



basic education

Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

AGRICULTURAL TECHNOLOGY

GUIDELINES FOR PRACTICAL ASSESSMENT TASKS

GRADE 12

2021

These guidelines consist of 24 pages.

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1. INTRODUCTION

The 18 Curriculum and Assessment Policy Statements subjects which contain a practical component all include a practical assessment task (PAT). These subjects are:

- **AGRICULTURE:** Agricultural Management Practices, Agricultural Technology
- **ARTS:** Dance Studies, Design, Dramatic Arts, Music, Visual Arts
- **SCIENCES:** Computer Applications Technology, Information Technology, Technical Sciences, Technical Mathematics
- **SERVICES:** Consumer Studies, Hospitality Studies, Tourism
- **TECHNOLOGY:** Civil Technology, Electrical Technology, Mechanical Technology and Engineering Graphics and Design

A practical assessment task (PAT) mark is a compulsory component of the final promotion mark for all candidates offering subjects that have a practical component and counts 25% (100 marks) of the end-of-the-year examination mark. The PAT is implemented across the first three terms of the school year. This is broken down into different phases or a series of smaller activities that make up the PAT. The PAT allows for learners to be assessed on a regular basis during the school year and it also allows for the assessment of skills that cannot be assessed in a written format, e.g. test or examination. It is therefore important that schools ensure that all learners complete the practical assessment tasks within the stipulated period to ensure that learners are resulted at the end of the school year. The planning and execution of the PAT differs from subject to subject.

2. TEACHER GUIDELINES

2.1 Practical Assessment Task (PAT) for 2021

The aim of the PAT is to teach learners to solve technological problems in the agricultural environment by making use of critical, innovative and thinking skills.

The PAT comprises a design component, manufacturing component and a final product. The PAT leads the learner to be able to design and develop the product according to technological processes.

Schools will be informed of the Grade 12 project at the beginning of Term 4 of Grade 11 in order to allow the teacher and learner to do planning in advance.

The following is a scenario and a complete layout of the example model that can be used as the PAT for 2021.

SCENARIO:

A farmer needs a builder's trestle that can be used when erecting game farm fences and also when painting hard-to-reach areas on the farm.

Design a practical builder's trestle that can be used effectively in this situation.

The piece of equipment must be versatile in order to be used in various circumstances or conditions. It must be light, simple and easy to handle, but sturdy enough to carry heavy loads.

The builder's trestle must not topple over when used.

Make use of various technological processes to help you in the design and manufacturing of this piece of equipment, e.g. planning, investigation, research and various practical skills.

2.2 How to administer the PAT

This PAT document must be used by the teacher as a guideline on how the PAT must be done. The learner must design and plan the whole PAT individually with guidance from the teacher. The teacher will only provide the learners with the problem statement. Ideally, all the learners should have different PAT designs. The teacher must evaluate the learner's design for practicality and make suggestions before the learner submits the final design portfolio.

If the school/learners decide to do an alternative PAT, the PAT must comply with the prescribed standards set by this PAT guideline document. This will include evidence of the design portfolio, work procedure, rubrics and the evidence of the final product. The criteria and format for assessing the design portfolio, manufacturing process and final product must be the same as that of the prescribed PAT.

The project must consist of at least SEVEN of the given criteria as stated on pages 46–47 in the *Agricultural Technology: Curriculum and Assessment Policy Statement (CAPS)*.

The model should have functional value and must be usable in real-life farm and workshop situations. The learners should be familiar with the assessment criteria before they start with the task. The PAT must be done under the supervision of the designated teacher.

The practical assessment task in Grade 12 is externally set, internally assessed and externally moderated. The PAT is completed under controlled conditions and is assessed by means of a rubric.

The promotion mark of Agricultural Technology consists of a PAT component of 100 marks (25%), a school-based assessment (SBA) component of 100 marks (25%) and a final examination component of 200 marks (50%).

The PAT contributes 25% of the total promotion mark (400) in Grade 12. The PAT is 100 marks and consists of a design portfolio (25 marks), a manufacturing process (50 marks) and the final product (25 marks).

Before a learner can commence with the manufacturing process, the design portfolio must be completed and assessed by the teacher. The reason for this is that the teacher must identify design flaws for the learner to correct.

The design portfolio and the final product must be available for monitoring and moderation. The PAT must be evaluated, checked and authenticated by the teacher before it is presented as the learner's final evidence of performance.

The teacher's PAT file must contain evidence of:

- (a) The PAT task
- (b) A complete record of assessment that must always be available for monitoring and moderation purposes

The design portfolio and final product must be available for monitoring and moderation at the school during the entire school year.

External moderation will be done by the respective provincial moderators and the National Department of Basic Education (DBE). No learner is allowed to take his/her project home before external moderation has been completed.

Failure by the teacher to maintain a record of the assessment of the PAT is a misconduct and will be dealt with in terms of paragraph 5(3) of the policy document, *National Policy on The Conduct, Administration and Management of the National Senior Certificate: A qualification at Level 4 on the National Qualifications Framework (NQF)*, or other appropriate measures.

The absence of marks for the PAT in Grades 10–12, without a valid reason, will result in the candidate, registered for that particular subject, receiving an incomplete result. The candidate will be given three weeks' time before the commencement of the final end-of-year examination to submit the outstanding PAT. Should the candidate fail to present the PAT, the candidate will be informed that he/she did not meet the minimum requirements for promotion and that he/she must repeat the subject the following year.

2.3 Phases in the development of the PAT project

The project should be completed in the following three phases:

2.3.1 Phase 1: Design portfolio

Learners must identify the problem or need in their chosen project. He/She must also investigate the project, generate ideas and arrive at possible design solutions to make or produce, evaluate and communicate a solution to the problem or need. The evidence of this phase will be located in the design portfolio which will start at the beginning of the last term of Grade 11 and continue to the end of January in Grade 12. In this phase the learner must be encouraged to be creative and show initiative.

A Declaration of Authenticity (ANNEXURE D) must be completed by each learner before final moderation.

The design portfolio should include evidence of how the development of the product was approached, as indicated below.

- Analysis and planning of the assignment
- Relationship between technology, society and environment
- Sketches, diagrams or calculations
- Materials used
- Tools used
- General safety rules that are applicable
- Comparisons of processes and tools to be used
- Cost calculations and material list
- Knowledge and skills needed in the manufacturing process
- Manufacturing processes that were followed
- Planning of time from the start to the final product
- Research or investigations undertaken
- Any other information that is relevant to the project

Format of the design portfolio:

Cover page: Learner's name
Grade
School
Examination number
Year

Index: Assignment
Planning and research
Design sketches
Material list
Tools needed and relevant safety measures
Comparisons of processes and tools to be used
Cost calculations
Source list
Steps to follow
Any additional information

2.3.2 Phase 2: Manufacturing process

Learners start constructing the actual model at the beginning of February during Term 1 of Grade 12 or as soon as a learner has finished with the design portfolio and it has been approved by the teacher. From here the learner commences with Phase 2. The model must be completed by the middle of Term 3 in Grade 12.

The learner is expected to do the manufacturing of the model in the school's workshop, under close supervision of the teacher. Processes not performed by the learner cannot be assessed as part of the learner's work.

The model must include a number of practical skills, but it must be noted that the model must adhere to the minimum number of skills, as prescribed by the subject CAPS document.

Continuous assessment must be undertaken by the teacher during the manufacturing process to evaluate and assess certain skills and processes with the aid of the given rubric.

2.3.3 Phase 3: Final product

Learners submit the models for assessment by the middle of Term 3. The planning done in Phase 1 (design portfolio) must also be submitted for assessment of the final product. For final assessment, the model must be completed and fully functional. The final product must correspond with the planning in Phase 1.

2.4 Criteria and guidelines for PAT assessment

The PAT consists of THREE phases. Each phase must be assessed by the teacher with the aid of the attached rubrics.

- The design portfolio must be completed and marked not later than the end of Term 1. As soon as a learner is finished with the design portfolio and has been assessed and approved by the teacher, he/she can commence with Phase 2. The teacher must use the rubric (ANNEXURE A) to assess the design portfolio.
- The manufacturing process is a continuous process and the various skills must be continuously assessed by the teacher when the different skills are applied. The rubric (ANNEXURE B) must be used.
- The final product must be evaluated and assessed according to the rubric (ANNEXURE C).
- ANNEXURE D is a Declaration of Authenticity and must be completed by each learner.
- ANNEXURE E must be used by the teacher to ensure that the Agricultural Technology workshop and facility is up to standard for external moderation.
- ANNEXURES F and G are examples of mark schedules that can be used.

2.4.1 Criteria and guidelines for assessing the design portfolio (25 marks)

- Analysis of problem
- Interrelationship between technology, society and the environment
- Ability to generate ideas
- Providing a solution
- Sketching (dimensions, welding symbols, scale and projection symbols)
- Materials, tools and equipment
- General safety rules
- Cost calculations and material list
- Evidence of comparisons between different processes and skills
- Portfolio presentation

2.4.2 Criteria and guidelines for assessing the manufacturing process (face moderation) (50 marks)

- Safe handling and maintenance of tools and equipment
- Skills related to proper use and maintenance of tools and equipment
- Knowledge of materials to solve problems
- Application of different techniques and processes
- Skills demonstrated in the application of processes

2.4.3 Criteria and guidelines for assessing the quality of the final product (25 marks)

- The product fulfils the purpose for which it was designed and shows innovation that is appropriate to the problem
- Dimensions and measurements of the final product
- Appearance: Finishing includes filing, grinding, sanding and painting
- Ensure that the product functions properly
- Time management: Check for the completeness of the product

2.5 Moderation of the PAT

- Internal moderation (head of department)
The teacher and learner PAT portfolios must be moderated by the head of department or senior teacher of the subject at the school.
- External moderation (subject specialist)
The subject specialist must do external moderation ONCE A TERM. At the end of Term 1, the subject specialist must moderate the design portfolio. The actual manufacturing process by the learner must be moderated by the subject specialist in Term 2. The final product must be moderated in Term 3, as well as the final PAT mark.
- External moderation (national panel)
A panel of moderators appointed by the DBE will moderate the PAT and practical workshop. ANNEXURE E is the moderation tool that will be used by the national panel for moderation of schools.

3. LEARNER GUIDELINES

3.1 Introduction

The model to be constructed by the learners must include the processes taught in the theoretical work over the years from Grade 10. These processes are part of various tasks that can be undertaken on a farm. The learners use their skills and knowledge acquired in Agricultural Technology to engage in this project.

3.2 Illustration of the PAT

The photo below shows a builder's trestle that the farmer can use to erect game fences on the farm and that can help him when painting hard-to-reach areas. You can build one and use it as a stepladder, or you can build two, as shown below. You can set it to five different heights with an incline of 250 mm.



3.3 Consumable materials, machines and tools for project manufacturing

TOOLS NEEDED		
Cut-off machine	Mitre square	Flat and round file
Drilling machine	Hacksaw	Personal protection clothing
Plasma/Oxyacetylene cutting equipment	Scribe	Broom
Oxyacetylene heating equipment	Tape measure	Clamps
Bending equipment	Centre punch	Paint brush
Welding machine	Spanners	Hammer
Work bench	Pliers	Angle grinder

CONSUMABLE MATERIALS		
Steel drill bit Ø 13 mm		Hacksaw blades
Grinding/Cutting discs/Plasma cutter accessories (nozzles, inserts, spacers)		Thinners Pencil
Rust-oleum high-temperature spray paint		Hand cleaner
MIG wire and gas/Welding rods		Undercoat paint

3.4 Procedures to be followed in the process

PROPOSED WORK/TIME SCHEDULE		Predicted date																																																							
<p>Approximately 2 hours per week is needed for the PAT as prescribed in the CAPS document.</p> <p>Approximately 18 weeks (36 hours) are available for the manufacturing process.</p>																																																									
<p>A. DESIGN PORTFOLIO (25 marks)</p> <ol style="list-style-type: none"> The PAT problem statement/task must be handed to the learners. The teacher must explain the problem statement/task to the learners. Learners have THREE weeks to complete the design portfolio. The teacher must be actively involved and provide support for the learners during the design process. The teacher must collect, evaluate, assess and give feedback to the learners of the finished portfolios before the learners can commence with the manufacturing process. The learners must do the corrections on the design portfolio where necessary. The teacher must record the marks of the design portfolio on the SBA mark sheet. 		<p>Week 1</p> <p>Week 2</p> <p>Week 3</p>																																																							
<p>B. MANUFACTURING PROCESS (50 marks) (The teacher must monitor and evaluate the complete manufacturing process.)</p> <p>NOTE: The learners must draw a scale drawing with labels of the builder's trestle.</p> <table border="1"> <thead> <tr> <th>ITEM NO.</th> <th>QTY.</th> <th>DESCRIPTION</th> <th>LENGTH</th> <th>COST</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td>4</td> <td>25 mm x 25 mm square tubing</td> <td>4 x 1 300 mm</td> <td>R160,00</td> </tr> <tr> <td>2.</td> <td>6</td> <td>25 mm x 25 mm square tubing</td> <td>6 x 500 mm</td> <td>R90,00</td> </tr> <tr> <td>3.</td> <td>2</td> <td>Flat steel bar 200 mm x 50 mm x 5 mm</td> <td>2 x 200 mm</td> <td>R20,00</td> </tr> <tr> <td>4.</td> <td>2</td> <td>Flat steel bar 80 mm x 30 mm x 5 mm</td> <td>2 x 80 mm</td> <td>R10,00</td> </tr> <tr> <td>5.</td> <td>4</td> <td>Steel pipe 48 mm x 50 mm</td> <td>4 x 50 mm</td> <td>R30,00</td> </tr> <tr> <td>6.</td> <td>16</td> <td>5 mm x 25 mm self-tappers</td> <td></td> <td>R20,00</td> </tr> <tr> <td>7.</td> <td>2</td> <td>Bolts and nuts</td> <td>12 mm x 50 mm</td> <td>R10,00</td> </tr> <tr> <td>8.</td> <td>4</td> <td>Tyre or conveyer belt strips</td> <td>4 x 50 mm x 150 mm</td> <td>R15,00</td> </tr> <tr> <td>9</td> <td>1</td> <td>25 mm x 4 mm chain</td> <td>1 x 600 mm</td> <td>R15,00</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td>R370,00</td> </tr> </tbody> </table>		ITEM NO.	QTY.	DESCRIPTION	LENGTH	COST	1.	4	25 mm x 25 mm square tubing	4 x 1 300 mm	R160,00	2.	6	25 mm x 25 mm square tubing	6 x 500 mm	R90,00	3.	2	Flat steel bar 200 mm x 50 mm x 5 mm	2 x 200 mm	R20,00	4.	2	Flat steel bar 80 mm x 30 mm x 5 mm	2 x 80 mm	R10,00	5.	4	Steel pipe 48 mm x 50 mm	4 x 50 mm	R30,00	6.	16	5 mm x 25 mm self-tappers		R20,00	7.	2	Bolts and nuts	12 mm x 50 mm	R10,00	8.	4	Tyre or conveyer belt strips	4 x 50 mm x 150 mm	R15,00	9	1	25 mm x 4 mm chain	1 x 600 mm	R15,00					R370,00	
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Step 1:

Cut item 1. Square bar 1 300 mm x 25 mm x 25 mm, times 4, as shown in the picture.

Week
5-6

Step 2:

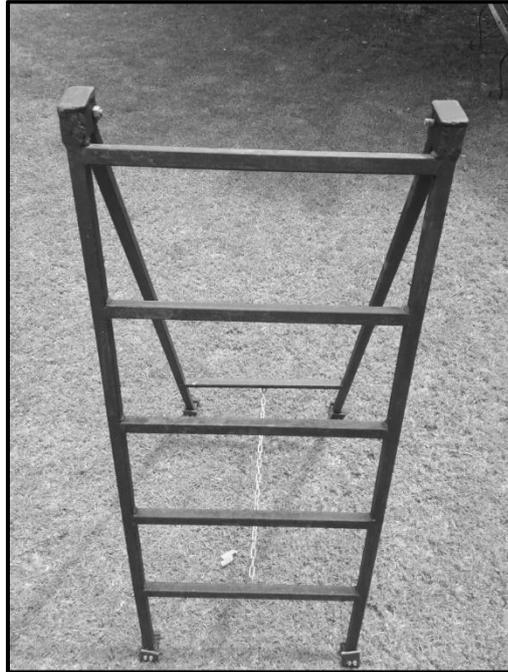
Cut item 2. Square bar 500 mm x 25 mm x 25 mm, times 6, as shown in the picture.

Week
7-8

Step 3:

Weld items 1 and 2 together, as shown in the picture.

Week
9-10



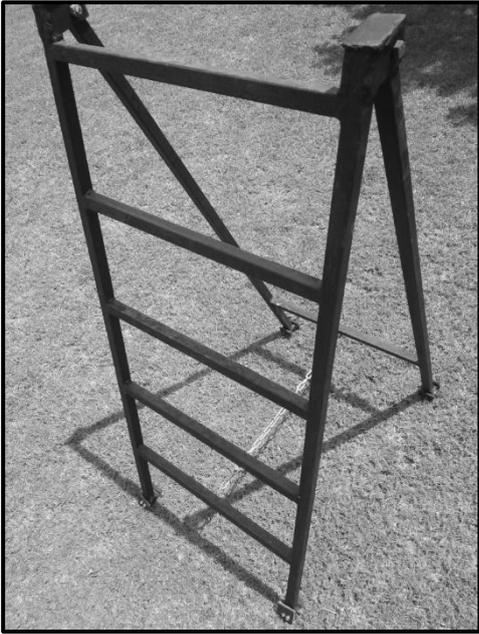
Step 4:

Cut items 3 and 4. Bend and weld into position, as shown.

Week
11-12



<p>Step 5: Drill holes and assemble.</p> <p><i>You may change the design of the support according to your own design.</i></p> <ul style="list-style-type: none"> • Cut the support according to your design with any of the following: angle grinder, plasma cutter or oxyacetylene • Smooth all the cutting edges before you weld. • Weld as indicated on your drawing. 	<p>Week 13–14</p>
<p>Step 6: Cut item 5. Weld the steel pipes into position, as shown in picture.</p> <p><i>You may change the design of the support according to your own design.</i></p> <ul style="list-style-type: none"> • Cut the support according to your design with any of the following: Angle grinder, plasma cutter or oxyacetylene • Smooth all the cutting edges before you weld. • Weld as indicated on your drawing. 	<p>Week 15–16</p>
<p>Step 7: Cut item 8 (the side of a tyre or a conveyer belt can be used) and fasten it to the steel pipe, as shown above.</p>	<p>Week 17–18</p>
<p>Step 8: Prime and paint the welded frame for rust prevention. Allow the paint to dry completely.</p>	<p>Week 19–20</p>

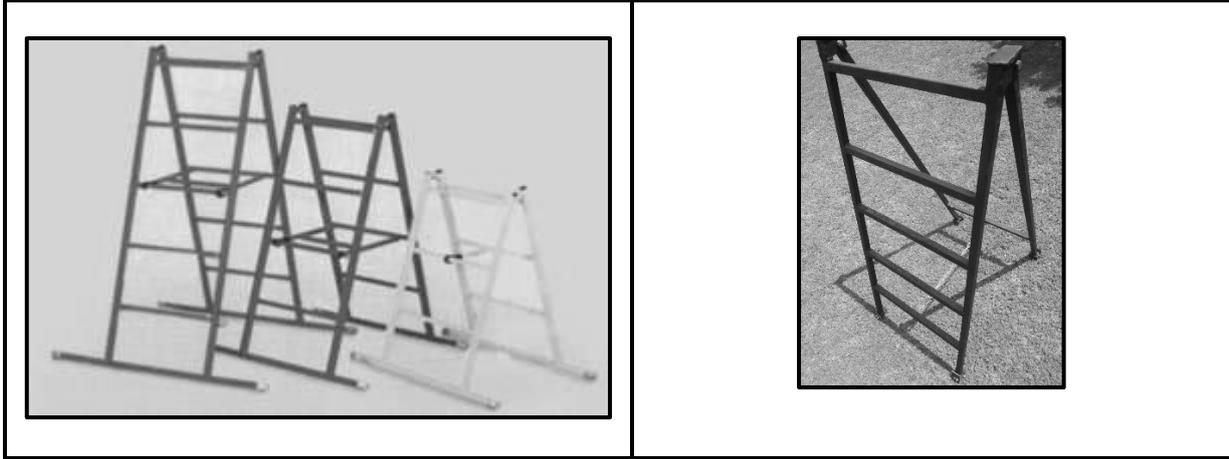
<div style="text-align: center;">  <p>Completed builder's trestle (If you want to build two, you will need to multiply the material by two.)</p> </div>	
<p>C. FINAL PRODUCT (25 marks)</p> <ul style="list-style-type: none"> • The teacher must evaluate the final product and finalise the PAT marks for the year. • The marks must be recorded on the SBA mark sheets. 	

3.5 Safety

- Working safely on the work bench in a responsible manner will reduce your chances of an accident or injury.
- Always wear the appropriate safety gear and clothing for welding and metalworking. Clothing should be made of fire-retardant cotton or wool, never synthetics, which can melt.
- Always wear a helmet when welding and a full-face shield when grinding.
- Also wear leather welding gloves to protect against burns.
- You should always work in a well-ventilated area.

3.6 Alternative designs





4. CONCLUSION

On completion of the practical assessment task, learners should be able to demonstrate their understanding of the industry, enhance their knowledge, skills, values and reasoning abilities as well as establish connections to life outside the classroom and address real-world challenges. The PAT furthermore develops learners' life skills and provides opportunities for learners to engage in their own learning.

5. ASSESSMENT RUBRICS

ANNEXURE A

Name of learner: _____ School: _____ Grade: _____ Date: _____

DESIGN PORTFOLIO	MANUFACTURING PROCESS	QUALITY OF PRODUCT	TOTAL	SIGNATURE OF TEACHER	SIGNATURE OF EXTERNAL MODERATOR
/25	/50	/25	/100		

5.1 ASSESSMENT RUBRIC FOR THE DESIGN PORTFOLIO								
CRITERIA	0	1	2	3	4	5	POSSIBLE MARK	MARK OBTAINED
Planning Skills: Analysis and diagnosis	No attempt was made and no evidence to be assessed is found.	Shows a limited attempt to identify and collect information to analyse the given problem or need.	Shows an attempt to identify and collect relevant information to analyse the given problem or need.	Identifies the given problem correctly and collects relevant information to analyse the problem or need.	Analyses the given problem correctly and shows evidence of the use of a wide range of information to understand the problem or need.	Identifies the given problem correctly and uses a variety of investigated strategies to obtain relevant information that assisted in developing and design of innovative ideas.	5	
Interrelationship between technology, society and environment	No attempt was made and no evidence to be assessed is found.	Makes no attempt to consider the interrelationship.	Awareness of the interrelationship was demonstrated.	Awareness and knowledge of interrelationship was demonstrated.	Application and knowledge of interrelationship aspects.	Application and knowledge of interrelationship aspects and the implementing of preventative measures.	5	
Generate ideas	No attempt was made and no evidence to be assessed is found.	Mentions some ideas.	Shows some awareness of alternative ideas	Offers some alternative ideas with a limited reasoning of choices.	Uses original and creative ideas and chooses the most suitable option.	Generates an excellent variety of alternative and innovative ideas. The preferred option is well justified with clear links to the design.	5	
Solution	No attempt was made and no evidence to be assessed is found.	Attempts to come up with limited design sketches and some specifications. Constraints relating to the given problem.	Attempts to come up with design sketches, specifications and constraints relating to the given problem.	Provides design sketches and a variety of specifications and constraints relating to the given problem.	Provides excellent design sketches and a list of relevant specifications and constraints to the given problem.	Provides excellent innovative design sketches that are extremely well formulated and defines the need according to the given problem.	5	

CRITERIA	0	1	2	3	4	5	POSSIBLE MARK	MARK OBTAINED
Sketching	No attempt was made and no evidence to be assessed is found.	Provides irrelevant sketches that demonstrate limited drawing skills.	Provides some relevant sketches with incorrect lines and/or wrong symbols.	Provides relevant sketches with correct lines and symbols.	Provides sketches with correct lines and symbols and related to the given problem.	Provides excellent sketches according to the given problem considering possible solutions.	5	
Material, tools and equipment list	No attempt was made and no evidence to be assessed is found.	Attempts to list some material, tools and equipment.	Provides a list of material, tools and equipment, incorrect or insufficient.	Provides a list of relevant material, tools and equipment.	Provides a list with a variety of relevant material, tools and equipment needed.	Provides a list of the most relevant material, tools and equipment needed in a creative format.	5	
General safety	No attempt was made and no evidence to be assessed is found.	Attempts to consider safety regulations.	Shows some awareness of safety regulations.	Shows awareness, knowledge and application of safety regulations.	Shows awareness, knowledge and application of safety regulations regarding a variety of conditions.	Shows awareness, knowledge and application of safety regulations regarding all conditions and considers preventative measures.	5	
Cost calculations and material list	No attempt was made and no evidence to be assessed is found.	Provides a material list with no calculations.	Attempts to do cost calculations by using incorrect units, data and material list.	Provides cost calculations using correct units and data collected without consideration of constraints.	Provides cost calculations using correct units and data collected and considers constraints.	Provides cost calculations using correct units and data collected and considers relevant constraints.	5	
Comparisons	No attempt was made and no evidence to be assessed is found.	No comparisons.	Poor comparison of one process.	Comparison of different processes, skills and materials.	A thorough comparison of different processes, skills and materials.	A thorough comparison of different processes, skills and materials and comes to a conclusion.	5	
Portfolio presentation	No attempt was made and no evidence to be assessed is found.	The portfolio is incomplete and poorly ordered and prepared.	The portfolio is completed but poorly ordered and prepared.	The portfolio is completed and adequately ordered and prepared.	The portfolio is completed and well presented.	The completed portfolio presentation shows a high level of innovation and creativity.	5	
TOTAL MARK							50 ÷ 2 = 25	

5.2 ASSESSMENT RUBRIC FOR THE MANUFACTURING PROCESSES							ANNEXURE B	
CRITERIA	0	1	2	3	4	5	POSSIBLE MARK	MARK OBTAINED
Safe handling of tools/equipment (face moderation)	No attempt was made and no evidence to be assessed is found.	Demonstrates awareness of safety measures.	Demonstrates awareness and knowledge of some safety measures.	Demonstrates adequate knowledge and awareness of applicable safety measures.	Demonstrates sufficient knowledge and awareness of all applicable safety measures.	Demonstrates sufficient knowledge and awareness of all applicable safety measures and applies preventative measures.	5	
Skills relating to handling of tools and equipment (face moderation)	No attempt was made and no evidence to be assessed is found.	Demonstrates limited knowledge and skills of equipment related to tools used.	Demonstrates some knowledge and skills related to tools and equipment used and housekeeping.	Demonstrates adequate knowledge and skills related to tools and equipment used and evidence of housekeeping.	Demonstrates adequate knowledge and skills related to tools and equipment used and good housekeeping.	Demonstrates sufficient knowledge and skills related to maintenance and use of tools and equipment and excellent housekeeping.	5	
Knowledge of materials	No attempt was made and no evidence to be assessed is found.	Shows limited background knowledge on materials used.	Shows some knowledge of materials and their properties.	Shows adequate knowledge of materials and their properties and concepts.	Shows adequate knowledge of materials and their properties, concepts and principles.	Shows sufficient knowledge of materials and their properties, concepts and principles to solve problems.	5	
Process techniques	No attempt was made and no evidence to be assessed is found.	Demonstrates some knowledge of inappropriate techniques used.	Demonstrates limited knowledge of techniques used.	Demonstrates adequate knowledge of correctly selected techniques.	Demonstrates adequate knowledge on how to select and apply the relevant techniques correctly.	Demonstrates sufficient knowledge of correctly selected and applied techniques considering possible constraints.	5	
Skills used in processes (face moderation)	No attempt was made and no evidence to be assessed is found.	Demonstrates limited knowledge of skills needed.	Demonstrates some knowledge of skills needed.	Demonstrates adequate knowledge of skills needed.	Demonstrates adequate knowledge of skills needed and considering some constraints.	Demonstrates sufficient knowledge of skills needed and considering relevant constraints.	5	
TOTAL MARK							25x2 = 50	

5.3 ASSESSMENT RUBRIC FOR THE QUALITY OF THE FINAL PRODUCT							ANNEXURE C	
CRITERIA	0	1	2	3	4	5	POSSIBLE MARK	MARK OBTAINED
Address the problem/need	No attempt was made and no evidence to be assessed is found.	The product is incomplete. The completed product lacks details and makes interpretation difficult.	The product is complete but does not address the problem or need at all.	The product is complete and addresses the problem or need partly.	The product fulfils the purpose for which it was designed and shows no real evidence of innovation in the solution to the identified problem or need.	The product fulfils the purpose for which it was designed and shows innovation that is appropriate to the identified problem or need.	5	
Dimensions and measurements of the final product	No attempt was made and no evidence to be assessed is found.	Dimensions differ completely from original design. Shows no effort in making correct measurements.	Dimensions differ from original design but show some effort in making correct measurements.	Some dimensions differ from original drawing design. More accuracy and effort are shown in making correct measurements.	Dimensions differ slightly from original design. Shows much more accuracy and effort in making correct measurements.	Measurements and dimensions correlate completely with original design.	5	
Appearance: Finishing off, filing, grinding, sanding and painting	No attempt was made and no evidence to be assessed is found.	No finishing off. No filing, painting or sanding. Shows little effort in making the appearance acceptable.	Product's appearance not acceptable due to some of the finishing methods that were not followed.	Product's appearance acceptable due to some of the finishing methods that were used.	Product's appearance more acceptable due to finishing off that was done, but no painting.	Product's appearance is very acceptable and shows a high level of innovation and creativity.	5	
Functionality of the final product Does the product function properly?	No attempt was made and no evidence to be assessed is found.	The product is incomplete and does not function at all.	The product is complete but it is not functional at all and shows no new improvements.	The product is complete and functions but shows no new improvements and little innovation.	The product is complete, functions well and shows some new improvements and innovation.	The product is complete, functions very well and shows many new improvements and a very high level of innovation.	5	
Time management	No attempt was made and no evidence to be assessed is found.	Very little evidence of time management.	Demonstrates some sense of time management but planning not realistic.	Evidence of realistic time management in planning but does not keep to the plan.	Manages time well according to the initial plan.	Manages time exceptionally well by considering alternatives according to the initial plan.	5	
TOTAL MARK							25	

5.4 Declaration of Authenticity

ANNEXURE D

DECLARATION OF AUTHENTICITY

The DESIGN PORTFOLIO has been presented in one of the following ways: sourcebook, workbook or file. It is part of the subject portfolio. The DESIGN PORTFOLIO must be completed prior to the manufacturing process.

The following has been included in the DESIGN PORTFOLIO:

- Analysis of the problem
- Interrelationship between technology, society and the environment
- Ability to generate ideas
- Providing a solution
- Sketching (dimensions, welding symbols, scale and projection symbols)
- Materials, tools and equipment
- General safety rules
- Cost calculations and material list
- Evidence of comparisons between different processes and skills
- Portfolio presentation

The complete PAT was done under the supervision of the designated teacher and without the help of anybody else. This is to certify that all work submitted is the original and own work of the learner. Processes not performed by the learner have not been assessed as part of the learner's work.

Learner		
School		
District		
	Signature	Date
Learner		
Teacher		
Principal		



5.5 External/Internal moderation tool for PAT

ANNEXURE E

AGRICULTURAL TECHNOLOGY

SCHOOL: _____ EMIS No.: _____

TEACHER: _____ GRADE: _____

SUBJECT SPECIALIST: _____ DATE: _____

NUMBER OF LEARNERS IN GRADE: _____

NUMBER OF LEARNERS TAKING THE SUBJECT IN GRADES 10–12: _____

1.	CONDITION OF THE WORKSHOP	GOOD <input checked="" type="checkbox"/>	ACCEPTABLE <input checked="" type="checkbox"/>	POOR <input checked="" type="checkbox"/>	COMMENTS
	Windows				
	Ceiling				
	Floor				
	Oil-resistant floor paint				
	Walls				
	Lights				
	Sufficient electric wall sockets				
	Electric wall sockets in working condition				
	Ventilation				
	Burglar proofing				
2.	TEACHER				YES <input checked="" type="checkbox"/> NO <input checked="" type="checkbox"/>
	Preparation file:				
	☞ PAT guideline document				
	☞ Mark sheet				
	☞ Learner rubrics				
	☞ Reference material (additional information and resources given to learners by the teacher)				
	Safety:				
	☞ Safety screens/devices				
	☞ Acetylene/gas cylinders safe				
	☞ Welding areas well screened off				
	☞ Area around dangerous machines demarcated with yellow lines on the floor				
	☞ Serviced fire extinguisher				
	☞ First-aid kit				
	☞ Safety posters				
	☞ Safety signs				
	☞ Applicable OHS Acts implemented in workshop				
	☞ Number of learners in workshop per session not more than 15, as stipulated by the OHS Act				
	Tools and equipment:				
	☞ Fully equipped workshop				
	☞ Basic tools and equipment				
	☞ Damaged and broken equipment				
	☞ Shadow boards are against the walls or mobile units				

	Workshop atmosphere:	
	👉 Posters	
	👉 Exhibits	
	👉 Safe layout	
	👉 Workshop is purpose-built	
	Cleanliness of storeroom:	
	👉 Storeroom well organised	
	👉 Storeroom clean	
	Cleanliness of workshop:	
	👉 Workshop clean	
3.	LEARNERS' PAT PROJECT FILES	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>
	Learners followed the prescribed PAT.	
	If not, is the PAT project of the same standard or higher than the prescribed PAT?	
	All learners have PAT portfolio files.	
	All learners have a completed learner summary record sheet.	
	All learners completed the Declaration of Authenticity (p. 19).	
	All learners have copies of the Design Project (p. 9 to 14) in their PAT files.	
	Learners completed the following phases of the PAT sufficiently:	
	• Design	
	• Manufacturing	
	Evidence exists that all tasks have been assessed by the teacher.	
	All the rubrics have been completed and totals were carried over to the mark sheet correctly.	
	The assessment conducted by the teacher appears to be fair and reliable.	
	The mark allocation and level of achievement are in line with the rest of the province.	
	Adjustment of the average is needed.	
4.	OVERALL QUALITY OF THE PROJECT	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>
	All learners completed the project.	
	All learners' work has been internally moderated.	
	Final projects match the designs in the portfolio.	
	Marks allocated by the teachers using the rubrics match the available evidence in the learners' files.	
5.	INTERNAL/EXTERNAL MODERATION	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>
	There is evidence of internal moderation by the HOD.	
	There is evidence of internal moderation by the subject specialist.	
6.	INTERNAL/EXTERNAL MONITORING	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>
	There is evidence of internal monitoring by the HOD.	
	There is evidence of internal monitoring by the deputy principal.	
	There is evidence of internal monitoring by the subject specialist.	
7.	Additional information. Add typed lists of the following information:	
	Add list of equipment needed in the Agricultural Technology workshop.	
	Add list of equipment in excess in the Agricultural Technology workshop.	
	Add list of equipment that is broken beyond repair and that must be written off in the Agricultural Technology workshop.	

Conclusive observations:

_____ Signature: Teacher	_____ Date	_____ Signature: HOD	_____ Date
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_____ Signature: Subject facilitator	_____ Date	_____ Signature: Principal	_____ Date
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5.7 Consolidation form

ANNEXURE G

AGRICULTURAL TECHNOLOGY

SCHOOL: _____ CENTRE NUMBER: _____ EMIS NUMBER: _____

CIRCUIT: _____ DISTRICT: _____ YEAR: _____

	CANDIDATES	CANDIDATE EXAM NUMBER	Design portfolio	Manufacturing of product.	Quality of the final product	TOTAL	Moderated mark
			25	50	25	100	100
1.							
2.							
		Total:					
		Average:					

TEACHER: _____ SIGNATURE OF TEACHER: _____ DATE: _____

PRINCIPAL: _____ SIGNATURE OF PRINCIPAL: _____ DATE: _____

MODERATOR: _____ SIGNATURE OF MODERATOR: _____ DATE: _____