basic education

Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

Curriculum and Assessment Policy Statement: Technical Occupational

Year 1 - 4

MECHANICAL TECHNOLOGY:

SHEET METAL WORK

CONTENT

SECTION 1:

INTRODUCTION TO THE CURRICULUM AND ASSESSMENT POLICY STATEMENT: TECHNICAL OCCUPATIONAL

1.1 Background

The South African Constitution, Act 108 of 1996, enshrines the right of every child to access quality basic education without there being any form of discrimination. There are learners participating in the General Education and Training Band who have an interest and talent in applied knowledge and in technical and vocational skills subjects which are currently not available in the National Curriculum Statement, Grades R to 12 (2011). This cohort of learners should be given an opportunity to achieve a formal qualification or recognition of achievement towards a qualification that is related to any vocational and occupational learning within their area of interest and aptitude.

This Subject Statement has been developed to respond more effectively to the needs of these learners who have been identified and assessed through the protocols approved by the Department of Basic Education and who will benefit from curriculum content that is aligned to the Senior Phase of the National Curriculum Statement at a more applied and functional level in accordance with their interest and aptitude.

It is critical, that through differentiated methodologies, the learners enrolled for this qualification will be able to progress with regard to applied competencies, even where they might not be able to attain the minimum theoretical requirements of the respective grades of the senior phase. There should always be high expectations for all learners and the necessary scaffolding and learning support to master foundational competencies (language and numeracy) relevant to the specific subject, so that they are in a position to demonstrate the practical competencies that they have mastered which will make it possible for them to progress to further education and training pathways.

The learning programme will be structured in such a way that it would adequately prepare learners to progress onto the academic, technical vocational or technical occupational pathways of the Further Education and Training Band, albeit with endorsement. It will also enable learners across the range of competencies and aptitudes to obtain a recognised and accredited qualification or certificate of attainment.

The programme aims at contributing to the ideal of education to produce learners who will function **meaningfully** and **effectively** in the society, be able to enter future **careers** and be equipped to meet the requirements of the **economy** (local and global).

1.2 Overview

Through the policy document the Minister of Basic Education will be able to prescribe the minimum norms and standards for technical occupational education in the General Education and Training band.

The following legal framework will be adhered to:

(i) National Curriculum Statement, Grades R to 12 (2011) together with the National Protocol for Assessment and the National Policy pertaining to the Programme and Promotion Requirements of the National Curriculum Statement, Grades R to 12;

(ii) Draft Technical Vocational Subject Statements listed in the Draft General Certificate of Education: Technical Occupational, a Qualification at Level 1 on the National Qualification Framework;

(iii) General and Further Education and Training Quality Assurance Act, 2001 (Act No.58 of 2001); the General and Further Education and Training Amendment Act, 2008 (Act No 50 of 2008); the NQF Act, 2008 (Act no 67 of 2008) and the Continuing Education and Training Act, 2006 as amended by Act No 3 of 2012 and Act No 1 of 2013;

(iv) The General and Further Education and Training Qualifications Sub- Framework (August 2013);

(v) Standards and quality assurance for General and Further Education and Training (June 2008, Revised April 2013);

(vi) Policy and regulations pertaining to the conduct, administration and management of assessment for the General Education and Training Certificate in Skills and Vocational Training: A qualification at Level 1 on the National Qualification Framework (NQF);

(vii) Education White Paper 6 on Special Needs Education: Building an Inclusive Education and Training System (2001);

(viii) The United Nations Convention on the Rights of Persons with Disabilities adopted by the United Nations General Assembly on 13 December 2006 and ratified by the South African parliament on 5 June 2007;

(ix) The White Paper on the Rights of Persons with Disabilities, 2015;

(x) Section 11 of the Children's Act (2007);

(xi) Chapter 5, section 76 of the Children's Act as amended (2007);

(xii) Umalusi's Quality Assurance of Assessment: Directives, Guidelines and Requirements;

(xiii) Skills Development Act, 1998 (Act 97 of 1998); and

(xiv) Assessment Policy for Qualifications and Part Qualifications on the Occupational Qualifications Sub-Framework (OQSF), 2014 of the QCTO.

1.3. General Aims of the Technical Occupational Curriculum

(a) The National Curriculum Statement, Grades R to 9 gives expression to the knowledge, skills and values worth learning in South African schools. The Technical Occupational Curriculum aims to ensure that learners, irrespective of their abilities, have the opportunity to develop competences for meeting challenges and taking up opportunities in the fast changing 21st century and are also guided to apply knowledge and skills in ways that are meaningful to their own lives. In this regard, the curriculum promotes knowledge in local contexts, while being sensitive to global imperatives, including the demands of the fourth industrial revolution. Sustaining development-relevance in the face of constant and rapid change requires curricula to be lifelong learning systems in their own right, capable of constant self-renewal and innovation.

(b) The curriculum serves the purposes of:

- Equipping learners, irrespective of their socio-economic background, race, gender, physical ability or intellectual ability, with the knowledge, skills and values necessary for self-fulfilment, and meaningful participation in society as citizens of a free country;
- Promoting critical thinking, creativity and innovation, communication, collaboration, information, media and ICT literacies, flexibility and adaptability, initiative and self-direction, social and cross-cultural, productivity and accountability, leadership and responsibility and life-long learning;
- Facilitating the transition of learners from education institutions to the workplace;
- Providing employers with a sufficient profile of a learner's competences.
- Being sensitive to issues of diversity such as poverty, inequality, race, gender, language, age, and other factors;

- Valuing indigenous knowledge systems: acknowledging the rich history and heritage of this country as important contributors to nurturing the values contained in the Constitution; and
- Credibility, quality and efficiency: providing an education that is comparable in quality, breadth and depth to those of other countries.

(c) The curriculum is based on the following principles:

- Social transformation: ensuring that the educational imbalances of the past are redressed, and that equal educational opportunities are provided for all sections of the population;
- Active and critical learning: encouraging an active and critical approach to learning, rather than rote and uncritical learning of given truths;
- High knowledge and high skills: the minimum standards of knowledge and skills to be achieved at each grade are specified and set high, achievable standards in all subjects;
- Progression: content and context of each grade shows progression from simple to complex; and
- Human rights, inclusivity, environmental, gender and social justice and equality: infusing the principles and practices of social justice and human rights as defined in the Constitution of the Republic of South Africa as well as the greening of the economy.

(d) Inclusivity should become a central part of the organisation, planning and teaching at each school. This can only happen if all teachers have a sound understanding of how to recognise and address barriers to learning, and how to plan for diversity. The key to managing inclusivity is ensuring that barriers are identified and addressed by all the relevant support structures within the school community, including teachers, District-Based Support Teams, School-based Support Teams, parents and Special Schools as Resource Centres. To address barriers in the classroom, teachers should use various curriculum differentiation strategies such as those included in the Department of Basic Education's Guidelines for Responding to Learner Diversity in the Classroom (2011), as well as the Standard Operating Procedures for Accommodations in Assessment (2016).

1.3.1. The aims of the General Certificate of Education: Technical Occupational

The specific aims of the qualification are to:

- Give recognition to learners who would meet the requirements and achieve the competencies as specified in the Exit Level Outcomes and associated Assessment Criteria as set out in the GFETQSF along differentiated pathways;
- Provide a foundation of quality, standardised general education which will suit the needs of these learners and help prepare them for life after school and enable them to access particular employment or occupational workplace-based learning. It may also enable the learners to access a vocational qualification at a Technical and Vocational Education Training College;
- Promote Lifelong learning to enable learners to continue with further learning and skills development in the workplace;
- Prepare learners to function better in a fully inclusive society and workplace; and
- Provide employers with a profile of the learner's competence.

Learners successfully completing the qualification will be able to:

- Identify, select, understand and apply knowledge to the intended purpose and identify solutions to problems in the field of study;
- Demonstrate the necessary applied knowledge and skills identified for competence in a subject, as specified in the subject statement;
- Demonstrate knowledge and skills gained for purpose of formal communication and basic numerical operations;
- Have the ability to apply knowledge and skills in changing contexts;
- Reflect on their learning in order to promote an interest in learning and further study; and
- Demonstrate basic entrepreneurial skills that will enable them to create their own work and business opportunities in the contexts in which they live.

1.4. Subjects and Time Allocation

Instructional Time for the Technical Occupational Learning Programmes is 27½ hours in a five-day cycle

<table>
<tr><th colspan="3">Subjects

General Education</th><th>Time</th></tr>
<tr><td colspan="2" rowspan="2">Languages

(Home Language and First Additional Language)</td><td colspan="2">3 Hours for Home Language</td></tr>
<tr><td colspan="2">2 hours for First Additional Language

All 11 official languages (Afrikaans, English, isiNdebele, isiXhosa, isiZulu, Siswati, Sesotho, Setswana, Sepedi, Tshivenda, Xitsonga)</td></tr>
<tr><td colspan="2">Mathematics</td><td colspan="2">3 hours</td></tr>
<tr><td rowspan="4">Life Skills</td><td>Personal and Social Well-being

(including aspects of Life Orientation, Social Sciences and Economic and Management Sciences)</td><td>2½ hours</td><td rowspan="4">6 hours</td></tr>
<tr><td>Physical Education</td><td>1 hour</td></tr>
<tr><td>Creative Arts</td><td>1 hour</td></tr>
<tr><td>Natural Sciences</td><td>1½ hours from year 2 onwards

This time to be used in year 1 to support Languages and Mathematics</td></tr>
<tr><td colspan="4">Information Communication Technology

ICT is a compulsory subject for all learners. It can be offered either as a stand-alone or integrated across various subjects. If offered as a stand-alone a school may use time allocated to the Technical Occupational programme. ICT does not count towards the qualification but is a necessary life-long skill. ICT is not to be confused with the Technical Occupational Subject “Office Administration” which is an elective.</td></tr>
</table>

Subjects **Technical Occupational: Electives**	**Time**
Agricultural Studies Art and Crafts Civil Technology: Bricklaying and Plastering Civil Technology: Plumbing Civil Technology: Woodworking and Timber Consumer Studies: Food Production Consumer Studies: Sewing Early Childhood Development Electrical Technology: Electrical Hospitality Studies Mechanical Technology: Body Works: Panel Beating and or Spray Painting Mechanical Technology: Motor Mechanics Mechanical Technology: Sheet Metal Work Mechanical Technology: Welding Mechanical Technology: Maintenance Office Administration Personal Care: Ancillary Health Care Personal Care: Beauty and Nail Technology Personal Care: Hairdressing Service Technology: Upholstery Wholesale and Retail	13½ hours
Total: General and Occupational	27½

The table below proposes the learner progression across the years at a School of Skills.

Year 1 Minimum of 1 year of orientation	**Year 2**	**Year 3**	**Year 4**
Base Line Assessment for Language and Mathematics ➢ **Intervention (ISP)** **General Education:** • **Home Language** • **FAL** • **Mathematics** • **Life Skills:** ✓ Personal Social Wellbeing ✓ Physical Education ✓ Creative Arts ➢ ICT Enrichment **Technical Occupational** **Minimum 2 x SKILLS** **Across the year** **Post Assessment** • **Analyse results** Progress to Year 2 with appropriate support for Languages and Mathematics	**General Education:** • **Home Language** • **FAL** • **Mathematics** • **Life Skills:** ✓ Personal Social Wellbeing ✓ Physical Education ✓ Creative Arts ✓ Natural Sciences ➢ ICT Enrichment **Technical Occupational** **Minimum of 1 Skill**	**General Education:** • **Home Language** • **FAL** • **Mathematics** • **Life Skills:** ✓ Personal Social Wellbeing ✓ Physical Education ✓ Creative Arts ✓ Natural Sciences ➢ ICT Enrichment **Technical Occupational** **Minimum of 1 Skill**	**General Education:** • **Home Language** • **FAL** • **Mathematics** • **Life Skills:** ✓ Personal Social Wellbeing ✓ Physical Education ✓ Creative Arts ✓ Natural Sciences ➢ ICT Enrichment **Technical Occupational** **Minimum of 1 Skill** GCE: TO Qualification Or Certificate of Achievement (External exam- results verified / moderated)

Note:

Year One is an orientation year and learners must be exposed to a minimum of two occupational skills so that they can select a skill with which they will continue from Year Two. Schools that offer more than the minimum two skills in Year One may adapt the Annual Teaching Plan for Year One to accommodate their rotation system to expose learners to more skills e.g. schools may offer a skill per term for Terms 1, 2 and 3 and learners then select the skill they will specialise in and start it in Term 4. It is important that learners in Year One experience the core competencies of the skills so that an informed choice can be made.

Years Two, Three and Four are the critical years for learners. It is important that learners are exposed to all the Topics and Specific Aims per selected Occupational skill, acknowledging that not all learners will be successful in all of these.

SECTION 2:

INTRODUCTION TO MECHANICAL TECHNOLOGY: SHEET METAL WORK

2.1 What is Sheet Metal Work?

Sheet Metal Work is a skill where learners use various metals/sheets in the forming and shaping of products. Sheet metal is simply metal formed into thin (<1.6 mm) and flat pieces that can be cut, bent and joined into many shapes. Machinery is used in Sheet Metal Work to perform the following processes: bending, rolling, cutting and joining of metals to make practical models.

2.2 Topics to be studied in Sheet Metal Work

1. Safety
2. First aid
3. Hand tools and equipment
4. Materials
5. Joining processes; pop riveting, cold riveting, nuts and bolts, seaming, brazing, fusion, spot welding, welding {arc/ MIG/ TIG}, gas welding, soft soldering)

2.3 Specific Aims:

The learner is able to:

1. Select, care and use engineering hand tools
2. Select, care and use engineering measuring equipment
3. Select, care and use engineering power tools and machinery related to sheet metalwork
4. Apply safety procedures in workplaces
5. Identifying ferrous and non-ferrous metals
6. Manufacture metal projects by using different joining processes; pop riveting, cold riveting, nuts and bolts, seaming, brazing, fusion, spot welding, welding {arc/ MIG/ TIG}, gas welding

2.4 Requirements for Sheet Metal Work as a subject

2.4.1 Time Allocation

The total number of hours allocated for the subject in a five-day cycle is 13 ½ hours.
Sufficient time must be allocated in the school timetable for the practical work required to be done.

2.4.2 Resources

Human resources

Sheet Metal Work requires a trained subject specialist. It is preferred that the teacher offering Sheet Metal Work is an artisan / technician / technical teacher in a Sheet Metal Work related area. Industry related experience and workshop management skills are essential and a tertiary qualification in technical teaching is preferred.

Sheet Metal Work teachers are required to:

- Teach the subject content with confidence and flair
- Interact with learners in a relaxed but firm manner
- Manage the workshop resourcing, budget and safety
- Manage the teaching environment
- Conduct stock taking and inventory
- Plan for practical work
- Plan for theory lessons
- Conduct weekly practical sessions
- Maintain and service the workshop as a whole
- Maintain and service the tools and instruments
- Ensure learner safety
- Produce working PAT projects in cooperation with learners
- Carry out School Based Assessment (SBA)
- Implement innovative methods to keep the subject interesting
- Be self-motivated to keep her/him abreast of the latest technological developments
- Regularly attend skills workshops

Learner Resources:

- Text / resource book
- Personal protective equipment: (PPE) (safety boots / leather shoes, overall, ear plugs or ear muffs, leather gloves etc.

2.4.3 Infrastructure, equipment and finances

Schools must ensure that teachers have the necessary infra-structure, equipment and financial resources for quality teaching and learning.?

Infrastructure

- **Sheet Metal Work** cannot be implemented in a school without an equipped workshop.
- Electricity supply to the workshop is crucial, preferably a three phase four-wire supply, but at least single phase with a high current circuit breaker.
- Lighting and ventilation is of extreme importance and a workshop should ideally have multiple exits with doors that open outward.
- The workshop tools and equipment should have sufficient storage space and well-developed storage management system with an up to date inventory. Shelves should be clearly marked and storage areas defined.
- Good housekeeping principles require that all workshops should be cleaned regularly. A suitable waste removal system should be in place to accommodate refuse, off-cut materials as well as any chemical waste. The requirements of the Occupational Health and Safety (OHS) Act 85 of 1993 need to be complied with at all times.
- Machinery on stands should be permanently fixed to the floor, with isolation switches for the mains supply. All machines should have working machine guards.
- Electrical motors should ideally be painted bright orange. Specification plates should be clearly legible.
- The workshop must have a lockable mains distribution board. The workshop must be fitted with an emergency cut of switch/es which is/are easily accessible at all times.
- Safety rules must be displayed on posters in the workshop.

Equipment

The following is the minimum requirement for a Sheet Metal Work workshop.

Consumables equipment	Gas- acetylene, oxygen, argon, Argo-shield, Leather gloves, Safety glasses, measuring tapes, boilermakers chalk, chalk for chalk line, marking pens, metal paint, paint brushes, thinners, LP Gas
	Brazing rods, bronze rods, welding rods, stainless steel rods, mild steel rods, flux, silver solder, leads, rivets, pop rivets, bolts and nuts (5-10mm), anchor nails,
	Drill bits (3-12mm), concrete bits (6-12mm)
Consumable materials	Mild steel sheets, galvanized sheets, copper sheets, aluminium sheets, bronze plates, mild steel profiles (round bar, flat bar, square bar, angle iron,

	square tubing,
Non- Consumables: **Hand Tools**	adjustable wrench, allen hex keys, aviation snips R.H. and L.H, ball peen hammer, bending tools, bulldog snips, bumping hammer, caulking gun, C-clamp, centre punch, chalk line, chipping hammer, chisels, combination snip, divider, drift pin, duct puller/stretcher files, groove, seamer, hand groover, hacksaw, hand crimpers, hand dolly, hand notcher, hole punch, levels, locking pliers, mallet, marking pen, paint brush, pipe wrench, pliers, plumb bob, pop riveter, prick punch, rivet set, riveting hammer, scrape, scratch awl, screwdriver, scriber, setting hammer, side cutters, socket set, soldering copper, straight edge, tap and die, wire and bolt cutters, wire brushes, wrenches, spanner set, marking off tools, stakes
Non- Consumables: **Power tools, equipment and machinery**	○ Extension leads, hand drill, grinder ○ Portable spot welder ○ Beading machine ○ Swaging machine (jenny) ○ Bending machines ○ Guillotines • Nibbler • Circle cutting machine • Pedestal drill • Plasma cutter • Compressor • Angle grinders (115mm, 230mm) • Bench grinder • Hand drilling machine • Gas burner

Finances:

Budget and inventory

A budget must be allocated for the subject. The amount will be determined by the number of learners taking the subject across all the years and the nature of the practical work required as stipulated in the curriculum. The budget needs to be revised annually and must consider all resources needed per year. The funding must make provision for maintenance and replacement of equipment.

Resourcing could be sub divided into the following categories:

- Safety Equipment

- Tools and Equipment
- Consumable Materials
- Practical Assessment Task Resources (PAT)
- Teaching and Learning Support Material
- Maintenance

A stock inventory must be maintained by the teacher and verified annually by a Senior Management Team member.

2.5 Career opportunities

Career and occupational opportunities for learners with a foundation in Sheet Metal Work include but is not limited to:

- artisan assistant
- machine operator in the sheet metal industry
- entrepreneurial opportunities.

SECTION 3:

OVERVIEW OF TOPICS PER TERM AND ANNUAL TEACHING PLANS

3.1 Content overview

TOPICS	Year 1	Year 2	Year 3	Year 4
1. Safety and First Aid	Safety and First Aid	Safety and First Aid	Safety and First Aid	Safety and First Aid
2. Tools and Equipment Drawing	Hand tools and measuring tools Free hand sketching of a tool	Power tools (115 mm grinder, hand drill etc.) measuring tools (tape, scriber, ruler, dividers, etc.)	Power tools, machinery	Power tools, machinery (bench grinders, nibbler,
3. Material	Identification of metals	Identification of metals, Characteristics and uses of metals,	Manufacturing of metals Templates	Properties of metals
4. Joining process	Bolts and nuts, pop riveting	Soldering, silver soldering, spot welding, cold riveting	MIG welding, fusion welding, brazing Seams	Arc welding, TIG, MIG

Optional Drawings - 2nd year (2D, 3D copying of elementary drawings)

3rd year (open- ended square tubing)

4th year (close- ended square tubing)

3.2 CONTENT OUTLINE PER TERM

Year 1

WEEK	TOPIC	CONTENT The learner is able to:	Techniques, activities, resources and process notes

1-2	Safety and
	First Aid
		• Understand and apply general workshop safety according to the OHS ACT
		  ○ Good housekeeping
		  ○ Basic first aid (treatment of minor injuries)
		  ○ Causes of accident/incident
		  ○ Use of fire extinguishers
			Techniques
			Explain and elaborate on the importance of workshop safety according to the OHS-ACT
			• Good housekeeping- making sure all hazardous material that can cause fires are removed, off cuts, oil and grease are removed from all surfaces, tools and equipment in its place all the time
			• Basic first aid to be applied to all minor injuries
			• Causes of accidents
			Activities
			1.1 Learners must be given oral/written task on:
			• general safety
			• good house keeping
			1.2 Learners must demonstrate the use of the first aid kit in a simulated scenario

			1.3 Learners must demonstrate the correct method to use first extinguisher in a simulated scenario **Resources-**first aid kit, fire extinguisher **Process notes-**definition of accident, unsafe acts, unsafe conditions, housekeeping, etc.

3-4	Hand tools and joining process (riveting)
	
	Drawings
		• Select, use and care of hand tools
		  ○ spanners
		  ○ pliers
		  ○ screwdrivers
		  ○ hammers (ball peen)
		  ○ rubber mallets
		  ○ marking off tools
		  ○ hacksaw
		  ○ files
		  ○ G-clamps
		  ○ vice-grips
		  ○ engineers vice
		  ○ folding bars (folding)
		  ○ hand drill
		  ○ rivet gun/ rivet set snap
		• Drill holes, fold and join plate with pop rivets
		• Free-hand sketching and labelling of a hand tool
			Techniques
			
			Display different tools to show learners safety precautions
			
			Demonstrate how each tool works
			
			Show the learners how to take care, store and clean the tools
			
			Activities
			
			Learners given tools to identify and states its uses orally
			
			Learners given written work to identify, use and care of the tools
			
			Learners given a work piece to demonstrate the use and care of hand tools;
			
			• marking off
			• cutting
			• filing
			• drilling

			• folding • riveting (pop rivets) **Resources and process notes** Textbook, tools, videos and charts related to the prescribed tools Written presentations
5-6	Materials	• Identify materials according to profiles ○ sheets ○ round bar ○ flat bar ○ square bar ○ round tubing	**Techniques** Display different steel profiles. The teacher will show to the learners how to identify material according to their shapes and explain the correct technical name **Activities,** Learners will be given steel profiles (samples) to identify in groups **Resources and process notes** Textbook, steel profiles, videos and charts related to the prescribed profiles
7-8	Joining processes	• Apply procedures of basic joining processes ○ Bolt and nuts ○ pop riveting	**Techniques** Display various joining processes

			Demonstrate how each of the joining processes work Show to the learners how to apply each of the joining processes **Activities** Learners will be given prepared sheets to perform the joining processes, pop riveting/ rivet set snap **Resources and process notes** Textbook, tools, videos and charts

9 – 10	Formal Assessment	The weeks allocated for formal assessment are integrated across the weeks planned for teaching and learning. The assessment will consist of Practical Task/s with a 75% weighting and a Theory test with a 25% weighting.

Practical:

Activity 1 Demonstration - 25%

- Demonstrate safe and unsafe conditions
  - Demonstrate the correct method to use first extinguisher in a simulated scenario
  - Demonstrate the use of first aid kit in a simulated scenario
  - Demonstrate the use and care of hand tools: (marking-off, cutting with shears, drilling and folding)

Activity 2 Model – Practical - 50%

- Manufacture a simple shelf using 0,8mm galvanized sheeting; tools used- steel ruler, scriber, prick- and centre punch, shears, tin snips, files
- Processes: preparation, measuring, marking off, cutting, drilling, bending using a vice, riveting (See Annexure B) 50%

Theory:

Activity 3 Respond to questions - Pen and paper test (Oral or written) - 25%

- Questions on safety(PPE), hand tools, profiles of mild steel (round bar, flat bar, m/s sheet)

Year 2- Term 1

WEEK	TOPIC	CONTENT The learner is able to:	Techniques, activities, resources and process notes
1-2	Safety and First Aid	• Understand and apply general workshop safety according to the OHS ACT o Good housekeeping o Basic first aid (treatment of minor injuries) o Causes of accident/incident o Use of fire extinguishers	**Techniques** Explain and elaborate on the importance of workshop safety according to the OHS-ACT • Good housekeeping- making sure all hazardous material that can cause fires are removed, off cuts, oil and grease are removed from all surfaces, tools and equipment in its place all the time • Basic first aid to be applied to all minor injuries • Causes of accidents **Activity** 1.1 Learners must be given oral/written task on • general safety • good house keeping 1.2 Learners must demonstrate the use of first aid kit in a simulated scenario 1.3 Learners must demonstrate the correct method to use fire extinguisher in a simulated scenario

3-5	Hand tools and joining process (riveting)
	
	Drawings
		• Select, use and care for hand tools
		  ○ spanners,
		  ○ pliers,
		  ○ screwdrivers (flat, Philips or star)
		  ○ hammers (ball peen)
		  ○ rubber mallets,
		  ○ Marking-off tools (steel rule, measuring tapes, scriber, punches, etc.)
		  ○ hacksaw,
		  ○ files,
		  ○ G-clamps,
		  ○ vice-grips,
		  ○ engineers vice
		  ○ folding bars
		  ○ hand drill
		  ○ rivet gun
		• Adhere to all safety precautions while working with tools
		
		• Free-hand sketching and labelling of hand tools
			Techniques
			Display different tools.
			Demonstrate how each tool work
			Show to the learners how to take care, store and clean tools
			Activity
			Learner must be given a work piece to demonstrate the use and care of hand tools;
			• marking off
			• cutting
			• filing
			• drilling
			• folding
			• riveting (pop rivets)

6	Materials	• **Identify** materials according to profiles
		  ○ sheets
		  ○ round bar
		  ○ flat bar
		  ○ square bar
			Techniques
			Display different profiles**.**
			Show to the learners how to identify material according their shapes and explain the correct technical term

		○ round tubing	**Activities** Learners will be given steel profiles(samples) to identify in groups **Resources and process notes** Textbook, steel profiles, videos and charts related to the prescribed profiles
7-8	Joining processes	• Use and apply procedures of basic joining processes ○ Bolt, nuts and washers ○ pop riveting	**Techniques** Display various joining processes. Demonstrate how each of the joining processes work Show to the learners how to apply each of the joining processes **Activity** Learner must be given prepared work pieces to demonstrate the procedures of joining processes using: • Bolt and nuts • pop riveting Learners must be given a written task on the uses of joining processes

9 – 10	Formal Assessment	The weeks allocated for formal assessment are integrated across the weeks planned for teaching and learning. The assessment will consist of Practical Task/s with a 75% weighting and a Theory test with a 25% weighting.

Practical:

Activity 1 Demonstration - 25%

- Demonstrate safe and unsafe conditions
  - Demonstrate the correct method to use first extinguisher in a simulated scenario
  - Demonstrate the use of first aid kit in a simulated scenario
  - Demonstrate the use and care of hand tools; (marking-off, cutting with shears, drilling and folding)

Activity 2 Model – Practical - 50%

- Any suitable model to demonstrate the following process skills: preparation, measuring, marking off, cutting, drilling, folding and or /bending. riveting

Theory:

Activity 3 Respond to questions- Pen and paper test (Oral or written) - 25%

- Questions on safety(PPE), hand tools, profiles of mild steel (round bar, flat bar, m/s sheet, square bar, round tubing)

Year 2- Term 2

WEEK	TOPIC	CONTENT The learner is able to:	Techniques, activities, resources and process notes
	Safety and First Aid	• Understand and apply general workshop safety according to the OHS ACT o Good housekeeping o Basic first aid (treatment of minor injuries) o Causes of accident/incident o Safe practice in the use of power tools o Safety and fire procedures	**Techniques** The teacher will explain and elaborate on the importance of workshop safety according to the OHS-ACT • Good housekeeping- making sure all hazardous material that can cause fires are removed, off cuts, oil and grease are removed from all surfaces, tools and equipment in its place all the time • Basic first aid to be applied to all minor injuries • Causes of accidents discussed • Safety precautions of power tools explain according to regulations. • Safety and fire procedures adhere to according to regulations **Activity** 1.1 Learners should be able to exercise all safety precautions when working with power tools 1.2 Learners should apply safety precautions in case of the

			possibility of fires
2-3	Power tools and equipment Drawings	○ Identify, care and use power tools and equipment ○ Electrical hand drill ○ Portable spot welder ○ Hand guillotine ○ Foot guillotine ○ Hand shearing machine ○ Nibbler • Adhere to all safety precautions while working with tools • **Optional** – copying of 2D / 3D objects from given drawings	**Techniques** The teacher will explain and demonstrate the use of all relevant power tools **Activity** Learners will use the power tools for basic activities (cutting, grinding, drilling, etc.)
4-5	Materials	• **Identify** and **select** material (ferrous and non-ferrous metals) ○ Mild steel ○ Stainless steel ○ Aluminium ○ Copper ○ Brass	**Techniques** The teacher will show the learners how to identify and select the different metals. Define ferrous and non-ferrous metals. **Activity** Learners will be able to do the identification and selection of the different metals. Learners will understand the difference between ferrous and non-ferrous metals

6-8	Joining Methods	• Join sheet metal using
		  ○ Riveting (cold)
		  ○ bolts and nuts
		  ○ soldering (soft)
		• Adhere to all safety precautions while working with tools
			Techniques
			The teacher will demonstrate the different joining methods.
			Activity
			The learners will apply the different joining methods by making use of the resources available

9 – 10	Formal Assessment	The weeks allocated for formal assessment are integrated across the weeks planned for teaching and learning. The assessment will consist of Practical Task/s with a 75% weighting and a Theory test with a 25% weighting.	

Practical:

Activity 1 Demonstration - 15%

- Safety precautions when working with power tools

Activity 2 Model – Practical - 60%

- Model using power tools to cut, grind and drill

Theory:

Activity 3 Respond to questions - Pen and paper test (Oral or written) - 25%

Year 2- Term 3

WEEK	TOPIC	CONTENT The learner is able to:	Techniques, activities, resources and process notes
1	Safety and First Aid	• Understand and apply general workshop safety according to the OHS ACT o Good housekeeping o Basic first aid (treatment of minor injuries) o Causes of accident/incident o Safe practice in the use of power tools o Safety and fire procedures o Understand no prejudice against HIV learners and how to adhere to safety precautions when cuts and bruises occur with any learner,	**Techniques** The teacher will explain and elaborate on the importance of workshop safety according to the OHS-ACT • Good housekeeping- making sure all hazardous material that can cause fires are removed, off cuts, oil and grease are removed from all surfaces, tools and equipment in its place all the time • Basic first aid to be applied to all minor injuries • Causes of accidents • How to treat all learners the same in spite of their status **Activity** Learners must be able to exercise all safety precautions when working with power tools Learners must apply safety precautions in case of the possibility of fires

2-3	Hand tools	○ Select, use and care for forming tools ○ Anvil ○ Stakes for forming metal shapes (types) ○ Hand Seamer • All safety precautions must be adhered to while working with tools	**Techniques** Demonstrate how to use the forming tools listed **Activity** The learner will demonstrate his ability how to make use of forming tools
4-5	Materials	• State the **characteristics** of ○ Mild steel ○ Stainless steel ○ Aluminium • Explain the difference between ferrous and non-ferrous metals	**Techniques** Show the learners how to identify and select the different metals. Define ferrous and non-ferrous metals. **Activity** Learners will understand the characteristics of the different metals. Learners will understand the difference between ferrous and non-ferrous metals
6-8	Joining processes	• Use and apply procedures of joining applications ○ Cold riveting ○ soldering (hard) ○ spot welding ○ silver soldering	**Techniques** The teacher will demonstrate the different joining processes. **Activity** The learners will practise and apply the different joining

		• Adhere to all safety precautions while working with tools	processes by making use of the resources available
9 – 10	Formal Assessment	The weeks allocated for formal assessment are integrated across the weeks planned for teaching and learning. The assessment will consist of Practical Task/s with a 75% weighting and a Theory test with a 25% weighting.	

Practical:

Activity 1 Demonstration - 35%

- General safety and process skills

Activity 2 Model – Practical - 40%

- Model using forming tools

Theory:

Activity 3 Respond to questions - Pen and paper test (Oral or written) - 25%

Year 2- Term 4

WEEK	TOPIC	CONTENT The learner is able to:	Techniques, activities, resources and process notes

1	Safety and
	First Aid
		• Understand and apply general workshop safety according to the OHS ACT
		  ○ Good housekeeping
		  ○ Basic first aid (treatment of minor injuries)
		  ○ Causes of accident/incident
		  ○ Safe practice in the use of power tools
		  ○ Safety and fire procedures
		  ○ HIV/AIDS Education
			The teacher will explain and elaborate on the importance of workshop safety according to the OHS-ACT
			• Good housekeeping- making sure all hazardous material that can cause fires are removed, off cuts, oil and grease are removed from all surfaces, tools and equipment in its place all the time
			• Basic first aid to be applied to all minor injuries
			Causes of accidents
			Activity
			1.1 Learners must be given oral/written test on
			• general safety
			• good house keeping
			1.2 Learners must demonstrate the use of first aid kit in a simulated scenario
			1.3 Learners must demonstrate the correct method to use fire extinguisher in a simulated scenario

2-4	Tools, and equipment	• Identify, care and use power tools and equipment
		  ○ Electrical hand drill
		  ○ Portable spot welder
		  ○ Hand guillotine
		  ○ Hand shearing machine
		  • Nibbler
		• Adhere to all safety precautions while working with tools
			Techniques
			The teacher will explain and demonstrate the use of all relevant power tools
			Activity
			Learners will use the power tools for basic activities (cutting, grinding, drilling, etc.)

5-6	Materials	• State **characteristics** of
		  ○ Copper
		  ○ Brass
		  ○ Bronze (alloy)
			Techniques
			The teacher will discuss uses and the characteristics of non-ferrous metal and alloy metals
			Activity
			Learners will know the uses and the characteristics of non-ferrous and alloys

7	Joining processes	• Use and apply procedures of joining applications
		  ○ Cold riveting
		  ○ soldering (hard)
		  ○ spot welding
		  ○ silver soldering
		• Adhere to all safety precautions while working with tools
			Techniques
			The teacher will demonstrate the different joining processes.
			Activity
			The learners will practise and apply the different joining processes by making use of the resources available

8 – 10	Formal Assessment	The weeks allocated for formal assessment are integrated across the weeks planned for teaching and learning. The assessment will consist of Practical Task/s with a 75% weighting and a Theory test with a 25% weighting.

Practical:

Activity 1 Model – Practical - 75%

- Model demonstrating use of process skills

Theory:

Activity 2 Respond to questions - Pen and paper test (Oral or written) - 25%

Year 3- Term 1

WEEK	TOPIC	CONTENT The learner is able to:	Techniques, activities, resources and process notes

1-2	Safety and
	First Aid
		• Understand and apply general workshop safety according to the OHS ACT
		  ○ Good housekeeping
		  ○ Basic first aid (treatment of minor injuries)
		  ○ Causes of accident/incident
		  ○ Accident and emergences
		  ○ Safe practice in the use of power tools
		  ○ HIV/AIDS Education
		  ○ Fire drill
			Techniques
			The teacher will explain and elaborate on the importance of workshop safety according to the OHS-ACT
			• Good housekeeping- making sure all hazardous material that can cause fires are removed, off cuts, oil and grease are removed from all surfaces, tools and equipment in its place all the time
			• Basic first aid to be applied to all minor injuries
			• Causes of accident/incident
			• Accident and emergency escape routes
			• Fire drill
			Activity
			Learners will practice a fire drill without warning
			Learners must demonstrate the correct method to use fire extinguisher in a simulated scenario

3-4	Tools and	• Select and use power tools, and equipment relating to seaming	**Techniques** The teacher will display different tools to show to the

	Equipment Drawings	○ Hammers ○ Hand seams ○ Hand drills ○ G-clamps ○ Stakes ○ Chisels ○ Seam-rollers • All safety precautions must be adhered to while working with tools • **Optional-**Using Set Squares, ruler, dividers, callipers, pencil to draw 2D open-ended Square tube	learners The teacher will demonstrate how each tool works The teacher will show to the learners how to take care, and clean the tools. **Activities** 1.2 Learners must show their ability to use the following tools, hand seams, stakes, seam-rollers 1.3 Learners must apply it on a project
5-6	Materials	• Identify material according to specification ○ Galvanised steel ○ Tin plate ○ Zinc aluminium plates	**Techniques** The teacher will show the learners how to identify and select the seaming materials metals. **Activity** Learners will be able to do the identification and selection of the different metals
7-8	Joining processes	• Describe and apply seaming methods ○ lap seam ○ Grooved seam ○ Countersunk lap seam	**Techniques** The teacher will explain and demonstrate how to make the different seams using the relevant tools and machinery to

		○ Outside lap seam ○ Flat lock seam • Adhere to all safety precautions while working with tools	make the various seams **Activity** Learners will apply the seaming tools and make the various seams, and do the necessary welding butt where needed
9 – 10	Formal Assessment	The weeks allocated for formal assessment are integrated across the weeks planned for teaching and learning. The assessment will consist of Practical Task/s with a 75% weighting and a Theory test with a 25% weighting.	

Practical:

Activity 1 Demonstration - 25%

- Demonstrate a simple process skill/s

Activity 2 Model – Practical - 50%

- Model to demonstrate use **of** seams, stakes, seam-rollers

Theory:

Activity 3 Respond to questions - Pen and paper test (Oral or written) - 25%

Year 3- Term 2

WEEK	TOPIC	CONTENT The learner is able to:	Techniques, activities, resources and process notes
1	Safety and First Aid	• Understand and apply general workshop safety according to the OHS ACT o Good housekeeping o Basic first aid (treatment of minor injuries) o Causes of accident/incident o Accident and emergences o Safe practice in the use of power and machines o Safe use and storage of gas cylinders	**Techniques** The teacher will explain and elaborate on the importance of workshop safety according to the OHS-ACT • Good housekeeping- making sure all hazardous material that can cause fires are removed, off cuts, oil and grease are removed from all surfaces, tools and equipment in its place all the time • Basic first aid to be applied to all minor injuries • Causes of accident/incident • Accident and emergencies • Power tools and gas equipment **Activity** 1.1 Learners must identify the different components on an oxy-acetylene set. 1.2 Learners must assemble and dissemble the oxy-acetylene equipment. 1.3 Learners must understand the dangers and safe storage

			of oxy- acetylene

2-3	Tools, and equipment	• Describe, use and care of cutting equipment
		  ○ oxy-acetylene cutting equipment
		  ○ plasma cutters
		  ○ shearing machine
		  ○ guillotine
		• Adhere to all safety precautions while working with tools
			The teacher will explain and demonstrate the use of and how to care and store the oxy-acetylene equipment, plasma cutters, guillotine, etc.
			Activity
			Learners should be able to use all cutting equipment and machinery

4-5	Materials	• Describe the **manufacturing processes** of
		  ○ mild steel
		  ○ stainless steel
		  ○ aluminium
		  ○ copper
		  ○ brass
			Techniques
			The teacher will explain how the various metals are manufactured
			Activity
			The learners will understand the process of how metals are manufactured and how to draw or make a model. i.e. a furnace

6-8	Joining processes	• Describe and apply joining processes
		  ○ spot/resistance welding
		  ○ MIG welder
		  ○ Soldering
		• Adhere to all safety precautions while working with tools
			The teacher will explain and demonstrate the following joining processes (spot welding, MIG welding, soldering)
			Activity
			The learners will practice and apply the joining processes

9 – 10	Formal Assessment	The weeks allocated for formal assessment are integrated across the weeks planned for teaching and learning. The assessment will consist of Practical Task/s with a 75% weighting and a Theory test with a 25% weighting.

Practical:

Activity 1 Demonstration - 15%

- Identify the different components on an oxy-acetylene set
- Assemble and dissemble the oxy-acetylene equipment
- Understand the dangers and safe storage of oxy acetylene

Activity 2 Model – Practical - 60%

- Model demonstrating use of cutting equipment and machinery

Theory:

Activity 3 Respond to questions - Pen and paper test (Oral or written) - 25%

Year 3- Term 3

WEEK	TOPIC	CONTENT The learner is able to:	Techniques, activities, resources and process notes
1-2	Safety and First Aid	• Understand and apply general workshop safety according to the OHS ACT ○ Good housekeeping ○ Basic first aid (treatment of minor injuries) ○ Causes of accident/incident ○ Accident and emergencies ○ Safe practice in the use of power tools ○ Flammable and non- flammable materials	**Techniques** The teacher will explain and elaborate on the importance of workshop safety according to the OHS-ACT • Good housekeeping- making sure all hazardous material that can cause fires are removed, off cuts, oil and grease are removed from all surfaces, tools and equipment in its place all the time • Basic first aid to be applied to all minor injuries • Causes of accident/incident • Accident and emergencies • Power tools **Activity** Learners must know all flammable materials to avoid fire hazards
3-5	Tools, and equipment	• Select, use and care of tools for fabrication ○ Jigs ○ Nibbler	**Techniques** The teacher will explain and demonstrate the process of jig making and all the relevant materials that can be used to

		○ Tin snips ○ G-clamps ○ Hacksaw • Adhere to all safety precautions while working with tools	make jigs **Activity** The learners will make a simple jig that can be used
6-8	Materials	• Describe and explain materials used to make templates ○ Plywood ○ Galvanised sheet ○ Copper plates ○ Timber ○ Light plates • Fabricate from specific templates and present models (from simple templates) • Adhere to all safety precautions while working with tools	**Techniques** The teacher will explain why different materials are used to make templates **Activity** The learners will make templates using various materials

9 – 10	Formal Assessment	The weeks allocated for formal assessment are integrated across the weeks planned for teaching and learning. The assessment will consist of Practical Task/s with a 75% weighting and a Theory test with a 25% weighting.

Practical:

Activity 1 Demonstration - 25%

Activity 2 Model – Practical - 50%

Theory:

Activity 3 Respond to questions - Pen and paper test (Oral or written) - 25%

Year 3- Term 4

WEEK	TOPIC	CONTENT The learner is able to:	Techniques, activities, resources and process notes
1-2	Safety and First Aid	• Understand and apply general workshop safety according to the OHS ACT o Good housekeeping o Basic first aid (treatment of minor injuries) o Causes of accident/incident o Safe practice in the use of power tools o Safety and fire procedures	The teacher will explain and elaborate on the importance of workshop safety according to the OHS-ACT • Good housekeeping- making sure all hazardous material that can cause fires are removed, off cuts, oil and grease are removed from all surfaces, tools and equipment in its place all the time • Basic first aid to be applied to all minor injuries Causes of accidents **Activity** Learners will watch a video on safety and fire
3-4	Tools, and equipment	• Identify, care and use power tools and equipment o Electrical hand drill o Portable spot welder o Hand guillotine o Hand shearing machine o Beading machine o Swaging machine (Jenny)	The teacher will explain and demonstrate all the power tools and machinery. The care and safety precautions according to regulations will be laid out **Activity** The learner will practice under supervision the use of the power tools and machinery.

		○ Nibbler	
5-6	Materials	• Understand the manufacturing process of various sheet metals	**Technique** The teacher will explain how metals are manufactured **Activity** The learner will understand the manufacturing process
7	Joining processes	• Describe and apply joining processes ○ spot/resistances welding ○ MIG welder ○ Soldering • Adhere to all safety precautions while working with tools	**Technique** The teacher will explain and demonstrate the following joining processes (spot welding, MIG welding, soldering) **Activity** The learners will practice and apply the joining processes
8 – 10	Formal Assessment	The weeks allocated for formal assessment are integrated across the weeks planned for teaching and learning. The assessment will consist of Practical Task/s with a 75% weighting and a Theory test with a 25% weighting.	
Practical: **Activity 1** Model – Practical - 75% **Theory:** **Activity 2** Respond to questions - Pen and paper test (Oral or written) - 25%			

Year 4- Term 1

WEEK	TOPIC	CONTENT The learner is able to:	Techniques, activities, resources and process notes
1	Safety and First Aid	• Understand and apply general workshop safety according to the OHS ACT o Good housekeeping o Basic first aid (treatment of minor injuries) o Causes of accident/incident o Accident and emergences o Safe practice in the use of power and machines o Safe use and storage of gas cylinders	**Techniques** The teacher will explain and elaborate on the importance of workshop safety according to the OHS-ACT • Good housekeeping- making sure all hazardous material that can cause fires are removed, off cuts, oil and grease are removed from all surfaces, tools and equipment in its place all the time • Basic first aid to be applied to all minor injuries • Causes of accident/incident • Accident and emergencies • Power tools • The correct method of storing gas cylinders will be explain **Activity** Learners must know how to store all gas cylinders. The dangers of empty or full cylinders.

2-3	Power tools, machinery
	
	Drawings
		• Identify, care and use power tools and equipment
		  ○ Swaging machine (jenny)
		  ○ Bench grinder
		• Adhere to all safety precautions while working with tools
		• **Optional-**Using Set Squares, ruler, dividers, callipers, pencil to draw 2D close-ended Square tubing
			Technique
			The teacher will explain and demonstrate the safe use and care of the power tools and machinery
			Activity
			The learners will learn the correct use of machinery such as the swaging machine(jenny)

4-5	Properties of metals	• Explain and describe the **properties** of metals,
		  ○ Elasticity
		  ○ Hardness
		  ○ Brittleness
			Technique
			The teacher will define the concepts related to properties of metals and states in which metals will you find certain properties and behaviour of metals if pressure, treatments (hot or cold) are apply to the metals
			Activity
			The learner will learn the types of properties you get in metals

6-8	Joining processes	• Describe and apply joining processes
		  ○ spot/resistances welding
		  ○ MIG welder
		  ○ Soldering
		• Adhere to all safety precautions while working with tools
			Technique
			The teacher will explain and demonstrate the following joining processes (spot welding, MIG welding, soldering)
			Activity
			The learners will practice and apply the joining processes

9 – 10	Formal Assessment	The weeks allocated for formal assessment are integrated across the weeks planned for teaching and learning. The assessment will consist of Practical Task/s with a 75% weighting and a Theory test with a 25% weighting.

Practical:

Activity 1 Demonstration - 25%

Activity 2 Model – Practical - 50%

Theory:

Activity 3 Respond to questions - Pen and paper test (Oral or written) - 25%

Year 4- Term 2

WEEK	TOPIC	CONTENT The learner is able to:	Techniques, activities, resources and process notes
1	Safety and First Aid	• Understand and apply general workshop safety according to the OHS ACT o Good housekeeping o Basic first aid (treatment of minor injuries) o Causes of accident/incident o Accident and emergencies o Safe practice in the use of power and machines o Safe use and storage of gas cylinders	**Techniques** The teacher will explain and elaborate on the importance of workshop safety according to the OHS-ACT • Good housekeeping- making sure all hazardous material that can cause fires are removed, off cuts, oil and grease are removed from all surfaces, tools and equipment in its place all the time • Basic first aid to be applied to all minor injuries • Causes of accident/incident • Accident and emergencies • Power tools **Activity** Learners must apply all knowledge on possible safety hazards, e.g. clearing of exits, changing chipped blades, sharpening blunt tools, flammable objects removed when working with fire, what to do in case of an emergency
2-3	Power tools,	• Identify, care and use power tools and equipment	**Technique**

	machinery	○ Pedestal drill ○ Portable spot welder ○ Beading machine ○ Swaging machine (jenny) ○ Nibbler ○ Circle cutting machine • Adhere to all safety precautions while working with tools	The teacher will explain and demonstrate the safe use and care of the power tools and machinery **Activity** The learners will learn the correct use of machinery such as the beading machine and the circle cutting machine
4-5	Properties of metals	• Explain and describe the **properties** of metals, ○ Elasticity ○ Hardness ○ Brittleness	**Technique** The teacher will define the concepts related to properties of metals and states in which metals will you find certain properties and behaviour of metals if pressure treatments (hot or cold) are apply to the metals **Activity** The learner will learn the types of properties you get in metals
6-8	Joining Processes	• Describe and apply joining processes ○ Arc weld ○ MIG weld ○ Soldering ○ TIG weld • Adhere to all safety precautions while working with tools	**Technique** The teacher will explain and demonstrate the joining processes but only the basic use of the welding equipment (light welding) **Activity** Learners will do the following welding processes but light

			welding only, (tack, spot, and fusion welding)
9 – 10	Formal Assessment	The weeks allocated for formal assessment are integrated across the weeks planned for teaching and learning. The assessment will consist of Practical Task/s with a 75% weighting and a Theory test with a 25% weighting.	
Practical: **Activity 1** Model – Practical - 75% **Theory:** **Activity 2** Respond to questions - Pen and paper test (Oral or written) - 25%			

Year 4- Term 3

WEEK	TOPIC	CONTENT The learner is able to:	Techniques, activities, resources and process notes
1	Safety and First Aid	• Understand and apply general workshop safety according to the OHS ACT o Good housekeeping o Basic first aid (treatment of minor injuries) o Causes of accident/incident o Accident and emergences o Safe practice in the use of power tools and machines o Safe use and storage of gas cylinders	**Techniques** The teacher will explain and elaborate on the importance of workshop safety according to the OHS-ACT • Good housekeeping- making sure all hazardous material that can cause fires are removed, off cuts, oil and grease are removed from all surfaces, tools and equipment in its place all the time • Basic first aid to be applied to all minor injuries • Causes of accidents **Activity** Learners must apply all knowledge on possible safety hazards, e.g. clearing of exits, changing of chipped blades, sharpening blunt tools, flammable objects removed when working with fire, what to do in case of an emergency
2-3	Power tools, machinery	• Identify, care and use power tools and equipment o Pedestal drill o Portable spot welder	**Technique** The teacher will explain and demonstrate the safe use of the electrical power tools and machinery

		○ Hand shearing machine ○ Beading machine ○ Swaging machine (jenny) ○ Nibbler • Adhere to all safety precautions while working with tools	**Activity** The learners must use machinery such as the swaging machine(jenny) and or beading machine
4-5	Properties of metals	• Explain and describe the following properties of metals ○ Malleability ○ Ductility	**Technique** The teacher will define the concepts related to properties of metals and states in which metals will you find certain properties and behaviour of metals if pressure, treatments (hot or cold) are apply to the metals **Activity** The learner will learn the types of properties you get in metals
6-8	Joining processes	• Describe and apply the joining processes ○ Arc weld ○ MIG weld ○ Soldering ○ TIG weld • Adhere to all safety precautions while working with tools	**Technique** The teacher will explain and demonstrate the joining processes but only the basic use of the welding equipment (light welding) **Activity** Learners will do the following welding processes but light welding only, (tack, spot, and fusion welding)

9 – 10	Formal Assessment	The weeks allocated for formal assessment are integrated across the weeks planned for teaching and learning. The assessment will consist of Practical Task/s with a 75% weighting and a Theory test with a 25% weighting.	

Practical:

Activity 1 Demonstration - 25%

Activity 2 Model – Practical - 50%

Theory:

Activity 3 Respond to questions - Pen and paper test (Oral or written) - 25%

Year 4- Term 4

WEEK	TOPIC	CONTENT Revision and consolidation	Techniques, activities, resources and process notes
1	Safety and First Aid	• Understand and apply general workshop safety according to the OHS ACT o Good housekeeping o Basic first aid (treatment of minor injuries) o Causes of accident/incident o Accident and emergences o Safe practice in the use of power tools and machinery o Safe use and storage of gas cylinders	**Techniques** The teacher will explain and elaborate on the importance of workshop safety according to the OHS-ACT • Good housekeeping- making sure all hazardous material that can cause fires are removed, off cuts, oil and grease are removed from all surfaces, tools and equipment in its place all the time • Basic first aid to be applied to all minor injuries • Causes of accidents **Activity** Learners must mark empty and full cylinders clearly
2	Power Tools machinery	• Identify, care and use of power tools and equipment o Pedestal drill o Portable spot welder o Hand shearing machine o Beading machine o Swaging machine (jenny) • Nibbler	**Technique** The teacher will explain and demonstrate the safe use and care of the power tools and machinery **Activity** The learners must use machinery such as the swaging machine(jenny), and or beading machine

		• All safety precautions must be adhered to while working with tools	
3	Properties of metals	• Explain and describe the **properties** of metals, o Elasticity o Hardness o Brittleness o Malleability o Ductility	**Technique** The teacher will define the concepts related to properties of metals and states in which metals will you find certain properties and behaviour of metals if pressure, treatments (hot or cold) are apply to the metals **Activity** The learner will learn the types of properties you get in metals
4	Joining processes	• Describe and apply the joining processes o MIG weld o Gas weld o TIG weld • Adhere to all safety precautions while working with tools	**Technique** The teacher will explain and demonstrate the joining processes but only the basic use of the welding equipment (light welding) **Activity** Learners will do the following welding processes but light welding only, (tack, spot, and fusion welding)
5-10	External examination	External moderation of school assessment over terms 1, 2 and 3 = 50% of qualification Complete external Practical Assessment Task (PAT) = 25% of qualification Formal external assessment written test or oral = 25% of qualification	

SECTION 4

ASSESSMENT

4.1 Introduction

This section on assessment *standardises* the recording and reporting processes for the Technical Occupational Curriculum and Assessment Policy Statement that is offered in schools that offer this learning programme. It also provides a policy framework for the management of school based assessment and school assessment records.

It is critically required of teachers to offer all measures of differentiated assessment as outlined in Chapter 9 of the National Protocol for Assessment. Especially learners in special schools who follow the Technical Occupational Curriculum over a period of four years have diverse learning styles and support needs. Since a learner or learners may be functioning on different levels, the assessment / recording / reporting system must make provision to reflect the level(s) of each leaner. Each learner, regardless of his/her number of years in the school, must have access to the standard of assessment best suited to his/her needs. The learner's *abilities* determine what will be expected of him/her and the *pacing* of instruction must accommodate each individual learner within a framework of high expectations (See Chapter 9 of the National Protocol for Assessment).

Learners are also eligible for Accommodations and Concessions as outlined in the Standard Operating Procedures for the Assessment of Learners who Experience Barriers to Assessment from Grade R to 12 (2017).

All decisions related to differentiated assessment are made through completing the protocols as outlined in the Policy on Screening, Identification, Assessment and Support (2014) and recorded and tracked through the Individual Support Plans of learners.

4.2 Assessment Principles

4.2.1 Definition

Assessment is a continuous planned process of identifying, gathering and interpreting information about the performance of learners, using various forms of assessment. It involves four steps: generating and collecting evidence of achievement; evaluating this evidence; recording the findings and using this information to understand and thereby assist the learner's development in order to improve the process of learning and teaching. Assessment should be both informal (Assessment

for Learning) and formal (Assessment of Learning). In both cases regular feedback should be provided to learners to enhance the learning experience.

Assessment is a process that measures individual learners' attainment of knowledge (content and concepts) and skills by collecting, analysing and interpreting the data and information obtained from this process to:

- Enable the teacher to judge a learner's progress in a reliable way;
- Inform learners of their strengths, weaknesses and progress; and
- Assist teachers, parents and other stakeholders in making decisions about the learning process and the progress of learners.

Assessment should be mapped against the content, skills, intended aims and topics specified in the learning programme. In both informal and formal assessments, it is important to ensure that in the course of a school year:

- All of the topics and content are covered;
- The full range of skills is included; and
- A variety of different forms of assessment are used.

4.2.2 Informal Assessment or Daily Assessment

Assessment for learning has the purpose of continuously collecting information on a learner's achievement that can be used to improve their learning. Informal assessment is a daily monitoring of learners' progress. This is done through observations, discussions, practical demonstrations, learner-teacher conferences, informal classroom interactions, etc. Informal assessment may be as simple as stopping during the lesson to observe learners or to discuss with learners how learning is progressing. Informal assessment should be used to provide feedback to the learners and to inform planning for teaching, but need not be recorded. It should not be seen as separate from learning activities taking place in the classroom. Learners or teachers can assess their performance in the tasks. Self-assessment and peer assessment actively involves learners in assessment. This is important as it allows learners to learn from and reflect on their own performance. The results of the informal daily assessment tasks are not formally recorded unless the teacher wishes to do so. **The results of daily, informal assessment tasks are not taken into account for progression, promotion and certification purposes.**

Informal, on-going assessments should be used to scaffold the acquisition of knowledge and skills and should be the stepping stones leading up to the formal tasks in the Programmes of Assessment.

4.2.3 Formal Assessment

All assessment tasks that make up a formal programme of assessment for the year are regarded as Formal Assessment. Formal Assessment Tasks are marked and formally recorded by the teacher for progression and certification purposes. All Formal Assessment Tasks are subject to moderation for the purpose of quality assurance and to ensure that appropriate standards are maintained. Formal assessment tasks form part of a year-long formal Programme of Assessment.

a. Why use a Formal Assessment task?

"Formal Assessment Task (assessment of learning)" – is a systematic way of assessment used by teachers to determine how well learners are progressing in a level and in a particular subject.

b. What is a Formal Assessment Task?

It is a set of questions and or instructions that learners need to respond to. A task may consist of a range of activities. A formal task must be valid, fair and reliable and must cover sufficient knowledge and or skills to report on the learners' progress.

Teachers must ensure that assessment criteria are very clear to the learners before the assessment process commences. This involves explaining to the learners which knowledge and skills are being assessed and the required length of responses. Feedback should be provided to the learners after assessment and could take the form of whole-class discussion or teacher-learner interaction. Examples of formal assessments include projects, oral presentations, simulations, performances, tests, examinations, practical demonstrations, etc. The **forms of assessment** used should be appropriate to the age and the developmental level of the learners as well as the context of the subject or skills being assessed. The assessment tasks should be carefully designed to cover the topic, content and or skills of the subject. The design of these tasks should therefore ensure that a variety of skills are assessed.

Practical Assessment Tasks allow for learners to be assessed on a regular basis during the school year and also allow for the assessment of skills that cannot be assessed in a written format, e.g. test or examination.

Assessment in the General Certificate of Education: Technical Occupational (GCE: TO)

Assessment in the GCE: TO is underpinned by the objectives of the National Qualifications Framework (NQF). These objectives are to:

- Create an integrated national framework for learning achievements.
- Facilitate access to and progression within education, training and career paths.
- Enhance the quality of education and training.
- Redress unfair discrimination and past imbalances and thereby accelerate employment opportunities.
- Contribute to the holistic development of the learner by addressing:
  - Social adjustment and responsibility;
  - Moral accountability and ethical work orientation;
  - Economic participation; and
  - Nation-building.

The principles that drive these objectives are:

- ***Integration***

  To adopt a unified approach to education and training that will strengthen the human resources development capacity of the nation.

- ***Relevance***

  To be dynamic and responsive to national development needs.

- ***Credibility***

  To demonstrate national and international values and acquired competencies and skills so as to ensure the recognition of the qualification to be attained.

- ***Coherence***

  To work within a consistent framework of principles and certification.

- ***Flexibility***

  To allow for creativity and resourcefulness when achieving skills to cater for different learning styles and use a range of assessment methods, instruments and techniques.

- ***Participation***

To enable stakeholders to participate in setting standards and co-ordinating the achievement of the qualification.

- ***Access***

  To address barriers to learning at each level to facilitate learners' progress.

- ***Progression***

  To ensure that the qualification framework permits individuals to move through the levels of the national qualification via different, appropriate combinations of the components of the delivery system.

- ***Portability***

  To enable learners to transfer parts of a qualification from one learning institution and/or employer to another institution or employer.

- ***Articulation***

  To allow for vertical and horizontal mobility in the education system when pre-requisites for accreditation have been successfully completed.

- ***Recognition of Prior Learning***

  To grant credits for a unit of learning following an assessment or if a learner possesses the capabilities specified in each skills area.

- ***Validity of assessments***

  To ensure assessment covers a broad range of knowledge, skills, values and attitudes (SKVAs) needed to demonstrate applied competency. This is achieved through:

  - Clearly stating the skill to be assessed;
  - Selecting the appropriate or suitable evidence;
  - Matching the evidence with a compatible or appropriate method of assessment; and
  - Selecting and constructing an instrument(s) of assessment.

- ***Reliability***

  To assure assessment practices are consistent so that the same result or judgment is arrived at if the assessment is replicated in the same context. This demands consistency in the interpretation of evidence; therefore, careful monitoring of assessment is vital.

- ***Fairness and transparency***

  To verify that no assessment process or method(s) hinders or unfairly advantages any learner. The following could constitute unfairness in assessment:

  - Inequality of opportunities, resources or teaching and learning approaches;
  - Bias based on ethnicity, race, gender, age, disability or social class;
  - Lack of clarity regarding topic, content or skill being assessed; and
  - Comparison of learner's work with that of other learners, based on learning styles and language.

- ***Practicability and cost-effectiveness***

  To integrate assessment practices within the teaching and learning process and strive for cost and time-effective assessment.

4.3 Managing Assessment

Assessor Requirements

Assessors must be subject specialists with adequate formal assessment experience. If the teacher conducting the assessments has not been declared a competent assessor, an assessor who has been declared competent may be appointed to oversee the assessment process to ensure the quality and integrity of assessments for the qualification.

Types of Assessment

Assessment benefits the learner and the teacher. It informs learners about their progress and helps teachers make informed decisions at different stages of the learning process. Depending on the intended purpose, different types of assessment can be used.

- **Baseline assessment:** At the beginning of a level or learning experience, baseline assessment establishes the knowledge, skills, values and attitudes (SKVAs) that learners bring to the classroom. This knowledge assists teachers to plan learning programmes and learning activities.

- **Diagnostic assessment:** This assessment diagnoses the nature and causes of barriers to learning experienced by specific learners. It is followed by guidance, appropriate support and intervention strategies. This type of assessment is useful to make referrals for learners requiring specialist help.

- **Formative assessment (Informal Assessment):** This assessment monitors and supports teaching and learning. It determines learners' strengths and weaknesses and provides feedback on progress. It determines if a learner is ready for summative assessment.

- **Summative assessment (Formal Assessment)** This type of assessment gives an overall picture of student progress at a given time. It determines whether the student is sufficiently competent to progress to the next level.

Planning Assessment

An assessment plan should cover three main processes:

- **Collecting evidence:** The assessment plan indicates which learning programme topics, content and skills will be assessed, what assessment method or activity will be used and when this assessment will be conducted.

- **Recording:** The process of recording refers to the assessment instruments or tools with which the assessment will be captured or recorded. Therefore, appropriate assessment instruments must be developed or adapted.

- **Reporting:** All the evidence is put together in a report to deliver a decision for the subject.

Methods of Assessment

Methods of assessment refer to who carries out the assessment and includes teacher assessment, self-assessment, peer assessment and group assessment.

TEACHER ASSESSMENT	The Teacher assesses learners' performance against given criteria in different contexts, such as individual work, group work, etc.
SELF-ASSESSMENT	Learners assess their own performance against given criteria in different contexts, such as individual work, group work, etc.
PEER ASSESSMENT	Learners assess another student or group of learners' performance against given criteria in different contexts, such as individual work, group work, etc.

GROUP ASSESSMENT	Learners assess the individual performance of other learners within a group or the overall performance of a group of learners against given criteria.

Task lists and **checklists** show the learners what needs to be done. They consist of short statements describing the expected performance in a particular task. The statements on the checklist can be ticked off when the learner has adequately achieved the criterion. Checklists and task lists are useful in peer or group assessment activities.

Rubrics are a hierarchy (graded levels) of criteria with benchmarks that describe the minimum level of acceptable performance or achievement for each criterion. It is a different way of assessment and cannot be compared to tests. Each criterion described in the rubric must be assessed separately. Mainly, two types of rubrics, namely holistic and analytical, are used.

Competence Descriptions

All assessment should award marks to evaluate specific assessment tasks. However, marks should be awarded against rubrics and not simply be a total of ticks for right answers. Rubrics should explain the competence level descriptors for the skills, knowledge, values and attitudes (SKVAs) a learner must demonstrate to achieve each level of the rating scale. When teachers or assessors prepare an assessment task or question, they must ensure that the task or question addresses an aspect of a topic or skill. The relevant content must be used to create the rubric to assess the task or question. The descriptions must clearly indicate the minimum level of attainment for each category on the rating scale.

Strategies for Collecting Evidence

A number of different assessment instruments may be used to collect and record evidence. Examples of instruments that can be (adapted and) used in the classroom include:

Record sheets: The teacher observes learners working in a group. These observations are recorded in a summary table at the end of each task. The teacher can design a record sheet to observe learners' interactive and problem-solving skills, attitudes towards group work and involvement in a group activity.

Checklists: Checklists should have clear categories to ensure that the objectives are effectively met. The categories should describe how the activities are evaluated and against what criteria they are evaluated. Space for comments is essential.

School Assessment Programme

The **Programme of Assessment** is designed to spread formal assessment tasks in all subjects in a school across a term.

The programme of assessment should be recorded in the Teacher's planning file (Portfolio of Assessment) for each subject.

The following should at least be included in the Teacher's File:

- A contents page;
- The formal schedule of assessment;
- The requirements for each assessment task;
- The tools used for each assessment task;
- Recording instrument(s) for each assessment task; and
- A mark sheet and report for each assessment task.

The learner's Evidence of Performance must at least include:

- A contents page;
- The assessment tasks according to the assessment programme as indicated below;
- The assessment tools or instruments for the task; and
- A record of the marks (and comments) achieved for each task.

Where tasks cannot be contained as evidence in the Portfolio of Evidence (PoE), its exact location must be recorded and it must be readily available for moderation purposes.

Assessment across the four years

Year 1 Reporting only in the term when the skill is done.

The GCE: Technical Occupational Qualification at NQF Level 1 is a four-year Learning Programme. In year one a learner is exposed to a number of Occupational Subjects. Each subject is offered over a ten-week period (one term) in Year 1, where the learner is exposed to the basic skills required for the subject. By the end of year 1 the learner will select a minimum of one skill for the qualification.

Year 1	**Formal School-Based Assessments**
	Learner performance in the Term:
	Practical 75% *
	Theory 25%
Term Report	100%

Years 2 and 3

Year 2 will focus on a broad overview of the subject with a basic understanding and mastery of some of the basic skills required in the subject. Year 3 will focus on the consolidation of the basic skills and the addition of more advanced skills. Learners must in Year 3 start to develop a greater degree of independent mastery of the subject skills

Year 2/3	**Formal School-Based Assessments**			**Final End-of-Year Assessments**
	Term 1	Term 2	Term 3	Term 4
	Practical 75% *	Practical 75% *	Practical 75% *	○ Practical 75%
	Theory 25%	Theory 25%	Theory 25%	
				○ Pen and Paper Test/ Exam 25%
Term Report	100%	100%	100%	
End of Year	SBA 75%			25%

Year 4 Qualification year

In year 4 the focus shifts to the World of Work. Learners must consolidate required skills for the qualification and may engage in workplace exposure for a short period of time during the fourth year. Learners develop independent mastery of skills to be competent within the workplace

<table>
<tr><td rowspan="4">Year 4</td><td colspan="3">Formal School-Based Assessments</td><td>Final End-of-Year Assessments</td></tr>
<tr><td>Term 1</td><td>Term 2</td><td>Term 3</td><td>Term 4</td></tr>
<tr><td>Practical 75% *
Theory
25%</td><td>Practical 75% *
Theory
25%</td><td>Practical 75% *
Theory
25%</td><td>External Practical Assessment Task
25%</td></tr>
<tr><td></td><td></td><td></td><td>External
Pen and Paper Test
25%</td></tr>
<tr><td>Term Report</td><td>100%</td><td>100%</td><td>100%</td><td></td></tr>
<tr><td>End of Year</td><td colspan="3">SBA
50%</td><td>External Exams
50%</td></tr>
</table>

CLARIFICATION ON ASSESSMENT PERIODS

Year 2 and 3:

Term 1 theory assessment to consist of work done in term 1 only

Term 2 theory assessment to consist of work done in terms 1 and 2

Term 3 theory assessment to consist of work done in term 3 only

Term 4 theory assessment to consist of work done in terms 3 and 4

Year 4:

Term 1 theory assessment to consist of work done in term 1 only

Term 2 theory assessment to consist of work done in terms 1 and 2

Term 3 theory assessment to consist of work done in terms 1, 2 and 3

Term 4 Theory completed in the year

Timing of formal assessment

Suggested Program of Assessment for Sheet Metal Work

YEAR 1					
Term 1	**Content/ concept/skill**	**Activities**	**Forms of Assessment**	**%**	**FATs based on activities in CAP: TO**
Year 1	General workshop safety, housekeeping, fire drill, materials and tools used for manufacturing of a model Skills will be how to **measure** with a steel rule, **marking off** with scribers and punches, **cutting** with hand shears, **drilling** 5mm holes, **riveting** model.	**Activity 1** Introduction to safety	Informal assesment on unsafe conditions	25%	FAT 1
		Activity 2 Model learners manufacture a simple shelf by using 0,8mm galvanized sheeting, steel ruler, scriber, prick- and centre punch, shears, tin snips, files	Practical . preparation . measuring . marking off . cutting . drilling . folding/bending . riveting (See Annexure B)	50%	
		Activity 3 Allow learners to Respond to questions on safety(PPE), hand tools, profiles of mild steel(round bar, flat bar, m/s sheet)	Pen and paper test (Oral or written)	25%	

YEAR 2					
Term	**Content/ concept/skill**	**Activities**	**Forms of Assessment**	**%**	**FATs based on activities in CAP: TO**
Term 1	General workshop safety, housekeeping, fire drill, materials and tools used for manufacturing of a model Skills will be how to **measure** with a steel rule, **marking off** with scribers and punches, **cutting** with hand shears, **drilling** 5mm holes, **riveting** model.	**Activity 1** Demonstration	Demonstration	25%	FAT 1
		Activity 2 Model	Practical	50%	
		Activity 3 Respond to questions	Pen and paper test (Oral or written)	25%	
Term 2	General workshop safety according to the OHS ACT Skills - Identify, care and use power tools and equipment (cutting, grinding, drilling, etc.)	**Activity 1** Demonstration	Demonstration	15%	FAT 2
		Activity 2 Model	Practical	60%	
		Activity 3 Respond to questions	Pen and paper test (Oral or written)	25%	
Term 3	General workshop safety according to the OHS ACT Skills - Identify, care and use power tools and equipment (cutting, grinding, drilling, etc.)	**Activity 1** Demonstration	Demonstration	35%	FAT 3
		Activity 2 Model	Demonstration	40%	
		Activity 3 Respond to questions	Theory: Oral/ Written	25%	

Term 4	General workshop safety according to the OHS ACT Skills - Identify, care and use power tools and equipment (cutting, grinding, drilling, etc.)	**Activity 1** Model	Practical	75%	FAT 4
		Activity 2 Respond to questions	Pen and paper test (Oral or written)	25%	

YEAR 3					
Term	**Content/ concept/skill**	**Activities**	**Forms of Assessment**	**%**	**FATs based on activities in CAP: TO**
Term 1	General workshop safety according to the OHS ACT Select and use power tools, and equipment relating to seaming Identification of materials (galvanized, zinc and aluminium)	**Activity 1** Demonstration	Demonstration	25%	FAT 1
		Activity 2 Model	Practical	50%	
		Activity 3 Respond to questions	Pen and paper test (Oral or written)	25%	
Term 2	General workshop safety according to the OHS ACT Describe, use and care of cutting equipment Describe and apply the joining processes	**Activity 1** Demonstration	Demonstration	15%	FAT 2
		Activity 2 Model	Practical	60%	
		Activity 3 Respond to questions	Pen and paper test (Oral or written)	25%	

Term 3	General workshop safety according to the OHS ACT Select, use and care of tools for fabrication e.g. • Jigs • Nibbler • Tin snips Describe and explain materials used to make templates Fabricate from specific templates and present models (from simple templates	**Activity 1** Demonstration	Demonstration	25%	FAT 3
		Activity 2 Model	Demonstration	50%	
		Activity 3 Respond to questions	Theory: Oral/ Written	25%	
Term 4	General workshop safety according to the OHS ACT Identify, care and use of power tools and equipment The manufacturing process of various sheet metals (aluminium, mild steel, etc.)	**Activity 1** Model	Practical	75%	FAT 4
		Activity 2 Respond to questions	Pen and paper test (Oral or written)	25%	

YEAR 4					
Term	**Content/ concept/skill**	**Activities**	**Forms of Assessment**	**%**	**FATs based on activities in CAP: TO**
Term 1	General workshop safety according to the OHS ACT Identify, care and use of power tools and equipment The **properties** of metals, Describe and apply the joining processes, learners will do spot and fusion welding	**Activity 1** Demonstration	Demonstration	25%	FAT 1
		Activity 2 Model	Practical	50%	
		Activity 3 Respond to questions	Pen and paper test (Oral or written)	25%	
Term 2	General workshop safety according to the OHS ACT Identify, care and use of power tools and equipment The **properties** of metals, Describe and apply the joining processes, learners will do spot and fusion welding	**Activity 1** Model	Practical	75%	FAT 2
		Activity 2 Respond to questions	Pen and paper test (Oral or written)	25%	
Term 3	General workshop safety according to the OHS ACT Identify, care and use of power tools and equipment The **properties** of metals, Describe and apply the joining	**Activity 1** Demonstration	Demonstration	25%	FAT 3
		Activity 2 Model	Practical	50%	
		Activity 3 Respond to	Pen and paper test (Oral or written)	25%	

	processes, learners will do spot and fusion welding	questions			
Term 4	Core content and Concept across the years	External moderation of school assessment over terms 1, 2 and 3.		50%	GCE: TO Qualification
		Activity 1 Practical	Formal external Practical Assessment Task	25%	
		Activity 2 Respond to questions	Formal external assessment: Written test (or oral where necessary)	25%	

Recording and Reporting

Recording is a process in which the teacher documents the level of a learner's performance in a specific assessment task. It indicates learner progress towards the achievement of the knowledge and skill. Records of learner performance should provide evidence of the learner's progression. Records of learner performance should also be used to verify the progress made by teachers and learners in the teaching and learning process. Reporting is a process of communicating learner performance to learners, parents, schools, and other stakeholders. Learner performance can be reported in a number of ways. These include report cards, parents' meetings, school visitation days, parent-teacher conferences, phone calls, letters, class or school newsletters, etc.

Good record keeping is essential in all assessment, particularly in continuous assessment. A record book or file must be kept up to date by each teacher. It should contain:

- Learners' names;
- Dates of assessment;
- Name and description of the assessment activity;
- The results of assessment activities, according to Subject; and
- Comments for support purposes.

Teachers report in percentages against the subject. The various achievement levels and their corresponding percentage bands are as shown in the table below. Recording is a process in which the teacher documents the level of a learner's performance. Teachers record the actual raw marks against the task using a record sheet. Records of learner performance should also be used to verify the progress made by teachers and learners in the teaching and learning process. Records should be used to monitor learning and to plan ahead.

Note: The seven-point scale should have clear descriptions that give detailed information for each level. Teachers will record actual marks against the task by using a record sheet; and report percentages against the subject on the learners' report cards.

Codes and percentages for reporting

Rating code	Description of competence	Percentage	Nature of support provided to learners
7	Outstanding achievement	80 – 100	Independent
6	Meritorious achievement	70 – 79	Independent, verbal cues needed
5	Substantial achievement	60 – 69	Minimum support
4	Adequate achievement	50 – 59	Moderate support
3	Moderate achievement	40 – 49	Maximum support (Physical / Verbal)
2	Elementary achievement	30 – 39	Goals to be revisited – Change of direction required.
1	Not achieved	0 – 29	Little / no interest shown in the activity despite maximum support

All records must be accessible, easy to interpret, securely kept, confidential and helpful in the teaching and reporting process. The school assessment policy determines the details of how record books must be completed. Schools are required to provide quarterly feedback to parents on the Programme of Assessment, using a formal reporting tool, such as a report card. The schedule and the report card should indicate the overall level of performance of a learner.

NOTE:

Criterion referencing is best used to describe learner's performance in a skill. Teachers must make use of suitable analytical rubrics when assessing a learner's competence for a specific skill using practical demonstrations.

Progression and Promotion:

Learners will progress with age cohort in this Phase (Year 1-4). Where a learner does not meet the minimum requirements to be promoted to the next year then a learner may spend one extra year in the phase (Year 1-4) to strengthen their ability to achieve the qualification.

4.4 Moderation of Assessment

Moderation refers to the process that ensures that the assessment tasks are fair, valid and reliable. Moderation must be implemented at school, district, and provincial levels as required. Comprehensive and appropriate moderation practices must be in place for the quality assurance of

all subject assessments. The Formal School Based Assessment and the practical assessment tasks must be moderated by the relevant subject specialists at the district and, if required, provincial levels in consultation with the moderators at school.

Moderation serves five purposes:

1. It must ascertain whether subject content and skills have been sufficiently covered.

2. The moderator must ensure that the correct balance of cognitive demands are reflected in the assessments.

3. The assessments and marking are of an acceptable standard and consistency.

4. The moderator must make judgements about the comparability of learner performance across schools; whilst recognising that teachers teach in different ways.

5. The subject specialist/moderator must identify areas in which a teacher may need development and support and must ensure that this support is provided.

4.4.1 Internal moderation

Assessment must be moderated according to the internal moderation policy of the School, Provincial and National Departments. Moderation is a continuous process. The moderator's involvement starts with the planning of assessment methods and instruments and follows with continuous collaboration with and support to the assessors. Internal moderation creates common understanding of topics and skills and maintains these across the learning programmes.

4.4.2 External moderation

External moderation is conducted by the Districts and or Provincial offices, Department of Basic Education, Umalusi and, where relevant, the QCTO. The external moderator:

- Monitors and evaluates the standard of all summative assessments;
- Maintains standards by exercising appropriate influence and control over assessors;
- Ensures proper procedures are followed;
- Ensures summative integrated assessments are correctly administered;
- Observes a minimum sample of 12 summative assessments in total;
- Gives written feedback to the relevant quality assuror; and
- Moderates in case of a dispute between an assessor and a student.

Policy on inclusive education requires that assessment procedures for students who experience barriers to learning be customised and supported to enable these students to achieve their maximum potential.

Moderation is therefore an on-going process and not a once-off end-of-year event.

4.5 General

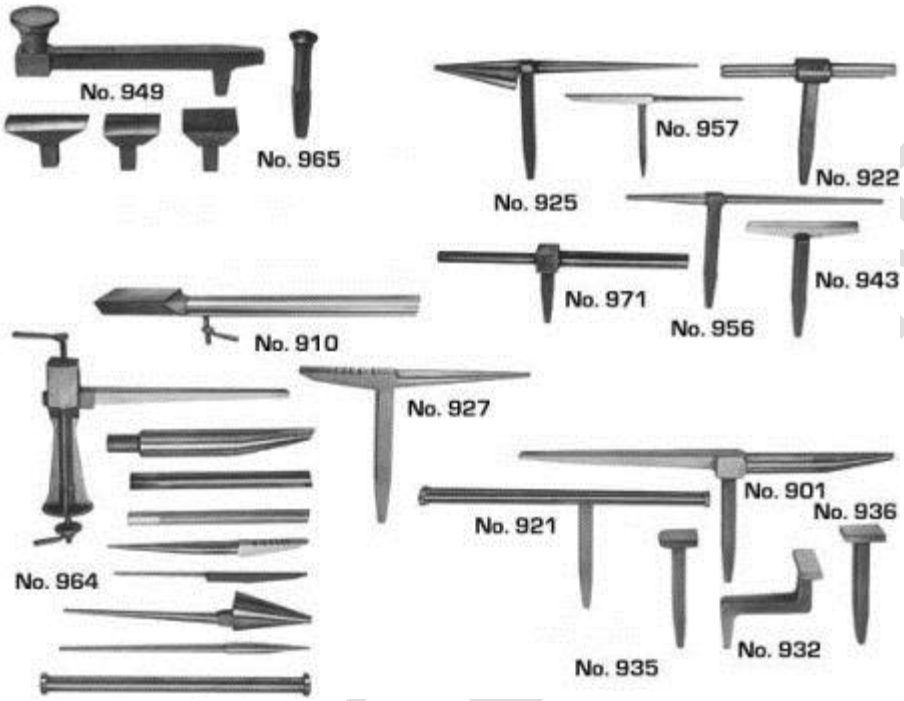
This document should be read in conjunction with:

- White Paper 6 on Special Needs Education: Building an Inclusive Education and Training System (2001);
- *National Policy Pertaining to the Programme and Promotion Requirements of the National Curriculum Statement Grades R – 12*; and (NPPPPR) (2011);
- *National Protocol for Assessment Grades R – 12. (NPA) (2011);*
- *Guidelines for Responding to Diversity in the Classroom through the Curriculum and Assessment Policy Statements* (2011);
- *Guidelines to Ensure Quality Education and Support in Special Schools and Special School Resource Centres* (2013);
- *Policy on Screening, Identification, Assessment and Support* (2014);
- *Guidelines for Full-service/Inclusive Schools* (2010); and
- *Standard Operating Procedures for Assessment of Learners who Experience Barriers to Assessment* (2016).

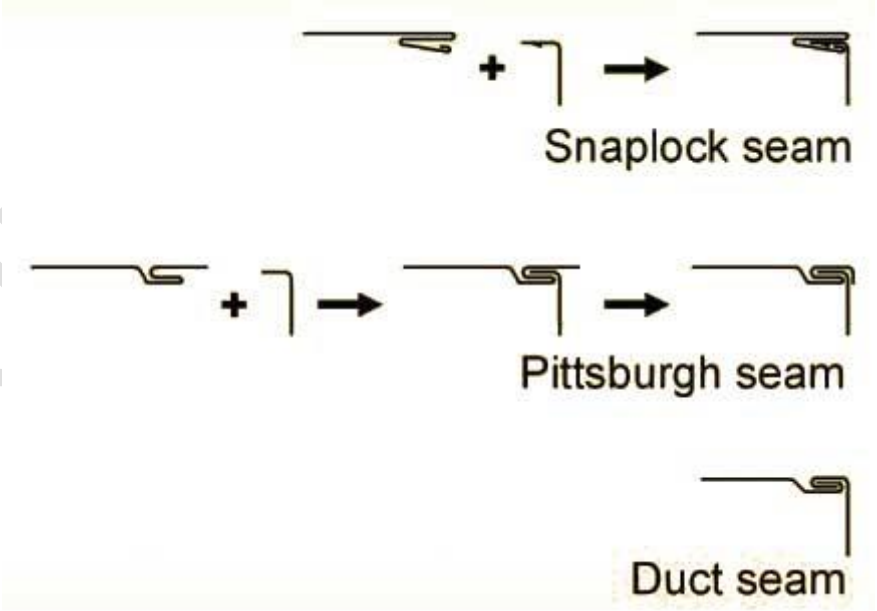
SECTION 5

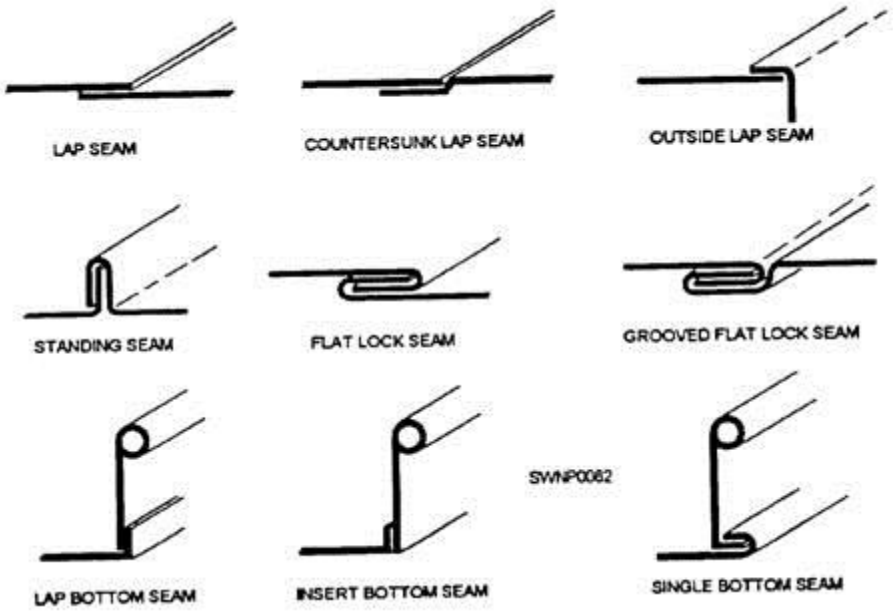
RESOURCES

Annexure A



Different stakes for shaping of sheet metal





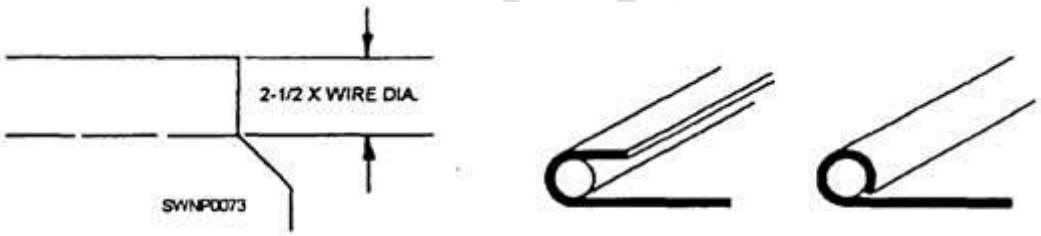
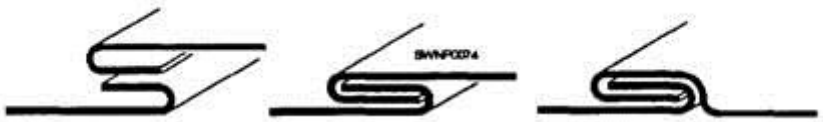
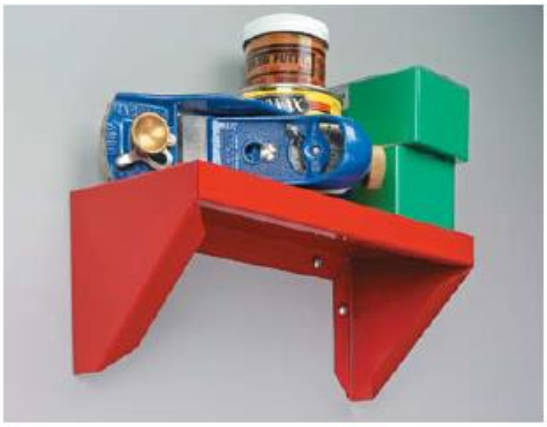


Figure 2-56.—Development of a truncated cylinder.



Annexure B

Assessment Instrument (Model-Generic)

SCHOOL		
SKILL: SHEET METAL WORK	TEACHER:	
ASSESSMENT MODEL: PRACTICAL PROJECT		
NAME OF LEARNER:	DATE: / /	CLASS:
PICTURE/DRAWING OF PRACTICAL ASSESSMENT	Teacher's Comments	
		

Fundamental Knowledge for starting a Practical project	Total	
Does learner identify and apply safety equipment to start the practical project	5	
Can the learner identify and use the tools to do the project	5	
Has the learner followed safety procedures during manufacturing of practical project	5	
Can the learner interpret the drawing to manufacture practical project	5	
Does the learner's final project measure up to the picture/drawing that is supplied	5	

RATING SCALE for Practical Projects

#	SKILLS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Total
1	Measure																
2	Cutting																
3	Drilling																
4	Joining																
5	Finishing																
Practically Assessed 15 x 5= 75		Fundamental Assessed Knowledge = 25															100

Strong and Sturdy. *By following the pattern below, you'll create a strong shelf complete with braces. A few simple bends with a sheet metal brake make it easy.*