use a variety of strategies to enhance acquisition and application of tomato growing skills. The following steps may be used to introduce trainees with disabilities to the tomato growing processes.

- i. break the processes into manageable tasks. The tasks include:
 - identify tomatoes
 - prepare the seedbed
 - select certified seeds

- prepare a nursery for the seeds
 - water the nursery as required
 - transplant the seedlings
 - practice weeds, pests and fungi control
 - mulch the tomato plants
 - support the tall tomato plants
 - prune the extra stems and leaves
 - apply fertilizer appropriately
 - harvest the crop
 - practice proper storage of the harvest
 - market the harvest
- ii. Use multi- sensory approach to guide the trainee in identifying tomato growing tools materials and equipment through seeing, hearing, touching and smelling. Provide trainees with tomato growing materials to manipulate. Always allow trainees to use the most preferred sensory modality.
 - iii. Explain each step at a time keeping within the pace of individual trainees. You may use realia or videos as you discuss each step. Videos should be captioned for trainees who are deaf. For trainees with visual impairment, video should be accompanied by audio description.
 - iv. Demonstrate each step allowing trainees to participate in the demonstration individually. Ensure the classroom management accommodates trainees with low vision and those who are hard of hearing to enhance their participation.
 - v. Ensure that preceding skills are mastered by trainees before introducing new ones.
 - vi. After demonstrating a specific skill adequately, let the trainees try it out. Give physical and verbal prompts where necessary.
 - vii. Once all the skills are mastered, give the trainees an opportunity to practice what they have learnt.
 - viii. Trainees may use the learnt skills to grow tomatoes for personal use in the kitchen before they move to a more complicated skill of growing it for sale. Some trainees especially those with intellectual disabilities may require individual attention and assessment throughout the training session

Assessment

The trainees may be assessed on the ability to:

- Follow right procedure when constructing a green house
- Identify horticultural crops
- Grow various crops in a green house

5.0 ANIMAL HUSBANDRY

Introduction

This course is intended to equip the trainee with knowledge, skills, attitudes and values required for rearing domestic animals for commercial purposes. The trainer is expected to guide the learner with disability to acquire practical skills in rearing domestic animals covered in this handbook. However, the trainer should support the learner to select one animal for project work.

Areas to be covered.

The areas to be covered include: fish farming, bee keeping, cattle, sheep, goat and pig rearing, rabbit and poultry keeping. The trainer should support the learner with disability to identify and carry out the following animal rearing practices:

- Feeding
- Deworming
- Cleaning and grooming
- Pest control
- Shelter/housing
- Breeding
- Milking
- Shearing
- Debeaking
- Dehorning
- Harvesting

Fish farming

Introduction

The learning resources that the trainer should guide the learner with disability to identify and manipulate for fish farming include: fish pond, fish feed, feed bucket, fingerlings, source of water, pegs, strings, digging tools, organic matter and lime.

Practical activities:

- i. Guide the learner with disability to identify appropriate site for the construction of a fish pond.

Some of the main activities should include the following:

- Checking soil quality by guiding the learner to manipulate the texture, size of particles and ability of the soil to retain water. Learners with vi-

sual impairment and those who are deaf blind could feel different types of dry soil and wet soil. Learners with disabilities could also carry out experiments involving the ability of soil to hold water.

- Identifying source of water for the pond by arbitrarily estimating the distance between the source of water and where the pond is to be dug.
 - Checking the topography of the place by experiencing the terrain whether it is flat, slanting or surrounded by hilly ground. Learners with visual impairment and those who are deaf blind would be guided to walk around the place to experience the terrain accompanied by verbal instruction. Learners with physical impairment may also be supported to use assistive devices to move around the place. Learners with intellectual disability and those with autism should be given explanation on what is required for the place.
 - Control vegetation cover around the fish pond by cutting or uprooting. Learners with disabilities should be guided to identify the sharp edges of the tools and how to hold a slasher, panga or jembe to prevent accidents.
- ii. Guide the learner in digging the fish pond (depth 1.6m). This should be done as follows:
- Work with the learner to mark out the area that the pond will occupy. Show the learner how to place the wooden pegs, tie the strings around the pegs and remove all the vegetation.
 - Guide the learner to remove the top soil and keep it in a location close to the site. They can use a spade, a wheelbarrow or a sack. Learners can work in pairs to carry out the activity where a learner who is sighted supports a learner with blindness and a learner with physical impairment is supported by another learner.
 - Guide the learner to clear the vegetation around the site including the area within 10m of dykes and pond structures and any access, water supply or drainage area.
 - Work with the learner to establish a temporary bench mark to determine elevation of the dykes, canals and other structures. Guide the learner to use the levelling equipment for example spirit level.
 - Work with the learner to mark out the dykes, dyke slopes, inner and outer toes and pond bottom using measuring tape, pegs and strings. The measuring tapes should be marked with contrasting colour, appropriate font, size or tactile marks. The strings could have knots tied to indicate units.

- Work with the learner to determine which areas need digging and which need filling using the determined pond depths and actual elevations of the site.
 - Guide the learner to dig out the soil from the ‘dig’ areas and place it on the ‘fill’ area. Learners with disability to be given orientation on the areas to be dug and where to place the soil. Learners can work in pairs where one does the digging while the other places the soil on the fill area.
 - Guide the learner to compact the soil on the fill areas.
- iii. Guide the learner to spread the liming material at the bottom of the pond to sterilize. Orientate the learner with a disability on how to get the correct amount of the liming material and then show the learner how to spread it at the bottom of the pond.
 - iv. Guide the learner to fill the pond with water from a source. Guide the learner to close the outlet of the pond and then fill the pond with water.
 - v. Guide the learner to enrich the pond with organic matter by applying the right doses. Guide the learner to identify the organic material. Learners with blindness and those who are deaf blind could touch and feel non-corrosive organic matter. Support the learner to get the right doses by providing measuring equipment or containers with defined units. Learners with physical impairment could be supported to use the functional part of the body and assistive devices to perform the activity.
 - vi. Guide the learner to stock the pond with fish. Give the learner one on one support to get the correct number of each type of fish and put them on the pond.
 - vii. Work with the learner to feed the fish. Orientate the learner on the feeds, feed bucket and feeding point on the pond. Support to create routine time to feed the fish by either using a clock alarm or object symbol. Guide the learner to get the right quantities of food and drop them at the feeding point of the pond.
 - viii. Work with the learner to clean the pond by guiding the learner to do the following:
 - Remove the fish
 - Drain the water
 - Clean the pond thoroughly
 - Refill the pond with water
 - Replace the organic matter

- Return the fish
- ix. Guide the learner to control predators and diseases. Learners may work in pairs or small groups to control vegetation around the pond, fence the pond, control foreign materials and chemicals from entering the pond.
 - x. Work with the learner to harvest mature fish using fishing gears such as nets and traps. Work one on one with the learner to identify the appropriate net or trap. Support the learner to hold the net or trap appropriately and position it correctly in the pond. Work with the learner one on one to move the net or trap in order to harvest mature fish and leave the young ones.
 - xi. Guide the learner to process the fish. Work one on one with the learner to wash the fish by orienting the learner on how to hold the fish to avoid accidents. Support the learner to scale the fish by showing the learner how to hold the knife and how to move it to remove scales. Work with the learner to carry out gutting, beheading and filleting.
 - xii. Work with the learner to preserve fish by:
 - Sun drying
 - Brining
 - Dry salting
 - Smoking
 - Oil frying
 - Refrigeration

Assessment

The trainer may assess the learner's ability to:

- a) Carry out specific tasks involved in practical activities such as: constructing fish pond, feeding fish, stocking fish pond and harvesting mature fish.
- b) Identify materials tools and equipment used in fish farming.
- c) Ability to answer oral and signed questions.

Bee keeping

Introduction

The learning resources that the trainer should guide the learner with disability to identify and manipulate for beekeeping include: protective gears, beehives, bees, honey extractor, honey, essential oils, sugar, feeders, bee wax, hammer, bee smoker, pencil, tape measure, paint brush, square, power drill, staple gun, timber and paint. Learners with visual impairment and those who are deaf blind should be given orientation on the material tools and equipment by touching them to feel their features,

parts and sharp edges. Learners with intellectual disability and those with autism could be guided to identify the tools and equipment by relating them to their use. Learners with physical impairment may be supported to use their functional part of their body to manipulate the materials, tools and equipment while those with hearing impairment should be guided to use the correct signs for the items.

Practical activities

- i. Guide the learner to identify bee products like honey and bee wax by touching, smelling or tasting.
- ii. Guide the learner to identify tools, materials and equipment used in construction of a beehive. Guide the learner to manipulate, identify the key features, parts and any modification. Such tools and materials may include: hammer, pencil, tape measure, paint brush, square, power drill, staple gun, timber and paint. The measuring equipment should be marked with contrasting colours, appropriate font, size and tactile graduation. Assistive devices such as pen holders could be provided for learners with physical impairment.
- iii. Work with the learner to construct beehive by doing the following:
 - Guide the learner to plan a cut list by demonstrating to the learner the different or various that will be needed to put together a complete bee hive.
 - Work one on one with the learner to cut and mark the pieces needed.
 - Work with the learner one on one to cut the joints and other details. Support the learner to hold the cutting tool appropriately while noting the sharp edges and cutting on the marked lines. Outlines could be used to indicate cutting lines for learners with blindness and those who are deaf blind.
 - Work one on one with the learner to drill the guide holes. Orientate the learner to identify where the holes are to be drilled and how to hold and place the drilling equipment.
 - Guide the learner to try the assemblies to make sure everything fits properly. Learners may work in pairs or small groups to try out the assembling. Learners may also watch or listen to video on how to assemble parts. Learners with hearing impairment could be provided with video with captions.
 - Work one on one with the learner to square the parts.
 - Work one on one with the learner to nail or screw parts together. Show the learner how to hold the nail and hit with a hammer or how to fix the screws.

- Work with the learner to paint by showing the learner how to hold the painting brush, deep brush in the paint and do the painting.
- iv. Work with the learner to locate a site for the placement of the beehive. Orientate the learner to identify trees, flowers and water source.
 - v. Guide the learner to position the beehive appropriately. Guide the learner to put the hives in an appropriate height to allow accessibility during harvesting and also provide enough spacing between the hives.
 - xiii. Work with the learner to harvest the honey while observing safety. Guide the learners to work in pairs to;
 - Inspect combs for maturity
 - Wear appropriate clothing
 - Smoke as required (one to smoke as the other harvests).
 - Avoid crushing bees
 - Cleaning the bee harvesting equipment and tools.
 - xiv. Guide the learner to process the harvested honey by using:
 - Simple straining method
 - Water bath method
 - vi. Work with the learner to package the honey by choosing clean containers, putting the honey with appropriate moisture into the containers, sealing and labelling.

Assessment

The trainer may assess learner's ability to:

- a) Identify materials, tools and equipment used in beekeeping
- b) Carry out specific tasks involved in constructing a beehive, harvesting and processing honey.
- c) Answer oral and signed questions.

1. Rearing of the cattle, sheep and goat

Introduction

The learning resources that the trainer should guide the learner with disability to identify and manipulate for rearing of cattle, sheep and goat include: cowshed, sheep and goat pen, feed troughs, watering troughs, panga, rake, milking cans, feeds, water,

milk, wool, meat, skins and hides, wool shear, sprayers and ropes.

Practical Activities

- i. Guide the learner to identify cattle, sheep and goat products by manipulation, touching and smelling. Such products may include: milk, fur, dung, meat, hides and skins.
- ii. Guide the learner to identify materials, tools and equipment used in cattle, sheep and goat rearing. Guide the learner to manipulate to identify key features, parts and any modification. Learners with blindness and those who are deaf blind should be given description of the materials, tools and equipment while those with intellectual disability and autism should be guided to relate items to their use. Learners with physical impairment should be supported to use their functional part of the body to manipulate the items while those with hearing impairment should be guided to use the correct sign for the item. Such materials may include: feed troughs, watering troughs, panga, rakers, milking can, feeds, wool shear, sprayers and ropes
- iii. Work with the learner to identify materials, tools and equipment used in cowshed, sheep and goat pen construction. They include: hammer, saw, panga, nails, poles, timber, iron sheets, cement, concrete, sand, feed troughs and watering troughs. Guide learners to manipulate to identify key features and any adaptation while observing safety especially when manipulating sharp edges.
- iv. Work with the learner to construct a cowshed, sheep or goat pen by doing the following:
 - Orientate the learner to locate the site. Guide learners to move around the site to observe and experience the terrain and identify any obstacles that need to be removed.
 - Guide the learner to prepare the site by removing the vegetation and other obstacles. Learners may work in pairs or in small group.
 - Support the learner to design the shed by working one on one with the learner to develop a mental picture of the shed or pen. Learners who can draw may be supported to do so. Learners may be given orientation on an existing shed or pen.
 - Guide the learner to collect materials by orientating the learner on where to collect and where to place them for easy reach during construction.
 - Guide the learner to construct cowshed, sheep or goat pen while observing safety precaution. Work one on one with the learner to measure the sides of shed or pen put the pegs, tie the string around the pegs, dig the

holes and put up the structure.

v. Guide the learner to identify suitable breeds of cattle, sheep or goat to rear. The learner may be supported to observe or experience by touch the features of the animal accompanied by description.

- Cattle, dairy or beef
- Sheep, mutton or wool
- Goat, dairy meat and fur

vi. Guide the learner to identify the feeding methods. The learner to experience and identify key features of the following:

- Free range grazing
- Zero grazing
- Pad docking
- Tethering
- Fodder preparation
- Use of animal feeds concentrates
- Watering

vii. Work with the learner to control cattle, sheep and goat pests and diseases.

- Pests

Support the learner in spraying and Deeping.

- Diseases

Support the learner to perform routine proper feeding, cleaning and shelter.

viii. Guide the learner to identify signs of a sick cow, sheep or goat by observing and experiencing behaviour and appearance of the animal. Give description of such behaviour and appearance.

ix. Guide the learner to clean a cow shed, sheep or goat pen by carrying out the following:

- Sweeping and washing the shed or pen with clean water
- Draining the slurry to keep the house clean and dry.
- Cleaning and re-filling the troughs with fresh feeds
- Cleaning and re-filling drinking trough with clean water.

- Disinfect the house.
- x. Guide the learner to de-worm cattle, sheep or goat. Support the learners to give the right dose, prepare and follow routine for de-worming.
- xi. Guide the learner to identify signs of a cow, sheep or goat on heat. Guide the learner to observe and experience the behaviour and appearance of the animal. Give description for such behaviour and appearance.
- xii. Work with the learner to serve the cow, sheep or goat at an appropriate time by orientating the learner on the following:
 - Natural insemination
 - Artificial insemination
- xiii. Guide the learner to care for the cow, sheep or goat during the following periods:
 - Gestation
 - Giving birth
 - After giving birth
- xiv. Guide the learner to care for calf, lamb or kid by orientating the learner to:
 - Feed with milk
 - Wean the calf, lamb or kid.
- xv. Guide the learner to milk the cow or goat. Orientate the learner on:
 - How to manage cow or goat when milking
 - How to hold the udder
 - How to place the milking can or jug when milking.
- xvi. Work with the learner to prepare cattle, sheep or goat products. Orientating the learner to:
 - Collect dung and urine to prepare manure
 - Process milk to prepare curdle milk, cheese and yoghurt
 - Prepare hide and skin
 - Prepare wool and fur

Assessment

The trainer should assess the learner's ability to:

- Identify materials, tools and equipment used in cattle, sheep and goat rearing.
- Carry out specific task involved in constructing shed or pen, feeding cattle, sheep or goat, cleaning shed or pen, milking the cow or goat and preparing products from cattle, sheep or goat.
- Answer oral or signed questions
- Carry out project work

2. Pig rearing

Introduction

The learning resources that the trainer should guide the learner with disability to identify and manipulate for pig rearing include: pig sty, pig feeds, hammer, nails, poles, timber, cement, concrete, grills, iron sheets, feed troughs and watering troughs. Guide the learner to manipulate to identify key features, parts and any modification. Learners with blindness and those who are deaf blind should be given description of the materials, tools and equipment while those with intellectual disability and autism should be guided to relate items to their use. Learners with physical impairment should be supported to use their functional part of the body to manipulate the items while those with hearing impairment should be guided to use the correct sign for the item.

Practical Activities

- i. Guide the learner to identify pig products by touching or smelling the products. Give description of the products to the learner.
- ii. Guide the learner to identify materials, tools and equipment used in construction of pig sty. Such materials include hammer, nails, poles, timber, cement, concrete, grills, iron sheets, feed and watering trough. Guide the learner to manipulate to identify key features, parts and any modification. Learners with blindness and those who are deafblind should touch and feel the tool and equipment while taking into account the sharp edges. Learners with hearing impairment should be guided to identify the items by using the correct signs. Guide learners with physical impairment to use the functional part of the body or assistive devices to manipulate the items.
- iii. Work with the learner to construct a pig sty. Orientate the learner to:

- Locate the site by moving around to identify obstacles and experience the terrain. Give description of the best location.
 - Prepare the site by removing the vegetation and the obstacles. The learners may work in pairs or in small groups.
 - Design the sty by working one on one with the learner to develop a mental picture of the sty. Learners who can draw may be supported to do so. Learners may be given orientation on an existing sty.
 - Collect materials and place them in place where they can be reached with easy reach during construction.
 - Construct the sty while observing safety precaution. Work one on one with the learner to measure the sides of sty, put the pegs, tie the string around the pegs, dig the holes and put up the structure.
- iv. Guide the learner to identify suitable breed to rear. The learner may be supported to observe or experience by touch the features of the animal accompanied by description.
- v. Work with the learner to feed pigs by orientating the learner on:
- Use of Fodder
 - Use of animal feeds concentrates
 - Watering
 - Use of locally available foodstuffs
- vi. Guide the learner to control pig pests and diseases.
- Pests
 - Support the learner to spray and dust.
 - Diseases
- Orientate the learner to provide proper feeding and proper shelter.
- vii. Work with the learner to identify signs of a sick pig by observing and experiencing behaviour and appearance of the animal. Give descriptions of the identified behaviour and appearances.
- viii. Guide the learner to clean a pig sty by doing the following:
- Sweeping and washing pig sty with clean water
 - Draining the slurry to keep the house clean and dry.

- Cleaning and re-filling the troughs with fresh feeds
 - Cleaning and re-filling drinking trough with clean water.
 - Disinfect the house.
- ix. Guide the learner to de-worm the pigs. Support the learners to give the right dose, prepare and follow routine for de-worming.
- x. Guide the learner to identify signs of a pig on heat. Guide the learner to observe and experience the behaviour and appearance of the animal. Give description for such behaviour and appearance.
- xi. Work with the learner to serve the pig at appropriate time by orienting the learner on the following:
- Natural insemination
 - Artificial insemination
- xii. Work with the learner to care for the pig during the following periods:
- Gestation
 - Farrowing
 - After farrowing
- xiii. Guide the learner to care for piglets by orienting the learner to:
- Feed with milk
 - Wean the piglets.
- xiv. Work with the learner to prepare pig products. Orientating the learner to:
- Collect dung and urine to prepare manure
 - Process pork to prepare sausages, bacon and pork chops.

Assessment

The trainer to assess the learner's ability to:

- Identify materials, tools and equipment used in pig rearing
- Carry out specific tasks involved in designing and constructing pig sty, feeding pigs, cleaning the pig sty and preparing pig products.
- Answer oral or signed questions
- Carry out project work.

3. Rabbit Keeping

Introduction

The learning resources that the trainer should guide the learner with disability to identify and manipulate for rabbit keeping include: rabbit hutch, feeds, hammer, nails, poles, wire mesh, timber, cement, concrete, grills, iron sheets, feeding bowls and watering bottles. Guide the learner to manipulate to identify key features, parts and any modification. Learners with blindness and those who are deaf blind should be given description of the materials, tools and equipment while those with intellectual disability and autism should be guided to relate items to their use. Learners with physical impairment should be supported to use their functional part of the body to manipulate the items while those with hearing impairment should be guided to use the correct sign for the items.

Practical Activities

- i. Guide the learner to identify rabbit products by touching or smelling the products. Give description of the products to the learner.
- ii. Guide the learner to identify materials, tools and equipment used in construction of rabbit hutch. Such materials include hammer, nails, poles, wire mesh, timber, cement, concrete, grills, iron sheets, feed bowls and watering bottles. Guide the learner to manipulate to identify key features, parts and any modification. Learners with blindness and those who are deafblind should touch and feel the tool and equipment while taking into account the sharp edges.
- iii. Work with the learner to construct rabbit hutch. Orientate the learner to:
 - Locate the site by moving around to identify obstacles and experience the terrain. Give description of the best location.
 - Prepare the site by removing the vegetation and the obstacles. The learners may work in pairs or in small groups.
 - Design the hutch by working one on one with the learner to develop a mental picture of the rabbit hutch. Learners who can draw may be supported to do so. Learners may be given orientation on an existing rabbit hutch.
 - Collect materials and place them in place where they can be reached with easy reach during construction
 - Construct the hutch while observing safety precautions. Work one on one with the learner to measure the sides of the rabbit hutch, put the pegs, tie the string around the pegs, dig the holes and put up the structure.

- iv. Guide the learner to identify suitable breeds to rear. The learner may be supported to observe or experience by touch the features of the animal accompanied by description.
- v. Work with the learner to feed rabbits by orienting the learner on:
 - Use of Fodder
 - Use of animal feeds concentrates
 - Watering
 - Use of locally available foodstuffs
- vi. Guide the learner to control rabbit pests and diseases.
 - Pests
 - Support the learner to spray and dust.
 - Diseases
 - Orientate the learner to provide proper feeding and proper shelter.
- vii. Work with the learner to identify signs of a sick rabbit by observing and experiencing behaviour and appearance of the animal. Give the learner description on the identified behaviour and appearance.
- viii. Guide the learner to clean a rabbit hutch by doing the following:
 - Removing any uneaten fresh food
 - Sweeping and washing the hutch with clean water
 - Disinfect the house.
 - Cleaning and refilling the bowls with fresh feeds
 - Cleaning and refilling watering bottles with clean water.
 - Replacing the beddings with fresh hay
- ix. Guide the learner to deworm the rabbits. Support the learners to give the right dose, prepare and follow routine for deworming
- x. Guide the learner to identify signs of a rabbit on heat by observing and experiencing behaviour and appearance of the animal. Give descriptions of the identified behaviour and appearances.
- xi. Work with the learner to serve the rabbit at appropriate time by orienting the learner on the following:

- Natural insemination
 - Artificial insemination
- xii. Work with the learner to care for the rabbit during the following periods:
- Before serving
 - Separating males and females
 - Gestation
 - Furrowing
 - After furrowing
- xiii. Guide the learner to care for litter by orienting the learner to:
- Feed with milk
 - Wean the litter.
- xiv. Work with the learner to prepare rabbit products. Orientating the learner to:
- Collect urine
 - Prepare manure
 - Prepare meat, skin and fur.

Assessment

The trainer to assess learner's ability to:

- Identify materials, tools and equipment used in rabbit keeping
- Carry out specific activities involved in constructing rabbit hutch, feeding rabbit, cleaning rabbit house, caring for rabbit and litter and preparing rabbit products.
- Answer oral or signed question
- Carry out project work

4. Poultry Keeping

Introduction

The learning resources that the trainer should guide the learner with disability to identify and manipulate for poultry keeping include: poultry house, feeds, chicken incubators, brooders, chicken feeders, chicken drinkers, beaker trimmers, sprayer, sprinkler, rake, vaccinator, vaccine dropper, chicken cages and egg tray. Learner

with blindness and those who are deafblind should touch to feel the resources and also be given orientation in the poultry house. Learners who are deaf should be guided to identify the resources through correct signs. For learners with intellectual disability and autism, show and relate the resource to its use.

Practical activities

- i. Guide the learner to identify different types of poultry for rearing by differentiating their features. For example, learners with intellectual disabilities, autism and those with hearing and physical impairment could look at the colour of the features, size, shape, features and length of the beak. Learners with blindness and those with deaf blindness could hold to feel the size, shape and features of the bird. They could also use sound made by birds to identify them. The types of poultry include the following:
 - Chicken
 - Layers
 - Broilers
 - Coupons
 - Indigenous breeds
 - Ducks
 - Geese
 - Turkey
- ii. Guide the learner to identify poultry products such as eggs, features, manure and poultry meat. Learners with disability to touch and smell the products. Learners with hearing impairment should identify the products using the correct sign.
- iii. Work with the learners with disabilities to experience poultry rearing methods by orientating them on each method to identify key features. Learners with blindness and those who are deafblind could work with sighted peers. The poultry rearing methods:
 - Free range
 - Dip litter system
 - Battery system
 - Fold system

- iv. Work with the learner to identify materials, tools and equipment used in construction of poultry house such materials include, hammer, nails, timber, egg trays, saw, poles, wire mesh, concrete and cement. Guide learners with disability to identify the parts, where to hold and the sharp edges which may cause accidents.
- v. Work with the learner to construct a poultry house by doing the following:
- Give learner orientation to locate the best site for the house. Learners to work in pairs or small groups during the activity. Demonstrate to the learner reasons for choosing the site.
 - Guide the learner to prepare the site by clearing vegetation and removing stumps and other obstacles. Learners with blindness and those with deaf blindness should be given orientation on the vegetation and other obstacles, the working space and the tools to be used. They should also be one on one demonstration on how to hold the tools.
 - Guide learners to identify the type of house. Orientate the learner to identify the differences between types of houses. Learners with blindness and those with who are deafblind should be taken round all area of the house as they touch and feel features of the house. Learners with intellectual disability, autism, hearing and physical impairment could be shown pictures and videos of different types of houses.
 - Work with the learner to design the poultry house as they work in small groups to support each other.
 - Guide learners to collect materials and tools to be used in constructing the poultry house. Learners with disability should put materials in familiar place where they can reach easily.
 - Work with the learner to construct the house while observing safety precaution. Guide learners on how to use tapes marked in appropriate font, colour, and tactile graduations to measure the sides of the house, putting the pegs, tying the strings and digging the holes. Guide learners to observe safety when fixing holes, cutting, using hammer, nails and fixing different parts.
 - Guide learners to construct a brooder.
- vi. Guide learners to feed poultry by doing the following:
- Guide learners to use commercial feeds by providing one on one demonstration on how to measure the right amount of food using defined containers.

- Guide learners to fill drinkers with clean water and place them appropriately.
 - Guide learners to identify locally available foodstuffs and be given demonstration how to feed the poultry.
- vii. Work with the learner to control poultry pests and diseases by doing the following:
- Pests
 - Guide learners to carry out dusting and disinfecting poultry house. Give learners with blindness and those who are deafblind one on one demonstration on how to handle pesticide before, during and after use.
 - Diseases
 - Guide learners to provide proper feeding and proper shelter
- viii. Guide learners to identify signs of sick poultry by observing and experiencing the behaviour and appearance of the poultry. Learners with blindness could be given descriptions of the signs of sick poultry.
- ix. Guide learners in pairs or small groups to clean a poultry house by doing the following:
- Removing dust
 - Removing all the equipment from the house
 - Removing and disposing of litter.
 - Washing and rinsing the house
 - Disinfecting
 - Fumigating the house
- x. Work with the learner to clean the feeding equipment. Orientate the learner to:
- Remove the remaining feed from the feeders and water from the drinkers.
 - Clean and disinfect the feeders and drinkers
 - Fill the feeders with fresh feeds and drinkers with fresh water.
- xv. Work with the learners to de-worm the poultry by providing one on one demonstration as the learner practice.
- xvi. Guide learners to identify when poultry is ready to brood. Guide the learner to observe and experience the behaviour and appearance of the poultry. Learners with blindness could feel the change in feathers and hear the sound

made by the poultry.

xvii. Guide learners to care for poultry during the following periods:

- When laying
- When brooding
- During hutching

xviii. Guide the learner to care for chicks by orientating the learner on the following:

- In the brooder
 - Controlling temperature
 - Use of correct feeds
 - Use of appropriate feeding equipment
 - Protection from predators
 - Constant observation
- When with the mother hen
 - Protection from predators
 - Controlled movement
 - Use of correct feeds
 - Use of appropriate feeding equipment

xix. Guide learners to prepare poultry products by orientating the learner to do the following:

- Eggs

Collecting

- Cleaning
 - Sorting
 - Packaging into trays
- Collecting poultry droppings and litter to prepare manure

- Preparing of animal feeds from egg shells and other poultry products.
- Collecting feathers
- Preparing poultry for meat.

Assessment

The trainer to assess learner's ability to:

- Identify materials tool and equipment used in poultry keeping
- Carry out specific activities involved in constructing poultry house, feeding poultry, cleaning poultry house and preparing poultry product
- Answer oral or signed questions
- Carry out project work

6.0 LEATHER WORK

Introduction

This course is intended to equip the trainee with knowledge, skills, attitudes and values necessary for making different types of leather articles. The trainer is expected to guide the learner with disability to acquire practical skills in making various leather articles covered in this handbook. However, the trainer should support the learner to select one leather article for project work.

Areas to be covered.

The areas to be covered include: introduction to leather work, leather tanning, leather craft, shoe bending, heel rebuilding and shoes making.

Introduction to leather work

The learning resources that the trainer should guide the learner with disability to identify include: shoes, belts, jacket, wallet, seats, tracer, edge trimmer, mallet, maddeler, punch, snap setting outfit, edge creaser, spacing wheel, knife, eyelet spreader and scissors.

Practical activities

- i. Guide learners to identify different sources of leather by manipulating skins and hides from different animals.
- ii. Guide the learner to identify different types of leather articles. Learners with blindness and those who are deaf blind could be guided to touch, feel and smell as they identify the features of the item. The trainer should be aware that learners with autism are sensitive to certain colours. For learners with intellectual disability the trainer can relate the article to its use. Learners with hearing impairment should be guided to use the correct sign for each article. Some of the leather articles that the learner may identify are: shoes, belts, jackets, wallet and seats.
- iii. Guide learners to identify materials, tools and that equipment used in leather work. Guide the learner to manipulate the tool or equipment to identify where to hold, how to hold it and the sharp edges. The trainer can also guide the learner to identify the tool or equipment by giving one on one demonstration on its use. Some of the tools and equipment that the learner may identify may include: tracer, edge trimmer, mallet, maddeler, punch, snap setting outfit, edge creaser, spacing wheel, knife, eyelet spreader and scissors.
- iv. Guide the learner to care for material, tools and equipment used in leather work by giving one on one demonstration on the following: cleaning the tool and equipment after use, sharpening the tool, greasing or oiling and proper

storage.

Assessment

The trainer should assess the learner on practical skills such as ability of the learner to:

- a) Identify leather articles,
- b) Identify materials, tools and equipment used in leather work,
- c) Care for materials, tools and equipment used in leather work,
- d) Answer oral or signed questions.

1. Leather Tanning

Introduction

The learning resources that the trainer should guide the learner with disability to identify include: hides, skin, salts, scrubbing knife, water, lime, scraping rolls, dull knife, acids, drum, and enzymes.

Practical Activities.

- i. Guide the learner to identify hides and skins by touching, smelling, observing and manipulating to feel the texture, size, shape and moisture. Learners could be given description of the features verbally or through signs.
- ii. Guide the learner to identify materials, tools and equipment used in tanning. Learners who are blind and those who are deafblind could be given orientation to touch and feel the features of the materials, tools and equipment accompanied by verbal description or tactual signing. Learners with intellectual disability and those with autism should be guided by relating the tool and equipment to its use while those with physical impairment could be guided to use the functional part of the body to manipulate the items or use assistive devices. Learners with hearing impairment could be guided to use the correct signs for the materials, tools and equipment. Such materials, tools and equipment include: hides, skin, salts, scrubbing knife, water, lime, scraping rolls, dull knife, acids, drum, and enzymes.
- iii. Work with learners to preparing hides and skins for tanning by giving one on one demonstration on:
 - Flaying
 - Guide the learner to flesh hides and skins to remove any scraps of flesh from them.

- Preserving by salting or drying
- Soaking in water with certain chemicals to prevent bacterial and fungal growth.
- Work with learners to lime hides and skins by guiding the learner to soak hide or skin in alkaline solution. Guide the learner to put the right amount of alkaline in a drum or container and then guide on how to put the hide or skin properly so that it is uniformly soaked.
- Guide the learner to de-hair
- hides and skins by first applying dehairing agent
- Guide the learner to use de-hairing machine to remove the
- hair and then give one on one demonstration on how to hold the dull knife to remove the remaining hair.
- Guide learner to de-lime hides and skins by guiding the learner to add acids to the hides and skin. Since acids are corrosive
- support the learner to handle the acid with care and use the correct quantities. Learner should use proactive gears in this activity.
- Work with the learner to carry out bating by guiding them to add enzymes to hides and skin to soften them
- Guide the learner to carry out pickling by guiding them to add salt and acid. This prepares the collagen for penetration of the tanning agents.it is worth noting that the trainer should support the learners to use protective gears and handle the acids with care.
- Guide the learner to carry out degreasing. Guide to use water based-systems to remove excess grease before tanning.
- iv) Work with the learner to tan hides and skins by use of chrome method. Guide the learner to do the following:
 - Soaking hides and skin in baths containing chromium tanning agents.
 - Decrease the acids of the bath until the surface of the hides start absorbing the chromium agents.
- v) Guide the learner to dye the product into different colours. Support the learner to add conditioners to affect properties of the leather such as softness, flexibility and leather storage.
- Guide the learner to dry leather by working one on one with the learner to press the leather through large, heavy rollers to push out the moisture.

Assessment

The trainer should assess the learner based on ability of the learner to carry out spe-

cific activities involved in the process of leather tanning.

Leather Craft

Introduction

The learning resources that the trainer should guide the learner with disability to identify include: Pattern paper, outlines, cloth tape measure, scotch tape, French curve, overstretch wheel, pencil and eraser, anvil, awl, chisels, creaser, cutting board, edge slickers, edger, gouge, hand-press, knives, leather dies, leather dye, leather wax, mallets or hammer, needle, punches, rivets, scissors, rulers and sewing machine.

Practical Activities

- i. Guide the learner to identify materials, tools and equipment used in leather craft. Orientate learners with blindness and those with who are deaf blind on the tools and equipment to identify their features, parts, sharp edges, and how they are held. Show and relate the use of material tools and equipment to learners with intellectual disability and autism. Learners with hearing impairment should be guided on correct sign for the tools and equipment and actions on their use. Learners with physical impairment should be supported to use functional part of the body to manipulate the tools and equipment. It is important to note that, the measuring tools such as rulers and tape measure should be marked in contrasting colour, appropriate font, size and tactile graduation.
- ii. Work with the learner to make different leather articles such as shoes, belt, bags wallet, jacket, furniture, gloves, and hats. Guide the learner to follow the following steps:
 - Work with the learner to design patterns for different leather articles. Begin by orientating the learner on the materials, tools and equipment used in designing parts. Work with the learner one on one to draw the cut line, sewing line, and fold lines, leaving room for seam allowance, indicating holes to be punched and labelling the parts. Learners with blindness and those who are deaf blind could do guided drawing using outlines. They should be provided with measuring equipment that are labelled with tactile marks and also be guided to label the parts in tactile. Learners with intellectual disability and those with autism should be supported to get the right measurement and draw the pattern as expected. Learners with physical impairment could be provided with assistive devices like pen holders and also guided to the functional part of the body.
 - Work with the learner to cut out the pattern. Begin by guiding the learner

to scope out the grain side of the leather to remove any imperfection and flip the leather over. Support the learner to copy the pattern on the flesh side and cut it out.

- Guide the learner to join parts of a leather article by stitching. Work with the learner one on one to get the stitches as close to the end of each piece of the fabric.
- Guide the learner to fix the lining and decorations by providing one to one support.
- Work with the learner to finish the raw edges of the article
- Orientate the learner to fix fastenings on the leather article. Guide the learner to identify the fastener such as zips, buttons, laces, clips and the appropriate place on the leather article to fix them.
- Guide the learner to clean up and store leather article. Learners may work in pairs or small groups to carry out the activity.

Assessment

The trainer may assess the learner on the ability to:

- Identify the materials, tools, and equipment used in leather craft
- Carry out specific activities involved in the various steps of making a leather article
- Answer oral or signed questions

7.0 BUILDING AND CONSTRUCTION

Introduction

The Building and Construction course is expected to equip the trainee with knowledge, skills, attitudes, and values that will enable the trainee to fulfill the needs of the formal and informal sector in the building construction industry. The trainer will guide the trainee with disability to acquire practical skills in making masonry units, making concrete products, constructing walls using different building materials and methods, carry out plumbing installations, apply finishes to construction works, paint and decorate building works.

General Adaptations

Trainees with disabilities should be engaged in practical tasks and be given an opportunity to practice repeatedly in order to master specific skills. For this to happen a working area for practical work need to be set aside. The working area must be:

- accessible to trainees with disabilities,
- spacious to ensure no congestion
- well-lit to meet individual lighting needs of trainees with VI
- Safe in preventing injuries to trainees
- Secure to ensure the trainees can pick from where they left
- Well organized to ensure aesthetics
- Labelled using clear signage in large print.
- Installed with Audio, tactile and Visual warning systems for emergencies

Skill Areas to be covered

The areas to be covered in this course include: Introduction to building and construction, Excavations, Foundation, building different walls, Lintels and Beams, Floors, Plastering and Drainage.

Learning resources required:

Trainees with disabilities thrive in an environment that is supportive and least restrictive. They benefit most from learning by doing rather than theoretical lectures and long dialogues. Consequently, the trainer is expected to enrich learning during this course by use of:

- (i) Models that learners can manipulate through touch
- (ii) Coloured pictures.
- (iii) Real visits to construction sites.

- (iv) Real tools used in Building and construction
- (v) Audio visual technology
- (vi) Resource persons
- (vii) Peer to peer learning

Steps in Developing specific Building and Construction Skills:

1.0 Introduction to Building and Construction

It is expected that the trainees will be exposed to what building and construction is and what is involved in it. The instructor should know that each of the trainees with Disability is unique and that their rates of learning/ grasping concepts are different. It is also important for the trainee to bear in mind that while some trainees with disabilities may benefit from theoretical concepts, most of the trainees will gain skills through practical involvement in the activities.

Proposed practical activities:

Note to the trainers:

Promotion of concept development for trainees with Disabilities is best through communication and conversation, the trainer needs to help trainees to access the world around them and enhance participation in activities and routines while communicating. Trainer must ensure safe orientation of trainees with visual impairment during visits to construction sites.

Building and Construction Site

The trainees need to conceptualize the construction site as the place where building and construction takes place. That building and construction will go on systematically for a period using appropriate tools, following appropriate procedures and safety precautions.

Practical activities:

- Visit different construction sites- The trainer guides the learners to visit different construction sites to demonstrate to the trainees the different types of soil and topographies.
- The trainer guides trainees to manipulate different safety precautions put in place in a construction site,
- The trainer guides the trainees to manipulate different tools and equipment used in establishing a construction

Note: Trainees with hearing impairments may only need adaptations in communication by using a SL interpreter or ensuring slow demonstration and speech while facing the trainee. Trainees with visual impairments need to be given an opportunity to manipulate tools, equipment and materials combined with explanations to help them form concepts. For trainees with intellectual challenges, it may require that tasks are broken to smaller more manageable components and at times only requiring a trainee to accomplish a part of the whole task.

Assessment

The trainee should be assessed practically. This may include:

- Trainee's ability to demonstrate safety precautions in construction sites
- Trainee's ability to Identify materials, tools and equipment used at construction sites.

Excavations

Excavation in building and construction is the preliminary activity of the construction project. The excavation process is a systematic process and the trainer needs to ensure the trainee is involved in the whole process or part of it by breaking down the tasks to manageable components. Trainees with hearing impairments will need communication support as well as adequate time to manipulate the tools, materials and equipment used in different stages of excavation. For trainees with visual impairment, tools need to be stored out of the way and the trainees be oriented to the positions of the tools. The trainees with VI also need a work site orientation. Trainees with intellectual challenges will require support in terms of prompting and could benefit from being paired with others.

Practical activities:

- Visit different construction sites- The trainer guides the learners to visit different construction sites to demonstrate to the trainees the different types of soil and topographies.
- The trainer guides trainees to manipulate different safety precautions put in place in a construction site,
- The trainer guides the trainees to manipulate different tools and equipment used in establishing a construction

Note: Trainees with hearing impairments may only need adaptations in communication by using a SL interpreter or ensuring slow demonstration and speech while facing the trainee. Trainees with visual impairments need to be given an opportunity to manipulate tools, equipment and materials combined with explanations to help

them form concepts. For trainees with intellectual challenges, it may require that tasks be broken to smaller more manageable components and in some instances only requiring a trainee to accomplish a part of the whole task.

For trainees with Physical challenges, adaptations that could be made include adjusting crutches to suit holding of tools and equipment as well as using assistive devices such as prosthesis. Trainees with short stature may need adaptation in the excavation tools for example handles of mattock, spades, shovels and pickaxes can be adapted to fit enable the trainee to use them correctly.

Assessment

The trainee should be assessed practically. This may include:

- Trainee's ability to demonstrate safety use of tools in excavation
- Trainee's ability to Identify materials, tools and equipment used excavation.
- Trainees ability to accomplish tasks in excavation.

7.1 Foundation

Trainees with disabilities need to appreciate the importance of foundations in building and construction. They further need to identify different types of foundations and practically lay out the foundation. The trainer must ensure that the trainees acquire sufficient practice in the laying of different foundations. Peer to peer support is helpful during the learning of foundations. Grouping of trainees with disabilities together with their peers will ensure that trainees with disabilities participate in the learning. Trainees with visual impairment may require adaptation in measurement tools for example using tactile identifiers/calibrations on the tape measure.

For trainees with physical challenges.

Practical activities:

- Work at the selected site
- Visit different construction sites- The trainer guides the learners to visit different construction sites with different types foundations
- The trainer guides the trainees to manipulate different tools and equipment used in laying a foundation
- The trainer guides trainees to take part in laying of different foundations.

Assessment

- Practical project work

- For trainees with intellectual disabilities who may not follow through a whole project, their assessment be staggered in stages of accomplishing different tasks.

7.2 Building walls

The trainer will introduce the trainees with disabilities to different types of walls and have them appreciate the different materials used in the making of each type of wall. Trainer orientates trainees with visual impairments and those who are deaf blind on the tools and equipment used in building walls. Some trainees with disabilities may only manage to produce wall building materials such as bricks, blocks or dressed stones and hence the trainer must ensure the trainees have an appreciation of the wall building materials and process of making each of them.

Building natural stone walls

Practical activities:

- The trainer supports trainees with disabilities to identify tools, materials and equipment used in building natural stone wall.
- Trainees with disabilities manipulate different types of natural stones
- Trainees with disabilities take part in dressing the stones
- The trainer supports trainees with disabilities to build wall using natural stones.

Building brick walls

Practical activities:

- The trainer supports trainees with disabilities to identify tools, materials and equipment used in building brick walls.
- Trainees with disabilities manipulate different soils to identify appropriate soil for brick making.
- Trainer supports trainees with disabilities to make bricks.
- The trainer supports trainees with disabilities to build wall using bricks.

Building block walls

Practical activities:

- The trainer supports trainees with disabilities to identify tools, materials and equipment used in building block walls.
- Trainees with disabilities manipulate different types of blocks

- Trainer supports trainees with disabilities to make blocks;
- The trainer supports trainees with disabilities to construct walls using different types of blocks.

Assessment

- Practical project work
- For trainees with intellectual disabilities who may not follow through a whole project, their assessment be staggered in stages of accomplishing different tasks

Lintels and Beams

Trainees with disabilities need to relate the lintels and beams with their important function of support to above wall or partition material when openings like doors, windows, and so forth are necessary to provide a building structure. The trainer must expose them to different types of lintels and beams, materials, tools, and equipment used in making lintels and beams. The trainees should demonstrate competence in designing lintels and beams, cutting steel bars for making lintels and beams and binding the metal bars to form required structure. This should enable the trainees to construct concrete beams and lintels of required strength. Trainees with visual impairment may require adaptation in measurement tools for example using tactile identifiers/calibrations on the tape measure and use templates of readily cut metal bars.

Practical activities:

- The trainer supports trainees with disabilities to identify tools, materials and equipment used in making lintels and beams;
- Trainer supports trainees with disabilities to cut steel bars for making lintels and beams;
- Trainer supports trainees with disabilities to bind the metal bars to form the required structure;
- Trainer supports trainees with disabilities to construct concrete beams and lintels.

Assessment

- Oral or signed demonstrations
- Practical project work
- For trainees with intellectual disabilities who may not follow through a whole project, their assessment be staggered in stages of accomplishing

different tasks

7.3 Floors

The trainer should help the trainees to relate the floor as a part of a building that provides a level surface capable of supporting applied live load like humans and furniture. Flooring as a skill should be developed by providing appropriate environment for trainees with disabilities to identify different types of floors and manipulate materials, tools and equipment used in constructing floors. Trainer also needs to support the trainees with disabilities to measure correct ratio of materials for the construction of a concrete floor slab and use that to construct concrete floor slabs.

Practical activities:

- The trainer supports trainees with disabilities to identify tools, materials and equipment used in constructing floors
- Trainees with disabilities manipulate different types of floors
- Trainer supports trainees with disabilities to measure correct ratio of materials for the construction of a concrete floor slab
- The trainer supports trainees with disabilities to construct a concrete floor slab
- The trainer supports trainees with disabilities to cure concrete floors appropriately.

Assessment

- Oral or signed demonstrations
- Practical project work
- For trainees with intellectual disabilities who may not follow through a whole project, their assessment be staggered in stages of accomplishing different tasks

7.3 Plastering

Plastering is the process of covering rough walls and uneven surfaces in the construction of houses and other structures with a plastic material, called plaster, which is a mixture of lime or cement concrete and sand along with the required quantity of water. The trainer should help the trainees to identify materials and tools used in

plastering, identify surface for plastering and apply plaster on surfaces. Plastering requires fine motor skills. Trainees with challenges in fine motor skills need support either by being part of a team and carrying out part of tasks that form a section of the whole task.

Practical activities:

- The trainer supports trainees with disabilities to identify tools, materials and equipment used in plastering.
- Trainer supports trainees with disabilities to measure correct ratio of materials for plastering
- The trainer supports trainees with disabilities to apply plaster on surfaces.

Assessment

- Practical project work
- Oral or signed questions
- For trainees with intellectual disabilities who may not follow through a whole project, their assessment be staggered in stages of accomplishing different tasks

7.0 GARMENT MAKING

Garment making is an organized activity consisting of sequential processes to convert raw materials into finished products. Garments can be constructed using different techniques such as sewing, knitting and embroidery.

This hand book will focus on the various processes in garment making with an emphasis on necessary adaptation to reasonably accommodate trainees with disabilities in regular vocational and technical training. The following garment making options will be covered:

- a) Tailoring and Dressmaking
- b) Knitting
- c) Embroidery

7.1 Tailoring And Dressmaking

Clothing is an important part of our society. People practice self-expression by the clothes they wear. People make careers out of studying clothing and fashion. Tailoring and dress making involve the art of designing, cutting, fitting, and finishing clothes. Dressmaking is the art of making women's clothing while tailoring refers to making of men's clothing.

Areas covered

This section will cover the following areas

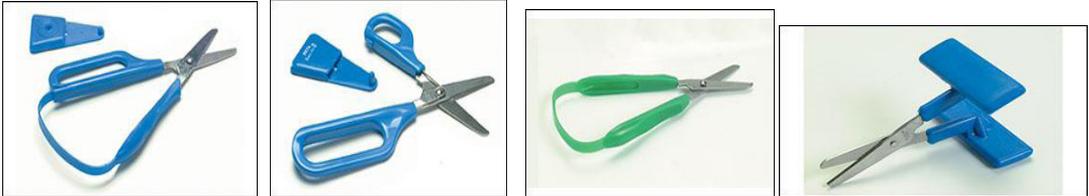
1. Choice and adaptation of tailoring and dressing materials, tools and equipment for trainees with disabilities
2. Safety measures in the tailoring workshop;
3. Basic needle work processes for trainees with disabilities;
4. Adaptations in assessment

Choice and adaptation of tools and equipment used in tailoring and dressmaking:

Shears and Scissors

Shears are Bent-Handled 7 to 8-inch-long scissors suitable for cutting fabric. Trimming Scissors are used for trimming and clipping seams. Pinking shears are used to cut a zigzag edge in finishing hem edges and seams.

Adapted scissors such as roller cutters and electric scissors, self-opening scissors, tabletop spring scissors, easy-grip scissors, loop scissors are available for people with dexterity and fine motor coordination difficulties. Roller cutters and electric scissors reduce the need for the user to squeeze or close their hand. Table top scissors require the user to push down, depressing the handle. Self-opening scissors have a spring fitted which automatically reopens the scissors after each cut or when pressure is released. Choice of scissors will be determined by individual needs of trainees.



Loop Scissors

Self-opening Scissors

Easy-grip Scissors

Tabletop Spring Scissors

Measuring tools

These are used for taking body measurements, checking grain lines, seam widths and the depth of cuffs and hems. Measuring tools include:

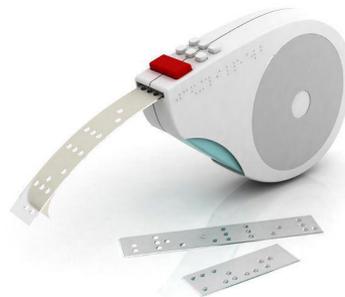
Tape Measure

Tape Measure is a measuring device used in taking body measurements, drafting patterns, and measuring fabrics. It has a metal tip and reversible markings in centimeters and inches.

Tape measures to be used by trainees with disabilities should be flexible and made of a material that will not stretch or tear. Other adaptations may include enlargement of the tape measure, marking the tape measure boldly, using bright colours with numbers written with a contrasting colour and using tactile or brailled tape measures. Other adaptations may include a hooked metal edge to hold the tape measure firmly when measuring.



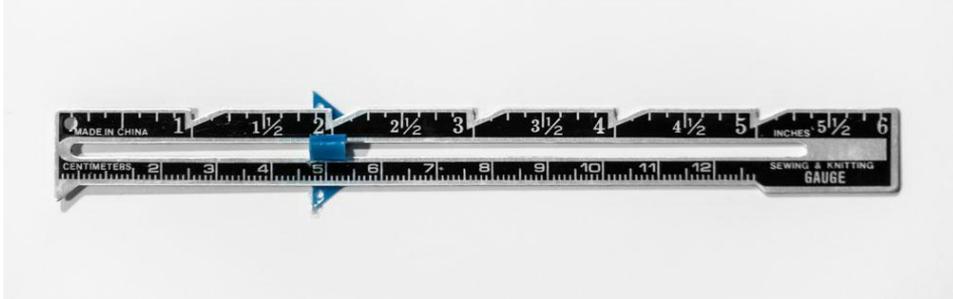
Tactile Tape measure



Brailled tape measure

Seam Gauge

A seam gauge is a 15cm (6 inch) ruler with a moveable indicator for measuring short distances. For trainees with disabilities the seam gauge may be replaced with a 15 cm ruler or an improvised seam gauge made from heavy cardboard. The markings should be boldly written or embossed.



Seam gauge

Metre Stick or Yardstick

A metre stick is useful for marking straight long lines and measuring long lines and hems. The stick should have a smooth finish with bold markings. For trainees with visual impairment, the markings should be tactile or brailled.

Marking Tools

These are used to transfer marking (for darts, tucks, pleats) from a paper pattern to fabric. The following tools are the most frequently used when marking fabric:

Tracing Paper and Tracing Wheel

Tracing paper or tracing carbon comes in a variety of colours and is used to trace darts and pleats on to the wrong side of fabric. The colour of tracing paper should be close to the shade of the fabric, but different enough to be seen distinctly.

A tracing wheel is used to transfer pattern markings to the fabric by leaving a fine imprint on smooth fabrics that can be pressed away after sewing. Trainees with visual impairment should be paired with sighted peers to assist them in marking.

Cutting Surface

This is a Cutting Board or flat board placed on a table where the fabric is laid out and cut. For learners with intellectual disability, visual impairment and deafblindness, the board should be made of soft material to enable fabric to be pinned securely to the cutting board/table to prevent it from slipping. The cutting board should be adjustable to accommodate trainees with physical impairments.

Seam Ripper

This is a tool for taking out seams and removing stitches. For trainees with fine motor coordination difficulties, the seam ripper's handle should be flat and enlarged for easy grip. Trainees with visual impairment should be assisted to use a seam ripper to avoid cutting the fabric.



Seam ripper with a flat handle

Sewing Needles

Needles are used for stitching, sewing buttons on and mending torn clothes. When choosing needles for trainees with disabilities consider the following

- They should be of a reasonable size for easy grip and manipulation
- They should have a wide hole (eye) to make threading easy
- They should be moderately sharp.



Adapted needles

Tailor's Pins

Pins are used to join the paper pattern with fabric when cutting and to put two pieces of fabric together when sewing. Trainees with disability should use pins with caution preferably with assistance. They should never use double edged pins. Flat pins are more preferable than rounded ones. Pins used by trainees with disabilities should have a firm pin top.



Tailor's pins with a firm top

Pin Cushion

Pin cushion is a cotton-stuffed cloth cut and sewn in many different shapes to keep the pins in place.

Thimble

Thimbles are made of either plastic or metal material to protect the finger from being pricked by the needle when sewing. The trainer should ensure that all trainees with disabilities get accustomed to using well fitted thimbles to avoid accidents. Adapted thimbles made of leather are more appealing to learners with finger dexterity problems and those with tactile hypersensitivity to metallic objects. They also fit in the finger firmly.



Leather Thimble

Thread

Sewing thread is a basic raw material for giving desired shape to a garment and holding the body parts together by creating seams. Cotton is the most used natural sewing thread and ideal for basic sewing. Sewing thread to be used by trainees with disabilities, should be of reasonable.

Sewing machines

This refers to a machine that is used for joining together pieces of cloth, with a needle that is operated either by turning a handle or by electricity. A sewing machine makes the task of sewing garments easy and efficient. Sewing machines make use of double thread that makes the stitches stronger and durable.

Adaptations of sewing machines for persons with physical and motor impairments may include providing hand operated machines for those with difficulties in using the lower limbs, automatic electric driven or computerized machines for trainees with difficulties using both limbs. For trainees with intellectual and other neuro-developmental disabilities, the machine should be a simple model without computerized features and with simple distinct parts that are easy to master and use. For trainees with visual impairment a model with automatic needle threading system would be a good option. Machines with a start and stop button are most appropriate for most trainees with disabilities.

Safety measures in garment making

Sewing involves working with sharp objects, such as needles, pins, scissors; operating sewing machines; use of electrical appliances and concentration for long hours. These can be hazardous to persons with disabilities if proper safety precautions are not observed to minimize chances of getting injured while sewing or experiencing physical pain after long hours of work. The trainer should guide the trainees in acquiring and practicing the following safety measures while sewing either by hand or machine.

- Ensure the working surfaces are at the right level. The sewing chair or surface should have adjustable height to cater for individual needs.
- Many trainees with physical impairments may find it difficult to work for long hours due to musculoskeletal impairments which mostly interfere with their resilience and energy levels. Those with neuro-developmental disabilities usually have short attention spans and may be unable to work for long hours. Avoid assigning tasks that require long hours of bending over or long

concentration span. Consider swapping activities or providing short breaks.

- Ensure the room is well lit with good ventilation especially for trainees with low vision. Fresh air and good ventilation can also prevent headaches, dizziness and fatigue.
- Some trainees with disabilities may have assistive devices such as calipers, prosthesis among other adaptive aids. Key precautionary measures may include avoiding any loose or hanging accessories, clothing or dangling items. Instead of too loose, long, fitted and tight clothing, encourage trainees to wear something comfortable, semi-fitted to the body. All assistive devices not in use should be kept safely away from the working surface.
- Trainees should keep the jewelry to minimum and remove everything that can get caught into the machinery.
- Trainees hair (if long) should be securely tied back.
- Trainees should be encouraged to always wear closed shoes when sewing.
- Pins are small, but often cause big damages. For trainees with finger dexterity problems, a magnet cushion may be used to help pick pins. Pins should never be put in the mouth.
- Floors must always be clean and dry. The trainee should ensure the sewing space is organized in such a way that no hanging things from the walls or shelves can fall over and cause injury.
- Trainees should observe all the safety rules for using electrical appliances if using an electrical sewing machine. These include; not overloading the power source, avoiding use of frayed or cut electric cables, turning off and unplugging the machine when not in use.

1. Basic sewing processes.

Basic sewing processes include constructing basic needlework stitches, making seams and hems, neatening seams, constructing darts and sewing button holes. The trainer should guide trainees through this process before embarking

on garment construction. The trainer should use the following guidelines on reasonable accommodation for learners with various disabilities:

- Trainees with visual impairment rely on the tactile sense when sewing. The trainer should first avail completed samples of stitches, seams, hems and button holes to manipulate and feel. This should have followed with a step by step hand-on hand demonstration by the teacher.
 - Trainees with visual impairment and those with deafblindness should be paired with a sighted peer when practicing sewing skills. Peer assistance may be faded once the trainee gains confidence in performing the skills independently.
 - Some trainees with intellectual and other neurodevelopmental disabilities may take longer to master the skills and may need physical and verbal prompts throughout the process. The trainer should be Patient when working with trainees such trainees and provide one on one demonstrations.
 - For trainees with fine motor skills difficulties and eye hand coordination challenges, hand sewing may be an uphill task. The trainer should allow the trainees to make stitches first on paper and waste cloth to practice straight and even stitching. The trainers need to use reinforcement and praise for successful attempts to accomplish a given task.
 - Some trainees may have a short attention span making it difficult for them to concentrate on a task for long. The trainer should break the tasks into manageable components and ensure each component is successfully accomplished before moving to the next tasks for example the trainees should exhaustively practice making stitches before moving on to construction of seams.
 - The trainer should be focused on individualized training rather than group training to ensure that individual needs are addressed. This implies that the trainer should not expect the trainees to move at the same rate or pace. This should be communicated to the trainees with disabilities and their peers to avoid anxiety and stigma.
 - Trainees with hearing impairment should be given written instructions or supported by use of a sign language interpreter.
 - Trainees with speech and language difficulties should be allowed to use

other modes of communication such use of gestures, sign language and written communication.

- The trainer should ensure that trainees with disabilities are supported by peers or technicians when using sewing machines.
- When making hems, seams and darts clear markings should be drawn to guide trainees to follow a straight line when sewing. For learners with visual impairments such markings should be done with temporary stitches or wax.
- Making buttonholes may be challenging to learners with visual impairment. The trainer should give the trainee physical prompts to begin with and pair the trainee with a sighted peer. Once the trainee masters the skill, assistance should be faded off.
- Electric sewing machines should only be used with trainer's strict supervision to begin with. Even when the trainees gain some confidence in the use electric sewing machine, the assistance of peers will be necessary for trainees with visual impairment to carry out certain activities like threading the needle, choosing the right colour of thread for the garment and use of pattern markings.

Assessment

The trainer may assess the learner's ability to:

- a) identify tools used in tailoring and dress making.
- b) Construct various sewing stitches,
- c) Construct various types of seams,
- d) Construct a men or women wear.

7.2 Knitting

Introduction

Knitting is a process by which yarn is manipulated to create a garment or fabric; it is used to create garments such as sweaters, leg warmers, hoods, blankets and baby's clothing. Knitting may be done by hand or by machine using plain knit and purl stitches or more complex patterns.

Learning to knit can benefit people with disabilities in many ways. Knitting is a vocational skill which is a source of income both in formal employment in knitting industries and self-business enterprises. For persons with disabilities, knitting ben-

efits include improvement in; finger and wrist dexterity, fine motor coordination, creativity, critical thinking and problem solving. Other benefits accrued by persons with disabilities through knitting include:

- Ability to focus and follow through a step-by-step process
- Positive social behaviors and teamwork
- Use of locally available materials and improvisation
- Personal hygiene
- Responsibility
- Concentration on a task and persistence to complete given tasks.

Areas Covered

This handbook will focus on the following areas in knitting

1. Choice and adaptation of materials, tools and equipment used in knitting
2. Hand Knitting process (casting on, knit stitches, purl stitches, casting off)
3. Use of patterns in knitting
4. Assessment

Choice and adaptation of materials, used in knitting

When choosing knitting materials, tools and equipment to be used by trainees with disabilities, consider the following:

- Knitting yarn should be made of wool or other elastic materials for ease of manipulation.
- Knitting yarn should be of reasonable thickness and texture. Knitting yarn which is too thin may be difficult to manipulate especially for trainees with coordination difficulties. Rough textured yarns may be uncomfortable to learners with tactile hypersensitivity.
- Knitting needles should be light in weight and made of warm material such as birch or bamboo. Metal needles are unsuitable for trainees with finger dexterity challenges and those with tactile hypersensitivity to cold or metallic items.
- Flat needles are more preferable as they are easy to grip.
- Brightly coloured knitting thread and needles are appropriate for trainees with
- low vision.
- Tape measures should be marked with big visible and embossed lines

and corresponding embossed or brailed readings for trainees with visual impairment.

- Adapted scissors such as self-opening scissors, tabletop spring scissors, easy-grip scissors, loop scissors are most suitable for trainees with dexterity and coordination challenges.
- Sewing machines should be adapted to suit the needs of trainees with disabilities.
- Working surfaces should be adjusted accordingly to accommodate trainees with physical impairments.

Basic Hand Knitting Processes (casting on, knit stitches, purl stitches, casting off)

The knitting process can be very exciting for trainees with disabilities only if they get desired support through reasonable accommodation strategies. The trainer should use a variety of strategies to enhance acquisition and application of knitting skills. The following steps may be used to introduce trainees with disabilities to the hand knitting processes:

- i. Break the process into manageable tasks. The tasks include casting on, knit stitches, purl stitches and casting off.
- ii. Use multi-sensory approach to guide the trainee in identifying knitting materials through seeing, hearing, touching and smelling. You may also provide them with knitted materials to manipulate. Always allow trainees to use the most preferred sensory modality.
- iii. Explain each step at time keeping within the pace of individual trainees. You may use realia or videos as you discuss each step. Videos should be captioned for trainees who are deaf. For trainees with visual impairment videos should be accompanied by audio description.
- iv. Demonstrate each steps allowing trainees to participate in the demonstration individually. Ensure the sitting arrangement accommodates trainees with low vision and those who are hard of hearing to enhance their participation.
- v. Ensure that preceding skills are mastered by the trainees before introducing new ones.
- vi. After demonstrating a specific skill adequately, let the trainees try it out. Give physical and verbal prompts if necessary.
- vii. Once all the skills are mastered give the trainees opportunity to practice

the skills of casting on, knitting, purling and casting off.

- viii. Trainees may use the learnt skills to hand knit simple plain garments such as scarves before they move to more complicated garments. Some trainees especially those with intellectual disability may require individual attention and support throughout the training session.

Use of patterns in knitting

A knitting pattern is a set of written instructions on how to construct items by knitting. There are two basic forms of knitting patterns namely: Text patterns which use numerals and words (and usually abbreviations), and

Chart patterns which use symbols in a chart. Some patterns mix the two forms to allow the user to make their preferred choice. The most appropriate patterns for use by trainees with disabilities are those which use numerals and words.

Once the trainees master the basics knitting processes, which include how to cast on and cast off, how to work the knit stitch and the purl stitch, they will be ready to start knitting using simple patterns.

Patterns use coded language with many abbreviations and terms which may be very confusing to trainees with disabilities in the beginning. The trainer should make a deliberate effort to ensure that the trainees become familiar with the knitting abbreviations before using the patterns. The pattern abbreviations should be availed in different formats including, braille for trainees with visual impairments and pictorial for trainees with intellectual disability. A multi-sensory approach should be applied to enhance mastery of the key abbreviations and symbols.

Most knitting pattern use standardized abbreviations and symbol keys as explained in the table below.

Basic Stitch Abbreviations

Terms represent things you are to do, like these:	
K or k	Stands for knit stitch
P or p	Stands for purl stitch
CO = Cast on	This is how you begin each knitted piece.
CO = Cast off or BO = Bind off	This is how you finish most knitted pieces. Casting off is sometimes called binding off. They mean the same thing.
Inc = Increase	Add one or more stitches. The most basic increase is to work in the front, and then again in the back, of the same stitch. This can be done in both knit and purl stitches.

Dec = decrease	Eliminate one or more stitches. The most basic decrease is to work two stitches together as one. This can be done in both knit and purl stitches. Different ways of increasing and decreasing change the way the project will look, and most designers have a specific method in mind. So usually your pattern will tell you how to do this.
Rep = repeat	Do the same thing again the number of times stated in the pattern.
Sl = Slip	Slip a stitch or stitches from one needle to the other, without working it.
YO = yarn over	Take the yarn over the needle.
Tog = together	Work 2 or more stitches together, forming a decrease.
Work even	Continue what you have been doing, without any increases or decreases.
Maintain pattern as established	This is usually used when you are working a pattern stitch and are increasing (or decreasing) at the edges. It means that you keep the center part in the pattern as you have already set it up, and will add or subtract stitches at each end without disturbing that pattern. When enough new stitches have been added, they should be incorporated into the pattern.

How to Use a Knitting Pattern

The trainer should always consider the level of ability and skills before introducing knitting patterns to the trainee with disabilities. Readiness to use knitting patterns will depend on the ability to understand the abbreviations used in the pattern. Once the abbreviations are mastered, the trainee should be introduced to simple patterns first.

The trainer should ensure the pattern is presented in an accessible format, for example braille for learners with visual impairment.

The following are steps the trainer may use to guide trainees with disabilities to read and use a simple knitting pattern:

Step 1

Instruction: CO 12 sts (means cast on 12 stitches)

Explain to the trainee the meaning of this instruction and demonstrate the skill. Let the trainee first make a slip knot on one needle, then cast on 11 more stitches on the same needle. Explain that in knitting the slip knot always counts as a stitch. Provide physical and verbal prompts to learners with deafblindness and those with visual impairments.

Step 2

Instruction: Row 1 (RS): Knit. Row 2 (WS): Purl.

This instruction means that on Row 1, which is the right side of the piece (RS), the trainee will be expected to knit all 12 stitches on the needle. Then for Row 2, the wrong side (WS) of the piece, the trainee will purl every stitch. The trainer is expected to explain these abbreviations in very simple terms using the preferred mode of communication. The trainer should guide the trainees through a practical demonstration of this step providing necessary cues and prompts. Trainees should then be given enough time to practice the skills.

Step 3

Instruction: Rep Rows 1 and 2 until piece measures 4” from the beginning, ending with a WS row.

This instruction entails repeating Row 1 (a knit row) and Row 2 (a purl row), in sequence until the piece measures 4” from the cast on row.

The trainer should guide trainees in making the knitted piece as instructed in the pattern. They should measure 4” by placing the knitted piece on a flat surface without stretching it out, then placing the end of a ruler or tape measure against the needle, and measuring down to the initial cast-on row. The pattern made by repeating a knit row and then a purl row for a number of rows is called stockinet stitch, abbreviated as St st. This one of the simplest pattern to make for beginners.

The trainer should guide the trainees with visual impairment to identify the right and wrong side of the knitted stockinet pattern through touch. Trainees should be given an opportunity to try out more complex patterns at their own pace.

Assistive Devices

The following assistive devices will be required:

Trainees with physical impairment

Wheel chairs, calipers, walking aids prosthesis, adapted handler to hold materials and equipment, slant board positioning, adapted seats, speech readers.

Trainees with visual impairment

White cane, sighted guide, bailers, braille paper, brailed books, tactile learning resources, large print books materials, brightly coloured materials.

Trainees with Hearing Impairment

Hearing aids, sign language interpreters.

Trainees with intellectual disability

Communication boards, Cue cards or pictures.

Assessment

The trainer may assess the learner's ability to:

- e) Identify adapted tools used in knitting.
- f) Construct various knitting stitches,
- g) Construct knitted articles.
- h) Use commercial knitting patterns.

7.3 Embroidery

Introduction

Embroidery is a simple stitch repeated to make a pattern. The process of embroidery can also be explained as the art of decorating a piece of cloth, fabric or other materials using stitches, pearls, beads, knitted patterns or sequins.

Learning embroidery can benefit people with disabilities in many ways. Embroidery is a skill which is a source of income both in formal employment in embroidery industries and self-business enterprises. For persons with disabilities, embroidery benefits include improvement in; eye-hand coordination, color theory, design and planning skills, creativity, critical thinking and problem solving. Other benefits include: ability to focus and follow through a step-by-step process; concentration and persistence to complete given tasks.

Areas Covered

This handbook will focus on the following areas in embroidery

1. Choice and adaptation of materials, tools and equipment used in embroidery.
2. Hand stitching (running stitch, back stitch, satin stitch, lazy daisy stitch and woven wheel stitch)
3. Use of other embroidery materials such as pearls and beads

Choice and adaptation of materials, used in embroidery

When choosing embroidery materials, tools and equipment to be used by trainees with disabilities, consider the following:

- The embroidery thread should be colourful and easy to manipulate
- The thread should be of reasonable thickness and texture. Should not be too thin especially for trainees with coordination difficulties. Rough textured embroidery thread may be uncomfortable to learners with tactile hypersensitivity.
- Embroidery needles should be light in weight and they should have large thread holes for ease during threading. For trainees with finger dexterity challenges and those with tactile hypersensitivity to cold and metallic items, plastic embroidery needles can be used.
- Flat needles are more preferable for learners with manipulation difficulties as they are easy to grip.
- Brightly coloured embroidery thread and needles are appropriate for trainees with low vision.
- Tape measures should be marked with big visible and embossed lines and corresponding embossed or brailed readings for trainees with visual impairment.
- Adapted scissors such as self-opening scissors, tabletop spring scissors, easy-grip scissors, loop scissors are most suitable for trainees with dexterity and coordination challenges.
- Sewing machines should be adapted to suit the needs of trainees with disabilities.
- Working surfaces should be adjusted accordingly to accommodate trainees with physical impairments.

Basic Hand Stitched Embroidering Processes (running stitch, back stitch, satin stitch and lazy daisy stitch)

Embroidery can be learned as a hobby as well as a means of earning income for trainees with disabilities. The trainer should use a variety of strategies to enhance acquisition and application of embroidering skills. The following general adaptations should be considered:

- i. Allow trainees to familiarize themselves with embroidered materials through observation, for those who are sighted and manipulated, for those with visual impairment and deafblindness.
- ii. Break the process into manageable tasks. The tasks include fastening embroidery hoop, threading the needle, embroidery stitches such as running stitch, back stitch chain stitch, split stitch and satin stitch.
- iii. Use a multi-sensory approach to guide the trainee in identifying embroidery materials through seeing, hearing, touching and smelling. You may also provide them with embroidered materials to manipulate. Always allow trainees to use the most preferred sensory modality.
- iv. Explain each step at a time keeping within the pace of individual trainees. You may use realia or videos as you discuss each step. Videos should be captioned for trainees who are deaf. For trainees with visual impairment videos should be accompanied by audio description.
- v. Demonstrate each step allowing trainees to participate in the demonstration individually. Ensure the sitting arrangement accommodates trainees with low vision and those who are hard of hearing to enhance their participation.
- vi. Ensure that preceding skills are mastered by the trainees before introducing new ones.
- vii. After demonstrating a specific skill adequately, let the trainees try it out. Give physical and verbal prompts if necessary.
- viii. Once all the skills are mastered, give the trainees the opportunity to practice the skills of hoop fastening, threading the needle and embroidering a straight line on a fabric using running and back stitches.
- ix. Trainees may use the learnt skills to embroider simple plain fabrics such as handkerchiefs before they move to more complicated garments. Some trainees especially those with intellectual disability may require individual attention and support throughout the training session.

Basic Hand Embroidery Stitches

a) Running Stitch

Running stitch or straight stitch is the basic stitch in hand stitching and embroidery,

on which all other forms of stitching are based. The stitch is worked by passing the needle in and out of the fabric at a regular distance. Trainees can be shown how to mark the area where the running stitch will run through using a water soluble marker. The trainer may guide trainees to draw a line from one end of the fabric to the other. This helps the trainees with disabilities to follow through the line as they make the running stitches. It is important to note that the space between one stitch to the next should be equal to form uniformity. Running stitches are mostly used to outline an embroidery pattern.

b) Back stitch

Back stitch is much similar to running stitch. The only main difference is that with back stitch you do not run the needle through the straight line drawn. With back stitch, each individual stitch is made backwards to the direction of the first stitch. For trainees with disabilities it is important to begin by making the back-stitch outline before constructing the satin stitch to form a borderline. Trainees with visual impairment should be paired with sighted peers for guidance on straight stitching. Learners who are deafblind should be given physical prompts

The small stitches done back-and-forth makes the back stitch the strongest stitch among the basic stitches. Hence it can be used to sew strong seams by hand, without a sewing machine. Back stitches can also be used to outline a pattern for satin stitch to make it easier for learners with visual impairment to stitch within the outline.

c) Satin Stitch

Satin stitch is a series of flat stitches that are used to completely cover a section of the background fabric. Satin stitches are worked either by outlining the area where you want to do a satin stitch using a water soluble chalk or using back stitches to create an outline where the satin stitch will be done. For trainees with visual impairments the outline of the satin stitch should be made with backstitches. For trainees with finger dexterity challenges it is important to use a hoop to hold the fabric tight to prevent having a too loose or too tight satin stitch which will distort the intended pattern.

Trainees with visual impairments and those who are deafblind should be assisted to draw the pattern and use back stitch to outline it.

d) Lazy Daisy Stitch

Lazy Daisy stitch is a simple loop arranged in groups to create flowers, combined in a line to make Chain Stitch, or worked individually to create leaves. Lazy daisy is an embroidery pattern that brings out petal and a floral design. The trainer should work with the trainee to draw the pattern, outline the flower using backstitches and create the lazy daisy stitches. Physical prompts and cues may be

used for trainees with intellectual disabilities and those with visual impairments. The trainer should avail enough time for the trainees with intellectual disability to master the skill.

e) Woven wheel stitch

Woven wheel stitch is basically a circle of weaved thread but it is used quite frequently as a rose in floral embroidery. This weaving part of this stitch can be done very tightly, which will build up a thicker and more dimensional stitch. Trainees with manipulation challenges may keep the weaving a little looser, resulting in a softer and flatter stitch.

How to stitch woven wheel stitch

- i. Guide the trainee to get a fabric and fix it on a hoop. Trainees with visual impairment should be assisted to draw a circle and a pattern of five or seven spokes inside the circle and stitch the spokes.
- ii. Guide the trainees to insert the needle through the back of the fabric, Locate the center of the spokes and push the needle through the fabric right along the centre. Ensure that the needle comes up near the center, but between 2 of the spokes. Pull until the thread is tight. Make sure that the needle does not go through the centre but near the centre.
- iii. Guide the trainees with disabilities to weave the thread under the first spoke and over the next, providing physical and verbal prompts when necessary. Insert the needle through the space between the thread and the fabric to weave under the first spoke. Then, bring the needle over the next spoke to weave over and continue throughout the circle. Ensure that the weaving thread is just tight enough and not too tight as this will make the wheel bulge.

1. Use of Commercial Embroidery patterns

Commercial embroidery patterns can take many forms; they can be illustrative scenes, repeating motifs, or script-style text. Using a variety of stitches (dictated by the pattern), you then fill in the design. Patterns can range from basic stitches to complex techniques that are used to create an embroidery design that can be quite captivating.

Once the trainees master the basic embroidery process, which include fastening of the hoop on a fabric and stitching simple stitches such as running and back stitches, they will be ready to start embroidering using simple patterns.

Embroidery patterns are easy to use even though some may be very confusing to trainees with disabilities in the beginning. The trainer should make a deliberate effort to ensure that the trainees become familiar with the patterns before using them. This

can be done using the multi-sensory approach to enable all learners familiarize with the patterns. For trainees with intellectual disabilities, pictorial patterns should also be availed for them to keep referring back.

How to Use an Embroidery Pattern

The trainer should always consider the level of ability and skills before introducing embroidery patterns to the trainee with disabilities. Readiness to use these patterns will depend on the ability to understand them. Once understood and mastered, the trainee should be introduced to simple patterns first.

Embroidery patterns are used to guide the trainees in creating perfect stitches during embroidery work. They contain a variety of pictures which can be traced onto the fabric and sewn using the embroidery stitches.

The trainer should ensure the pattern is presented in an accessible format, for example braille for learners with visual impairment.

When using embroidery patterns, you will need;

- a) Assorted patterns
- b) Tracing wheel
- c) Carbon paper

Sort out the patterns and choose the ones you will use.

- Place the carbon paper on top of your fabric (the location of the pattern depends on your choice) and put your pattern on top of the carbon paper.
- Using a tracing wheel, trace the pattern outline and any other necessary parts that you will need during stitching.
- The pattern will be carbon copied on the fabric. You can start using embroidery stitches to decorate the outlined pattern.

Note: The trainer should pair trainees with visual impairments with sighted peers for support when tracing the patterns.

Assistive Devices

The following assistive devices will be required:

Trainees with physical impairment

- Wheelchairs, calipers, walking aids prosthesis, adapted handler to hold materials and equipment, slant board positioning, adapted seats, speech readers.

Trainees with visual impairment

- White cane, sighted guide, bailers, braille paper, brailed books, tactile learning resources, large print books materials, brightly coloured materials.

Trainees with Hearing Impairment

- Hearing aids, sign language interpreters.

Trainees with intellectual disability

- Communication boards, Cue cards or pictures,

Assessment

The trainer may assess the learner's ability to:

- i) identify tools used in embroidery.
- j) Construct various hand embroidery stitches,
- k) Transfer embroidery patterns to the cloth
- l) Make embroidery patterns

8.0 WEAVING

Introduction

This course should equip learners with knowledge, skills, attitude and values necessary for making different types of woven articles. The trainer is expected to guide learners with disabilities to acquire practical skills in making various woven articles covered in this handbook. But for the project work, the trainer should support the learner to select only one project area.

Area to be Covered

The areas to be covered include introduction to weaving, sample project areas.

Introduction to weaving.

The trainer should guide the learners with disabilities to identify the following resources required for weaving different articles.

- Different woven items like baby shawl, table cloth, neck scarf, shopping bags, baskets, Woven Furniture, Macrame etc.
- Tools and equipment hand 100m, frame 100m, pair of scissors, tape measure, yarn display board, measuring table, needle and other accessories.
- Materials including the following Yarn, Sisal Twine, Sisal String, Papyrus, Knives etc.

Practical Activities

Guide the learners to identify different pliable materials used in weaving. The trainer should expose the learners to the materials and guide them to explore these materials by touching, twisting, bending and even rolling them to test their pliability. The trainers can also guide the learners with blindness and those who are deaf blind to feel the texture of these materials. Learners who are autistic, those with physical challenges, slow learners and those with learning difficulties give verbal names to each material. Learners with deafness should be guided to sign the names correctly.

The trainer should guide the learners to care for the materials used in weaving by carefully manipulating them with clean hands. The trainer should also guide learners to carefully and systematically roll or fold materials and keep them safely after and during use. Learners with blindness and those with deaf blindness should sit at a distant corresponding to their sight/vision. Those with physical disabilities keep them close to where they sit preferably a shelf or chest drawer not below their sitting level or too high. Those with deafness, slow learners, and those having learning difficulty

be guided to keep them in a cupboard.

Guide the learners to care for tools and equipment used in weaving by giving one on one demonstration on the following; fixing and adjusting loose pairs, replacing broken pairs, sharpening and cleaning them out of dust and proper storage.

Assessment

The trainer should assess the learner with disability on practical skill such as ability to

- a) Identify woven articles
- b) Identify different weaving materials tools and equipment.
- c) Care for materials, tools and equipment used in weaving
- d) Answer oral and signed questions.

Different approaches to weaving

The trainer should guide the learners to identify the approaches used in weaving various article. These approaches include: Weaving the art of interlacing two sets of threads at 90° i.e. weaves and wefts and, basketry the art of interlacing at an angle less than 90° twining or knotting sets of strands. Expose the learners to sample articles for observation and exploration. These samples may include neck scarf, baby shawl etc. weaving ropes, hammock, and plaited baskets etc. - basketing.

Sample Project Areas.

Practical Activities for Tapestry Weaving.

Guide the learners to identify materials, tools and equipment to be used in tapestry weaving the materials, tools and equipment may include the following potholder frame 100m yarn of different colours, sewing needles, work table tape measurer, sharp blades pair of scissors masterpiece (design) and felt pen guide learners who are deaf blind and the visually impaired to explore the materials, tools and equipment to get orientation on their respective uses, manipulation and care. Give them one to one demonstration and peer mentorship. The trainer should give learners with autism, deafblindness, and those with intellectual disability enough time to get clear orientation to the materials, tools and equipment. To learners with hearing impairment, give an explanation by correct use of sign language.

Guide the learners to make a masterpiece design on a sheet of hard paper supporting learners with physical disability to develop their own masterpiece by demonstrating to them how to develop it. To learners who are blind and those with blindness, the trainee should provide them with hearing loss be given correct sign language explanation to develop their own. The trainer should work closely with learners who are

autistic and intellectually challenged to develop own design by giving support in the process. Take care of learners who are autistic for they may switch off due to low concentration prompt them to work to the end.

Guide learners to set warps on the potholder pro 100m by ensuring correct tension. Support learners who are challenged physically to use their functional body parts to do this and provide them work top that corresponds to their setting posture as they work. To the deaf blind and ritually impaired help them to sit close to source of light so that those with low vision, can benefit from the light to enable them use the vision. To learners with deafness, the trainer should use correct sign language for explanation and guidance.

Work with learners to trace out this masterpiece using felt pen on the warp set of threads give support to all learners to identify different areas to be coloured differently on the masterpiece demonstrate to the learners one to the how to start interfacing using different coloured yarn. Make a u– turn where that specific colour should end to give room to the next colour. Needle can be used to interlace the weft set accurately. Pull the thread to be tight enough to balance the already set warps. Take care of learners with autism who may be sensitive to some colours. Support learners who are deafblind and those visual lose to carefully interlace.

Guide the learners to continue filling all parts with desired colours and interlock the gaps where two separate colours join together finish up the edges of the article by stitching using a thin thread and a needle. Give support to all learners by demonstrating to them individually the stages for learners who are blind and those who are deaf blind, guide them to explore the article carefully to identify the gaps to be interlocked including the edges. To the autistic and slow learners give ample time.

Guide the learners to cut out the article from the potholder pro – 100m using a pair of scissors. The trainer to support the learners with blindness and deaf blind to hold the pair of scissors appropriately in order to cut out the finished article. Support learners who are autistic to carefully cut out the item from the 100m by demonstrating to them on one to one. To learners who are deaf, explaining to them explicitly how to carefully cut the article out by using sign language.

The trainer should guide the learners to clear the work area, clean and store the tools and equipment appropriately.

Practical activities for weaving ropes.

Guide learners with disability to identify materials used for rope making. The materials include sisal fibre and manila threads among others. Guide learners with disabilities to identify the source of sisal fibres that is the sisal leaves.

Guide learners with deaf blindness and those who are visually impaired to touch explosively the sisal leaf and smell it. Trainer should take care of the learners with

autistic not to squeeze the juice out and spill on the skin for it caused irritation of the skin. To the physically challenged and the slow learners. The trainer to give verbal instruction and guidance. However, to learners with deafness, the trainer to use sign language for guidance.

Give the learner already prepared sisal fibers for making the ropes. Guide the visually impaired learners and the deaf blind to feel the texture and the flexibility by hands. Those with other disabilities can be guided to observe and touch.

The trainers to demonstrate on one to one to all learners on how to separate strands for rope making from the fibers. Work with learners to use the strands to make twined ropes.

Guide learners who are deaf blind and those who are visually impaired to hold the strands of sisal fibers correctly and firmly twist and twine round to form a rope. Learners who are having deafness be guided to observe and follow instructions made by signing correctly. The trainer to take time to demonstrate the skills to learners with learning difficulty and the slow learners on how to perform the tasks. Once the twined piece is about three inches, guide the learners to bring both ends together and join the opposite piece of strands together and twine round by first twisting the strands firmly. Guide learners to continue until a full length of about six meters is achieved. Do a repeat of the third strand of fiber the same way and all through. Support learners with blindness and deaf blindness by demonstrating to them on one to one. Learners with physically handicapping conditions to be supported and guided to use their functional body parts. Slow learners and learners with learning difficulties be given adequate time and plenty materials to enable them finish up tasks. The trainer to demonstrate and explain to learners with deafness through correct use of sign language.

Guide learners to use pair of scissors to trim the hanging fibers to create a fine finish. The trainer should guide the learners to hold pair of scissors correctly while using. Learners with blindness and those with deafblindness be supported to feel and identify the features of the tool while those with mental retardation and the slow learners be guided individually to use the tool. However, the physically challenged be guided to sit in a comfortable position and posture while working on a table adjusted enough for them.

Guide learners to clean the working area, clear the tools and store them safely in the cupboards.

Practical activities for weaving using handloom.

The trainer should guide learners with disabilities to identify materials, tools and equipment used for weaving on a handloom. Those materials, tools and equipment include the following; handloom with its accessories, knitting needle or a blunt cob-

bler's needle, tape measure, measuring table, yarn display board, shelves or cupboards and a chair. Guide the learners who are blind and the deaf blind to explore the tools, equipment and materials and match them correctly with their use. However, learners who are hearing impaired be guided to sign correctly the names and features of each tool and equipment and match them to their respective uses. Those who are autistic, enough time should be provided for them to get adequate orientation of the tools and equipment.

The trainer should guide the learners to identify different articles made using handloom weaving technique. These articles may include bed covers, tab cloths, bay shawl, shopping bags, neckcarfs among others. Guide the visually impaired learners and the deaf blind to explore by touch the size, texture and features of the articles. However, to the learners who are hearing impaired, guide them to observe, touch and feel and describe the features and uses of each article using sign language. To the slow learners, autistic and those with learning difficulty, provide them with adequate time to observe, feel and these articles to their respective uses accordingly.

Guide the learners with disabilities to care for the materials tools and equipment used in handloom weaving technique. The trainer should support the learners to carefully manipulate the materials used in hand weaving technique, assemble and disassemble the handloom, fasten and loosen adjustable pairs, clean and store all the tools and equipment's correctly.

The trainer should guide the learners to set and assemble the handloom machine by first setting the collapsible stand and placing the loom on it correctly. Work with learners who are blind and those who are deaf blind to explore parts and features of the loom machine. Let them manipulate the parts and test their functions.

Guide those with hearing impairment to sign correctly the functions of the parts of the loom using sign language. However, to the physically challenged, they should use their functional body parts to manipulate the machine and be provided with chairs adjusted for their heights and posture.

Guide learners to select yarn for weaving according to color. Take care of the autistic learners who may be sensitive to certain colors. For the blind and deaf blind, guide them to choose colors that can blend well and suits the purpose of the article to be woven. Explain to the deaf using sign language appropriately while to the physically handicapped, slow learners, autistic and the intellectually challenged use verbal instructions precisely. Demonstrate on one to one the measuring of yarn using tape measure whole placing appropriately on measuring table, and cut with a pair of scissors. Learners who are deaf blind and those who are blind be guided to use embossed tape measures correctly and, hold the pair of scissors appropriately as they cut the yarn. However, to the physically challenged, guide them to sit on chairs close to the table as they measure and cut the materials. Take care so that the learners with autism and those with learning difficulty do not mishandle the yarn which may knot easily.

Guide the learners to display the yarn on the display board according to color and length.

Work with the learners to load the loom appropriately with the wrap set of threads. Demonstrate to the learners with disabilities on one to one how to use the knitting needle to pass the yarn (warps) through the eyelets or slots in the heddle and spaces between the harness equally. Guide learners with deaf blindness and those who are visually impaired to carefully touch and feel the slots (eyelets) and spaces on the heddle with their hands. Work with them to push the needle through the slot, draw the needle back and forth to feel how it shall be used. To the learners with deafness, use sign language as you monitor. They survey these features and practice their uses. The trainer to support those with autism and slow learners to explore and demonstrate to them how to push the knitting needle back and forth in the slots. Guide learners to set the warps appropriately on the loom and set the tension correctly. Guide learners on their sitting position to draw back and forth the heddle to test if the warps are well loaded. Guide them to put the heddle in resting position and explore the shed with their hands.

Guide learners to load the shuttle correctly with the warps threads. Demonstrate to the learners one to one the correct way of passing the weft through the notches at both ends of the shuttle. The trainer to work with the learners who are deaf blind and those with visual impairment to correctly take round the yarn through the notches ensuring the correct tension. Meanwhile to learners who are physically challenged, they are to be given support to ensure they use their functional body parts to do so. Support learners with autism, the slow learners and those with learning difficulty to load the shuttle. Demonstrate to learners with deafness the process and instruct them accordingly using sign language.

The trainer should work with the learners to weave an article using handloom. Give support to learners who are deaf blind and those with blindness create shed by raising heddle or lowering it below the horizontal level as they pass the shuttle loaded with wefts through. This to be done from left to right and right to left. Draw forth and back the heddle to compact the wefts correctly. Demonstrate to learners with deafness and guide them using correct sign language. To the autism, slow learners and those with learning difficulties, work with them paying attention to their problems and challenges. Provide to the learners who are physically challenged to get a good appropriate sitting position.

Guide the learners to cut out the finished woven article from the handloom starting from the far end. The trainer to guide learners with deaf blindness and those with blindness to hold the pair of scissors correctly and cut out the warps from the end away from their sitting position, remove from the heddle and knot the threads. Demonstrate to those with physical handicap to be supported to change position to reach the point to be cut. Demonstrate to the learners who are autistic, slow learners

and the intellectually challenged to hold the tool correctly and cut the threads appropriately. Work with the learners who are hearing impaired to cut however, sign to them correctly by instructing them on the operations. Guide the learners to do the same activity for the end of the woven article near you. Knot the hanging warps to interlock the finished article to avoid fraying.

Guide the learners to clean and store the tools and equipment's correctly, clear the work surface by sweeping out the fallen pieces of thread.

Assessment

The trainer should assess learners with disabilities based on their abilities to:

1. Identify the materials for weaving and woven article.
2. Identify tools and equipment's used for handloom weaving.
3. Prepare and set the loom machine ready for weaving.
4. Finish up a woven article correctly.

N/B: Other project areas can be done following the same procedures learnt here above.

9.0 CARPENTRY AND CARVING

Introduction

This course is intended to equip the trainee with knowledge, skills, attitude and value necessary for making different types of articles in woodwork.

The trainer is expected to guide learners with disabilities to acquire practical skills in making various wooden articles covered in this handbook. However, the trainer should support the learner to select one wooden article for project work.

Areas to be covered

The project areas to be covered include:

- Making book shelf
- Picture frame
- Picture frame
- Chopping and chapatti board
- Handles for Jembes, broom, mops and rakes.
- Serving tray
- Stool
- Arm chair.

While in curving the following project may be taken

- Carving animals
- Flower rases
- Utensils
- Trays
- Morta and pestle
- Toys

Learning Resources

The trainer should guide the learners with disabilities to explore resources used in carpentry and carving to identify their use, features and parts by touching, observing, naming and signing appropriately.

These resources include:

Wood and timber of different sizes, adhesives, paints, wood fillers, sand or glass papers of different gauges, hand saw, back saws, cross cut saw, wood vice, cramps, planes, sawing boards, rasp files, pincers, pliers, hammers, try – square nail punch, chisel, panga, coping saw, pencil, machete, mortise gauge, marking gauge, brace, spoke shave, painting brushes and tape measure among others.

Practical Activities

Guide the learners to identify different items made of wood such as tables, lecturer seats, cupboards, shelves, and door shutters.

The trainer should guide the learners to match these items with wood or timber from which they are made, they should feel by touching their features and different parts. Learners with blindness and those of who are deafblind should be guided to feel the items by touch. They should explore all parts of each item up to the joints of every part. Learners with hearing impairment should be guided to sign the names of each item appropriately. The physically handicapped learners and those with autism should be exposed to each item and orally name them by matching each item with its function. Let them feel the texture and observe joints closely. Some of the wooded articles made of carpentry and carving techniques include but not limited to: Tudor chair, tudor chest of coffer, turned table leg, court cupboard, carved chair, interlaced carving, cabriole leg of a coffee table carved animal forms and images among many others.

Guide the learners to identify materials, tools and equipment used in carpentry and carving. The learners should be given orientation to identify by manipulating and identify where to hold, the sharp ends and blunt parts. The trainer to take one by one demonstration to each trainee to ensure correctness in handling each tool, material or equipment to avoid necessary accident. Some of the tools, materials and equipment that the trainees may identify may include: The bench, tool box, hand saw, backsaw, sawing boards, rasp file, marking gauge, try square, tape measure, nail punch, glue, paint and paint brush.

Guide the learners to care for tools used in carpentry and carving by giving one on one demonstration on the following: testing and fixing loose parts, cleaning by carefully wiping to remove dust, oiling and appropriate keeping in the tool box and finally safe storage.

Assessment

The trainer should assess the learners on practical skills such as learner's ability to;

- (i) Identify items made through carpentry and carving techniques.

- (ii) Identify materials, tools and equipment used in carpentry and carving.
- (iii) Care for tools, materials and equipment used in carpentry and carving technology.
- (iv) Answer oral and signed questions.

Choosing timber for practical work

The trainer should guide the learners with disabilities to select timber without twisted grains, knots, cracks, bend, moulds, warped and those that are discolored with moulds.

The trainer should help trainee with Disabilities to identify the right quality of timber by doing the following;

- Straight grains
- Free of knots
- Free of discoloration of moulds
- Free of cracks
- Not bend
- Not twisted
- Not warped

Practical Activities for Making Bookshelf

Guide the learners to identify the right quality timber by touching, smelling and observing to feel the texture, size, shape and presence of moisture.

The trainer should give description of the correct timber verbally or in signs as the learners who are blind or deafblind explore with their hands.

Guide the learners to identify correct tools and equipment used in measuring cutting to size the pieces of timber for the project.

The tools to be used include:

- Tape measure
- Saw
- Try square

- Pencil

And the equipment is the bench.

For the learners who are blind and deafblind, can use embossed tape measure trimming knife to score lines instead of pencil.

Guide the learners to place the timber on top of the work bench.

Use the tape measure to measure out the appropriate length, put a mark and with the help of trfsquare and a pencil or trimming knife draw or score a line across the plunk.

The trainer should ensure that the trisquare is held appropriately on the edge of the plunk/ timber by all the trainees.

A one on one demonstration should be carried out by the trainer while scoring the line, the trainer should ensure that the blind and deafblind learners hold the knife correctly and score along the blade of the trisquare. Let the learners feel the scored line by touch

Guide the learners to place the plunk or timber on the sowing boards on top of the work bench appropriately and with the help of cross – cut saw, cut carefully along the scored line. To trainees with blindness and those with deafblindness an improvised straight edge can be placed along the score line to guide them while cutting. Repeat the measuring and cutting activities above to produce pieces of timber for the remaining one side of the shelf.

Guide the learners to plane timber smoothly with the help of jack – plane.

The trainer should ensure that the trainees are given proper orientation to handle the planes.

A one on one demonstration should be done to every learner. Let the learners plane one face first and one side to ensure flatness and straightness.

The blind and deafblind learners should be helped to explore straightness with their hands while those with hearing impairment the physically challenged and those with autism can observe with their eyes. However, the learners with hearing loss would be appropriately guided through sign language.

Guide the learners to use marking gauge to mark appropriate thickness of timber by first setting the desired thickness of the timber on the marking gauge by measuring from the spur to the stock and fastening the locking screw at the right measurement.

A one on one demonstration should be done to all learners. Gide the learners to score the thickness of the timber by placing the marking gauge on the planed side while the spur scores on the straightened edge.

The learners to drag the marking gauge forward and backward along the straightened edge as the stock is held firmly and securely against the flattened edge.

Place the timber on the bench with the unplanned side facing up and plane to size.

These activities should be done to all pieces of timber already cut.

The trainer should guide trainees with blindness and those with deafblindness to do the above activities by first exploring and feeling the scored lines. Learners with physical handicapping conditions should be guided to use the functioning parts of their bodies to perform those tasks. Learners with deafblindness require explanation by use of signs language.

Plane the side to size and the trainer to guide the learners to mark the width of the piece of timber with a marking gauge and plane to size. These should be done to all pieces of timber.

Once the planning is completed guide the learners to select appropriate hammer, nails and glue to be used in making butt joint. Visually impaired learners and the deafblind should be given a chance to feel the sizes of the nails and hammer. Cross – grain hammer is good to drive in small nails, pincers can be used to remove the nails that are incorrectly driven in. the visually impaired learners should smell the glue and feel it with the hands before use.

Guide the learners by demonstrating to one on one how to make a butt joint by first applying wood glue (adhesive) to the areas that are going to be joined together. Place the two joints together and drive in the selected nails. To the visually impaired learners, they can hold nails with pliers while physically handicapped learners should hold one piece of timber on a vice. Help the learners not to drive in nails too close to the edge. All the four joints to be done the same way.

Guide the learners to partition the bookshelf appropriately by measuring and marking out where the shelf should be fixed. The procedure is as explained above in timber preparation.

Guide the learners to take appropriate size of plywood, place on table and place the shelf on it upside – down, score line around the perimeter of the bookshelf and cut using a saw.

Guide the learners to put glue on the areas that are going to be joined together, place on the backside of the shelf appropriately and with the hammer, fix it together using appropriate size of nails.

The trainer should guide the learners to identify appropriate gauge of sandpaper and cork block and sandpaper glued together, smoothen the shelf. Learners who are blind and those who are deaf blind can explore the roughness of the sandpaper with their

hands. Learners who are autistic and those who are having deafness require verbal and sign language explanation respectively.

Guide the learners to choose appropriate colored paint for painting the shelf. The trainer should be aware that learners with autism are sensitive to some color. The visually impaired learners and those who are deafblind should smell, touch and feel the paint. The learners should select appropriate painting brushes to be used.

The trainer should guide the learners to explore different types brushes and to one demonstrate the painting process

Once painting is done the shelf should be left to dry as the learners are guided to clean and store the tools, materials and equipment appropriately

Assignment

The trainer should assess the learner based on ability of the learner to carry out specific activities involved in the process of making bookshelf.

Practical activity for making serving tray

The trainer should give the learners orientations of a serving tray. Guide the learners to explore serving trays of different sizes available in the workshop. Learners with visual impairment and the deaf blind should be exposed through guidance to touch all parts of the serving tray to identify the materials used in making the tray and to feel the positions of the tray handles. The learners with hearing impairment should be guided to identify and tell by signing the purpose of the parts of the tray. Give them opportunity to see how the corners are joined. Learners with autism should be governed to demonstrate the use of a serving tray. Observe different parts and what they are made of. The PH should verbally tell the materials used in making the serving tray.

The trainer to guide learners to identify materials, tools and equipment used in making a serving tray. These materials tools and equipment include the following

- Timber
- Sheet of metal (aluminum)
- Nails
- Hammer
- Glue
- Trimming knife
- Pencil

- Hand braze with appropriate bit
- Coping saw
- Ply wood
- Try squire
- Hand saw
- Tennon saw
- Wood vice
- Bench
- Tin snip
- Paint
- Painting brush
- Tape measure

Guide the learners to select appropriate timber (by half) to make the sides of the tray. The selected timber should be free from any defects like split, twist, bends knots, twisted grains, and mould.

Guide the learners with visual impairment and blindness, select by feeling the grains, any defect of timber that may be there through touch and smell

Guide learners who are autistic and those with PH to identify the defect by telling you verbally. Those with deafness should sign to the trainer any noted defect

Guide the learners to cut the unwanted end of the timber using backsaw by first drawing lines across with the help of try square

Guide the learners to measure and mark the width of the timber which will form the long side of the tray but for the width of the tray mark differently a larger width on the board using marking gauge.

For learners who are visually impaired and deaf blind guide them to pay attention to scored line on the surface that they will cut along while to the physically impaired and autism explain to them verbally the purpose of the drawn lines. To the hearing-impaired use sign language to explain to them the purpose of the line. Guide the learners to measure the long sides of the tray on the narrow board mark the desired length and cut using back saw the same to be done for the shorter sides cut into equal halves for making the width of the tray

Smoothen them with plane on sides and edges, the trainer to demonstrate to the

learners how to hold the plane while in use on a one on one basis.

Guide the learners with visual impairment DB and to place the plane on the board and push forward to shave the unwanted sides out for smoothness they should continuously feel with their hands how the surface feels like and they should continue exploring to the unshaven areas to plane shaving. Guide the learner to passive the concept that the plane shaves on a forward stroke therefore more energy is used to push the plane forward. Learners with PH condition give the learner an adjusted work surface or table to make them comfortable when to be keen while using the plane and keep the plane straight and at the same time hold the plane appropriately and firmly to the hearing impaired guide them by giving sign language instruction to observe a stroking forward direction without bending the wrist

Take the boards for the short sides and draft positions to be cut open for the hence guide the learners to measure and mark appropriate positions on the hands on both pieces of timber for the short sides. To the visually impaired and the deaf blind prepare and give them a guiding template in the shape of the hole you would like to make. Guide them to use a trimming knife the shapes on both pieces.

Guide by giving the learners with autism a similar template to be traced –out the same way, take note that they may place the template wrongly before tracing out guide them to trace it appropriately learners with handicapping condition the trainer to ensure that the work surface is placed on a table suiting their height to the hearing impaired, give clear instructions to follow while marking and making possessions of the handle

The trainer should guide the learners to use hand braze to boreholes on both ends of the marked places for handle, this should be done both pieces to be use for the width of the tray, learners with blindness and DB help them locate the positions appropriately and demonstrate to them how to boreholes using the braze.

Learners with hearing impairment should be guided through sign language to correctly position the hand braze on the points to be bored and drill through

The trainer to guide learners by demonstration to them on a one on one basis how to remove and pass the blade of the coping saw through the bored hole and refixing it again while in that position to the frame

The trainer to guide the visually impaired and the deaf blind learners to feel by hand the part of the coping square to be loosened and refixing as instructed to learners with autism, the trainer should guide them to ensure that the blade is fixed appropriately likewise to the PH learners.

The learners to cut along the line scribble for the holes and remove the unwanted piece of timber between the two holes leaving the bore with a hollow position for the hands to pass through. The trainer to guide learners to cut along the lines appropriate-

ly. Learners to cut along the lines appropriately. Learners with autism, deaf blindness and PH be guided to hold the piece of board on bench vice fixed on the side of the working bench in stroking the coping saw to cut the trainer to guide and deaf blindness, learners to follow the marked lines with the other remaining hands as they cut the handle out. This should be done on the two short sides of the tray.

The trainer to guide learners to make a built joint by fixing the first two short sides one long side by ensuring that the bottom part are fixed on an equal level after joining the two, learners should place the fixed long side down at set squareness with a tray square on the corner and fixed the last long side on the base as was before test squareness for all the four corners. The trainer to demonstrate to the learners on a one on one basis to ensure correct positioning of the timber and joint and finally testing squareness by holding the stock or the square a long side and the blade a long side the corner, learners with blindness and deaf blindness should be guided to feel if there is space between blade and the surface of the timber

If the space is left at the corner, gently press the adjacent corner to your direction and if the space is towards the end of the blade, gently press the corner you are measuring worth. If the corners are square then the frame is ready for use

Guide the learners to take a flat sheet of metal, place the frame on it and mark out its width and length along the perimeter of the rectangular frame using trimming knife. The trainer to demonstrate to the learners how to use tin snip to cut a line on a sheet of metal

The visually impaired and deaf blind learners to be guided to feel and explore parts of the tin snip to gain orientation on its use. The learners with hearing impairment should be sign to while the physically handicapped, learners should be given verbal instructions

Learners to cut along the marked line to get out a rectangular metallic sheet equivalent to the base of the tray. Conduct a similar activity on a sheet of plywood and use cross-cutting saw to cut out the same shape, the same size.

Guide the learners to mount to two sheets together onto the base of the rectangular frame with the metal sheet inside and the plywood sheet outside carefully nail them together ensuring that the two sheets are in the correct position. Once this has been done all round, turn the tray up and use jack-plane to smoothen the shorter sides from top to bottom on both ends to create a gentle sloppy side. This should be done on both sides

The trainer to guide visually impaired learners and the deaf blind to mark the slopes with trimming knife and any improvised straight edge or a ruler on both ends of both sides

Guide the learners to use sandpaper to smoothen the outer wooden faces of the tray

to a finish and with a help of a ragged cloth or brush wipe off any dust from the surface of the tray.

Guide the learners to identify the right size of painting brushes for use with paint to colour the tray. Coloured oil-based paints or clear varnish can be used. The trainer to note that learners with autism are sensitive to specific colours white to the deafblind and those with visual impairment trainer should guide in making any desired colours for painting to the VI and DB, the trainer should give room for them to make appropriate colours choice.

Guide the learners to clean all the working tools and equipment and keep the tools appropriately in the tool box. Take the tool box to the store for keeping and clear the work area.

Assessment

The trainer to assess the learners on the ability to measure, cut and make joints use the tools materials and equipment appropriately, finish the project, produce tray with good workmanship.

NB: For the rest of the project, the carpentry procures used above can be applied to complete them appropriately.

Introduction to sculptural making through carving technique.

- The trainer should guide learners with disabilities to identify the following learning resources:
- Wood (dry)
- Different sculptural forms in relief and in the round

Tools

- Panga
- Chisel
- Gauges
- Knives
- Saws
- Sandpaper
- Axe

- Paint
- Brushes

Practical Activities

The trainer should guide the learner to identify different types of wood.

Guide the learners to identify different types of curved forms. Learners with blindness and those who are deafblind could be guided to touch exploratively with their hands, smell the items, and identify the features of each sculptural work. The trainer should use clear sign language to explain to learners with deafness to understand and identify types of sculpture. Learners with autism the trainer should verbally describe to them different features and types of sculptures while to those with intellectual disabilities the trainer should guide them to match the miniature sculpture with real forms.

The types of the sculptural forms that the learner may identify are:

- Relief sculptures and sculpture in the round.

Guide learners with disabilities to identify materials tools and equipment used in wood carving. Guide them to manipulate the tools to identify which part to hold how to hold it and the sharp edges by demonstrating on one to one their respective uses.

Some of the tools and equipment, the learner may identify include:

Firmer chisel

- Beveled edge chisel
- Mortise chisel
- Registered chisel
- Swan-neck chisel
- Drawer-lock chisel
- Firmer gauge
- Scribing gauge
- Crank gauge
- Spoon gauge
- Cross-cut saw

- Knives
- Sandpaper

The trainer should guide the learners to care for tools and equipment used in carving by giving a one to one demonstration on cleaning the tools, sharpening the tools, setting the tools and proper storage.

Assessment

The trainer should assess the learners on the following practical skills area. Identifying different types carved of items, identify different carving tools, materials and equipment, care for materials tools and equipment used in wood carving, answer oral or sign questions.

Practical Activity in Carving Animal Forms

NB: The activities for making sculpture in the round i.e. a three – dimensional form of sculpture using carving technique may be difficult for learners with blindness and those who are deafblind therefore relief sculptural work may suit all categories of learners with disabilities irrespective of the nature of disability.

The trainer should guide learners with disabilities to identify flat wood with correct thickness to make relief sculptural form. Guide the learners to identify the desired image to carve out of all animal forms. Work with them to design on a piece of paper material the profile image of the animal and cut it out using a sharp blade. Demonstrate to the learners on a one on one basis how to draw and cut but to learners with blindness and those with deafblindness, the trainer should provide an already cut template to be traced out on the flat surface of the wood using trimming knife or any sharp pointed metal.

Guide them to hold the template firmly on to the surface of the wood as they trace it out. To learners with learning difficulty, autism and physically handicap, the trainer should work with them by demonstrating one to one how to trace out the image while to learners with hearing impairment, the trainer should give clear sign language explanation to enable them perform task correctly.

The trainer should ensure that the room has adequate light and room for ease of identification of object and for free and safe mobility. The trainer should work with the learners to include the inner details of the form like the position of the ear, eyes, nose and mouth using the sharp pointed tools.

Guide learners who are deafblind and those with visual impairment to feel the outline image of the forms. For learners with physical handicapping conditions, those with learning difficulties and autistic, give verbal explanation as they observe the outline of the image, however, for learners with hearing impairment, the trainer should give

a sign language explanation as they observe the image of the form.

The learners should be guided to select correct tools to cut the outer image of the form. The tools may include; mallet, gouge, chisel or trimming knife. Work with learners who are deafblind and those who are visually impaired to hold the tools correctly, place on the line and carefully cut along the image. Those who are physically challenged should be provided with an adjusted work top to fit their posture. The trainer should help learners with autism and learning disability by working with them one to one to manipulate the tools as they explore and cut the forms. The learners with deafness should be signed to correctly extract the unwanted areas to create a high or low relief.

Work with learners to include the detail part of the form by carefully extracting unwanted surfaces to reveal clearly all the features.

The trainer to demonstrate to the learners individually how to extract the finer details for visibility guide learners who are blind and deafblind to carefully use the sharp tools for gouging out those finer details. Learners who are physically challenged to work on worktops adjusted to fit their posture.

To learners with autism and those with learning difficulties ample time be given to allow them finish the task. The trainer should be aware that learners with deafblindness may lose concentration and abandon the project, work with them closely and keep prompting them to continue doing the work.

The trainer should be with learners with disability to fine tune the carved forms by using sharp blades like trimming knife to trim sharp edges and remove fibres that may be hanging. Learners with visual lose and those with deafblind should be guided to identify the remaining parts by exploring with the hands and use the sharp edges appropriately to complete them. Learners who are deaf should be signed to correctly as they observe and finish out the incomplete areas. However, learners with physical handicapping condition, the mentally retarded and the autistic require verbal explanation and demonstration to enable them observe and finish out the incomplete areas.

Using sandpaper, the learners with disabilities should smoothen the sculpture by taking care of the finer details that may break during the process. Demonstrate to learners with hearing loss and correctly sign to them on how to smoothen the surfaces along the grains and not across the grains.

The trainer should work with learners who are visually challenged and those who are deafblind to carefully hold the sandpaper as they manipulate the features of the sculpture and smoothen appropriately. However, to learners with autism, those with learning difficulties and the physically challenged a one on one demonstration and clear observation should be done by the trainer to enable them finish the articles correctly.

The trainer to guide the learners with special need to identify paints and brushes for use, learners with visual loss and those with deafblindness be guided to handle and smell the paint. Feel by touch the texture of the bristles of the brushes to be used while taking care of those with autism who are sensitive to specific colours. Other learners with disabilities like the deaf, those with learning difficulties, slow learners and the physically impairment should be guided by the trainer to select appropriate colour to be used.

NB: Work with the learners to paint all parts of the relief sculpture aerate to dry and display, sell or store.

The trainer should guide the learners to clean all the working tools and store them correctly in the store, clear the work surface by removing all the chips and putting them in the dustbin or burn them.

Assessment

The trainer should assess learners with disabilities on the following:

- Skillful use of the tools and materials
- Ability to carve realistic features of the sculpture creativity and finishing.

NB: For other project areas for sculptural work the steps noted above can be applied successfully.

10.0 METAL PROCESSING TECHNOLOGY

Introduction.

Metal Processing Technology course level 1 is intended to equip the trainee with disability with knowledge, skills, values and attitude in metal work. The trainer is expected to guide the learner with disability to acquire practical skills in metal processing technology covered in this handbook. The trainer should support the learner to support the learner to work on an item as project work.

Areas to be covered

The areas to be covered include: bench work and fitting, sheet metal work, oxy-acetylene and manual metal arc welding.

Safety

Introduction

The learning resources that the trainer should guide the learner with disability to identify and manipulate include: working environment, firefighting equipment, protective gears, manufacturers specifications and manual. The learner should be given orientation to explore and understand the working environment, identify the sockets and gas cylinders, position of the machines and spaces available for work. The learner should also be guided on how to put on the protective gears when working.

Practical Activities

i) Guide the learner to identify accident that may occur in the workshop. Give the learner one on one demonstration on how the accidents may occur. Such accidents may include:

- falls
- burns
- cuts and bruises
- electric shock

Indicate to the learner that accidents in the workshop may occur due to:

- slippery floors
- Spills on floors
- Obstructions

- Carelessness
 - Poor visibility
 - un-safe work habits
 - fatigue
 - ignorance
 - failure to follow instructions/rules
 - Lack of appropriate protection
 - head gear
 - foot wear
 - eye protection
- ii) Guide the learner to identify fire-fighting equipment by guiding the learner to identify the key features. Learners with blindness and those who are deafblind should be given description on the appearance of the equipment. Learners with hearing impairment should be guided to use the correct signs for the equipment while learners with physical impairment could use their functional part of the body or assistive devices to manipulate the equipment. Guide learners with intellectual disability and those with autism to relate the equipment to their use.
- Such firefighting materials and equipment includes:
- container with water
 - asbestos blankets
 - foam
 - sand or soil
 - hose reels
- iii) Guide learners to practice safety in the workshop. This should include:
- safety of self and others
 - safety of materials and tools
- iv) Give the learner one on one demonstration on how to handle the materials

and tools to prevent damage, loss or causing injury to self and others.

Assessment

The trainer should assess the learner's ability to:

- Demonstrate how accident may occur in the workshop.
- Demonstrate how to observe safety of self, others, materials and tools in the workshop.
- Identify firefighting materials and equipment.

Bench work and fitting

Introduction

The learning resources that the trainer should guide the learner with disability to identify and manipulate include: material samples, grinding machine, magnets, files, handout, charts, bench vice, hand vice, leg vice, pipe vice, G clamp, tool maker's clamp, sash clamp, pistol clip saw, straight handle, junior hacksaw, flat chisels, cross-cut chisel, diamond point chisel, half round chisel, sensitive drilling machine, hand drilling machine, pillar type drilling machine, parallel shank, taper shank, counter sinking bits and counter boring bits. Guide the learner to observe and manipulate the items to identify key feature, parts and any modification.

Practical activities

- i) Orientate the learner on engineering materials by doing the following:
 - Guide the learner to identify different types of metals by observing and manipulating them. The learner can identify the metals by grinding (sparks), feeling weight, observing colour and appearance. Give learners description of the metals. Such metals may include: mild steel, cast iron, high carbon steel, aluminium and copper.
 - Work with the learner to select appropriate materials for a given task by demonstrating how the material fit the task.
 - Guide the learner to identify different types of forms of supply. The learner can manipulate to identify whether the material is in form of flat bars, plate

or sheet, tubes, channel, “Z” section and “T” section.

- Work with the learner to perform simple workshop tests to determine given properties. Learner can test hardness of a metal by indenting the surface of a material using a centre punch. The learner should feel and describe the amount of force applied for each material. The learner may also be supported to test spark by holding the material against high speed grinding wheel and note the character and the colour of the spark. Give the learner descriptions of the character and the colour of the spark. Guide the learner to test magnetism by putting an object that is attracted to the magnet. Then guide the learner to remove the object from the magnet and check whether it can attract other magnetic objects. Guide the learner to test sound by hitting different materials with a piece of metal. Give description of the sound produced to learners who may not get the sound for example learners with hearing impairment and those who are deaf blind.

ii) Guide the learner to identify and use clamping devices by doing the following:

- Work with the learner to identify clamping devices by manipulating to identify the key features, parts and any other adaptation. Describe to the learner the device and its use. Such devices include: bench vice, hand vice, leg vice, pipe vice, G clamp, tool maker’s clamp and sash clamp.
- Support the learner to select appropriate clamp for a given job. Guide the learner to relate the clamping device to the intended work for example; you may guide the learner to consider material shape, material size and surface finish.
- Work with the learner to care for and maintain clamping devices. Give the learner one on one demonstration on how to carry out cleaning, oiling and greasing, handling and storage. Learners may work in pairs while in small

groups to support each other during the activity.

- Guide the learner to observe personal safety and safety of the equipment during clamping.

iii) Guide the learner to use measuring and checking tools by doing the following:

- Support the learner to identify measuring and checking tools by manipulating to note their key features, parts and units. The measuring tools should be adapted to suit learners with disability. For example, learners with visual impairment require tactile graduation, appropriate font, size and colour. Such tools include steel rule, calipers, try square, Vernier calipers and tape measure.
- Work one on one with the learner to use measuring tools to take measurements and check squareness and parallelism. Support the learner with physical impairment to use functional part of the body or assistive devices to carry out the activity. Learners may also work in pairs to support each other.
- Work with the learner to care for and maintain measuring and checking tools. Give the learner one on one demonstration on how to carry out cleaning, oiling and greasing, proper handling and storage. Learners may work in pairs while in small groups to support each other during the activity.
- Guide the learner to observe personal safety and safety of the equipment during measuring.

iv) Guide the learner to use marking out tools by doing the following:

- Support the learner to identify marking out tools by manipulating to note their key features, parts and any adaptations. Such tools include surface plate, angle plate, scribe, scribing block, odd leg caliper, dividers, dot punch and centre punch.
- Work one on one with the learner to use marking out tools to mark out straight

lines, circle, arcs and profile, dot punching and centre punching. Give description as you work with the learner so that the learner forms a mental picture.

- Work with the learner to care for and maintain marking out tools. Give the learner one on one demonstration on how to carry out cleaning, oiling and greasing, proper handling and storage. Learners may work in pairs while in small groups to support each other during the activity

v) Work with the learner to use cutting tools by doing the following:

- Guide the learner to identify sawing and chipping tools by orientating the learner to observe touch and feel the tools. Guide the learner manipulate to identify the key features, parts and any modification. Learners with hearing impairment should be guided to use correct signs for the tools and those with physical impairment could use their functional parts of the body or assistive devices to manipulate the tools. The sawing and chipping tools may include: pistol clip saw, straight handle, junior hacksaw, flat chisels, cross-cut chisel, diamond point chisel and half round chisel.
- Work one on one with the learner to use sawing and chipping tools to cut materials to size. Guide the learner to hold the tool appropriately and cut as required. Orientate the learner to use hacksaw for straight and profile cutting, chipping tools for general chipping, oil grooves and key ways.
- Guide the learner to care for and maintain sawing and chipping tools. Give the learner one on one demonstration on how to carry out cleaning, oiling and greasing, proper handling and storage. Learners may work in pairs while in small groups to support each other during the activity.

vi) Work with the learner to use drilling machine by doing the following:

- Guide learner to identify various types of drilling machines and drill bits. Give the learner one on one orientation on the machine and the bits accompa-

nied by descriptions. Drill machines include sensitive drilling machine, hand drilling machine, pillar type drilling machine while drill bits include parallel shank, taper shank, counter sinking bits and counter boring bits.

- Work one on one with the learner to use drilling machine to perform a given task. Support the learner to hold the machine appropriately, direct it to the drilling point and drill as required for example, drilling of holes, counter boring and counter sinking.
- Guide the learner to care for and maintain drilling machine and drill bits. Give the learner one on one demonstration on how to carry out cleaning, oiling or greasing, handling and storage of drills bits.

Assessment

The trainer to assess the learner's ability to:

- Identify materials and tools used in engineering, clamping, cutting and drilling.
- Carry out specific activities involved in engineering materials, clamping, cutting and drilling.
- Answer oral or signed questions.

Sheet Metal Work materials

Introduction

The learning resources that the trainer should guide the learner with disability to identify and manipulate include: black mild steel, galvanized iron sheet, copper sheet, stainless steel sheet, aluminum sheet, tin plated sheet, brass sheet, marking out tools, cutting tools and forming tools. The learner should be guided to observe safety when manipulating the materials especially sharp edges that may cause accidents.

Practical Activities

- i) Orientate the learner on sheet metal work materials by doing the following:
 - Work one on one with the learner to manipulate the material to identify the

key features and properties. The materials include: black mild steel, galvanized iron sheet, copper sheet, stainless steel sheet, aluminum sheet, tin plated sheet and brass sheet.

□ Work with the learner to select sheet metal materials for a given job for example making of cabinets, water tanks, kitchen equipment, cans, food containers and trophies.

ii) Guide the learner to use sheet metal hand tools and equipment by doing the following:

- Orientate the learner to identify sheet metal hand tools and equipment. Guide the learner to manipulate and identify key features, parts and any modification. Give the learner description of the tools. The tools include marking out tools, cutting tools and forming tools.
- Work one on one with the learner to use sheet metal hand tools and equipment. Guide the learner to hold the tool appropriately and use it as required. The hand tools are used for measuring, cutting, marking and forming.
- Guide the learner to care for and maintain sheet metal hand tools by carrying out oiling, sharpening, storage and proper handling. For sharpening, guide the learner to identify the edge to be sharpened, the sharpening tool and orientate the learner on how to do the sharpening.

iii) Orientate the learner on sheet metal joint and seams by doing the following:

- Guide the learner to identify sheet metal joint commonly used in sheet metal work. Guide the learner to observe and manipulate the joint to identify features. Give description of sheet metal joints which include plain lap seam, corner lap (inside), corner lap (outside), grooved seam, knocked up seam, paned down seam.
- Work one on one with the learner to make sheet metal seams and edge treatments. Orientate to carry out marking, cutting, forming or folding. For cut-

ting guide the learner to identify the cutting lines, hold the cutting tool appropriately and cut as required.

- Guide the learner to care for and maintain tools and equipment used in making sheet metal joints and seams by carrying out cleaning, oiling and proper storage.

iv) Orientate the learner on soft soldering by doing the following:

- Guide the learner to select tools and equipment for given task. Guide the learner to identify key features of the tools and their use. The tools and equipment include tools for preparation of work piece and heat source equipment.
- Guide the learner to select a suitable flux and solder for a given joint. Guide the learner to consider material and type of supply.
- Work one on one with the learner to produce a soft soldered joint. Orientate the learner to carry out tinning and sweating.

Assessment

The trainer to assess the learner's ability to:

- a) Identify materials, tool and equipment used in sheet metal work.
- b) Carry out specific activities involved in using sheet metal materials, sheet metal hand tool and equipment, sheet metal joint and seams and soldering.
- c) Answer oral or signed questions
- d) Carry out project work.

1. Oxy-Acetylene Gas Welding, Cutting and Brazing.

Introduction

The learning resource that the trainer should guide the learner with disability to identify and manipulate include gas economizer unit, cylinder key, hose fittings (union nuts and nipples, hose clips, hosecouplings), cylinders, regulators/gauges, hoses, blowpipes/torches, nozzles, nozzle cleaners, flashback arrestors and spanners. Guide the learner to identify the key feature, parts and any modifications of the tools and equipment.

Practical Activities

- i) Orientate the learner on various gas welding tools and equipment by doing the following:
- Guide the learner to identify various gas welding equipment and tools by observing and manipulating key features and parts. Such tools and equipment include gas economizer unit, cylinder key, hose fittings, union nuts and nipples, hose clips, hose couplings, cylinders, regulators, gauges, hoses, blow-pipes, torches, nozzles, nozzle cleaners, flashback arrestors and spanners.
 - Support the learner to assemble basic oxy-acetylene equipment and carry out leak test. The learner should be guided to put the tools and equipment in a place where they can be reached easily and carry out the leak test using soapy water. Guide the learner to observe or feel if there are bubbles to indicate leakage.
 - Guide the learner to care for gas welding equipment by supporting the learner to clean, oil, proper handling and storage.
- ii) Work one on one with the learner to carry oxy-acetylene gas welding techniques by doing the following:
- Guide the learner to select suitable nozzle and filler rod for a given job by observing and manipulating the size of the nozzle and thickness of the filler rod. Give learners description regarding the selection.
 - Work with the learner to set the correct flame for a given material. The flame setting include: neutral for welding mild steel, carburizing for hard surfacing and oxidizing for brazing.
 - Work one on one with the learner to execute a weld in leftward, rightward technique and welding positions. The welding positions include: horizontal, vertical and horizontal \ vertical.
 - Guide the learner to care for and maintain ox-acetylene gas welding equip-

ment by cleaning, proper handling and storage.

- iii) Work one on one with the learner to weld joints and symbols by doing the following:
- Guide the learner to carry out edge preparation for Vee, Bevel and U-preparation. Give the learner description about the edges for different types of joints.
 - Work one on one with the learner to produce desired weld joint using information on welding drawings. Support the learner to interpret the drawing, demonstrate how to produce the weld joint accompanied by description.
 - Guide the learner to care for and maintain tools and equipment used for edge preparation by cleaning, greasing and servicing.
- iv) Apply the above modification and support to the learner with disability when carrying out activities involved in oxy-acetylene cutting, brazing and hard soldering and fabrication of a product using oxy-acetylene.

Assessment

The trainer to assess the learner's ability to:

- a) Identify various materials, tool and equipment used in oxy-acetylene gas welding, cutting and brazing.
- b) Carry out specific activities involved in gas welding tools and equipment, oxy-acetylene gas welding techniques, welding joints and symbols, oxy-acetylene cutting, brazing and hard soldering
- c) Answer oral or signed questions.
- d) Carry out project work.

2. Arc welding of mild steel

Introduction

The learning resources that the trainer should guide the learner with disability to identify and manipulate include A.C welding machines, D.C welding machines, shield / helmet, chipping hammer, wire brushes, pliers, goggles, tong, electrodes holders and leads. The trainer should guide the learner to identify the key feature and parts of the item and relate them to their use. Learners with hearing impairment should be guided to use correct sign the items.

Practical Activities

- i) Orientate the learner to carry out arc welding activities by doing the following:
 - Guide the learner set up the metal arc welding equipment. Work with the learner one on one to connect the leads and set current.
 - Guide the learner to strike an arc by orientating the learner to tap or scratch.
 - Guide the learner to care for and maintain arc welding equipment by carrying out cleaning, oiling, servicing and proper storage.

- ii) Orientate the learner on welding electrodes by carrying out the following:
 - Guide the learner to identify various types of electrode by observing and manipulating. The types of the electrodes include ferrous electrodes, mild steel electrodes, low alloy electrodes and corrosion resistance electrodes.
 - Work with the learner to select the correct rod for types of metal and joints.
 - Guide the learner to care and maintain welding electrodes by carrying out proper handling and storage, preventing dampness on flux coating and preventing damage to flux coating.

- iii) Orientate the learner on arc welding techniques by doing the following:
 - Guide the learner to select electrode for a given task by observing and manipulating the material and size.
 - Work one on one with the learner to set current for a given task while considering material size, position and electrode size.
 - Work one on one with the learner to execute welding using various weaving motions such as circular, half-moon or crescent and figure of eight.
 - Work one on one with the learner to execute a desired weld in any position when using the proper welding by striking arc, considering arc length and speed of travel.

- Guide the learner to care for and maintain arc welding equipment by carrying out cleaning and proper handling and storage.
- iv) The trainer should apply the above adaptations and support to the learner in the area of Welding joints and symbols, Quality control in Arc welding and Fabrication of a product using mild steel sections.

Assessment

The trainer to assess learner's ability to:

- a) Identify arc welding equipment.
- b) Carry out specific activities involved in arc welding, welding electrodes, arc welding techniques, welding joints and symbols, quality control in arc welding and fabrication of a product using mild steel sections.
- c) Answer oral or signed questions.
- d) Carry out project work.

Forging, heat treatment and sand casting of metals.

Introduction

The learning resources that the trainer should guide the learner with disability to identify and manipulate include ploughs, crankshafts, chisel, axes, copper, aluminum, copper, brass, iron, mild steel, tongs, hollow bit, vee bit, hammer, anvil, swages, flatters, fuller, punches, drift, cold set, oil system, sewage block and hoes. The trainer should guide the learner to identify the key feature and parts of the item and relate them to their use. Learners with hearing impairment should be guided to use correct sign the items.

Practical Activities.

- i) Orientate the learner on the forging process by doing the following:
 - Guide the learner to identify different components produced by forging. Let the learner observe and manipulate the items to identify their key features and relate them to their use. The components include ploughs, crankshafts, chisel, axes and hoes.
 - Guide the learner to identify suitable materials for forging a given component. Such materials include copper, aluminum, copper, brass, iron and mild

steel.

- Work one on one with the learner to identify types of heating fuels for forging. Give the learner description about fuels such as charcoal, coal, oil and gas.
- Work one on one with the learner to perform a simple forging operation using appropriate tools such as forging of hoe and an axe.

ii) Orientate the learner on forging tools and equipment by doing the following:

- Guide the learner to identify the various tools used in metal forging. Guide the learner to observe and manipulate the equipment or tools and relate them to their use. Such tools and equipment include:

- Heating equipment
 - forge or hearth
 - gas manifold
 - oil system
- Cutting tools
 - cold set
 - punches
 - drift
 - hardies
 - hot set
- Forming tools
 - hammer
 - fuller
 - anvil
 - swages
 - swage block
 - flatters
- Holding tools
 - tongs
 - open mouth
 - close mouth
 - hollow bit
 - Vee bit
 - round mouth

- Guide the learner to select tools to produce given components by forging. Guide the learner to observe and manipulate heating equipment, cutting tools, forming tools and holding tools.
 - Guide the learner care for and maintain tools and equipment used in metal forging by carrying out proper handling, storage and servicing.
- iii) Orientate on the forging operations by doing the following:
- Guide the learner to carry out product survey of forged items. Guide the learner to visit a nearby workshop or hardware to collect information about forged items.
 - Guide the learner to select appropriate tools and equipment to be used in forging. Guide the learner to identify key features of the tools and their use. The tools and equipment include measuring and marking out tools, cutting tools, heating equipment, forming tools, holding tools and finishing tools.
 - Work one on one with the learner to perform forging operation of the article. Support the learner to measure and mark out, cut to size the materials required, heat to correct temperature of a given operation and form the required shape.
 - Guide the learner to care for and maintain forging tools and equipment by carrying out cleaning, oiling, proper handling and storage.
- iv) The trainer should apply the above support to the learner when carry out activities in metal heat treatment processes, heat treatment operations and sand casting.

Assessment

The trainer to assess learner's ability to:

- a) Identify tools and equipment used for forging, heat treatment and sand casting of metals.
- b) Carry out specific activities involved in forging, heat treatment and sand casting of metals.

- c) Answer oral or signed question.
- d) Carry out project work.

Motor Vehicle Technology

Course Description

The course is intended to equip the trainees with knowledge, skills, attitude and values necessary for motor vehicle maintenance and routine procedures.

The trainer is expected to guide the learners with disability to acquire practical skills in providing services and routine vehicle maintenance to motor vehicle. However, the trainer should support the learner to select one area for project work.

Areas to be Covered

The areas to be covered include, introduction to motor vehicle routine maintenance and service procedures, replacement of oil filter and spark plug services.

Introduction to motor vehicle service procedures and routine maintenance.

The learning resources that the trainers should guide the learner with disability to identify include

- Screws drivers
- Spanners (Hand tools)
- Oil Filters
- Plugs
- Oil
- Fuel Filter
- Fuel
- Motor Vehicle
- Air Cleaner Filter

Practical Activities

The trainer should guide the learners to identify different materials and tools used in servicing and routine maintenance in motor vehicle by observing and manipulating specific tools and materials to be used.

Guide the learner to identify different parts of a vehicle. Learners with blindness and those who are deafblind could be guided to touch feel and smell, the parts as they identify features of specific parts. The trainer should be aware that learners with physical handicapping condition and on scratches may not reach some specific height and depth of the vehicle, therefore special support should be provided to enable them observe and touch those areas. However, to those with deafness, the trainer should make sure that they sign the names descriptively and correctly. The trainer should work hand in hand with the slow learners, intellectually challenged and learners with autism to explore and verbally name the parts.

Guide the learners to name the materials and tools used in vehicle routine management and service. Guide the learners to manipulate the tools to identify where to hold, how to hold it and the sharp points or ends. Give the learners a one to one demonstration to use of each tool. Some of the tools that a learner may include:

- Spanners of Different sizes
- Screw Drivers
- Pliers

Guide the learner to care for the tools and materials used in motor vehicle maintenance and routine services by working with them individually. Demonstrate to the learners on the following arrears

- Cleaning the tools after use
- Proper storage

Assessment

The trainer should asses learners ability in practical areas like, identification of motor vehicle body parts, Identification of materials and tools to be used , care and storage of the materials , and tools and answering oral or signed questions.

Replacement of oil filter

Learners with disabilities should be guided by the trainer to identify the following learning resources.

- Oil Filters
- Oil
- Screw Drivers
- Motor Vehicle

Practical activities

- The trainer is expected to guide the learners to manipulate smell and observe spanners of different sizes, Screw drivers, Oil.
- Give the learners verbal description or by signing as may be appropriate.
- Guide the learners to identify materials and tools and equipment used in replacement of oil filters. Learners with visual impairment and those with deaf-blind should be supported to touch, feel and smell the materials and intellectually challenged be guided to observe and given a description of how they are used. Learners with physical handicapping condition should be guided to use their functional body parts. To those with deafness give orientation by observing the materials and tools, sign and demonstrate to them their respective uses.
- Work with the learners to open the hood and explore areas connected to the oil tank, unscrew the filter, housing cap together with the old filter elements. Work with the learners by demonstrating on one to one basis how to unscrew the filter elements.
- Guide learners with blindness to hold a screw driver appropriately and place it on the grooved head of the screw, turn it anticlockwise to unscrew.
- Learners with deafblindness could be worked with by holding their hands and turning anticlockwise, those with deafness should observe, follow sign instructions to unscrew to the slow learners, autistic and those with intellec-

tual disorders require more time to do the same. However, to the physically handicapped, give assistive if necessary.

- Work with learners to remove the filter from filter elements and remove the old seal of the oil filter cap. Demonstrate on one on one to learners with disability this process. Guide learners with deafness to explore and remove filter and elements together with the oil filter cap, use total communication to the deafblind and work with them to perform the task. However, to learners with Physical impairment give support by ensuring that they are provided with assistive devices to reach the point to work comfortably.
- Demonstrate to learners with disability how to install the filler cap and a new filter element in to the housing and finally screw the cap.
- Work with learners with blindness to manipulate and use the required tools and materials while those with hearing loss guide them to observe and follow instructions accordingly.
- To learners with autism the trainer should take care so that they don't drop or spoil threads of the screw. However, to the slow learners, do this activity repeatedly and provide ample time.
- Work with the learners to unscrew the drain plug , drain the used oil and set the drain plug in place and tighten it. The trainer should guide the learners with blindness and those with deafblindness to explore and use the tools appropriately to unscrew and set back the drain plug.
- Give a clear signed instruction and demonstrate to the what should be done while to the physically handicapped, give a verbal explanation but ensure they can see and reach the work area comfortably.
- However, to the intellectually challenged learners, autistic and the slow learners , the trainer should work hand in hand with time and give more time to acquire knowledge and perform the tsk.

- The trainer should demonstrate to the learners how to fill the engine with oil through the oil filter, run the engine for a few minutes, check the oil for 5 minutes, after the stop of the engine operation using a deep stick and add oil if necessary and close the hood. Guide the learners with hearing loss to step by step follow the procedure by signing them. Verbal instruction and hands on communication should be used to instruct the blind and deafblind respectively while the trainers with them one on one, to learners with autism, intellectually challenged, mentally retarded, and slow learners the trainer should demonstrate and prompt them to follow the instruction.
- Guide the learners to clean the tools used and equipment and store them correctly in the tool store.
- Guide the learners to clear the work area and burn or dispose of the unused materials and waste.

Assessment

The trainer to assess the learner's competence in the following skill areas.

1. Identification of correct tools and materials needed to replace oil filter
2. Careful removal of the oil filters.
3. Accurate replacement of the oil filters.
4. Refilling the oil tank with oil and checking the level.

3. Spark plug services

Replacement of Spark Plugs

The tools and materials that the trainer should guide the learner to identify include

- Socket/Ratchet set
- Needle –nose plies
- Rags
- Spark Plugs

- Anti-seize compound.

Practical Activities

Guide the learners to remove extras and clean work area by first removing the plastic “vanity” cover (if required) and the air cleaner assembly from the top of the engine. Be sure to label any vacuum hoses you remove so that you get them back in the right place. Then clean the top of the four cylinder engine or the bank on a “v” engine, before you remove other parts.

Blast compressed air around the ignition coils to prevent crud from falling into the cylinders. Then blow any remaining loose dirt off the engine before you set out your tools and new plugs. The trainers to demonstrate the procedure above step by step to all learners making sure that he works hand on hand with learner who are deafblind and those with blindness while, to the physically challenged verbal explanation and ease to reach the work areas should be provided. The trainer can use sign language to instruct learners with deafness as they manipulate and remove the plug. Learner with autism guide them through the stages step by step and monitor how they manipulate the tools as they remove the plugs.

The trainer should work with learners with disabilities hand in hand to disconnect the ignition coil, electrical connector by depressing on the locking tab. Then rock the connection off the coil. Guide them to remove the coil hold down bolt and pull out the entire coil and boot assembly.

Assist learners to identify that some cop systems have a detachable rubber boot and spring. If they don't come out with the coil, retrieve them with needle nose pliers and replace them with new parts. Then let the remove old spark plug. However, the learners should identify that some cars do not use cop ignition therefore they should pull the boots off the plug. Give a one on one demonstration to learners with blindness and those with deafblindness and work with them on one by one as they follow the procedure above. However, ensure that learners with deafblindness get correct sign language instruction as they observe and follow procedures. The trainer should ensure that learners with physical impairment get assistive devices to help them perform the tasks.

The trainer should guide the learners to unscrew the plug by blowing away the dirt that settled on and around the plug since it was installed. Work with the learners to slide the proper size spark plug socket over the plug. Then rotate the plug counter-clockwise to loosen it. The trainer should be aware that learners with deafness may not blow away the dirt so they should be assisted to use other mechanism to remove the dirt. To other learners with disability, the accommodation in the steps above would apply.

Guide the learners by supporting those with blindness, deafblindness and the slow

learners to gap the plug by checking the spark plug gap before installing it. Work with learners with deafblindness one on one to do the gapping through comprehensive sign language instructions while to the slow learners demonstrate to them and give support where appropriate.

The trainer should guide the learners to install a new plug and ensuring that learners with visual impairment and the deafblind manipulate and identify through touch while to the physically handicap, mentally retarded and slow learners be given verbal instructions and opportunity to explore and observe the new plug.

Guide the learners to lube the boot and button it up. Guide the learners to boot and button it following all the above procedures.

Guide the learners to clean and store hand tools and materials appropriately, clear off the work area and close the workshop.

Assessment

The trainer should assess the learners with disability on competencies like.

- a) Ability to identify relevant materials and tools to be used.
- b) Correct use of materials and tools.
- c) Care of the materials and tools used.
- d) Ability to correctly replace the new plug on

N/B: All other projects can be done following the procedures above.

11.0 HOUSEKEEPING AND HOTEL ACCOMMODATION

Housekeeping refers to performing all the duties towards cleaning, maintaining orderliness, and running a house or a business property. In case of hotels, the housekeeping duties involve maintaining the hotel to the best possible state in terms of cleanliness, and keeping it at highly desirable ambience. Training in housekeeping benefits trainees with disabilities through acquisition of desirable life skills as well as a means of earning income.

This handbook is intended to equip the trainer with knowledge, skills, attitudes and values on adaptation of training strategies, choice of suitable materials tools and equipment and modification of assessment to accommodate trainees with disabilities.

Hygiene, Safety and Security in Housekeeping

Housekeeping duties include keeping the areas of the hotel tidy, hygienic, safe and secure for the guests, self and other workers. The trainer should give extra attention to trainees with disabilities in regard to hygiene, safety and security. The starting point should be a thorough orientation of the trainee with disability to the physical work environment. This can be achieved by:

- Clearly and boldly labelling all the sections using text, braille or pictorial representation. The trainees should be taken to each section and given enough time to get orientated to the functions with each sections.
- Orientating learners with visual impairment to the environment by use of cues, clues and landmarks within the environment.
- Guiding trainees to use existing rails and rumps on pathways for easy movement by trainees with physical impairment
- Orientating trainees to risky areas such as swimming pools, wet surfaces, power stations and provide tangible indicators of the imminent danger especially for trainees with intellectual disability.

Hygiene

Hygiene is a key principle in housekeeping. The first perception a guest forms about a hotel is by its physical appearance and that of the personnel working in the hotel. Personal hygiene is therefore paramount in housekeeping. The trainer should guide the trainees with disability to observe the following personal hygiene measures:

- Be well-groomed. Trainings with intellectual disability should be closely supervised to ensure that they choose the right clothing for the job and keep them clean and mended.
- Trainees with visual impairments should be guided on choice of colour for clothing and accessories.
- Ensure that adaptive devices such as callipers and prosthesis are well fitted and no loose parts are left hanging.
- Trainees with disabilities may need to change clothing ones or twice a day and therefore should be provided with spare uniforms.
- Uniform should be kept spotlessly clean all the time.
- They should have trimmed nails and hair.
- They maintain a clean and pleasant appearance.
- Separate Adapted washrooms should be provided for trainees with disabilities.

Safety and security

Safety in housekeeping entails disaster prevention, use of protective devices and prevention from injury and damage to people and property. Security, on the other hand, describes the need for freedom from fear, anxiety and doubt, as well as the protection and defense against loss or theft of property. Trainees with disability are usually more vulnerable to insecurity and unsafe environment. The trainer should ensure that trainees with disabilities are guided to observe the following safety and security measures during trainee:

- Keep the environment free from unnecessary barriers and obstacles.
- Protect their body from harmful chemicals by wearing thick gloves.
- Wheel chair users should always use the ramps and if possible avoid staircases and instead use lifts.
- Trainees with intellectual disabilities should be protected against strangers who may exploit or molest them.
- Protect their eyes by wearing masks or goggles if required.

- Use caution sign to mark wet floors.
- Clean spilled liquids immediately to reduce chances of slipping.
- Handle cleaning chemicals carefully while transporting, disposing, or refilling the containers.
- Mix any chemicals required in the presence of proper ventilation.
- Maintain appropriate body posture while cleaning.
- Use appropriate body postures while working to avoid cramps.
- Request for peer assistance while moving heavy loads such as furniture.
- Report to the supervisor in case of any accident due to mishandling of flammable liquids or otherwise.
- Handle electrical appliances with care following manufacturer's instructions.
- Observe fire emergency alert protocols.
- Report theft and damage of property to the relevant people promptly.
- Wear closed and comfortable footwear while working.
- Place appropriate extinguishers near the fire prone areas and know to operate them under challenging conditions.

Cleaning materials, equipment and reagents

Trainees with disabilities need to use various cleaning materials, equipment and reagents during training. The trainer should select appropriate cleaning equipment depending on individual needs of trainees with disabilities. Trainees should thoroughly be guided on how to use the cleaning materials, equipment and reagents effectively and efficiently.

The following are suggested adaptations materials and equipment and their use.

Cleaning materials and equipment

These are used manually to keep the surfaces clean. Some commonly used manual equipment are

- **Brushes** – They are handheld flat brushes with bristles to dust the plain surfaces as well as the corners. The brushes should have adjustable handles

to accommodate trainees with short stature and those on wheelchairs. The brushes should also vary in weight and texture.

- **Housekeeping Trolley** – This is used by the housekeeper to carry large number of items in one go when cleaning the guest rooms. Small sized trollies may be appropriate for trainees with physical impairments. Trainees with visual impairment should be paired with sighted peers when pushing the trolley.
- **Dustbins** – They are used to collect daily garbage produced in the hotel. They be strategically positioned for eases of access by learners with physical and visual impairments.
- **Dusting Cloths** – They are soft cloths used for wiping the surface dust.
- **Dustpans** – They are used to collect dust and garbage from the floor and putting it into the dustbin. The dust bin may be adapted by adjusting the handle and also widening the dirt collection side of the pan.
- **Moveable storage** - A movable trolley should be provided for storage of cleaning supplies such as detergents, spray bottles, dustbin, mop, and dusting cloths, all in a compact manner. This will be very appropriate for trainees with physical and visual impairments and those who are deafblind since accessibility of cleaning materials and equipment will be made easier.
- **Mops** – There are various types of mops such as string mops, flat mops, dust mops, and synthetic mops. Cotton mops are most appropriate because they have high absorbing ability. Mops to be used by trainees with physical disabilities should have adjustable handles.
- **Mop Wringer trolley** – This is a wheeled bucket that allows its user to wring out a wet mop without getting the hands dirty. The mops are squeezed between two surfaces to remove dirty water from it. The wheeled bucket is very appropriate for trainees with disabilities.

- **Spray Bottles** – They are used to spray water or chemical solutions on the surface that needs cleaning. They are also used to spray water on the delicate flowers or leaves of flower arrangement. The bottles should be well labelled and easy to operate especially for trainees with intellectual disability.

Cleaning Agents or Chemicals

Apart from water and regular detergents, the housekeeping staff also uses cleaning chemicals, which are often available in the form of liquids, blocks, and powders.

- **Water** – It is the most commonly used medium for cleaning and rinsing. The trainee needs to use only soft water because hard water cannot dilute detergents properly. Non-oily and non-greasy stains such as ink stains can be removed using water.
- **Vinegar** – It is used in removing light stains in the bath. The trainer should ensure that the right amount is used and the remaining stored away safely. Trainees with intellectual disability need supervision when using any washing agent.
- **Bathroom Cleaners** – They clean, descale, and disinfect the bathroom walls, bathtubs, bathroom flooring, sinks, and showers. They often contain phosphoric acid. Trainees with disabilities should be guided on the use of these chemicals
- **Clean Air Sprays** – They are used for freshening corridors, washrooms, bathrooms, and reception areas. These sprays remove the pungent smell of tobacco, smoke, and organic wastes. Trainees with health conditions such as asthmatic attacks and other respiratory allergies should avoid use of sprays.
- **Degreaser** – This is mainly used to remove the marks of grease and lipstick that cannot be removed by traditional washing of glasses and cups. Degreaser restores the surface shine and transparency of the glasses and bowls. The trainer should guide trainees with disabilities on proper use and storage of

degreasers.

- **Floor Cleaners and Sealers** – One of the important tasks of housekeeping is cleaning the floor periodically and keeping it sealed with the help of sealer of the right consistency for optimum maintenance. Some areas in the hotel are busy and bear heavy traffic such as lobby, corridors, parking areas, restaurants, and dining halls. Their floorings lose smoothness and shine. In such a case, the floor cleaners and sealers are used for restoring their look and shine. Trainees with visual disabilities should be paired with sighted peers when applying floor cleaners and sealers. There is a need to caution trainees on the danger of stepping on freshly cleaned floor to avoid accidents.
- **Laundry Cleaners** – These are liquid concentrates with variable amount of peroxide that removes tough stains, bleaches the linen, and enhances its whiteness. The trainer should supervise use of such cleaning agents.
- **Dry cleaning agents:** A number of chemicals are used in dry-cleaning such as camphor oil, turpentine spirits, benzene, kerosene white gasoline and petroleum solvents. Protective gloves should be used when handling such chemicals. The trainer should closely supervise use of these chemicals by trainees with disabilities.
- **Carpet Cleaning Agents** – Cleaning and maintaining the carpets are important tasks of hotel housekeeping. Carpet cleaning chemicals are often low-moisture, fast-drying cleaners. Trainees with disabilities need to take extra care when using carpet cleaning agents.
- **Swimming Pool Cleaners** – These are used for cleaning the swimming pool water. The pool cleaning chemicals kill the bacterial and algae growth in the water. They dissolve fast in water and provide quick cleaning results. Trainees with visual impairment, intellectual disability and deafblind should not be allowed to clean the pool without supervision by the trainer or their peers.

without disabilities.

Cleaning Activities

Cleaning is one of the major tasks the housekeeping staff perform. Cleaning is done when the guests are about to occupy their room, while they are staying in the hotel, and immediately after the guests vacate the room. The housekeeping also cleans the public area, which is often shared by a large number of guests. The trainer should break the cleaning tasks into manageable components and introduce the cleaning of rooms gradually. The trainee with disability should be guided to carry out the following cleaning activities.

Dust and Dirt Removal

The trainee should be guided to remove loose dirt by dusting, wiping with damp clothes or sweeping. Trainees who are allergic to dirt should be assisted to dampen (wet) floors before sweeping to reduce the amount of airborne dust. The dust that collects in places like shelves, piping, windows, cupboards and lockers may require to be removed with a detergent.

Cleaning washrooms

Washroom facilities require cleaning several times in a day. They also need to have a good supply of soap, towels and disinfectants. If trainees are using hazardous products to clean the washroom, special precautions should be taken to label and give clear instructions on how to use the chemicals. Trainees with intellectual disabilities should use the chemicals under supervision. Smoking, eating or drinking in the work area should be prohibited where hazardous products are handled. The eating area should be separate from the work area and should be cleaned properly each shift.

Cleaning Surfaces

Poor floor conditions are a leading cause of accidents. Allowing chips, shavings and dust to accumulate on the floor can cause accident to trainees with disabilities. The trainees should be engaged in clearing the floors and removing obstacles from walkways, staircases and entrances to make them safe for persons with visual impairment and wheel chair users.

Walkways should be wide enough to accommodate trainees using wheelchairs as they perform cleaning. Staircases should be replaced with well finished ramps which slip proof.

Waste Disposal

The regular collection, grading and sorting of scrap contribute to good housekeeping practices. It also makes it possible to separate materials that can be recycled from those going to waste disposal facilities.

Allowing material to build up on the floor wastes time and energy since additional time is required for cleaning it up. Placing scrap containers near where the waste is produced encourages orderly waste disposal and makes collection easier. All waste collection bins should be clearly labelled using large prints, pictures or braille to ensure waste disposed correctly.

Cleaning Storage areas

Good organization of stored materials is essential for overcoming material storage problems whether on a temporary or permanent basis. There will also be fewer strain injuries if the amount of handling is reduced, especially if less manual material handling is required. Stored materials should not obstruct walkways, stairs, exits, fire equipment, emergency showers, or first aid stations. All storage areas should be clearly marked.

Flammable, combustible, toxic and other hazardous materials should be stored in approved containers in designated areas that are appropriate for the different hazards that they pose.

Cleaning of hotel rooms

Cleaning of hotel rooms can be a tedious activity for trainees with disabilities. During training trainees should work in pairs first before being allowed to work individually. Physical prompts and verbal cues should be provided to trainees with intellectual disability when performing the activities. Trainees with visual impairment and those who are deafblind should be paired with sighted peers. rooms are cleaning on check in, while the guest is in the room and on check:

Cleaning check in room

This cleaning is performed before a guest checks in. The trainee should be guided in carrying out the following activities.

- Checking the condition of power switches, air conditioner, television, and other electronic appliances.
- Making bed with the fresh linen, pillow cases, and bedside mat.
- Cleaning ashtrays and dustbins, replacing if required; and putting fresh paper stripes.
- Checking stationery and vanity supplies. Replacing/refilling if required.
- Cleaning the bathroom: floor, walls, toilet, shower area, and tub.
- Checking bathroom supplies. Replacing the used supplies with the new ones.

- Checking the room curtains and drapes for stains, replacing if needed, and closing.
- Discarding the used supplies in the guest room.
- Spraying the room freshener.

Cleaning an Occupied Room

The room is cleaned when the guest is occupying the room. It includes cleaning and keeping all occupied rooms twice per day on guests' requests and convenience. The trainee should be guided in performing the following activities:

- Entering the guest room by following the set procedure.
- Clearing the dustbins.
- Collecting the used linen and putting it in the linen bag.
- Making the bed.
- Carrying out the guest room dusting.
- Vacuuming of carpet and bedside mats.
- Cleaning the bathroom and replenishing the bathroom supplies.
- Checking the functionality of light bulbs, television, electric kettle, and intercom device.

Cleaning the Check-Out Room

This cleaning is performed when the guest vacates the guest room and proceeds for hotel check-out formalities. The cleaning involves –

- Assembling bed, chairs, settees, and other furniture and placing it appropriately.
- Wiping guest room floor with wet mop.
- Cleaning the writing tables, assembling and placing stationery appropriately.
- Checking under the beds and chairs, and in the locker for any articles the guest left behind.
- All personal stuff, documents, articles left in the room (if any) are removed

and deposited to Lost and Found desk.

- Cleaning all walls of bathroom with wet wipe.
- Cleaning all electric appliances such as microwave, fan, refrigerator and others.
- Keeping heaters/air conditioners at lowest power consuming option.
- Switching off the room light and television.
- Locking the guest room door and cleaning area outside it.
- Depositing the keys at front office desk.

Decor in Housekeeping

The housekeeping staff is responsible for creating pleasant ambience in the hotel. This needs aesthetic sense and an eye for detail. A guest is keen to visit the hotel if he finds classy and catchy ambience with fresh air.

Housekeeping trainees should be guided to use artificial waterfalls, large vases with neat and eye-catching flower arrangements, paintings, wall pieces, murals, lighting with appropriate luminance, candles, electric lamps or any rare antic pieces. The decors should be carefully described to learners with visual impairments and deafblindness for them to grasp the concepts. The trainer should give learners an opportunity to manipulate the decors and take them step by step through the process of creating and displaying the decors. There is need to pair trainees with visual impairments with sighted peers when creating and displaying decors.

The trainees be given an orientation to the materials used to create decors such as wood, organic and artificial fibres, stone, sand, glass, plastic, and pigments.

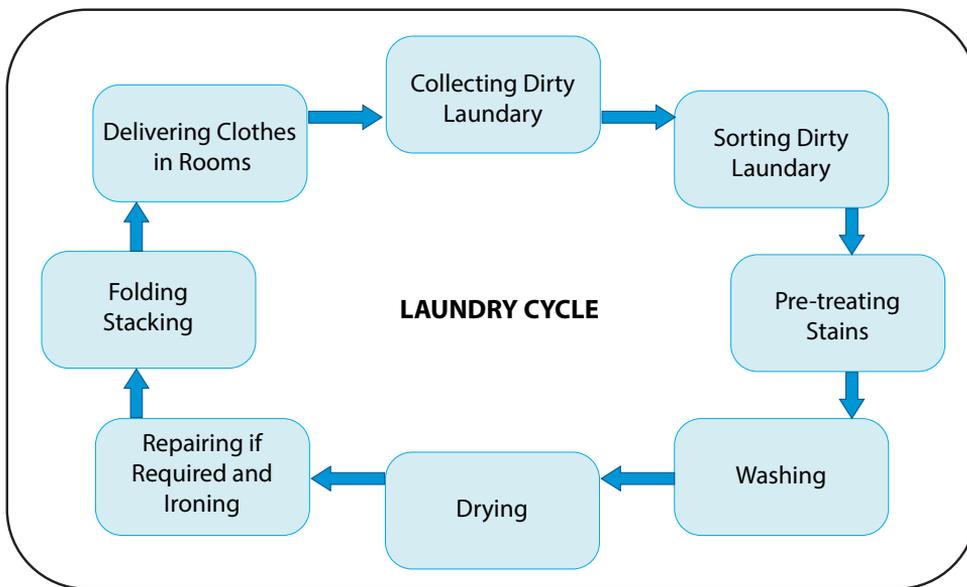
Laundry and Linen Maintenance

Laundry in housekeeping consists of cleaning bath and bed linen, dining area linen, staff uniforms, kitchen and table cloths, curtains, drapes, blankets, and rugs.

The trainee should be guided to be aware of the chemicals, detergents, dry cleaning agents, and the stages of laundry cycle. The trainer should supervise use of washing chemicals and agents.

Laundry Cycle

The laundry process goes through the following stages –



The trainee should be guided through the laundry process as follows:

- **Collect Dirty Linen** – Collect the dirty linen from various sections in the hotel such as guest rooms, guest bathrooms, and dining area and put the soiled linen separately. The trainer may accompany the trainee to the room and assist in carrying out the task or pair the trainee with disability with sighted peers. Trainees with physical disabilities should be provided with trolleys to carry the dirty linen to the laundry area.
- **Sort the Linen** – Segregate the linen carefully according to type of fabric, domain of item use, degree of soiling, and type of soiling. Sorting may pose a challenge to learners with visual impairment and those with deafblindness. The trainees should be given prompts and assisted by peers to do sorting.
- **Pre-treat the Stains** – Before the putting the linen into the washer, inspect it for stains such as grease or oil. Remove the stains using stain cleaning chemicals. Trainees with disabilities may need support when using chemicals to remove stains. Those with visual impairment may be assisted by sighted peers to remove the stains. Trainees with weak limbs may also need physical

assistance.

- **Wash the Linen** – wash the linen following wash instruction label. The trainer need to read and interpret the instructions for trainees with intellectual disability.
- **Dry the Linen:** The trainee should be supported to squeeze out as much water as possible and then hang or spread the garments out to dry
- **Repair the Linen** – At this stage, the trainee should check the linen for any wear and tear and separate the worn out linen to be given to be repaired.
- **Ironing:** The trainee should be guided to select the clothes that require ironing and use the set the right temperature for ironing different fabrics. Trainees with intellectual disability should be supervised when ironing, those with visual impairment and deafblindness should be paired with sighted peers.
- **Fold and Store the Linen** – the trainees should be taken through the process of folding and storing the garments appropriately.
- **Note:** The trainer needs to be patient during training as some learners with disabilities may take time to master the laundry process

Assistive Devices

The following assistive devices will be required:

Trainees with physical impairment

- Wheel chairs, calipers, walking aids prosthesis, adapted handler to hold materials and equipment, slant board positioning, adapted seats, speech readers.

Trainees with visual impairment

- White cane, sighted guide, bailers, braille paper, brailed books, tactile learning resources, large print books materials, brightly coloured materials.

Trainees with Hearing Impairment

- Hearing aids, sign language interpreters.

Trainees with intellectual disability

- Communication boards, Cue cards or pictures,

Assessment

The trainer may assess the learner's ability to:

- identify observe hygiene and safety in housekeeping;
- Use cleaning materials, equipment and reagents in housekeeping.
- Clean various surfaces.
- Dispose of refuse correctly.
- Launder clothes and linen.

12.0 MODELLING

Modeling involves using people to show off a particular type of fashion. This allows the public to see how a fashion looks, which can help create public interest. Several different types of fashion items can be displayed using fashion modeling. Some items that can be modeled include garments, accessories, jewelry, and cosmetics. The Modelling course is expected to equip the trainee with knowledge, skills, attitudes, and values that will enable the trainee to use creativity and modelling to earn an honest living. The course will include introduction to modelling, job opportunities in modelling, types of modelling Skills required in modelling and personality development.

1. Introduction to Modelling

Trainer is expected to support the trainees to appreciate the role of modelling in the fashion industry. The trainee will further relate modelling with advertising and as a job opportunity. Trainees with hearing impairments, Physical challenges and intellectual impairments will be supported by use of videos with speech to text. The font of the text need to be inclusive enough to cater for those with low vision and deafblindness. For trainees with blindness, use of real models and 3D images of models will be useful.

Areas of job opportunities in modeling field:

- Film Industry
- Fashion companies
- TV and Medical
- Colleges & Universities
- Government & Private Companies.

Types of modeling:

- Runway modeling
- Showroom modeling
- Catalog modeling
- Fit modeling
- Television & Videos modeling
- Promotional modeling

- Editorial modeling
- Print advertisements modeling Glamour modeling
- High fashion modeling
- Petite modeling
- Teen modeling
- Plus size modeling
- Mature modeling
- Character modeling
- Body part modeling

Skills needed to be a good mode

A model needs to have the following skills:

- No hesitation
- No problem facing camera
- Pleasing personality
- Attractive face
- boldness
- Smiling face
- Good communication skill
- English proficiency

Assessment

The trainer assesses the trainee through:

- Oral or signed questions
- Practical demonstrations
- Observing the trainee demonstrate modelling skills

