REVISED NATIONAL CURRICULUM STATEMENT

Learning Area:  Technology

Foundation Phase
Grades R to 3

RESOURCE MATERIAL

2003
The purpose of this material is to provide Foundation Phase educators with an opportunity to:-

- Engage with the Revised National Curriculum Statement in Learning Area context
- Enhance understanding of the Learning Area
- Enrich Learning Programme development
- Support implementation of the Revised National Curriculum in the Foundation Phase

This material should be presented at a contact session / workshop / cluster meeting of educators.

**Outcomes**

Educators will be able to demonstrate:-

- an understanding of the process of curriculum development
- an understanding of the strengthening and streamlining of C2005 in the Learning Area
- an understanding of the essence of the Learning Area

This resource material was compiled by Senior Curriculum Planners of the Western Cape Education Department.

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HOW TO USE THIS DOCUMENT

This resource material should always be used in conjunction with the Revised National Curriculum Statement Grades R – 9 Policy document. (RNCS). It does not stand alone or replace the RNCS.

The resource material has been packaged/presented so that schools are able to explore a range of options with regard to:-

• Accessing and using the material
• Storing the material according to their own requirements
• Adding further relevant Learning Area resource material that may be supplied by WCED, or service providers, etc.

It is envisaged that this material could form the core of a useful learning area resource pack that will develop and grow as more experience and insight is gained into the Revised National Curriculum.

Schools may photocopy this resource material or parts thereof for use in their own teacher development programmes. The source of the material must be acknowledged.
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TECHNOLOGY EDUCATION

1. Introduction

The purpose of this resource booklet is to provide information on the essential features of the Technology Learning Area and to provide guidelines that will enable FP educators to make the transition from C2005 to the Revised National Curriculum Statement (RNCS) in Technology.

2. History of Technology in the Western Cape

There are two OBE models currently practised in the Western Cape viz. C2005 and the WCED hybrid. In Technology, the WCED hybrid model is currently used in the Intermediate Phase (IP) and the Senior Phase (SP) only. The FP is currently using the original C2005 model.

3. From Curriculum 2005 to the RNCS

Curriculum 2005 was streamlined into the Revised National Curriculum Statement (RNCS). The design features of the RNCS in Technology are:

<table>
<thead>
<tr>
<th></th>
<th>C2005</th>
<th>All Phases</th>
<th>RNCS</th>
<th>FP</th>
<th>IP</th>
<th>SP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Critical Outcomes (CO s)</td>
<td>7</td>
<td></td>
<td>Critical Outcomes</td>
<td>7</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>Developmental Outcomes (DO s)</td>
<td>5</td>
<td></td>
<td>Developmental Outcomes</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Specific Outcomes (SO s)</td>
<td>7</td>
<td></td>
<td>Learning Outcomes (LOs)</td>
<td>FP</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Phase Organisers (PO s)</td>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Learning Programme Organisers (LPO s)</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Assessment Criteria (AC s)</td>
<td></td>
<td>Assessment Standards</td>
<td>4</td>
<td>11</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>Performance Indicators (PI s)</td>
<td></td>
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</tr>
<tr>
<td>Range Statements (RS s)</td>
<td></td>
<td>Prescribed Core Content</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The LO’s in the streamlined C2005 (RNCS) are given below:

<table>
<thead>
<tr>
<th>RNCS - three Learning Outcomes for the Technology Learning Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>3</td>
</tr>
</tbody>
</table>

The following diagram shows how the SO’s (with their inherent skills, knowledge, values and attitudes) have been reorganised into Learning Outcomes in the RNCS. It shows the links and provides insight into how C2005 has been streamlined and strengthened:

![Diagram showing links between SOs and LOs]

Figure 1
4. RNCS Learning Outcomes for Foundation Phase

Only one Learning Outcome is dealt with in the Foundation Phase. This outcome focuses on “processes” and “skills”. However, “process skills” cannot be conducted in a vacuum! To be able to DO something you must KNOW something; therefore content will come into the process.

The 3 content areas for technology that are expanded and explored in detail as the learners moves through the Intermediate Phase and Senior Phase are:

<table>
<thead>
<tr>
<th>SYSTEMS AND CONTROL</th>
<th>STRUCTURES</th>
<th>PROCESSING</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Mechanical systems  Producing movement, energy sources to produce movement</td>
<td>• strength</td>
<td>• properties of materials</td>
</tr>
<tr>
<td>• Electrical systems  Use of electrical energy in circuits,</td>
<td>• stability</td>
<td>• methods of processing to alter properties and to enhance the material</td>
</tr>
<tr>
<td></td>
<td>• stiffness</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Contexts of: Housing, habitats, shelters, containers, bridges, packaging, transport storage, etc.</td>
<td></td>
</tr>
</tbody>
</table>

For more information on these refer to page 8 of the policy document for the Learning Area Technology.

In the Foundation Phase there is a mechanism for LO 1 to link with the content outcome (LO 2 – systems and control, structures and processing) and the values and attitudes outcome (LO 3 - Technology and Society).

This is done by incorporating elements of LO 2 and LO 3 into the assessment standards of LO 1 in the Foundation Phase. Refer to the notes in the Planning Table at the end of this document for examples of where this occurs.
Learning Outcome 1:  
Technological processes and skills

The learner will be able to apply technological processes and skills ethically and responsibly using appropriate information and communication technologies.

This Learning Outcome offers opportunities for learners to develop their technological capability. In particular, to intervene in the “made” world by investigating, designing, making and evaluating products and artifacts to meet people’s needs and wants and to solve problems. As a result they will better understand the pressures that operate in the real world of people, products, systems and the environment.

Technological capability involves being able to combine practical action with deepening understanding of knowledge and skills to develop technological solutions.

Capability is based on the need to intervene, clarify what we see in our mind’s eye, make value judgements and put them to test in reality. It thrives on the need for purposeful acquisition of knowledge and skills. It depends on being able to step back to take an overview as well as to focus on details within an activity.

Capability is more than a collection of separate abilities. Capability relies on educators providing purposeful experiences matched to capability, where action can be taken, new knowledge gained, skills tried and practiced, and understanding developed.

An indication of the key concepts and skills that need to be taught through these processes; -

<table>
<thead>
<tr>
<th>Processes</th>
<th>Key concepts</th>
<th>Skills</th>
</tr>
</thead>
<tbody>
<tr>
<td>Investigating</td>
<td>Information processing</td>
<td><strong>This will be evident when learners:</strong> Collects, record, identify, question, predict, communicate, compare, observe, listen, classify, interpret, arrange, calculate, use, etc.</td>
</tr>
<tr>
<td>Designing</td>
<td>Principles of design</td>
<td><strong>This will be evident when learners:</strong> Plan, draw, sketch, communicate, illustrate, model, modify, experiment, consider, compare, evaluate, choose, accept, reject, apply, use, etc.</td>
</tr>
<tr>
<td>Making</td>
<td>Resource management</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Manual skills</td>
<td><strong>This will be evident when learners:</strong> Cut, join, shape, finish, construct, form, combine, assemble, test, modify, measure, mark, separate, model, produce, sequence, handle, make, organise, explore, arrange, mix, process, etc.</td>
</tr>
<tr>
<td></td>
<td>Safety</td>
<td></td>
</tr>
<tr>
<td>Evaluating</td>
<td>Criterion referencing</td>
<td><strong>This will be evident when learners:</strong> Test, compare, modifies, recommend, select, justify, predict, criticize, etc.</td>
</tr>
</tbody>
</table>
5. Clarification and policy interpretations for the RNCS in the Foundation Phase

5.1 Essential ingredients

Technology in this phase is concerned with learning about technology and learning through technology. It involves practical experiences in a process of investigating, designing, making and evaluating. The learner should encounter technology through projects structured around these technological processes, with increasing specific reference to the 3 content areas of technology.

Effective programmes for this phase should involve learners in:

• Creative and critical thought
• Designing and making artifacts
• Expressing opinions
• Making choices
• Planning the way in which things are done
• Co-operative learning
• Practicing activities that will enhance fine motor co-ordination
• Using simple tools for cutting, shaping, folding and joining materials
• Safety issues when using tools
• Manipulating and exploring products
• Analyzing relevant and appropriate problems, needs and opportunities
• Freehand sketching
• Making products safely
• Working with a range of different materials.
5.2 Projects

Projects for Technology should be structured around the Design Process (investigate, design, make and evaluate).

A project is a planned series of activities incorporating a Design Process to meet an identified problem, need or opportunity. A project will result in an end product, model, prototype or artifact. A project is initiated through a Design Brief, which is derived from a Design Situation.

Each project should ensure that all learners have the opportunity to:

- Propose possible design solutions that will meet the problem, need or opportunity.
- Evaluate various stages of the Project.
- Develop skills related to tools, materials techniques and graphics.
- Reflect on the success of the project.

5.2.1 The Design process

The design process is a planned series of steps (investigate, design, make and evaluate) for the achievement of a practical purpose. It incorporates the analyses of problems, needs and opportunities that will lead to the production of an end product. It enhances and employs both individual and group participation and creativity.

5.2.2 A Design Situation

This is a background description (story, picture, photo, poster, movie, poem, etc.) in which the problem, need or opportunity is identified. It should be related to structures, processing, or systems and control.

When developing Situations educators may consider the following points.

A Situation should:

- encourage learners initiative in research, investigation, idea generation, idea development, decision making and evaluation;
- consider constraints such as time, resources and learner skills;
- consider the implications for classroom management;
- use language appropriate to the learner’s ability level;
- be relevant to the developmental age of a range of learners;
- build on prior learning from personal, social and school experiences;
5.2.3 A Design Brief

This is a short clear statement specifying the requirements of the Project. Learners will use this to develop ideas and establish the criteria for deciding the appropriateness of the Product or Artifact.

When developing Design Briefs, from a Design Situation, educators should consider the following points. A brief should:

• Provide opportunities for practical activity and the construction of products or artifacts.
• Offer a wide range of possible solutions without directing learners towards a predetermined solution (product, design or artifact) from the educator.
• Give information but not a prescribed solution.
• aim at achieving successful practical solutions;
• draw on prior knowledge and skills from other Learning Areas or previous Projects;
• be set or arrived at by a consultative process;

6. The Teaching of Processes

The variety in teaching methodologies that can be utilised in a range of processes has a number of potential advantages:

• appeals to the preferred learning styles of a range of learners
• makes both teaching and learning more interesting
• more adequately reflects technology

The difficulty in teaching these processes of technology becomes apparent when learners are not all doing the same activity at the same time. This means that the learners in a class cannot be treated the same as far as educator attention is concerned. Despite the fact that all learners may be working on the same problem, they may be utilizing different processes in seeking a solution, and aiming toward different solutions. Thus, the demands for guidance from the educator vary. The following are some ideas to deal with this situation.

6.1 Begin with a large group.

In this approach, a situation, problem, or design brief is presented and discussed with the class. Then, class members reach consensus agreement on a procedural sequence through discussion. After agreement has been achieved, the educator can then put a label on each of the activities (planned series of activities). For example, “when we look at similar products on the market, we are evaluating,” or “when you ask your friends and neighbours how much they would pay for the product, we are doing market research.” The determination of the process is not then dependent on an individual and learners begin with the necessity of the activity rather than the possibly meaningless label that goes with it.
6.2 Don’t expect too much too soon from learners.

Because the skills involved in technology processes are complex and convoluted, and are different each time a solution to a problem is attempted, it will take a long time to teach the various aspects of processes. It will require even more time for learners to practice using those processes selectively and effectively.

6.3 New conceptual and procedural knowledge.

New knowledge must be taught on a need-to-know basis. It is not good enough to tell the learners that “teacher knows best, and while the material currently seems irrelevant, there will come a time when it is needed.” Because the processes are complex, they should be taught bits at a time. The skill (and most difficult part) of teaching technology is to manipulate learners to the point where they realize they need the information you want them to have. The situation should not arise where technology learners are stuck in a classroom for the first few hours/days/weeks of a project because of all the information they need to have in order, for example for them to be able to do design. This will destroy their motivation and enthusiasm for the Learning Area. If learners are given information when they realize they need it, their level of retention is higher and they will learn more efficiently.

6.4 Large projects which last for an extended period of time.

When the learners are involved in large projects which last for a period of time, introduce smaller support tasks/activities to give practice in specific skills, which can then be immediately applied to the context of the project in which they are working. For example shorter tasks could include the development of a particular graphics skill, practice in identifying peoples’ needs, or the practice of manipulative skills (working with specific tools and materials).

6.5 Minimize the separation of theory and practice.

The continual interaction between the thinking skills and the concrete reality of activity is what enables the development of capability in technology.

Therefore do not separate technological theory and technological practice with:

- timetabling - theory and practical sessions must not be scheduled at different times
- assessment tasks – do not separate theory and practical tasks
- the use and design of work spaces – do not make separate theory areas and practical areas
- Teaching methods – do not “lecture” for theory and “demonstrate” for practice.

Learners should get the clear message that theory and thinking in technology cannot be separated from technological activity. Either without the other is not representing technology adequately to learners.
6.6 *The process can begin at different places.*

The point at which the process begins will depend on the outcomes the educator wishes the learners to achieve. It may begin with:

- exposure to a situation, from which learners extract a problem, need or opportunity,
- a description of the problem, need or opportunity,
- a brief already written by the educator,
- an individual and predefined interest or need,
- An existing product, which is then evaluated for redesign.

6.7 *Support the required skills.*

Learners must be taught, and then given the opportunities to practice specific skills and techniques before expecting them to incorporate them into a process of technology. Most technology educators do this well in the area of manipulative skills, but it is also essential for the cognitive skills. For example if we want learners to generate ideas, then we need to teach them the skills of brainstorming and creative thinking. In researching they must be taught survey design or how to use indexes. Specific sketching skills must be taught for them to be able to record ideas. If metacognition is expected, then they need to understand how they think.

6.8 *The sequence of the process.*

The point at which the process is initiated may dictate the beginning of the sequence of activities. For example, if a product is to be examined for redesign, then evaluation occurs first; if the activity results from personal need then the generation of creative ideas may not be necessary. It may be appropriate to prototype ideas early in the process, then go back and revise the brief. As previously stated, there is no set process.

6.9 *The end result of the process may vary.*

The most common end result of a design process is a product, but it could just as appropriately be a model or prototype. If a project in technology always results in one type of output, there is a danger that the learner will develop a limited perception of the nature of technology.
7. **Some notes on the Design Process.**

7.1 **Investigate**

This is a phase of collection of a wide range of information about, and related to, the particular Project. The orientation of this step is purely the collection of facts and information, both visual and verbal, to expand the range of possible solutions. Deliberate selection of ideas should be deferred to later phases of a project.

7.2 **Design**

Design is justifiably the most common and popular of the processes appropriate to technology education. In the real world it is a significant process in the development of technology in many disciplines from engineering to architecture, and from an educational perspective it is an ideal methodology to use as a vehicle to achieve the desired competencies.

There seems to be no simple recipe. The processes involved in designing are not linear, they do not always start from human needs and problems or opportunities and they do not always proceed in an orderly way.

Research has been conducted on both expert designers and children doing design in a technology education context with some parallels in the findings. What learners do when they design in technology is a very convoluted and complex process, and is different every time they design something.

Studies of designers working in technological fields also reject the notion that what they do can be represented by an algorithm. So both seem to adopt inventive and flexible approaches which are adapted to the situation in which they are working. Individuals also seem to have preferences for how they design.

In the design situation where educators insist on progressing through set stages, learners in fact adopt their own strategies in order to get the job done, but ritualistically use the educator’s approach to satisfy assessment demands. For example if asked to sketch three design alternatives to a problem or brief, a learner is often interested in only one, and does the others just to satisfy the educator. In this case the goal of generating creative ideas is not being achieved and learners do not reflect on the process, for example, by asking what, why, what order? This requirement therefore has no impact on learner thinking or the development of creativity.

7.3 **Make**

A manufacturing orientation to technology covers a number of more specific types of processes such as a custom made craft approach, a production line, batch production, and one-off production. In each of these processes, factors to consider include materials, information, and time. This is an accepted feature of many technology education programs, and continues to be justified because it is an important aspect of real-world technology.
For the purpose of this curriculum, making is the production of products and artifacts. There are three core aspects that need to be developed for this assessment standard:

- Planning processes that will be followed to make products
- Using tools safely to make products
- Developing an understanding of materials through experimentation.

Learners need to:

- Develop understandings related to properties of materials through experimentation and investigation.
- Develop an understanding of important differences and similarities in the characteristics of various materials.
- Develop manipulative skills in working with materials.
- Identify, organise and use tools and materials.
- Learners need to make choices regarding construction of products.
- Accept responsibility for the basic maintenance of tools and equipment.

Educators need to:

- Organise and prepare materials for a Project in conjunction with the Design Brief.
- Monitor design developments and the needs of learners.
- Supervise learners in the use and basic maintenance of tools.
- Identify and organise resources according to the needs of their learners.
- Ensure that learners develop positive attitudes towards resource management.
- Demonstrate skills, which will allow learners to gain experiences.
- Provide opportunities for learners to handle and use a range of tools and materials.

7.4 Evaluate

Evaluation occurs throughout all stages of the Design Process in a Project. Learners evaluate in order to clarify, inquire, plan, test, modify and interpret.

8. Conclusion

There are many reasons why it is important for learners to utilise a range of processes when developing their technological literacy and capability. Technology is such a broad area that a focus on any one process will not provide learners with a broad concept of the nature of technology. All learners have preferred learning styles, and utilising a range of processes in teaching technology will appeal to more learners than would the use of a single process. It will also make the teaching of technology more interesting to both learners and educators.
PART TWO
COLLECTABLE MATERIALS

**Plastic**
- Bottles
- Koki pen tube
- Guttering offcuts
- Yoghurt cups
- Plastic/rubber tubing
- Polystyrene tiles
- Plumbing bits and pieces
- Plastic-covered electrical wire
- Nylon line
- Plastic curtain wire
- Beads
- Buttons
- clothes pegs
- margarine tubs
- cones/ reels
- tape spools
- draught excluder
- shopping bags
- plastic lids from coffee jars, etc
- old records
- offcuts of perspex
- polythene bags
- lolly sticks
- food trays
- drinking straws

**Wood**
- wooden beads
- offcuts of wood
- icecream sticks
- cotton reels
- dowels
- matchsticks (used)
- clothes pegs
- garden stakes, picket fencing, edging

**Old toys etc**
- old constructional materials
- old toys showing gears,
- old watches/clocks
- toys with moving parts
- pulleys, levers! etc!!

**Metal**
- pieces of wire
- aluminium foil
- drawing pins
- wire coat hangers
- aluminium food trays
- paper fasteners
- soft drink cans
- nails with large heads
- nuts and bolts
- metal rods
Sticking

- Sellotape
- Wallpaper glue
- masking tape
- Woodglue
- rubber bands etc

Tools and Equipment

- scissors
- small hammers
- glue spreaders
- junior saws
- brushes
- small pliers
- pencils
- small work bench with a vice attached, or bench
- rulers
- Clamps
- hole punches
- files

Polystyrene:

- Containers
- Sheets
- Offcuts
- Beads
- Pipe covering
PART THREE

TABLE FOR PLANNING

The following table has been created to help with curriculum planning within and between grades in the Foundation Phase. It is derived from the Revised National Curriculum Statement Policy Document Learning area Statement for Technology.

The table covers the following content:-

- **PHASE**: Foundation Phase (and grade 4)
- **GRADES**: R, 1, 2, 3, (and grade 4)
- **LEARNING AREA**: Technology
- **LEARNING OUTCOMES**: I
- **AND ASSESSMENT STANDARDS**

Each grade is shown in a column.

The grade after the Phase (Grade 4) is also shown in a column to indicate progression between phases. This column is shaded in grey to show that it is not part of the Phase.

Assessment Standards are numbered for convenience:-

Eg: R.1.1 / I.1.1 / 2.1.3 / 3.4.2

- The first digit = the grade
- The second digit = the learning outcome
- The third digit = the individual assessment standard (a bullet in the original policy document version) Each assessment standard within a learning area thus has its own individual number.

Teachers are requested to familiarise themselves with this system of numbering and use if for their planning and recording. It promotes uniformity, portability and communication across the province.

You can access this table and others for other learning areas through the WCED Curriculum Directorate webpage. Go to [http://curriculum.wcape.school.za](http://curriculum.wcape.school.za) and click on the link for Foundation Phase and Early Childhood Development.

You can print out these tables.
You can also download and save on your hard drive.
# TECHNOLOGY LEARNING OUTCOMES AND ASSESSMENT STANDARDS - GRADES R TO 3

## Learning Outcome 1: TECHNOLOGICAL PROCESSES AND SKILLS

The learner will be able to apply technological processes and skills ethically and responsibly using appropriate information and communication technologies.

<table>
<thead>
<tr>
<th>Grade R</th>
<th>Grade 1</th>
<th>Grade 2</th>
<th>Grade 3</th>
<th>Grade 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assessment Standards</td>
<td>Assessment Standards</td>
<td>Assessment Standards</td>
<td>Assessment Standards</td>
<td>Assessment Standards</td>
</tr>
<tr>
<td>We know this when the learner</td>
<td>We know this when the learner</td>
<td>We know this when the learner</td>
<td>We know this when the learner</td>
<td>We know this when the learner</td>
</tr>
<tr>
<td><strong>R.1.1 Investigates</strong></td>
<td><strong>1.1 Investigates</strong></td>
<td><strong>2.1 Investigates</strong></td>
<td><strong>3.1 Investigates</strong></td>
<td><strong>Investigates</strong></td>
</tr>
<tr>
<td>R.1.1.1 Physically manipulates products to explore their shape, size, colour and the materials they are made of.</td>
<td>R.1.1.1 Investigates why products are made of particular materials.</td>
<td>2.1.1.1 Describes the past and current uses of different materials and substances.</td>
<td>3.1.1.1 Finds out about the historical context when given a problem, need or opportunity related to structures, processing, or systems and control.</td>
<td>Finds out, with assistance, about the background context (e.g. people, environment) when given a problem, need or opportunity.</td>
</tr>
<tr>
<td><strong>Link to LO 2 – the properties/characteristics of materials relates to ‘processing’</strong></td>
<td><strong>Link to LO 2 – the properties/characteristics of materials relates to ‘processing’</strong></td>
<td><strong>Link to LO 3 – the past and current relates to indigenous technology and culture</strong></td>
<td><strong>Links to LO 3 – relates to biases created by technology via ‘historical context’</strong></td>
<td>Finds out why given existing products related to a problem, need or opportunity are suitable for their purpose.</td>
</tr>
<tr>
<td><strong>Link to LO 3 – impact on the environment</strong></td>
<td></td>
<td></td>
<td></td>
<td>Performs, where appropriate, scientific investigations about concepts relevant to a problem, need or opportunity using science process skills:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• planning investigations;</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• conducting investigations;</td>
</tr>
<tr>
<td>R.1.2 Designs</td>
<td>1.1.2 Designs</td>
<td>2.1.2 Designs</td>
<td>3.1.2 Designs</td>
<td>Designs</td>
</tr>
<tr>
<td>---------------</td>
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<td>---------------</td>
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<td>---------</td>
</tr>
<tr>
<td>R.1.2.1 Chooses from a given range, materials or substances that can be used to make simple products.</td>
<td>1.1.2.1 Chooses suitable material or substances to make simple products to satisfy a given need.</td>
<td>2.1.2.1 Chooses suitable materials or substances to make products, and suggests some ways they can be used to satisfy a problem, need or opportunity.</td>
<td>3.1.2.1 Suggests different possible solutions, chooses one, and uses freehand sketches to represent it.</td>
<td><strong>Designs</strong></td>
</tr>
<tr>
<td><em>Link to LO 2 – the properties/characteristics of materials relates to ‘processing’</em></td>
<td><em>Link to LO 2 – the properties/characteristics of materials relates to ‘processing’</em></td>
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<td><strong>Writes or communicates, with assistance, a short and clear statement (design brief) for the development of a product for a given purpose.</strong></td>
</tr>
<tr>
<td>R.1.3 Makes</td>
<td>1.1.3 Makes</td>
<td>2.1.3 Makes</td>
<td>3.1.3 Makes</td>
<td>Makes</td>
</tr>
<tr>
<td>R.1.3.1 Makes simple products from a range of materials provided</td>
<td>1.1.3.1 Makes simple products from different materials.</td>
<td>2.1.3.1 Expresses how products are going to be made.</td>
<td>3.1.3.1 Expresses how products are going to be made and what will be used to make them.</td>
<td><strong>Briefly outlines a plan for making, listing the main steps.</strong></td>
</tr>
<tr>
<td><em>Link to LO 2 – the properties/characteristics of materials relates to ‘processing’</em></td>
<td><em>Link to LO 2 – the properties/characteristics of materials relates to ‘processing’</em></td>
<td>2.1.3.2 Makes products safely from different materials following given steps.</td>
<td>3.1.3.2 Makes products safely by joining or combining a range of different materials.</td>
<td><strong>Uses suitable tools and materials to make products by measuring, marking out, cutting simple forms in a variety of materials, and joining them using a range of techniques.</strong></td>
</tr>
<tr>
<td>R.1.4 Evaluates</td>
<td>1.1.4 Evaluates</td>
<td>2.1.4 Evaluates</td>
<td>3.1.4 Evaluates</td>
<td>Evaluates</td>
</tr>
<tr>
<td>R.1.4.1 Expresses own feelings about the products made.</td>
<td>1.1.4.1 Expresses and explains own feelings about the product made.</td>
<td>2.1.4.1 Identifies strengths and weaknesses about own products.</td>
<td>3.1.4.1 Identifies strengths and weaknesses about own products and the products of others.</td>
<td><strong>Evaluates, with assistance, the product according to the design brief, and suggests improvements and modifications if necessary.</strong></td>
</tr>
<tr>
<td><em>Link to LO 3 – impact of technology on society</em></td>
<td><em>Link to LO 3 – impact of</em></td>
<td><em>Link to LO 3 – impact of</em></td>
<td><em>Link to LO 3 – impact of</em></td>
<td><strong>Debriefs the design process, considering the effectiveness of the solutions, and the impact on the user and environment.</strong></td>
</tr>
</tbody>
</table>

- processing and interpreting data;
- evaluating and communicating findings.
### Learning Outcome 2: TECHNOLOGICAL KNOWLEDGE AND UNDERSTANDING
The learner will be able to understand and apply relevant technological knowledge ethically and responsibly.

<table>
<thead>
<tr>
<th>Grade R</th>
<th>Grade 1</th>
<th>Grade 2</th>
<th>Grade 3</th>
<th>Grade 4</th>
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<tbody>
<tr>
<td><strong>Assessment Standards</strong></td>
<td><strong>We know this when the learner</strong></td>
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<tr>
<td><strong>Structures</strong></td>
<td>Demonstrates knowledge and understanding of how to strengthen the structure of products by folding, tubing, and using triangular webs or strong joints.</td>
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<tr>
<td><strong>Processing</strong></td>
<td>Demonstrates knowledge and understanding of the properties of common materials (e.g. wood, food, clay, plastic, paper, fabric), and how these properties influence the effectiveness of products.</td>
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<tr>
<td><strong>Systems and Control</strong></td>
<td>Demonstrates knowledge and understanding of how to use simple mechanisms (e.g. wheels</td>
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</tbody>
</table>
and axles, pivots, hinges) to make a product move in some way.

**Learning Outcome 3: TECHNOLOGY, SOCIETY AND THE ENVIRONMENT**
The learner will be able to demonstrate an understanding of the interrelationships between science, technology, society and the environment.

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**Assessment Standards**
We know this when the learner

**Indigenous Technology and Culture**
Describes how local indigenous cultures have used scientific principles or technological products for specific purposes.

**Impact of Technology**
Expresses opinions about how technological products make people’s lives easier.

**Bias in Technology**
Expresses reasons why certain groups of people might be disadvantaged when using technological products.