FIREWISE

The Friends of Veld and Forest

TEACHERS GUIDE

INDEX

ACKNOWLEDGEMENTS

We are indebted to many people and organisations for their assistance in producing this learning material. In particular we would like to acknowledge the valuable contribution of the Regional Director of the Ehlanzeni Region of the Department of Education in Mpumalanga, Mr. M.J. Lushaba and the team of curriculum implementers who were responsible for developing the material.

We would like to thank the steering committee of this project:

Ms E Coetzee (Sappi); Ms Yvonne Dube (Working on Fire); Mr. JC Khoza (Ehlanzeni Region – Curriculum Implementation), Ms M Van Zyl (Natural Sciences) ; Ms V Vonderweidt & Ms S Mathebula (Social Sciences & Life Orientation); Ms M Buys & H Nicholson (Arts & Culture); Ms K Moloi, Ms C Ndlovu & Ms S Achempong (Languages); Ms A Du Randt (EMS) ; Mr D Lekhuleni (Technology); Ms R Zwane & Mr MS Nzibande (Maths); Ms P Steenkamp (Special Education Needs); L Brytenbach (Afrikaans).

1. An Environmental Education Learning Resource for Educators (GrenCOM), Academy for Educational Development - Jacana
2. Spider's Place Comics and workbooks, Created by Primary Science Programme - The Handspring Trust
3. You Magazine (17/02/05)
4. Personal Finances - Mongi Mali - Developed by Gauteng Institute for Curriculum Development, funded byStandard Bank
5. Biography & Ecosystems of South Africa : South African Geography and Environmental Studies Series - ME Meadows
6. Learning for Sustainable Living: An integrated learning resource for environmental education - Bird Life South Africa 2000
7. Playing with Fire (Ministry of Education and Culture - Namibia) - Enviroteach
8. Tools of the Trade Skills and Techniques for Environmental Education in Namibia -Author: du Toit, Derick, Published by: Desert Research Foundation of Namibia Minister of Education and Culture, 1995.
9. Environment Diary 2005, Sustainable Living at Work - Source: Jenny Kinnear
10. You Magazine 1702/05
11. Understanding your Past 5 (New Edition) - Oosthuizen, M.S. Appelgryn & J.W. Kew
12. Meadows, M.E : Biography & Ecosystems of South Africa and Environmental Studies series
13. More More More, tell me why: Answers to over 300 questions children ask most often - ARKADY LEOKUM
14. Mocke H.A et al: History Standard 5
15. RNCS Policy Document: Department of Education
16. HISTORY Standard 5, H.A. Mocke H.C. Wallis and N.R. Gunning Via Afrika
17. Science and Discovery: Man's conquest of materials - The International Pictorial Treasury of Knowledge - International Graphic Society - Englewood Cliffs, New Jersey

Layout & Printing by
Minuteman Press Nelspruit

ACTIVITY 1

ACTIVITY 1.1 (CASE STUDY)

SCENARIO

PICTURE OF WILD FIRE AND FIREFIGHTER EXTINGUISHING THE FIRE

FOCUS: IDENTIFICATION OF A PROBLEM AND OTHER RELATED PROBLEMS

TEACHER'S ACTIVITY

- Make copies of any additional pictures or newspaper cuttings of wild fires, showing fire fighters at work and study the pictures in the Learner Book.
- Arrange the learners to work in pairs.
- Give any additional pictures to the learners.
- Guide learners through the activity helping them to identify the main problem in the picture.
- They are to make suggestions as to which people are affected by the fire problem.
- Ask them what else is affected as a result of the problem. List the consequences of the fire.
- Ask them to suggest what are the possible causes of the fire were.
- Consolidate on the discussions.

ASSESSMENT MEMO:

QUESTIONS	POSSIBLE ANSWER OR RESPONSE
The main problem	Wild (veld) fire, burning of property
Possible people affected	Landowner, employees, people allergic to smoke, fire-fighters
What else is affected	Wild animals, grazing, plants, environment; air, all creatures living in the veld. Cost of damage, injuries, people homeless.
Possible causes of the problem	Cigarette butts, lightning, slashes, bad electrical connection, burning candle or paraffin stove, arson, human behaviour.

ACTIVITY 1.2

FOCUS:IDENTIFYING THE EQUIPMENT USED TO FIGHT FIRE FROM THE PICTURES PROVIDED

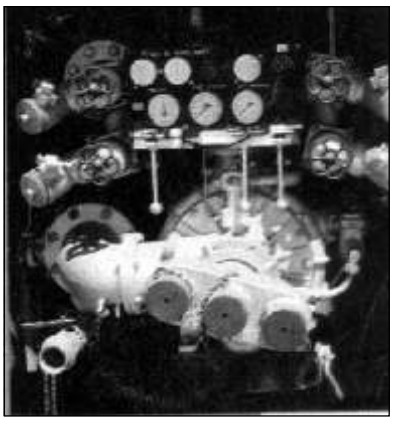
FIRE EXTINGUISHERS

When you put a burning splint into carbon dioxide, it goes our immediately. Combustion will not take place in carbon dioxide. This means that carbon dioxide is a good substance to use as a fire extinguisher. Most fire extinguishers contain carbon dioxide gas under pressure. When the trigger is pulled, the carbon dioxide is released. The carbon dioxide is sprayed over the fire. It displaces the air so that no oxygen can get to the fire.

Sand

Water

Fire engines used to fight fires in buildings have ladders so firefighters can rescue people and extinguish flames high up in the building. This ladder is 37m long.



The fire engine was developed in 1725 by Richard Newsham of London. These pictures show the equipment used to pump high volumes of water at great force.

The first hose was invented in 1672 by Dutch inventor Jan van der Heiden. It was made of leather with a copper coupling every 15m. the length of couplings are still standard today.

Firefighting is one of the most dangerous jobs in the world.

OXYGEN CYLINDER
Firefighters try to extinguish the flames in a house in the path of a recent blaze.

ACTIVITY 1.2

FOCUS:IDENTIFYING THE EQUIPMENT USED TO FIGHT FIRE FROM THE PICTURES PROVIDED.

TEACHER'S ACTIVITY

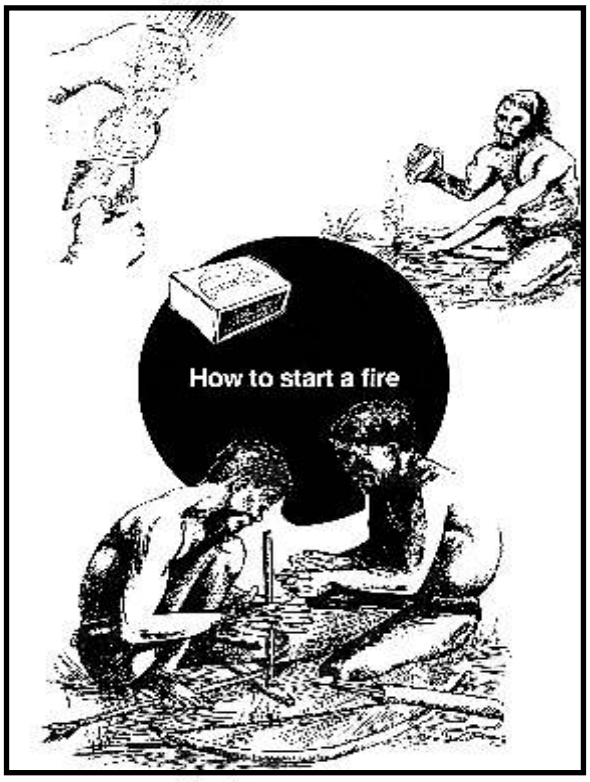
- Refer to the pictures in the learners book.
- Discuss the technology involved in fire fighting to safe guard communities and their property.
- Provide learners with correct terminology or names of equipment.
- State common methods of extinguishing fire, like using green plants, sand.
- Summarise the responses from learners.

ASSESSMENT: MEMO

QUESTIONS	POSSIBLE ANSWER OR RESPONSE
How to solve the identified problem	They use fire beaters, fire extinguishers, helicopter pouring water, sand, green plants
Equipment used to extinguish fire	Hose and pipe with water, CO_2 cylinders, powder or liquid (gas), fire beaters
Other methods of extinguishing fire	Taking away fuel, using helicopter

ACTIVITY 1.3

FOCUS: INDIGENOUS TECHNOLOGY AND CULTURE HOW TO MAKE FIRE IN ADDITION, THE IMPACT OF IT.



FOCUS:INDIGENOUS TECHNOLOGY AND CULTURE HOW TO MAKE FIRE IN ADDITION, THE IMPACT OF IT.

TEACHER'S ACTIVITY

- Integrate with SS and let learners gather information for fire-making methods from older members of their community. Emphasize the skills involved in interviewing older people.
- Ask learners to state at least two methods of how they and/or their family make fire today.
- Ask learners to think of any positive and negative impacts of fire.
- Remind them that fire can be their best friend or their worst enemy.
- Consolidate with the learners.

ASSESSMENT: MEMO

Methods used to make fire in the olden days	Wood and sticks, hitting stones against each other
Current methods	Matches, metal igniters, gas lighters
Positive impacts of fire	Provides heat for warming, light, stimulates growth, generates power e.g. locomotive (train), use in production (gold, steel etc)
Negative impacts	Loss of life, injury or severe burns, loss of property, causes unemployment, soil erosion, or damage (removing soil nutrients)

ACTIVITY 1.4

FOCUS: IDENTIFYING THE TYPE OF MATERIALS USED TO MAKE FIRE FIGHTING EQUIPMENT.

TEACHER'S ACTIVITY

- Invite your local fire crew to present an exhibition on fire-safety clothing.
- Allow learners to feel the different textures of the fire protective clothing.
- Or, provide colour pictures of the fire fighting equipment to the learners.
- Or, have learners study the picture on page 1 of their Activity Book.
- Assist learners in identifying all the many different kinds of the fire fighting equipment.
- Provide learners with correct names of the materials that the equipment is made of.
- Learners are to write the different names of the clothing and equipment materials in their work books.
- Learners are to state as many possible reasons as they can why such materials are used to protect fire fighters.
- Ask the learners to list the different protective clothing worn by fire fighters in their workbooks.
- In particular, learners are to describe the fire beater, if provided. In EMS section it is more clearly shown.
- Consolidate the responses of learners.

ASSESSMENT MEMO:

QUESTIONS	POSSIBLE ANSWER OR RESPONSE
What material is used to make fire fighting equipment.	Rubber (e.g. hose, fire beater), steel (e.g. hose nozzle)
Reasons for their use	Resist fire
Protective clothing	Goggles, helmet, visor, boots, gloves

ACTIVITY 1.5 (ASSIGNMENT)

FOCUS: INVESTIGATING THE PROPERTIES OF MATERIALS WHEN EXPOSED TO FIRE.

RESOURCES: COTTON, WOOL, CANDLE, RUBBER OR OTHER MATERIAL AVAILABLE

TEACHER'S ACTIVITY

- Bring a burner or candle along to the class.
- Learners will work in pairs to test the wool, cotton, rubber and candle samples you have provided.
- Allow learners to handle the tools and materials before starting the experiment.
- Teach learners about safety when testing materials.
- Provide learners with insulated gloves, pliers and any other tools to avoid burns.
- As learners test each material they are to record their observations. They must tabulate their findings in their classwork books.
- Assist learners in drawing the table and supply the headings.

POSSIBLE RESPONSES:

Material	Wool	Cotton	Rubber	Candle
Approaching the flame of the candle	Shrinks very fast	Shrinks slowly	Does not shrink	Changes shape
In the flame of the candle	Burns completely	Burns completely	Burns slowly	Burns quickly
Out of the flame	Goes out/ashes	Goes out/ashes	Continues to burn	Continues to burn/melt

[Adapted from Assessment guide (Technology Senior Phase) pg. 40-43]

- The teacher must consolidate the findings.

ACTIVITY 1.6

- Learners are to design and make a safe fire beater to be used to fight fires.
- The fire beater must have a handle and/or is made of material that will be fireproof and be safe to use when extinguishing fire.
- Must have a broad, flat surface
- Remind them that their fire beater must be strong and flexible to permit unrestricted movement by any fire fighter.

Descriptors	Level 4	Level 3	Level 2	Level 1
Identify the main design aspects of the problem	The learner identifies the most design aspects of the problem	The learner identifies some design aspects of the problem	The learner identifies , with assistance, some design aspects of the problem	The learner is unable to identify design aspects of the problem
Suggest two possible solutions to the design	The learner clearly suggests clearly two possible solutions to the design	The learner suggests one clear possible solution to the design	The learner suggests, with assistance, one possible solution to the design	The learner is unable to suggest possible solution to the design
Choose one solution and give reasons	The learner clearly chooses one solution and gives reasons	The learner chooses a solution and gives one reason	The learner chooses , with assistance, a solution and gives a reason	The learner struggles to choose a solution and is unable to give reasons
Find who are disadvantaged by the product	The learner clearly mentions more people who are disadvantaged by the product.	The learner mentions few people who are disadvantaged by the product	The learner mentions, with assistance few people who are disadvantaged by the product	The learner struggles to mention the people who are disadvantaged by the product.
How the product is going to make the lives of people easier	The learner clearly states how the product will make the lives of people easier	The learner states few ways how the product will make the lives of people easier	The learner states, with assistance, how the product will make the lives of people easier	The learner is unable to state how the product will make the lives of people easier
				TOTAL MARK:20

4 = Learner's performance has exceeded the requirements of the Learning Outcomes for the grade
3 = Learner's performance has satisfied
2 = Learner's performance has partially satisfied
1 = Learner's performance has not satisfied

FOCUS: DESIGNING SKILLS

TEACHER'S ACTIVITY

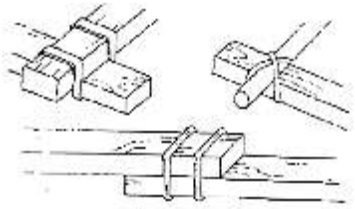
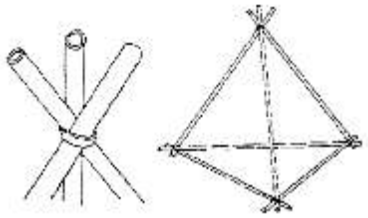
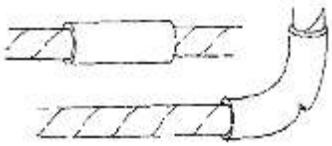
- Read with the learners the background of the problem identified in Activity 1.
- Assist learners to write a short and clear description of a fire beater.
- Guide learners to identify the main design aspects of a fire beater.
- They are to suggest two possible solutions for their design.
- Learners will be assisted to develop a written plan for making the fire beater by listing every main step needed to complete their fire fighting tool.
- Give learners practice on drawing by letting them do tracing drawings from magazines.
- They are to draw a simple two-dimensional sketch of each stage of construction on the grid provided by the teacher.
- Remind learners to work neatly and clearly with all words spelled correctly.
- Be sure they include the measurements for each piece and a list of all tools and materials they will need to complete their fire beater.
- Ask them to state what kind of person will **not** be comfortable using their fire beater.
- Be sure learners understand that their fire beater is designed to make people's lives better and easier.

ASSESSMENT RUBRIC:

Descriptors Make a plan for making the product and list the main steps	Level 4 The learner makes a detailed plan for making the product and lists all the main steps	Level 3 The learner makes a plan for making the product and lists some of the main steps	Level 2 The learner makes a plan for making the product and a few of the main steps	Level 1 The learner makes an incomplete plan and is unable to list the few main steps.
Use suitable tools and relevant material to make the product	The learner uses suitable tools and relevant material to make the product	The learner uses suitable tools and some relevant materials to make the product	The learner uses, with assistance, suitable tools and relevant materials to make the product	The learner is unable to use suitable tools or materials to make the product
Evaluate and suggest improvements to the product	The learner clearly evaluates and suggests improvements to the product	The learner evaluates and suggests some improvements to the product	The learner evaluates and suggests, with assistance, some improvements to the product	The learner is unable to evaluate or suggest improvements to the product
Draw two-dimensional sketches and enhance with colours	The learner draws two-dimensional sketches and enhances with colours	The learner draws two-dimensional sketches but is not able to enhance with colours	The learner draws, with assistance, two-dimensional sketches and enhances with colours	The learner struggles to draw two-dimensional sketches and enhance with colours
				TOTAL MRAKS:16

ACTIVITY 1.7 (ASSIGNMENT)

HOW TO JOIN DOWELS OR STICKS

1. You can use elastic bands or thin wire to join dowels or sticks. 	2. You can use elastic bands to hold dowels or sticks in a frame like this. 	3. You can use a small plastic tube to join dowels or sticks. A small cut on the outside of the bend helps to bend the tube. 

FOCUS: CUTTING AND JOINING TECHNIQUES AND USE OF TOOLS.

RESOURCES: OLD CLOTH, PAPER, WOODEN STICK, STRING

TEACHER'S ACTIVITY

- Prepare activities on cutting and joining skills.
- Learners are to work together in pairs.
- Assist learners in cutting an old piece of cloth into 200mm x 200mm lengths and several pieces of strong string.
- Demonstrate the joining technique in the above drawings.
- Adhere to safety practices.

ACTIVITY 1.8 (CAPABILITY TASK)

FOCUS: APPLICATION OF MAKING SKILLS.

TEACHER'S ACTIVITY

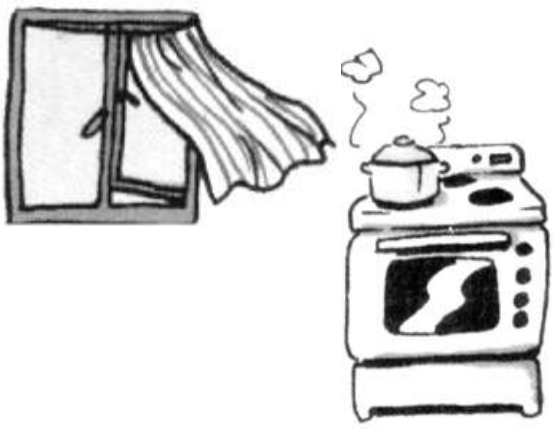
- Give learners an example of making a plan or production schedule.
- Demonstrate correct tool-handling skills.
- Learners are to use their written design plans to begin construction of their fire beater.
- They are to use coloured pencils to revise their drawings and procedures throughout the making process when they must make changes to their plans.
- Encourage learners to make the very bet fire beater they can as there will be a competition at school in mid-October to award a special prize to the learner making the best fire beater.

EXAMPLE OF PLAN

MATERIAL	length	Width	Number or items	Tools
Wooden handle	70cm	2cm	1	Small hack saw, scissors
Rubber	30cm	30cm	1	
Glue			1 bottle	
Leather	30 cm	30cm	1	
String	1m		2	

ASSESSMENT STANDARD:STRENGTHEN STRUCTURES UNDERSTAND TYPES OF STRUCTURES

Store flammable products such as paraffin out of the reach of children.

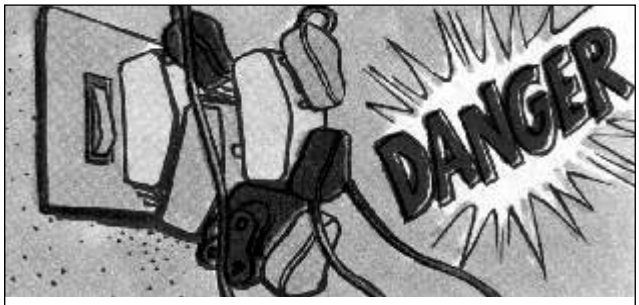


Be careful not to let curtains blow onto burning stoves or candles.

Candles must always be placed in a candle holder to prevent them falling over.

Remember to switch off all burners.

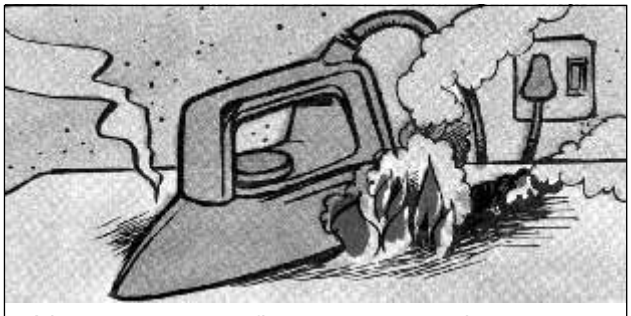
It is dangerous to sleep with candles burning.



NEVER overload plugs like this. If you need more sockets, call an electrician.

Electrical cords an get hot and cause fires. Do NOT run them under carpets.

Do not overload sockets. Use the correct adaptor.



This can cause a fire. ALWAYS unplug an appliance if it is not being used.

ACTIVITY 2

ACTIVITY 2.1

FOCUS: HOW TO PREVENT FIRE

TEACHER'S ACTIVITY

- Learners are to read “What Causes Fires?” in their Activity Books
- They are to discuss the article with their group partner.
- Between them they are to identify ways of preventing fires:
- Wild (veld) fires
- Domestic fires.
- Ask learners to record their findings on paper or in their workbooks.
- Consolidate.

ASSESSMENT: MEMO

Questions	Possible answer
How to prevent fire (Wi? - Veld (Forest) (Veld fire)	Forest – create fire breaks - Remove the fuel it might ignite - Create awareness programme - Build detection structure (tower) - Consider fire danger index
Domestic (house) fire How to prevent fire in our homes	House - Keep matches, lighter, paraffin far away from young children - Put out all candles and lamps before you go to sleep or leave your home - Keep stove on a flat surface (paraffin) and away from things that can burn

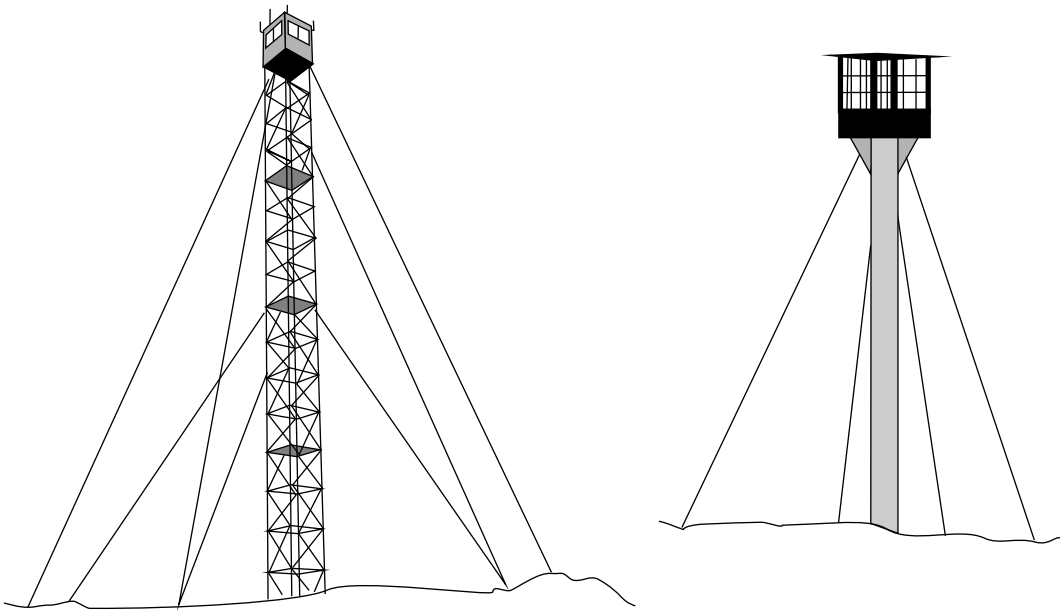
ACTIVITY 2.2

FOCUS: STRUCTURE USED AS TOWERS (LOOK-OUT)

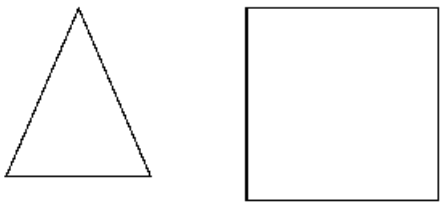
TEACHER'S ACTIVITY

- Arrange the class to allow learners to work in pairs.
- Learners are to study the drawing of the high tension electric tower.
- Assist learners in identification of shapes in the drawing.
- Introduce the concept of strengthening by referring to the picture of tower.
- Find out from learner why the structure (tower) has so many triangular shapes.
- Using wooden sticks or Meccano, demonstrate how to construct a similar shape, as shown in the pictures.

RESOURCES: 300mm long wooden sticks, nails, small hammer, meccano with nuts and bolts.



ASSESSMENT: CHECKLIST

Questions	Possible answers
Shape of figure	- triangle, cylinder - Rectangle, circle
	Drawings 
Question Why triangle	Possible answers - To strengthen the structure - To decorate the structure

ACTIVITY 2.3

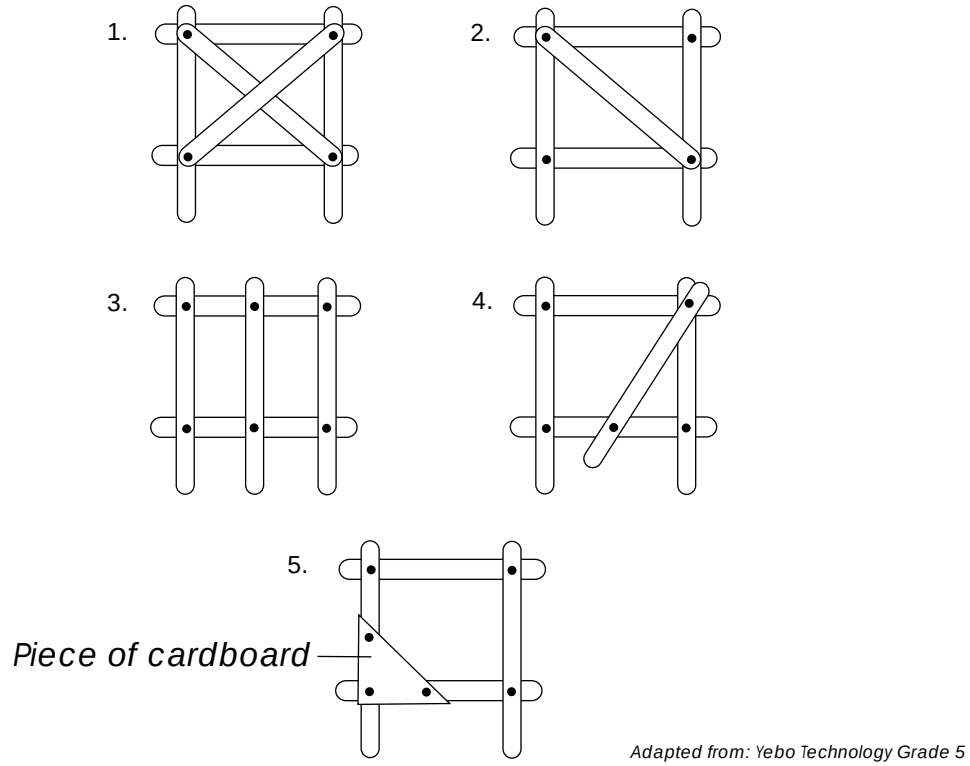
FOCUS: TESTING THE STRENGTH OF STRUCTURE AND STRENGTHENING TECHNIQUE

TEACHER'S ACTIVITY

- Emphasis on the individual activity.
- Collect resources identified.
- Make sure that everyone has enough resources to demonstrate the skills.
- Demonstrate how you strengthened the structures using the wooden plank, hammer and nails.

- Individual activity
- Make sure that all learners have enough resources to demonstrate the skills of strengthening.
- Demonstrate how to strengthen using Meccano, nuts and bolts.
- Provide all learners with the enough time and opportunities to practice.

Adapted from: Design and Technology - by James Garratt – page 48 – 49



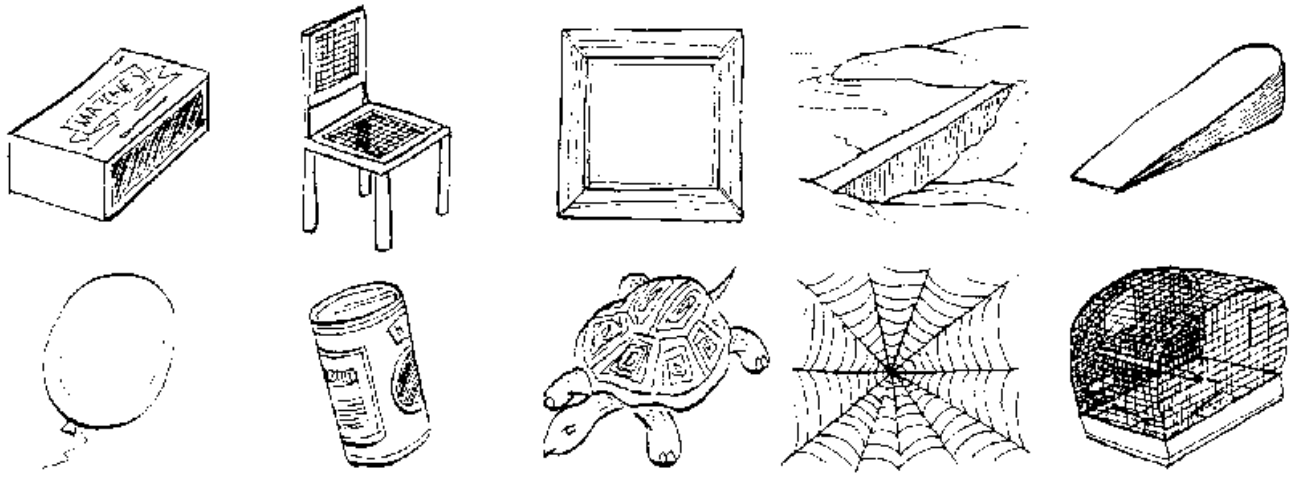
Adapted from: Yebo Technology Grade 5

ASSESSMENT MEMO: (Checklist)

CRITERIA	YES	NO	COMMENT
Able to gather the required resource material			
Can join at all end point using nail/bolt and nut			
-Test the strength of the structure by moving up the opposite side upside down			
Can use the other members provided to make strong structure (strengthening)			
Can explain the process of strengthening process			

ACTIVITY 2.4

FOCUS: TYPE OF STRUCTURE.



TEACHER'S ACTIVITY

- Learners are to study the pictures for this activity.
- Describe for learners characteristics of a frame structure and a shell structure.
- Ask learners to look at the fire fighting equipment indicated on the pictures for activity 1.2.
- Learners are to define the structure of each of the drawings referred to.
- The learners are to draw a table in their class work books to classify each of the structures in two categories: **FRAME** AND **SHELL.**
- Engage all learners in the process of sorting.

Adapted from: Technology Today – Grade 7

CHECK LIST

Questions	Possible responses
Define the function of structure by sorting them according to their uses	- Helmet – protects - Shell of tortoise – protects - Bird cage – protects - Match box - contains - Cold drink can – contains - Balloon – contains - Chair – supports - Spider web – supports
Classify into two categories: frames and shell structures	- Frames: • spider web • photo frame • bird cage - shell structures • cold drink can • tortoise • balloon • matchbox

GRADE 6

SCENARIO

Learners in most schools have experienced the loss of life of family members, friends and community members, loss of property and retrenchment due to fire. There are a number of causes for fire or ways of starting fire, whether for good or bad purpose. One of these reasons is the lack of a fire warning system that will inform people not to play with fire or when it is safe to burn.

You are requested to design a Fire Danger Index (FDI) board that will be used to display the fire index, day and the estimated temperature for the day.

ACTIVITY 1

Resources: Cardboard, plastic, paint, brushes, basin, water

1. Investigate the correct material that can be used to make the FDI board or notice board.
2. The material must be able to withstand rain or must be waterproof.
3. It must be easy to decorate.
4. The information should be exhibited in such a way that it could be changed easily to adapt to the conditions.

WORK SHEET

MATERIAL	Put it in water for about a 30 seconds and record your findings	Apply a one stroke paint on the surface, observe and record your findings
	Does it absorb water?	Is it easy to paint?
PAPER		
METAL		
WOOD		

5. Which material will suit your plan?

ACTIVITY 2

Focus: Ability to make the structure stable and strong.

Resources: 300mm long piece of wood, string or nails, small hammer

1. Identify different ways of how to strengthen the structure.
2. Practice different ways of how to strengthen the structure of the board.
3. Design a board and a stand, which will stand on any surface, and be able to stand on its own.
4. Indicate how you have strengthened the stand.
5. State reasons why you decided to use this type of material.

ACTIVITY 3

Resources: wire to make a handle, 1 metre wire, Sellotape, pair of scissors, corrugated cardboard, bottle caps or any coffee bottle caps.

1. The surface of the board must be designed to cater for not less than three indicators i.e. Date, temperature and index colour.
2. Design a mechanism that will be used to change or move date, temperature and index colour.
   - Discuss the type of gears needed to change rotary motion to linear motion.
   - Make those gears using the corrugated cardboard.
3. Evaluate whether your product addresses the need identified.

ACTIVITY 4

THE FIRE DANGER INDEX

Study the information given on colours and conditions and decide on a colourful and clear way of communicating the environmental conditions related to the fire index.

Draw the different steps you will follow to make the board.

- Plan a working schedule.
  - Who is going to do what?
  - What materials are used?
  - Which tools will be used?
  - Who will do it?
  - How long will it take to do each portion of work?
- Write a project portfolio
- Present your portfolio and product to the rest of the class.

FIRE – FRIEND OR FOE (ENEMY)?

These activities are designed to promote an awareness of the dangers of uncontrolled fire and how controlled fire can be used in creating art products.

- Make use of the Learning Outcomes and Assessment Standards indicated to prepare lesson plans for the Intermediate Phase:

POSITIVE USES OF FIRE	NEGATIVE EFFECTS OF FIRE
Cooking	Loss Of Life, Human And Animals
Sterilizing Equipment	Injuries - Scars
Providing Warmth	Loss Of Property, Houses
Estimating Growth	Loss Of Employment Leading To Poor Social Conditions
Providing Light	Air Pollution Contributing To Global Warming
Fire Breaks Controlling Wild Fire Destruction	Destroys Eco Systems e.g. Wetlands
Creating Pottery, Etc.	Destruction Of Grazing Land
	Soil Erosion
	Destruction Of Soil Structure

- Brainstorm with the learners the positive uses of fire and the negative effects of fire. Write down the notes on the board during the discussions. Lead the discussions toward the use of controlled fire in art (making of glass items, burnt wood pictures, batik, pottery, jewelry etc).

ACTIVITY 1

ACTIVITY 1.1 - USES OF FIRE IN CREATION OF ARTWORKS

Learning Outcome 2:
Learner will be able to reflect critically and creatively on artistic and cultural processes, products and styles in past present contexts.

Assessment Standards Visual Arts

- **Grade 4:** Responds to and discusses images, designs and craft objects used in popular culture, pictures and photographs in terms of content, line, shape, form, color, texture, space, and materials used, using appropriate terminology.
- **Grade 5:** Responds to images and craft objects used in popular culture, pictures and photographs in terms of purpose, content, form, contrast and meaning.
- **Grade 6:** Identifies the main purposes and design features of artworks in the home, the community and public places in terms of theme, subject and scale.

- Discuss the Code of Conduct and rules for conducting interviews in learner book.
- Insert the story "Oral History - Talking to people about the past"
  - Weakness of Oral History
  - Why collect Oral History
- The teacher reads "Oral History - Talking To People About The Past".
- Discuss the Assessment Rubric with the Learners before they start working on their interview worksheets.

ACTIVITY 1.1 - USES OF FIRE IN CREATION OF ARTWORK

RESEARCH TASK, INTERVIEW RUBRIC

CRITERIA	LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4
INTERVIEW PREPARATION	The Learner did not prepare any questions before the interview.	Before the interview, the Learner prepared a few lesson suggested questions to ask.	Before the interview, the Learner prepared all lesson suggested questions to ask.	Before the interview, the Learner prepared many in-depth and factual questions in addition to lesson suggested questions to ask.
REPORT WRITING	Learner's report is lacking facts and quotations from the interview.	Learner's report contains some quotations and facts taken from the interview.	Learner's report contains accurate quotations and facts taken from the interview.	Learner's report is well organized and contains accurate quotations and facts taken from the interview.
LEARNER PRESENTATION	Learner is unable to make satisfactory presentation.	Learner's presentation is handicapped because of minimum preparation but adequate.	Learner's presentation is communicated clearly reflecting understanding of gathered information.	Learner's presentation is comprehensive and exceptional sharing insight gained from collected interviews.

ACTIVITY 1.2 - ANSWERS TO WORK SHEET QUESTIONS - SECTIONS A, B, & C

SECTION A

Ask learners to write their answers next to the correct no. in their classwork books

1. c)
2. b)
3. d)
4. b)
5. a)
6. c)
7. b)

SECTION B

Ask learners to number from 1 - 8 in their workbooks and then write true or false next to the correct number.

1. False
2. True
3. False
4. True
5. False
6. True
7. True
8. False

SECTION C

Give a copy of the puzzle to the learners. When finished stick it to the workbook.

Across:
1. Cracking
2. Soft
3. Bank
4. Slow

Down:
1. Chimney
2. Sawdust
3. Kiln
4. Fuel

SECTION D

Ask learners to draw 6 blocks in their class workbooks and draw inside the blocks.

ACTIVITY 2

ACTIVITY 2.1 - PARTICIPATING AND COLLABORATING

Learning Outcome 3:
The learner will be able to demonstrate personal and interpersonal skills through individual and group participation in Arts and Culture activities.

Assessment Standards Visual Arts

- **Grade 4:** Collaborates with others to plan the making and use of masks, crafts, artifacts, costumes, collages, or puppets using natural, waste or found materials with due regard to environmental concerns.
- **Grade 5:** Selects a project, plans it in a group and takes the necessary action.
- **Composite:** Shows spontaneity and a creative attitude in art activities.
- **Grade 6:** Shares resources, choice of materials and negotiates choice of subject matter in a group project with other learners, with a focus on:
- Joint decision making
- Presentation
- Safety
- The environment
- Cultural diversity
  Composite: Shows respect for and acknowledgment of the work of others.

- Discuss with Learners the information on preventing veld fires, surviving a veld fire, safety rules about fire, Stop, Drop and Roll, and all information about wild fires from other learning areas.
- Learners will use this information and to create a group art product.
- Remind them their creation much be colorful and clear, must deliver clear messages about fire and must reflect their feelings and emotions about fire.
- Divide your Learners in to groups.

ACTIVITY 2.1 - ART PRODUCTS USING DIFFERENT ART FORMS/MEDIA/METHODS

CRITERIA	LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4
COLLABORATING AND PLANNING GROUP PROJECT	Educator intervention required to keep Group on task. Poor use of waste materials and environmental concerns.	Some Educator assistance. Most environmental issues addressed correctly. Some negotiation demonstrate.	Group interaction and collaboration satisfactory. Balanced sharing of ideas, resources and waste materials.	Group demonstrated thoughtful, cooperative, thorough and insightful planning. Creative use of waste materials.
PRESENTATION ORGANIZATION AND SUBJECT KNOWLEDGE	Audience cannot understand presentation because there is no sequence of information. Student does not have grasp of information; student cannot answer questions about subject.	Audience has difficulty following presentation because student jumps around. Student is uncomfortable with information and is able to answer only rudimentary questions.	Student presents information in logical sequence which audience can follow. Student is at ease with expected answers to all questions, but fails to elaborate.	Student presents information in logical, interesting sequence which audience can follow. Student demonstrates full knowledge (more than required) by answering all class questions with explanations and

ACTIVITY 2.2 - OBSERVATION, INTERPRETATION AND PERFORMANCE

- Exhibit the work done by all groups in activity 2.1.
- Interpret the art product of other groups of learners.
- Let the class discuss the properties and interpretation of the work of art.
- The following questions can serve as exemplars (Taken from assessment guideline for senior phase.).
- What is the title of the work?
- What do you understand by the title of this work?
- How do you feel about the expression of this art work with reference to cultural or environmental context?
- Name the medium used to create the artwork with reference to specific art form.
- List all the elements of design reflected in this work of art.
- Discuss the application of any two of the above identified elements.
- Have the Learners discuss the group created products.
- Ask Learners to compare each group's presentation against the criteria established in the Activity.
- Remind them the creations were to be colorful and clear, and must deliver a clear message about fire and must reflect their feelings and emotions about fire.
- This will be an open class discussion.

CRITERIA	LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4
INTERPRETATION	Learner is able to partially express own understanding of art works.	Learner is able to express own understanding of art works.	Learner is able to logically express own understanding of art works.	Learner is able to logically and effectively express own understanding
IDENTIFICATION	Learner is able to identify one art element applied in art work.	Learner is able to identify two art elements applied in art work.	Learner is able to identify three art elements applied in art work.	Learner is able to identify all the elements applied in art work.
CRITICAL THINKING	Learner is able to partially reflect on and engaged with a work of art.	Learner is able to reflect on and engaged with a work of art.	Learner is able to reflect critically and engaged satisfactory with a work of art.	Learner is able to reflect critically and engaged effectively with a work of art.

ACTIVITY 3

DRAMA

Learning Outcome 1:
The learner will be able to create, interpret and present work in each of the art forms.

Assessment Standards Drama

- Grade 4: Make use of hand or costume props, puppets, masks or other external resources to tell stories and portray characters.
- Grade 5: Uses sensory detail and emotional expression in dramatic activities such as simple mime showing weight, size and shape.
- Grade 6: Uses African stories to develop dramas that have a clear plot, highlight key moments, contain credible characters, use space effectively.

Teachers:

- Select Assessment Standards for music or visual arts to address in making masks or puppets, and using music and dance to add to drama.
- See pages 35-38 of Assessment Guidelines for Senior Phase for more information on mask making.
- Let your Learners read the story, "How People Learned To Cook" from Playing With Fire . . . , Energy and the Namibian Environment, by Derick du Toit and Teresa Sguazzin, 1995, Desert Research Foundation of Namibia, Ministry of Education and Culture, page 27.

Learners will then identify the following criteria:
- Determine the different characters that occur in this story.
- Determine the plot.
- Determine the key moments in the story.
- Discuss how to perform this story as a drama, using masks to portray characters.
- You may also make puppets and change the story into a puppet show.
  Music could be added.

ASSESSMENT CRITERIA GROUP: _____	**4 EXCELLENT**	**3 GOOD**	**2 ACHIEVED**	**1 NOT ACHIEVED**
Focus				
Tension				
Contrast				
Symbolism				
Movement – Communicate meaning and feeling through dance, body language, facial expression, etc.				
Use of Voice – Communicate meaning and feeling with voice articulation, expression, projection, etc.				
Characterization – Using observation, imitation and imagination.				
Sound effects – Music, birds singing, rain falling, etc.				
Props and Costumes				
Group co-ordination positions				
Portfolio presentation: sketches of for example the floor plan, décor, props, costumes, make-up. Notes on sound effects, and incorporation of movement.				

ACTIVITY 4

EXPRESSING AND COMMUNICATING

Learning Outcome 4:

The learner will be able to analyze and use multiple forms of communication and expression in Arts and Culture.

Assessment Standards - Grade 4:

- **Dance:** Explores the many ways that parts of the body can move individually and in combination.
- **Music:** Uses voice, body, percussion, natural, found or made instruments to accompany stories, dances and songs.
- Uses sounds in a free rhythm to build up sound pictures to accompany stories or dances.
- Experiments with combining voice and body in sound and movement.

Assessment Standards - Grade 5:

- **Drama:** Dramatizes social, cultural or environmental issues through the use of different drama techniques such as tableaux, verbal dynamic sequence or role plays.
- **Music:** Uses own compositions of poetry and song to draw attention to current social and environmental issues.

Teachers:

- This activity could be done in groups of five to eight Learners.
- Let the Learners read the resource materials about what to do to protect themselves, family and friends in situations when fire is a threat to their safety and lives.
- Learners are to break into groups of five to eight and decide what topic they want to address.
- Have them create a song with words and phrases that communicates the safety messages learned from the resource materials.
- Tell them they are to perform their creation when completed.
- Discuss the Activity Rubric with Learners before they begin reading.

CRITERIA	LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4
GROUP PARTICIPATION	Group members did the assignment but did not appear very interested. Focus was lost on several occasions.	Group used time pretty well. Stayed focused on the assignment most of the time.	Group used time well and focused attention on the assignment.	The group creation is well organized and contains accurate information and facts taken from the resource materials.
PRESENTATION	Group presentation needs more practice, planning and lacks relevant information.	Group presentation covered most relevant information and is well organized .	Group presentation covered all relevant information and used music well to communicate safety issues.	Group presentation was creative, colorful and musical including all relevant facts of safety, held audience .

ACTIVITY 5

CREATING, INTERPRETING AND PRESENTING - EXPRESSING AND COMMUNICATING

Learning Outcome 1:

The learner will be able to create, interpret and present work in each of the art forms.

Assessment Standards:

- **Grade 4:** Explore the basic formal elements and techniques of two-dimensional art (drawing and painting).

- **Grade 5:** Designs and creates artworks which explore the use of natural and geometric shapes and forms in two and three dimensions, in observational work, pattern making and design, and in simple craft objects. Displays work in the classroom.

- **Grade 6:** Transforms visual information into structured compositions based on individually selected, real or imagined situations in South Africa, using available materials and appropriate techniques in both two-dimensional and three-dimensional work.

Learning Outcome 4:

The learner will be able to analyze and use multiple forms of communicating and expression in Arts and Culture.

Assessment Standards - Visual Arts

- **Grade 4:** Draws on technology and nature in the environment to stimulate and communicate visual ideas.

- **Grade 5:** Shows and explains the use of color, pattern, design, signs and symbols in own house, in various cultures, and in the built environment.

Instructions To Teachers:

- The symbol of fire or sun features on flags of some countries. Let the learners identify flags, symbols, coats of arms and icons where fire or sun are used.
- Discuss the meaning of these symbols,
  e.g. the coat of arms of Mpumalanga.
- Let each learner design their own Icon of fire or flames.
- Teach the learners how to use line and shape when they design their Icon.
- They are to use their Icon to make a badge or bumper sticker to communicate any message concerning the correct use of fire, prevention of fire, etc.
- Follow the same instruction as above to design a bumper sticker using their icon
- Remind Learners to include written words to communicate a fire-preventing message.
- Have them glue their bumper sticker to adhesive paper.

CRITERIA	LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4
DESIGNED AN ICON	Designed an Icon.	Designed an Icon attempting to use fire as a symbol.	Designed an Icon which represents fire as a symbol.	Designed an excellent Icon which represents fire as a symbol in a very creative way..
CREATED A BADGE OR BUMPER STICKER USING DESIGNED ICON	Attempted to create a badge or bumper sticker. No evidence of original thought.	Tried to use the design elements: line, shape to compose badge or bumper sticker. .	Used the design elements of Icon as well as line and shape to create a successful badge or bumper sticker.	Used more than the design elements and the designed Icon in a creative way to compose a very successful and attractive badge or bumper sticker. .

BIBLIOGRAPHY

1.Solomon, Lindy, Khula Udweba. Nolwazi, SA 1989
2.Utley, Chris & Magson, Mal Exploring Clay with Children, A&C Black, London 1997
3.Peirson, Lorna, Art in the Classroom, Educum, SA 1996
4.Phillips, Sarah, Drama with Children, Oxford, SA 1999
5.Du Toit, Derick, Playing with Fire, Enviroteach, Swakopmund, Namibia

LANGUAGE

ACTIVITY 1

WHAT LEARNERS KNOW ABOUT FIRE

LO 1 Listening

AS - Enjoys listening and responds critically to various kinds of oral texts.
- Listens for information in a variety of oral texts … summarizes main ideas, and notes specific details.

CONTEXTUALIZATION OF THEME: FIRE (A POEM)

- Educator writes the word “fire” on the chalk or white board.
- Educator asks learners to say what they know about fire–what it is and how it is caused, etc.
- Read the poem on: Fire – friend or foe.
- Write down words like – fiery, intense, roaring, expensive.
- Let learners list the words they don't know. Supply dictionaries or compile a glossary to be used to find the meanings.
- Asks learners to connect them with other related words in the latter part of the text.
- Do more vocabulary work if needed.
- Let learners work out meaning of the text.
  e.g. What is it saying about fire?
  Have they experienced any of the beneficial or destructive effects of fire personally?

POEM:

FIRE, FRIEND OR ENEMY

Like the sun I have always been there.
I warmed your ancestor's cave,
I cooked his food,
I served him the way I serve you today.

BUT

I am not always friendly.
If you leave me unattended, I create disasters –
I burn down your houses,
Your livestock, veld and forests.
I reduce your possessions to worthless ash.
Disrespect me and mankind suffers.
I can burn a hole in the ozone layer, Deplete your oxygen supply and
bring your planet to extinction.
I am fire, I can be your best friend
Or your worst enemy!
The choice is yours.

ACTIVITY 2

FIRE, FRIEND OR FOE?

- Link with next lesson:
    - o Listening comprehension based on texts from various sources on fire.
- Read to learners.
- Educator reads text to learners. Text on next 2 pages.
- At the end of the reading, let learners answer questions in workbook.
- If learners are not able to answer at the end of the whole text, break it up in smaller portions that they can manage.
- Collect workbooks at end of lesson for assessment

FIRE – FRIEND OR ENEMY?

If fire is not used responsibly, it can cause devastation. But if it is used responsibly, fire can be good to man and the environment.

In South Africa – as in many other parts of the world – uncontrolled fires (sometimes referred to as wild fires or runaway fires) cause a great deal of damage (devastation). It is our responsibility to do everything in our power to prevent uncontrolled fires and to report any sign of fire as soon as possible.

Fire is a natural phenomenon, because many plants need fire to survive.

A. HAVE LEARNERS ANSWER THE FOLLOWING QUESTIONS IN THEIR CLASSWORK BOOKS.

1. How can fire be a good friend?
   Fire can be used for cooking or warming fires.
2. What is another name for an uncontrolled fire?
   Wild fire
3. Look up one of the following words and explain what it means:

   Natural: *Caused by nature*

   Phenomenon: _____

B. WHAT CAUSES FIRE?

Fire spreads during hot, windy and dry weather conditions. It can either start naturally, such as when lightning strikes the veld, or unnaturally, such as when man makes a fire.

1.
2.
3.
4. Most fires are caused by careless behaviour, such as when:

		True	False
	People must **not** put out their cigarettes before throwing them away.		x
5.	People should not leave cooking fires unattended.		x
	People should not leave warming fires unattended.		x
6.	It is good to put a burning paraffin stove on a table where a child can reach it and pull it off.		x
7.	It is good to clear the veld around your home because if there is a veld fire, your home will be safe.	x	
8.	Farmers can burn the veld to improve grazing for their livestock during **any** weather conditions.		x
	People leave litter in the veld, and this may cause veld fires. If glass bottles are thrown onto the dry grass, the rays of the hot sun on the glass may start a fire	x	
	Electrical faults in homes may cause fire	x	

C. HELP LEARNERS FILL OUT THE "HELP PREVENT FIRES" FORM"

1. Remember: All fires start small, and it is easier to put out a small fire, than a big one. Have you ever put out a fire?

Yes _____ or No _____

2. If you see a small fire, immediately put it out, or call someone to do so.

Who will you call? _____

3. There are different types of fire, and they are put out in different ways. Ask your teacher to explain the difference between an electrical fire and a veld fire.

4. Why should you pick up glass in the veld?

_____

5. Do not leave any fire or candle burning when you go to sleep. What should you do with it?

_____

6. Should you make fires where there are signs telling you not to make fires?

Yes _____ or No _____

7. Why should children not play with fireworks?

_____

_____

CONTROLLED FIRES

Sometimes we must burn the veld. This is done under strict supervision, such as when a forester burns a fire break. There are more fires, when the veld is very dry. During the winter season, there is a lot of *dry grass and trees (fuel)* and many veld fires are started.

We burn fire breaks to take away some of the *fuel*. These fire breaks prevent larger, uncontrolled veld fires from spreading. When we burn the veld, we make sure that there are enough people to control the fire, so that it does not spread to other places.

IS YOUR COMMUNITY LINKED TO THE FIRE PROTECTION AGENCY?

Many fires are started through carelessness, and cost South Africa a great deal of money. To prevent this, government has passed a new law. This is called the Veld and Forest Fire Act. This law states that all communities must belong to a Fire Protection Agency.

If you ask them to, the community fire protection agency will visit your school and teach you the following:

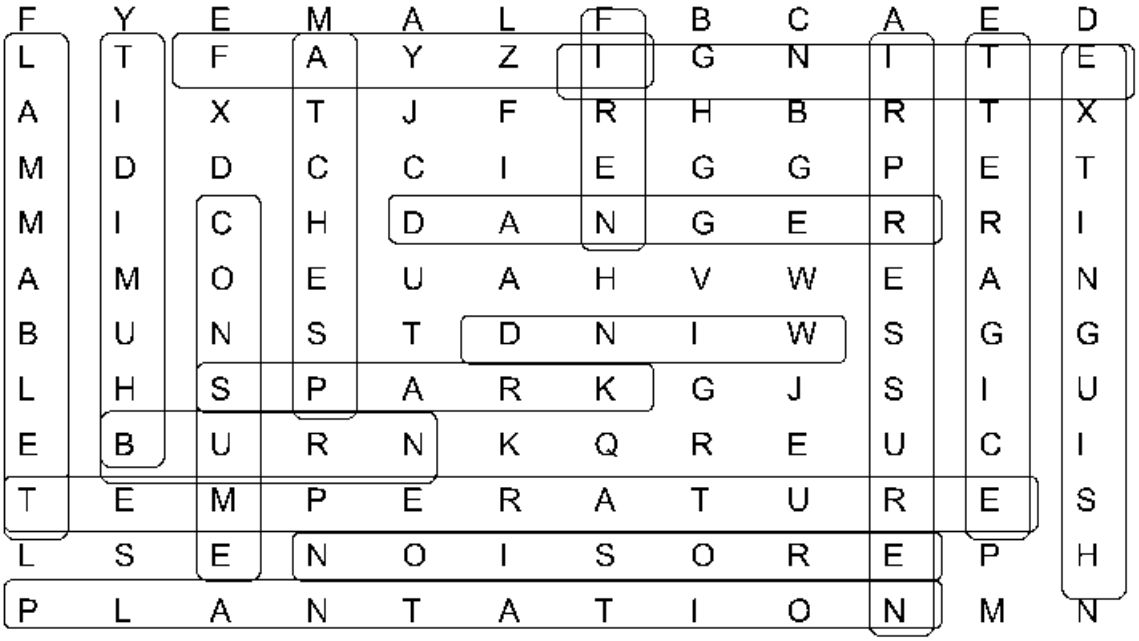
- How to report a fire.
- What to do if your clothes catch alight.
- How to crawl under clouds of smoke to safety.
- How to cool a burn wound.
- Safety regarding matches and cigarette lighters.
- How smoke alarms can save your life.
- What to do if fire breaks out in your home.
- How burglar-proofing can trap you during a fire.

ACTIVITY 3

EXPANDED OPPORTUNITY - MORE WORDS DEALING WITH FIRE

Supply the learners with copies of the word find puzzle as well as the exercise on linking. (Activity 3.1 & 3.2)

3.1 Word find solution



FIND THESE WORDS IN THE PUZZLE ABOVE

DANGER	MATCHES
CIGARETTE	FLAMMABLE
PLANTATION	BURN
AIR PRESSURE	WIND
EROSION	FIRE
FLAME	HUMIDITY
SPARK	EXTINGUISH
CONSUME	TEMPERATURE
IGNITE	

ACTIVITY 3.2 – SOLUTIONS TO PUZZLE AND WORD DEFINITIONS

Match the words with the correct definitions

CONNECT WORDS WITH THE CORRECT DEFINITION

1	DANGER	[4]*An estate where tobacco, oranges or cotton is grown*
2	MATCHES	[8]*Combustion: Heat, Air and Fuel create light and heat*
3	CIGARETTE	[3]*Finely cut tobacco rolled into a thin cylinder*
4	PLANTATION	[6]*Able to be burned*
5	BURN	[16]*The amount of moisture (water) in the air*
6	FLAMMABLE	[11]*Cause a fire to go out*
7	EROSION	[14]*The amount of heat in a body in relation to others.*
8	FIRE	[1]*A time or place that can cause harm.*
9	AIR PRESSURE	[9]*Air pushed inside or against an object with force.*
10	SPARK	[17]*Air moving rapidly*
11	EXTINGUISH	[7]*The wearing away of earth's surface by water or wind*
12	FLAME	[2]*Short thin piece of wood tipped with sulpher that will ignite when scratched*
13	IGNITE	[15]*To completely reduce to nothing, or destroy*
14	TEMPERATURE	[5]*Destroyed by fire.*
15	CONSUME	[12]*Ignited gas that makes light and heat.*
16	HUMIDITY	[10]*A fiery particle thrown off from a fire.*
17	WIND	[13]*Set fire to or cause to burn.*

ACTIVITY 4

FOR THIS ACTIVITY LEARNERS NEED THE RESOURCES THAT APPEAR AFTER THE ACTIVITIES.

LO 3 READING AND VIEWING
AS Reads and responds critically to a variety of South African texts

- Using appropriate reading and comprehension strategies

INTEGRATION: NS, LO 2
EMS LO 2

RESOURCES: VELD AND FOREST FIRES…
FIRE – FRIEND OR FOE? (Enemy) from: "You", 17 February 2005.

- Learners study the information in their learner books.
- Teacher can also bring additional clippings from newspapers or magazines.
- Learners could also be asked to gather information from newspapers.

ACTIVITY 4.1

IN THEIR GROUPS:-

Learners read and view a variety of texts and view clippings from newspapers and magazines on fire, its causes, prevention, management in the veld, forests, plantations, formal and informal settlements.

Different groups are allocated specific information to access from the text

e.g.	GROUP 1	GROUP 2	GROUP 3
	Fire & its causes	Fire prevention	Management of fire in different areas

- Let the groups read the text and then discuss the information
- Each group then lists the information derived and presents this during the report-back session.

ASSESSMENT RUBRIC FOR ACTIVITY 4.1

	Level 4 **7 – 8**	**Level 3** **4 - 6**	**Level 2** **3**	**Level 1** **2 - 1**
Selection of information	Able to select the most appropriate information. Excellent examples used	Able to select sufficient appropriate information. Good examples used	Selected some appropriate information. Examples used	Examples either not present or irrelevant

SAMPLE GROUP-ASSESSMENT SHEET FOR THE TEACHER

Grade:

Date:

Activity:

Learner's name:

Use the following scale to assess learner's work in groups.

	4 very well	3 well	2 not so well	1 needs practice
Listens to others				
Encourages others				
Keeps to the task				
Makes good suggestions				
Asks questions				
Follows instructions				
Uses time and resources constructively				
Accepts constructive criticism				

WHAT IS FIRE?
Text available in learner's books

1. “Fire” is a process by which something is burned.

Fire destroys the components of any substance or changes its characteristics.

a) Fire involves extreme heat and usually flames and smoke are present during burning.

b) Fire can start naturally through intense heat causing combustion to occur.

c) This can also occur when lightning strikes a tree.

d) Fire can start when people are careless and drop hot ashes, or burning matches or cigarettes in the veld.

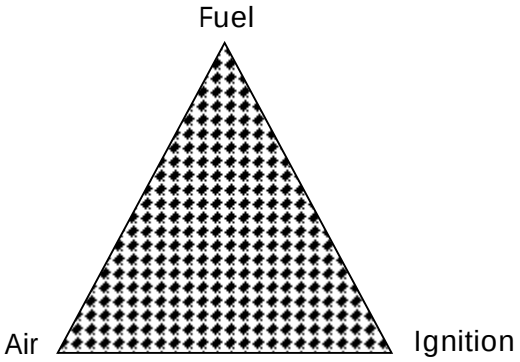
e) A small fire can quickly spread and become a big fire if it has not been carefully and completely extinguished.

f) Fire spreads very rapidly. Especially when the material that is burning is very dry, or is particularly flammable, i.e. certain weeds, wood and grass.

g) Fire can become worse if there is wind, because the wind will blow the fire and the fire will spread from one place to another. It then becomes very difficult, or impossible to control.

h) Fire can also be worsened if the air is very dry or warm winds are blowing.

What is needed for fire to burn?



2. Fire can be our BEST friend, or our worst enemy

Some of the advantages of fire are:

a) Fire provides heat for warming and cooking.

b) Many plants in nature rely on fire, to stimulate growth such as grazing for cattle.

c) Fire can provide light to people who do not have electricity (candles).

d) Fire can be used to prepare the land for seeding and planting.

e) We use fire to burn fire breaks. This helps to prevent uncontrolled fire from destroying our property.

3. Why uncontrolled fire is bad (the negative impacts):

a) Social impact

Fire can cause:

- Loss of life
- Injury e.g. severe burns
- Loss of property e.g. house burns down
- Loss of employment: Many people depend on forestry for their jobs. If a fire destroys the plantation, there is no work for the people and the people have no money to buy food, medicine or clothing.

b) *Economical Impact*

- Many people in Mpumalanga rely on their income from natural raw products such as forestry and fauna and flora. If these raw products are destroyed, there are no raw products to supply the markets. Examples of the raw products are crops and plantations
- Fire can destroy buildings and equipment. This is very expensive to replace and if it is destroyed by a fire, the person may be forced to close his business
- This may lead to unemployment, and all the problems related to that.

Raw product + Harvest raw product + Process raw product + Sell end product

↓ ↓

Job opportunities (Income) | Job opportunities (Income) Supply needs (Furniture) (Income)

c) *Environmental impact*

- Can cause air pollution and can contribute to global warming.
- Can destroy sensitive ecosystems such as wetlands and disturb bio-diversity.
- Can destroy grazing.
- A very hot fire can destroy the soil structure and nutrients.
- This destruction can cause soil erosion because the plants that are holding the soil, will be destroyed.

The time it takes for natural plant life to recover from an uncontrolled (unwanted or wild) fire differs. The effect of uncontrolled fire on our environment is often devastating.

Imagine if your house burns down!

- You will lose all your clothes.
- All your furniture will be destroyed.
- You would have to start right from the beginning to build a new house. This could take many months to do and it would cost them a lot of money to complete the house. Some families cannot rebuild their homes, because they have no money.

The same thing happens to the plants and the trees. If Sappi's plantation burns down and the trees are destroyed, it can take up to 30 years before the trees have grown and are ready to be harvested.

Unwanted fires that are started by careless human behaviour:

Carelessness such as:

- Unattended cooking or warming fires;
- Careless smoking.

FIRE – FRIEND OR FOE?

Fires can cause death and injury – but they're a natural phenomenon and can be good for the environment.

In South Africa – as in many other parts of the world – runaway fires cause widespread devastation. In 2000 veld fires raged out of control in the Cape Peninsula and Eastern Free State. In 2001 more than 20 houses were destroyed by fire in Gordon's Bay. Last year three people were killed and several injured by a fire in Orange Farm, Gauteng, which razed 1 500 shacks. Just before Christmas in 2004, 163 people were left homeless when fire swept through the Drommedaris informal settlement in Stellenbosch. The new year had barely begun and Cape Town firefighters already had their hands full battling blazes in Muizenberg, District Six and on Signal Hill. Properties were burnt down and hundreds of people forced to flee. On 19 January this year fire swept through Joe Slovo informal settlement in the Western Cape, killing a baby and leaving 12 000 people homeless. Fires not only cause death and injury, they can also cause traffic chaos as vehicles are forced to stop to avoid flames leaping across roads.

It is our responsibility to do everything in our power to prevent devastating runaway fires and to report any sign of fire as soon as possible. But it's also important to note that fires aren't only destructive – they're natural phenomenon and can be good for the environment. It may sound strange but experts reckon smaller veld fires that break out from time to time can help many plant species to survive.

WHAT CAUSES FIRES?

Hot, windy and dry weather conditions are perfect for the spread of fires – but how do they start?

Fires can be *manmade* or caused by *natural* phenomena such as lightning, heat refection and sparks generated by rock falls. But most fires are caused by careless people who throw cigarette butts in dry grass, fail to put out their braai fires properly fail to check on fires they've made in large drums and so on.

Electrical faults in houses can also cause fires as can glass bottles left in the veld. When the sun strikes the glass at the right angle its rays are concentrated into a small point which can ignite a fire in a dry, grassy area.

FIREFIGHTING: THE FIRE BRIGADE OF THE PAST

The history of firefighting goes as far back as *Ancient Egypt*. The ancient Egyptians used hand-operated pumps, a system which unfortunately wasn't very successful.

Firefighting became a serious career for the first time when devastating fires swept through *Ancient Rome*. In 6 AD the Roman emperor announced in desperation that four percent of all state taxes would be used to set up a fire brigade. It was known as *Vigiles* and consisted of seven units, each consisting of 560 men.

At night the streets were patrolled by Vigiles members on the lookout for unattended fires. Remember in those days there was no electricity so the city relied on fire for light and warmth. The chances of fire breaking out were therefore great. Vigiles used buckets of water and simple pipes to extinguish fires, and there were also a few doctors on duty to see to the injured.

Over the years Rome was struck by a series of fires, the biggest in 64 AD, a blaze which destroyed two thirds of the city.

HELP PREVENT FIRES

- Never extinguish a braai fire, campfire or any other sort of fire with sand. Rather put them out with water to make sure the coals are dead.
- Pick up any glass you see lying in the veld. The sun's rays shining through the glass can cause a fire.
- Never go to sleep while there's a fire burning nearby. Fires should be watched at all times.
- Don't make fires where there are signs prohibiting them.
- Always take special care with fires when the wind is blowing.
- Always have adult supervision when playing with fireworks or conducting experiments which could start a fire.

CONTROLLED FIRES

Controlled fires take place under supervision and help areas that need veld fires to regenerate. The fires burn away small branches, leaves and other material which has collected on the ground and therefore help prevent larger, uncontrolled veld fires. Controlled fires have to be precisely planned and managed so they don't become runaway blazes.

VELD AND FOREST FIRES are a natural part of our ecosystem – some plants depend on them.

Do you and your school know about the Fire and Life Safety Programme?

Many fire stations in South Africa are involved with the communities they serve and teach people about fire safety. They'll be able to teach you and your classmates exactly how to avoid fires and what to do when fire breaks out.

On request firefighters will visit your school (in their firefighting outfits!) to present this programme. It's aimed at learners from grade 0 to 7 and is anything but boring.

Among other things you'll learn
- Your local emergency number and how to report a fire.
- What to do if your clothes catch alight.
- How to crawl under clouds of smoke to safety.
- How to cool a burn wound.
- Safety regarding matches and cigarette lighters.
- How smoke alarms can save your life.
- What to do if fire breaks out in your home.
- How burglar-proofing can trap you during a fire.

Organize a visit by Working on Fire to your school. Teachers can use these contact details to organize it.

FIRE CAN BE BENEFICIAL

In most cases fire causes a lot of damage, destroying houses and farms and threatening people's lives. Many small animals also die in veld fires. But in spite of their destructive potential smaller veld fires can occasionally have a positive effect on the environment. Veld and forest fires are a natural part of our ecosystem. Some plant and tree species are dependent on veld fires. Many fynbos species in the Western Cape have adapted so well to fires they depend on period (and preferably controlled) fires for there survival and renewal. Some species grow back stronger and therefore get a new lease on life after a controlled veld fire.

ACTIVITY 4.2

- Ask the learners to summarize their findings in Activity 4.1.
- The findings are further summarized by the whole class as a guided summary.
- **Every group makes its own contribution to the compiled summary.**
- Each learner summarizes a text with support.

ACTIVITY 4.2 - RUBRIC

Level 4 **7 – 8**	**Level 3** **4 – 6**	**Level 2** **3**	**Level 1** **2 – 1**
The learner was able to summarize all the points clearly	The learner was able to summarize most of the points	The learner was able to summarize one or two points	The learner could not summarize any of the points
The learner was able to identify the most appropriate key words in the summary	The learner was able to identify some of the key words in the summary	The learner was able to identify one or two key words in the summary	The learner was unable to identify key words in the summary

ACTIVITY 4.3

LO 2: SPEAKING

AS: Communicates experiences, more complex ideas and in more challenging context.

LEARNERS WORK IN PAIRS OR AS INDIVIDUALS.

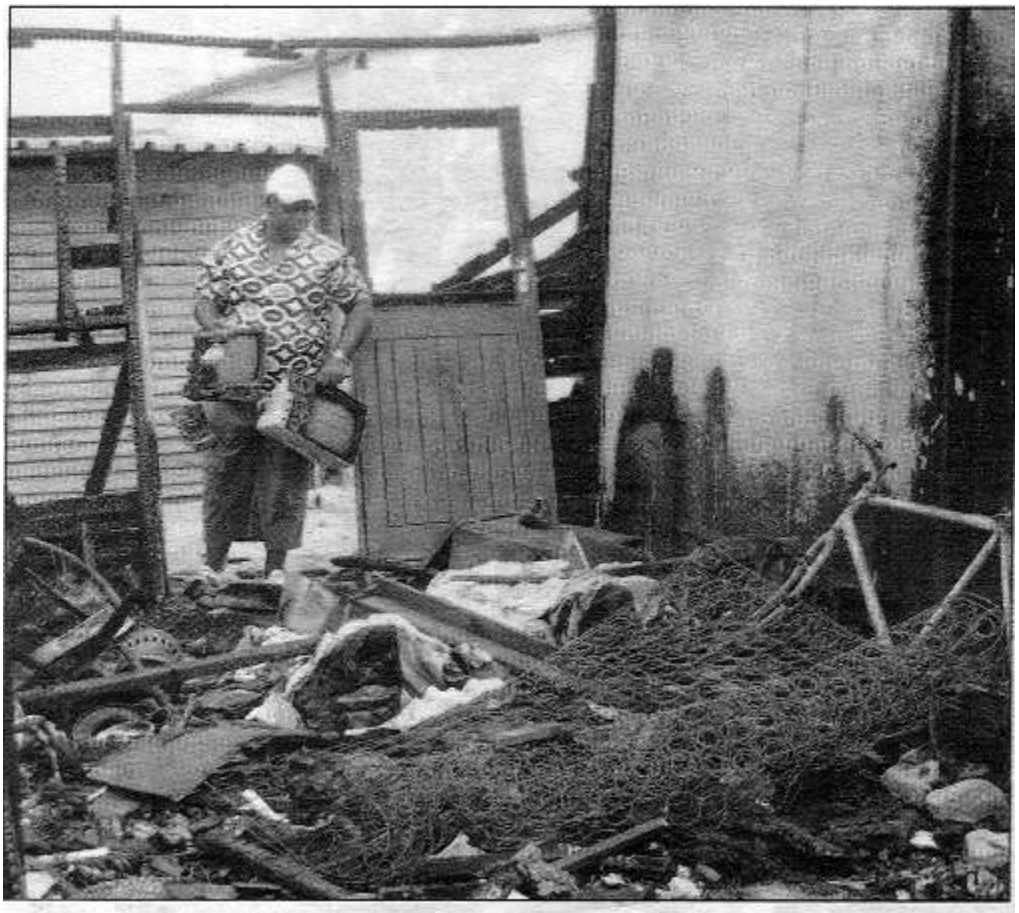
- They write down their ideas.
- They use free verse, i.e. the verses need not rhyme and the length of the lines may vary for emphasis.
- Learners have to use descriptive language to paint a vivid mind picture of the situation.
- Emphasis on the use of descriptive words.
- Learners encouraged to use adjectives that have not become overused and worn out and phrase their ideas in fresh original language.
- Learners use the information supplied to write a poem.
- Use the poem “I am fire” as an example of how to go about this task.
  It should cover some of the following aspects:
  * Fire – its causes
  * Benefits of fire
  * The dangers of fire (mention the social, economic and environmental aspects)
  * The people who deal with fire.

RUBRIC FOR ASSESSING POEM

	4	**3**	**3**	**1**
Content	Used all the information about fire.	Used most of the information.	Used some of the information.	Very little of the information used.
Idea of friend or foe conveyed	Excellently conveyed.	Very well conveyed.	Fairly well conveyed.	Not conveyed.
Originality of language	Excellent use of descriptive language.	Satisfactory use of language.	Fair use of language.	Unexpressive use of language.

ACTIVITY 5

SHACK FIRE HORROR



Utter devastation . . . Ponko Ka Masiba inspects the damage caused by the fire which almost wiped out a whole family in Samora Machel informal settlement. *Pic: Johnson Mesi*

ACTIVITY 5.1

- Learners are to write an individual / paired letter to a friend in another town, based on the picture “Shack fire horror”.
- They are to imagine that they were one of the occupants of this shack in an informal settlement.
- Have them narrate or describe what happened during the fire that left their shack in this state.
- They are to say how the fire started and when.
- Have them say:
    - What was the weather like?
    - Who else was there?
    - What they as well as other people did to contain or stop the fire?
    - What did they smell before, during and after the fire?
- Their letter should not be longer than 1½ pages.

ASSESSMENT RUBRIC TO ASSESS THE LETTER

	Level 4 4 - 5	Level 3 3	Level 2 2	Level 1 1
Format	The learner has used the correct format. The address, salutation and ending are correctly placed and punctuated.	The learner has mostly kept to the correct format. The address, salutation and ending are mostly correctly placed and punctuated.	The learner has tried to keep to the correct format but has put some items in the wrong places. S/he has also made some punctuation errors.	The learner has not kept to the correct format.
Tone and register	The learner has used the appropriate tone and register throughout the letter	The learner has used the tone and register well.	The learner has tried to use a little bit of tone and register.	The learner did not use tone and register at all.
Paragraphs and sentences	The learner has used at least three paragraphs. S/he has linked these to one another. S/he has used a range of different sentences.	The learner has used at least three paragraphs. S/he has linked these to one another.	The learner has used at least three paragraphs.	The learner has not used paragraphs properly.
Topic	The learner has kept to the topic. S/he writes as the uncle would, giving advice and support.	The learner has kept to the topic.	The learner has mostly kept to the topic.	The learner has not kept to the topic.

ACTIVITY 5.2

LO	AS	CONTENT	ACTIVITY	RESOURCE
6	Uses prefixes, stems, suffixes	Story	Check and record nouns and verbs from the story	Picture: Shack fire horror

TEXT FOR ACTIVITY 5.2

SHACK FIRE HORROR – SunNews – Sunday 20 February 2005
Written by:PONKO KA MASIBA

Nomboniso Mkabus (35) of Samora Machel informal settlement in Cape Town is unable to talk and lies motionless in the GF Jooste Hospital intensive care unit after suffering third-degree burns in a shack fire earlier this week.

However, the biggest tragedy of all is that her husband, Sabelo, and their two children, Mzukisi (9) and Onele (3) died in the inferno in the early hours of Monday morning – and she knows nothing about it. According to her sister, Boniswa, the cause of the fire is unknown.

"My sister is not aware that her family has been wiped out by the fire," she says. "We can't tell her at this stage because she is still critical. Besides, she seems to be confused and can't talk." When Sunday Sun visited the destroyed shack, green flies were swarming around the burnt-out ruins, feasting themselves on what appeared to be human fat and blood. No funeral arrangements have yet been made.

A hospital official described Mkabuza's condition as serious but stable. "She is improving day by day, but still can't talk. "Because of her bad condition, we have agreed with the family that no visitors be allowed until further notice."

1. Learners will identify verbs and nouns and write them in their activity books

For example: Verbs → Talk Nouns → Fire

2. Learners will use the following words to write 3 sentences:

shack
wind
burn
charcoal brazier
“Imbawula”

3. Learners will use the prefixes “un”/”in”/”dis” to form opposites of the following words taken from the passage:

know
human
official
notice
aware
made
stable
agreed
allowed

ACTIVITY 6

LO 4. Writing

Develops and organizes ideas.
Revises work, focusing on improving the language, organization and style using feedback from classmates and teacher.

6.1. Arrange jumbled pictures and match them with the relevant description.

6.2. Write down the precautionary measures that they must consider when working with fire in various situations.

HOW TO WORK SAFELY WITH FIRE

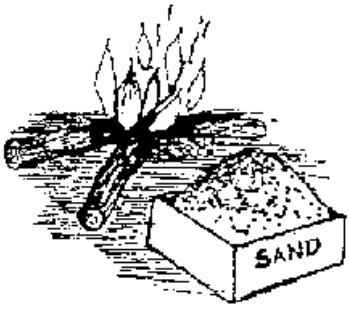
Read the information provided and match it to the relevant picture. Indicate by writing the number of the sentence next to the picture.

1. Do not leave matches, petrol, paraffin or any other flammable substances where children can play with them.
2. Do not start a fire near highly flammable substances such as wood, paraffin, petrol or gas.
3. Keep young children away from open flames and hot stoves.
4. Always keep a bucket of sand near a fire in case it gets out of control.
5. Do not make a fire in a closed room where the smoke cannot escape. Smoke and fumes can damage your health.
6. Do not sleep in a room with the fire or a lamp or candle burning.
7. If a person has serious burns, seek help from a doctor or clinic as soon as possible.

A. 3

B. 7

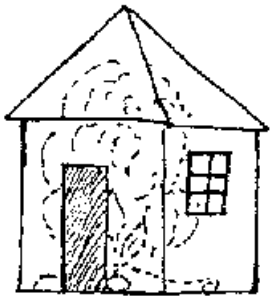
C. 6



D. 4

E. 2

F. 1



G. 5

SPECIAL NEEDS

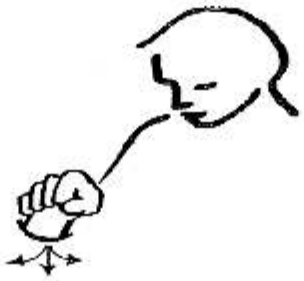
HOW WE CAN INCLUDE PEOPLE WITH DISABILITIES IN OUR LIVES:
ALTERNATIVE WAYS OF COMMUNICATION

SIGN LANGUAGE

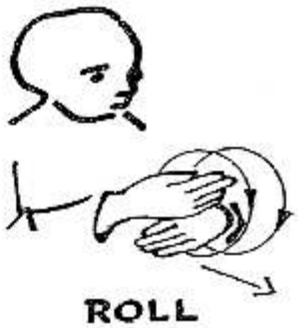
How can I tell my friend who cannot hear, what to do in case a fire breaks out?
We can tell him/her by using sign language.

- Try to sign this message to your friends.

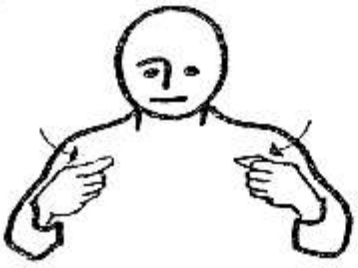
STOP



DROP



ROLL

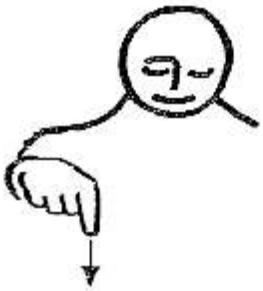


CLOTHES

FIRE

DON´T

RUN



DOWN

FLOOR

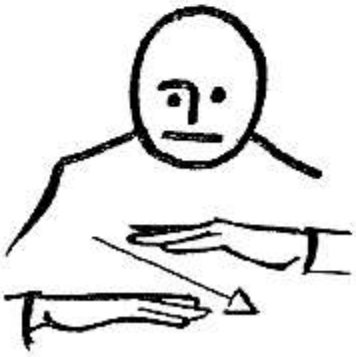
LIE

ROLL

FIRE

STOP

CRAWL



UNDER

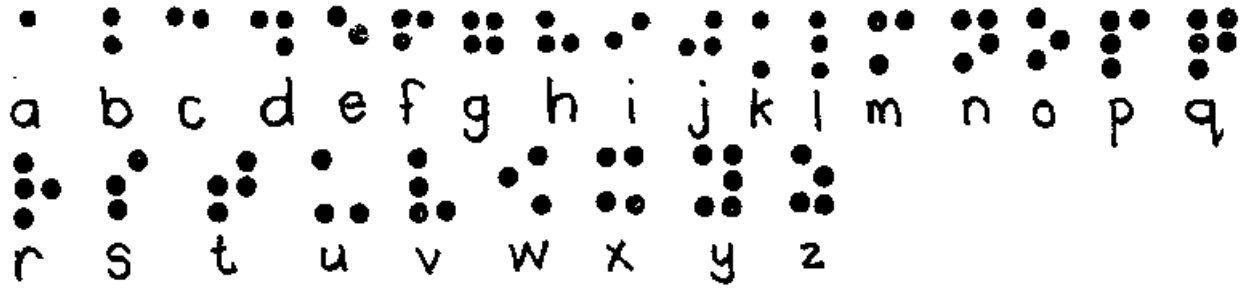
SMOKE

- Make sure that your classmates who cannot hear will also get this message.
- We always need to take care of disabled people and include them in our activities.

Although blind people can hear when there is a fire alarm, and can hear that they must stop, drop and roll, we must also help them to crawl low under the smoke and show them the way by, leading them in case of fire.

If we want to let them “read” about fire, we must use the Braille alphabet. It consists of dots that the blind person can “feel” with his or her fingertips. The dots are little humps made by a special typing machine.

This is what the alphabet looks like:

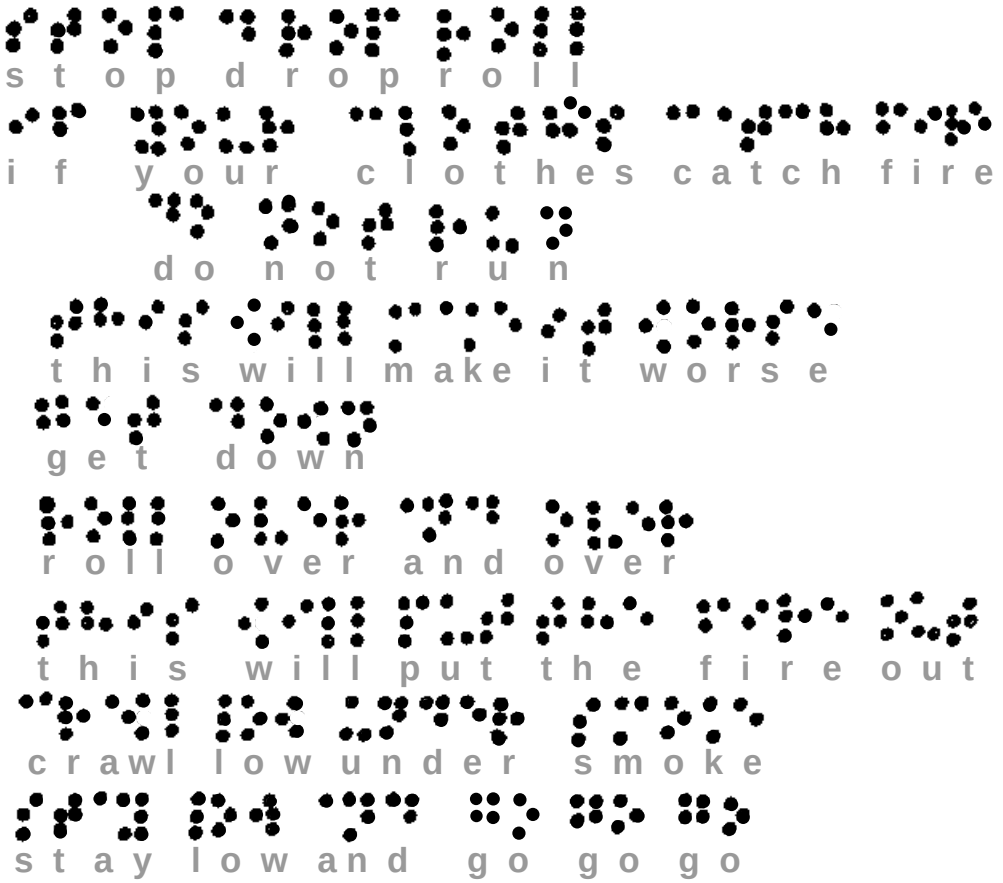


ACTIVITY 1

If you want to “feel” the letters, use a paper punch and punch a piece of sandpaper. Stick the small circles in the patterns of the letters.

ACTIVITY 2

- See if you can read what the blind person had written here.
- Make use of the Braille alphabet.
- Use the alphabet and decipher the message on this page.
- Write the letters below the dotted patterns.



Do remember to be thankful for the ability to see and hear!

AFRIKAANS HUISTAAL

VRAAG 1

LU 1 LUISTER

AS Geniet dit om na verskillende soorte mondelinge tekste te luister (soos stories, fabels, limerieke, kort verslae) en reageer gepas.

LU 3

AS Verstaan en reageer gepas op informatiewe tekste:

Lees die onderstaande gedeelte en doen die oefeninge wat daarp volg.

In Suid-Afrika, soos in baie ander dele van die wêreld, is wegholbrande 'n werklikheid. **Ons land word elke jaar deur groot brande geteister**.

Tientalle mense sterf en derduisende mense word dakloos gelaat, veral in plakkerskampe waar hutte na aan mekaar geleë is.

In Junie verlede jaar (2005) het drie mense van een gesin doodgebrand in Oranje Farm, Gauteng, toe 1500 woonplekke onder vlamme deurgeloop het. **Die nuwe jaar het skaars begin of brandbestryders het bontgestaan** met veldbrande in **Muizenberg, Distrik Ses en teen Vlaeberg**, waarin verskeie eiendomme afgebrand en honderde mense skade gely het. Op 19 Januarie is 'n baba dood en 12 000 mense dakloos gelaat in 'n brand in die Joe Slvo-gemeenskap in die Wes-Kaap.

In 2000 het hektaars fynbos in die **Kaapse Skiereiland en groot stukke weiveld in die Oos-Vrystaat in groot veldbrande in die slag gebly**. Die jaar daarna is 22 huise in Gordonsbaai aan die Valsbaaise kus in puin gelê deur 'n veldbrand.

- Sulke brande kan groot verwoesting saai. Behalwe huise wat afbrand, kan mense ook seerkry en verkeer tot stilstand gedwing word wanneer die verterende vlamme oor die pad trek.
- Mense moet al die moontlike doen om sulke veldbrande te voorkom of dadelik aan te meld as hulle dit opmerk.
- Tog is dit belangrik om te weet dat alle brande nie net verwoesting saai nie. Veldbrande is 'n natuurlike verskynsel wat ook goed vir die omgewing kan wees.
- Klink dit vreemd? Volgens kenners is kleiner veldbrande af en toe goed vir die oorlewing van baie plantspesies.

Beantwoord die volgende vrae oor die leesstuk

1.1 Hoe gereeld word inwoners van Suid-Afrika deur veldbrande bedreig?
Ons land word jaarliks deur groot brande geteister

1.2 Wanneer het die eerste veldbrand in 2005 uitgebreek?
Skaars na die begin van die nuwejaar

1.3 Noem die drie plekke wat deur hierdie veldbrande geteister is?
Muizenberg, Distrik Ses en teen Vlaeberg

1.4 Wat het in die Joe Slovo-gemeenskap gebeur wat hulle baie hartseer gemaak het?
'n Baba het doodgebrand en 12 000 mense dakloos gelaat.

1.5 Waar het veldbrande in 2000 groot skade aangerig?
In die Kaapse Skiereiland en in die Oos-Vrystaat.

Wat veroorsaak brande?

Winderige, warm en droë weerstoestande skep 'n gunstige klimaat vir die verspreiding van 'n vuur. Brande kan of mensgemaak wees of deur die natuur veroorsaak word. In die natuur kan weerlig, weerkaatsing en rotes wat neerstort brande begin. Die meeste word egter deur die mens gestig. Sigarette wat in droë gras gegooi word, braaivleisvure wat nie behoorlik geblus is nie, vure in dromme wat hitte verskaf en elektriese foute kan brande laat uitbreek. Selfs 'n bottle wat in die veld lê, kan 'n brand veroorsaak as die so daarop skyn dat dit soos 'n vergrootglas die son op 'n kol droë gras fokus.

VRAAG 2

LU 6
AS Werk met woorde:

Omkring soveel woorde as wat jy kan in die woordblok hier onder.
Al die woorde het te make met brande. Probeer die volgende 20 woorde kan identifiseer.

B	R	Y	N	S	A	F	V	K	R	D	G	J	O	V	B	M	H	D	A
A	D	P	U	I	N	F	U	G	D	A	K	L	O	O	S	U	F	B	D
W	T	Y	I	H	D	B	U	H	R	U	I	D	A	B	D	B	E	R	S
L	W	E	D	G	V	B	R	A	N	D	W	O	N	D	E	G	D	A	G
U	S	K	A	D	E	A	G	D	F	W	E	R	T	Y	U	I	D	N	H
B	S	D	H	J	L	A	D	F	G	H	V	L	U	G	N	N	O	D	M
S	C	B	V	G	D	D	V	T	S	A	D	F	H	J	K	L	O	B	B
D	B	R	A	A	I	V	L	E	I	S	V	U	R	E	V	T	D	E	D
D	G	A	H	F	Z	X	C	V	G	B	N	S	S	D	S	H	G	S	W
E	R	N	T	G	H	S	V	L	A	M	M	E	A	G	T	B	E	T	R
D	H	D	J	E	E	R	T	Y	R	S	N	H	D	H	E	S	B	R	T
W	H	W	U	B	E	H	W	E	E	R	L	I	G	J	R	Z	R	Y	G
X	C	E	B	R	F	H	J	R	T	A	D	T	R	J	F	F	A	D	H
E	R	E	U	A	D	G	J	T	T	D	F	T	H	F	A	D	N	E	J
D	F	R	M	B	D	G	K	L	E	E	Y	E	J	T	H	A	D	R	N
B	R	A	N	D	W	E	E	R	W	A	V	V	E	R	W	O	E	S	N
M	B	V	C	X	Z	S	U	E	H	S	D	F	G	H	S	J	E	R	K
B	W	E	G	H	O	L	B	R	A	N	D	E	S	D	F	G	H	N	H
S	D	T	Y	J	N	C	B	F	N	A	T	U	U	R	G	E	C	X	F
E	R	X	H	N	X	G	R	A	H	A	G	F	A	D	F	G	H	J	R

Vuur
puin
dakloos
sigarette
brand
skade
braaivleisvure
brandbestryder
vlamme
veld
vlug
dakloos
brandwonde
weerlig
brandweer
doodgebrand
hitte
verwoes
natuur

VRAAG 3

LU 6

AS Werk met woorde:

- herken korrekte woordverdelings;
- ontwikkel woordeskat deur woordfamilies en woorde uit dieselfde veld te herken;
- begin besef dat talle woorde uit verskillende komponente bestaan;

Lees weer die leesstukke en haal die volgende woorde uit die leesstuk

3.1 Soek 3 woorde wat uit meer as een woord saamgestel is.
Bv. Veld + brande - veldbrande

Weg+hol+brande	Wegholbrande
Dak+loos	Dakloos
Plakker+kampe	Plakkerskampe
Woon+plekke	Woonplekke
Brand+bestryders	brandbestyders
Af+brand	Afbrand
Plant+spesies	Plantspesies
Neer+stort	neerstort
Vergroot+glas	vergrootglas

3.1 Identifiseer 5 meervoude. Bv: mens – mense

deel	dele
mens	Mense
plakkerskamp	Plakkerskampe
veldbrand	Veldbrande
Brand	Brande
Kenner	Kenners
Mens	Mense
Eiendom	Eiendomme
Huis	Huise
Plantspesie	Plantspesies
vlam	Vlamme
brandbestryder	brandbestryders

3.3 Skryf 'n sin neer wat 'n vraag vra (vraagsin) neer uit die leesstuk.

Klink dit vreemd?

VRAAG 4

LU 6

As Werk met tekste

Skakel sinne in 'n samehangende paragraaf deur verbindingswoorde (soos 'ook', 'uiteindelik'), voegwoorde en voornaamwoorde te gebruik.

Lees die volgende sinne en vorm een sin van die twee sinne deur die woord tussen hakies te geruik.

4.1 Brandbestyders probeer hulle bes. Mense se lewens is in gevaar. (want)

Brandbestryders probeer hulle bes, want mense se lewens is in gevaar.

VRAAG 5

LU 2 **Praat**

AS Dra ervaringe, idees en inligting in verskillende kontekste vir verskillende teikengroepe en doeleindes oor:

Klasbespreking (Groepbespreking)

Watter slegte dinge gebeur met die volgende groepe as daar wegholveldbrande is.

Laat die leerders as groep terugvoer gee. Miskien in groepe van 6, dank an twee oor een punt terugvoer gee bv: Johan en Marie oor mense.

- Mense
- Diere
- Natuur

Gebruik hierdie TABEL om die groep te assesseer:

Aktiwiteit: Groepbespreking **Datum: _____**

Leerders se name: _____

_____

_____

_____

_____

_____

Waardes : Baie goed – 4 Goed – 3 Redelik – 2 Het hulp nodig – 1				
KRITERIA	**4**	**3**	**2**	**1**
❖ Beplanning en voorbereiding in groep Leerders weet wat hul wil sê				
❖ Interaksie tussen leerders Leerders maak beurte en laat die gesprek vloei				
❖ Gesprek kan maklik gevolg word Woordeskat en taalbeheer is goed				
❖ Leerders praat hoorbaar en duidelik Praat met selfvertroue en is nie skaam nie.				
❖ Leerders het goeie idees Toon insig in dit wat hulle sê				
TOTALE				
GROOTTOTAAL UIT 20				

AFRIKAANS EERSTE ADDISIONELE TAAL

VRAAG 1

LU 1 LUISTER

AS Geniet dit om na verskillende soorte mondelinge tekste te luister (soos stories, fabels, limerieke, kort verslae) en reageer gepas.

LU 3

AS Verstaan en reageer gepas op informatiewe tekste:

Lees die onderstaande gedeelte en doen die oefeninge wat daarp volg.

In Suid-Afrika, soos in baie ander dele van die wêreld, is wegholbrande 'n werklikheid. Ons land word elke jaar deur groot brande geteister.

Tientalle mense sterf en derduisende mense word dakloos gelaat, veral in plakkerskampe waar hutte na aan mekaar geleë is.

In Junie verlede jaar (2005) het drie mense van een gesin doodgebrand in Oranje Farm, Gauteng, toe 1500 woonplekke onder vlamme deurgeloop het. Die nuwe jaar het skaars (2006) begin of brandbestryders het bontgestaan met veldbrande in Muizenberg, Distrik Ses en teen Vlaeberg, waarin verskeie eiendomme afgebrand en honderde mense skade gely het. Op 19 Januarie 2003 is 'n baba dood en 12 000 mense dakloos gelaat in 'n brand in die Joe Slvo-gemeenskap in die Wes-Kaap.

In 2000 het hektaars fynbos in die Kaapse Skiereiland en groot stukke weiveld in die Oos-Vrystaat in groot veldbrande in die slag gebly. Die jaar daarna (2001) is 22 huise in Gordonsbaai aan die Valsbaaise kus in puin gelê deur 'n veldbrand.

- Sulke brande kan groot verwoesting saai. Behalwe huise wat afbrand, kan mense ook seerkry en verkeer tot stilstand gedwing word wanneer die verterende vlamme oor die pad trek. (2004)
- Mense moet al die moontlike doen om sulke veldbrande te voorkom of dadelik aan te meld as hulle dit opmerk.
- Tog is dit belangrik om te weet dat alle brande nie net verwoesting saai nie. Veldbrande is 'n natuurlike verskynsel wat ook goed vir die omgewing kan wees.
- Klink dit vreemd? Volgens kenners is kleiner veldbrande af en toe goed vir die oorlewing van baie plantspesies.

Beantwoord die volgende vrae oor die leesstuk

1.1 Hoeveel mense van een gesin het doodgebrand by Oranje Farm?
Drie mense van een gesin het doodgebrand

1.2 Noem die drie plekke wat deur hierdie veldbrande geteister is?
Muizenberg, Distrik Ses en teen Vlaeberg

1.3 Waar het 22 huise afgebrand?
In Gordonsbaai aan die Valsbaaise kus.

1.4 Waar het veldbrande in 2000 groot skade aangerig?
Hektaars fynbos in die Kaapse Skiereiland en groot stukke weiveld in die Oos-Vrystaat in groot veldbrande

1.5 Wat moet motoriste doen as vlamme oor die pad trek?
Motoriste kan tot stilstand gedwing word

Wat veroorsaak brande?

Winderige, warm en droë weerstoestande skep 'n **gunstige** klimaat vir die verspreiding van 'n vuur. Brande kan of mensgemaak wees of deur die natuur veroorsaak word. In die natuur kan weerlig, weerkaatsing en rotes wat neerstort brande **begin.**

Die meeste word egter deur die mens gestig. Sigarette wat in **droë** gras gegooi word, braaivleisvure wat nie behoorlik geblus is nie, vure in dromme wat **hitte** verskaf en elektriese foute kan brande laat uitbreek. Selfs 'n bottle wat in die veld lê, kan 'n brand veroorsaak as die so daarop skyn dat dit soos 'n vergrootglas die son op 'n kol droë gras fokus.

VRAAG 2

LU 6
AS Werk met woorde:

Omkring soveel woorde as wat jy kan in die woordblok hier onder. Al die woorde het te make met brande. Probeer 20 woorde identifiseer.

B	R	Y	N	S	A	F	**V**	K	R	D	G	J	O	V	B	M	H	D	A
A	D	**P**	**U**	**I**	**N**	F	**U**	G	**D**	**A**	**K**	**L**	**O**	**O**	**S**	U	F	**B**	D
W	T	Y	I	H	D	B	**U**	H	R	U	I	D	A	B	D	B	E	**R**	S
L	W	E	D	G	V	**B**	**R**	**A**	**N**	**D**	**W**	**O**	**N**	**D**	**E**	G	**D**	**A**	G
U	**S**	**K**	**A**	**D**	**E**	A	G	D	F	W	E	R	T	Y	U	I	**D**	**N**	H
B	S	D	H	J	L	A	D	F	G	H	**V**	**L**	**U**	**G**	N	N	**O**	**D**	M
S	C	**B**	V	G	D	D	V	T	**S**	A	D	F	H	J	K	L	**O**	**B**	B
D	**B**	**R**	**A**	**A**	**I**	**V**	**L**	**E**	**I**	**S**	**V**	**U**	**R**	**E**	V	T	**D**	**E**	D
D	G	**A**	H	F	Z	X	C	V	**G**	B	N	S	S	D	S	H	**G**	**S**	W
E	R	**N**	T	G	H	S	**V**	**L**	**A**	**M**	**M**	**E**	A	G	T	B	**E**	**T**	R
D	H	**D**	J	E	E	R	T	Y	**R**	S	N	H	D	H	E	S	**B**	**R**	T
W	H	**W**	U	**B**	E	H	**W**	**E**	**E**	**R**	**L**	**I**	**G**	J	R	Z	**R**	**Y**	G
X	C	**E**	B	**R**	F	H	J	R	**T**	A	D	T	R	J	F	F	**A**	**D**	H
E	R	**E**	U	**A**	D	G	J	T	**T**	D	F	T	H	F	A	D	**N**	**E**	J
D	F	**R**	M	**B**	D	G	K	L	**E**	E	Y	E	J	T	H	A	**D**	**R**	N
B	**R**	**A**	**N**	**D**	**W**	**E**	**E**	**R**	**W**	**A**	V	**V**	**E**	**R**	**W**	**O**	**E**	**S**	N
M	B	V	C	X	Z	S	U	E	H	S	D	F	G	H	S	J	E	R	K
B	**W**	**E**	**G**	**H**	**O**	**L**	**B**	**R**	**A**	**N**	**D**	E	S	D	F	G	H	N	H
S	D	T	Y	J	N	C	B	F	**N**	**A**	**T**	**U**	**U**	**R**	G	E	C	X	F
E	R	X	H	N	X	G	R	A	H	A	G	F	A	D	F	G	H	J	R

Vuur, puin, dakloos, sigarette, brand, skade, braaivleisvure, brandbestryder, vlamme, veld, vlug, dakloos, brandwonde, weerlig, brandweer, doodgebrand, hitte, verwoes, natuur

VRAAG 3

LU 6

AS Werk met woorde:

- herken korrekte woordverdelings;
- ontwikkel woordeskat deur woordfamilies en woorde uit dieselfde veld te herken; begin besef dat talle woorde uit verskillende komponente bestaan

Voltooi die table deur die regte antwoord te gee. Kyk ook na die voorbeeld.

3.1	veldbrande	Veldbrand
3.2	Brandbestryders	Brandbetryder
3.3	Woonplekke	Woonplek
3.4	Braaivleisvure	Braaivleisvuur
3.5	Eiendomme	Eiendom
3.6	wegholbrande	Wegholbrand

VRAAG 4

Skryf elke keer 'n woord neer met die teenoorgestelde betekenis as die gegewe woord.

	WOORD	**TEENOORGESTELDE BETEKENIS**
4.1	Nat	Droë
4.2	Koud	Warm
4.3	Eindig	Begin
4.4	Groter	Kleiner
4.5	ongunstige	Gunstige
4.6	sleg	Goed

VRAAG 5

Lees die volgende sinne en vorm een sin van die twee sinne deur die woord tussen hakies te geruik.

5.1 Brandbestyders probeer hulle bes. Mense se lewens is in gevaar. (want)
Brandbestryders probeer hulle bes want mense se lewens is in gevaar.

VRAAG 6

LU 2 Praat
AS Dra ervaringe, idees en inligting in verskillende kontekste vir verskillende teikengroepe en doeleindes oor:

LU 3 LEES EN KYK
AS Toon, op 'n eenvoudige manier, begrip van die elemente van stories:

LU 4 SKRYF
AS teken en skryf byskrifte by eenvoudige kaarte, diagramme, grafieke en tabelle;

Werk saam in groepe en maak 'n tydlyn wat jul on 'n tydkapsule (ou koeldrankbotter) bêre sodat leerders later jare kan sien watter brande verwoesting gesaai het.

Teken ook aan watter veldbrande het waar gewoed in 'n sekere jaar.

Die Tydlyn sal min of meer die volgende inligting bevat, maar kan op 'n lyn aangedui word. Gebeure moet kronologies wees.

2000	-	Fynbos brand af.
	-	Weiveld brand af in die Oos-Vrystaat
2001	-	22 huise brand af in Gordonsbaai
2003	-	Baba brand dood in die Joe-Slovo plakkerskamp
	-	12 000 mense word dakloos gelaat
2004	-	Brande naby die teerpad bring die verkeer tot stilstand.
2005	-	Drie mense van een gesin doodgebrand in Oranje Farm
	-	1500 woonplekke loop onder die vlamme deur (Gauteng – Oranje Farm)
2006	-	Veldbrande in Muizenberg, Distrik Ses
	-	Vlaeberg – eiendomme afgebrand

Assesering van TYDKAPSULE

Gebruik hierdie TABEL om die groep te assesseer:

Aktiwiteit: Groepbespreking **Datum: _____**

Leerders se name: _____

_____

_____

_____

_____

_____

Waardes : Baie goed – 4 Goed – 3 Redelik – 2 Het hulp nodig – 1				
KRITERIA	**4**	**3**	**2**	**1**
❖ Uitleg en visuele aspek. Hoe is tydlyn uitgewerk				
❖ Netheid Skryf / tik / plakwerk				
❖ Geheelindruk Oorspronklikheid				
❖ Interessante en gepaste inligting Is inligting korrekt en kronologies weergegee				
❖ Taalversorging Aandag aan korrekte sinskonstruksie en spelling				
TOTALE				
GROOTTOTAAL UIT 20				

LIFE ORIENTATION

STOP POLLUTION AND PROTECT SOUTH AFRICA'S ENVIRONMENT

LEARNING OUTCOME #1 - HEALTH PROMOTION

The learner will be able to make informed decisions regarding personal, community and environmental health.

ASSESSMENT STANDARDS #2 & #3:

- Explores and reports on links between a healthy environment and personal health.
- Explains children's health rights and responsibilities, and suggests ways in which to apply these in a familiar situation.

LEARNING OUTCOME #2 - SOCIAL DEVELOPMENT

The learner will be able to demonstrate an understanding of and commitment to constitutional rights and responsibilities and to show an understanding of diverse cultures and religions.

ASSESSMENT STANDARD #1

- Discusses children's rights and responsibilities as stipulated in the Republic of South Africa Constitution Bill of Rights.

ACTIVITY 1

Teacher's Note to "A FIRE IN THE VELD"

- Before reading the story, tell the lLearners to rustle a piece of paper or a plastic bag every time they hear you read the words . . . *'The fire crackled'*.
- Talk to the children about the dangers of playing with fire.
- You can also use this story as a reading lesson.

A FIRE IN THE VELD

Simon and Kyle were two naughty boys. They lived next to an open veld. Lots of birds, animals and insects lived in the veld. There was a weaver bird's nest in an acacia tree. It had eggs in it. A mongoose and her two babies lived in a pile of dry grass.

There were also four grasshoppers, a brown snake, three mice, six beetles and a beehive. All the creatures lived happily in the veld. Simon and Kyle loved to play there. It was their favourite place.

One day Kyle found a box of matches. Simon and Kyle decided to hide in the veld and light them. One by one they lit the matches and blew them out.

"Let's make a fire," said Simon. The two boys made a nice pile of sticks and dry grass.
Kyle lit a match and set it alight. ***The fire crackled.***

"Look at the flames," said Simon. "Feel the heat," said Kyle.
The fire crackled.
The flames grew higher and higher. ***The fire crackled* louder.**
"I think we should put the fire out now," said Simon. So the boys beat the fire with sticks. But the flames grew bigger and bigger. ***The fire crackled* louder, louder.**

"I can't stop the fire!" shouted Kyle. "It's getting hotter!" yelled Simon. The boys tried to put the flames out by beating them with their jerseys. **But the *fire crackled* even louder.**

Simon and Kyle were very scared of the fire. So were the birds, insects and animals. The boys saw the weaver bird fly away from her nest. The whole acacia tree was covered in flames. The boys saw the mongoose and her babies running for their lives with flames behind them. The boys saw a swarm of bees buzzing away loudly. Their hive was burning.
***The fire crackled* very loudly!**

Simon and Kyle saw insects flying, a snake slithering and mice all running for their lives. Very soon Simon and Kyle had to run too. The flames were as tall as a house. All of a sudden the boys heard the sound of a fire engine. What does a fire engine sound like?
Make the sound ! ! !

The fire fighters worked quickly. They beat the flames with big fire beaters and squirted lots of water with a hose. The fire fighters soon put the fire out. Simon and Kyle came back to the veld to look at their favourite place. They were very sad. It was all black and smoky. There was no grass and even the tree was burned.

The weaver bird had gone. The beehive was gone. The snake had gone. The mice had gone. The insects had gone. Even the mongoose had gone.

"I wish we hadn't started the fire," said Simon. "Me too," said Kyle.

From that day on Simon and Kyle never played with matches again.

ACTIVITY 2

KNOW YOUR RIGHTS AND RESPONSIBILITIES

- Understand and be able to tell in your own words the rights and responsibilities of everyone under the Republic of South Africa Constitution Bill of Rights.

- Discuss these rights and responsibilities with your class.

THE CONSTITUTION OF THE REPUBLIC OF SOUTH AFRICA

Chapter 2 Bill of Rights

Environment

24. Everyone has the right –

(a) to an environment that is not harmful to their health or well-being; and

(b) to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that –

(i) prevent pollution and ecological degradation;

(ii) promote conservation; and

(iii) secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.

Educator:

Below is an explanation of the Republic of South Africa Constitution, Bill of Rights, for the environment, simplified for lLearners:

- The Bill of Rights is our government's promise to protect all South Africans and all the land that is South Africa.
- As South Africans we have the right to live in a healthy environment.
- As South Africans we have the responsibility to protect South Africa for all the people who will live here in the future.
- As South Africans we all must all help to take care of our lands, and natural resources like keeping our rivers clean and preventing and stopping forest fires.
- As South Africans we keep our country clean, safe and healthy.
- Our rights have been given to us by the Bill of Rights, which is based on the Constitution.
- All children have the right to a name, basic care, security, nutrition and protection against abuse. Other rights include a safe and healthy environment.
- Having rights means that we also have responsibilities and duties. An important responsibility is the one of ensuring that we respect that others also have rights. We also have a responsibility to make South Africa a just and fair country.
- Our country has a rich plant and animal life. This richness is represented by the national symbols for our natural resources. These include:

National Coat of Arms	National Anthem
National Flag	Tree: Real Yellowwood
National Mammal: The Springbok	National Bird: Blue Crane
Natonal Fish: Galhoen	National Flower: Giant or King Protea

ACTIVITY 3

FIRE AWARENESS BOOKMARK

Provide learners with a copy of the bookmark handout.

- Learners are to cut out the bookmark from the copy supplied to them, gluing the backs together.
- Learners then cut out the national symbols and glue then to the bookmark.
- Help them punch a small hole at the top of the completed bookmark and attach a length of string or knitting yarn for decoration.

1. After Learners have finished their bookmarks, start a brief class discussion about the national animals and plant symbols pictured on the Learner Work Book page.

2. Read the following text:

   Our country has a rich plant and animal life. This richness is represented by the national symbols for our natural resources. These include:

National Coat of Arms	National Anthem
National Flag	Tree: Real Yellowwood
National Mammal: The Springbok	National Bird: Blue Crane
National Fish: Galhoen	National Flower: Giant or King Protea

   It is important that each of us protects and helps to sustain our country's rich diversity. These national symbols are of particular importance to us if we want our future generations to see them. We can help to protect them by learning about the dangers of wild fires.

   By protecting the natural resources, you make them your own! When you own them, you will be proud of them.

   Reprinted from: Environmental Diary 2005, Sustainable Living at Work

3. Ask learners what happens to animals and indigenous vegetation when wild fires burn out of control in the veld.
4. This activity could be assessed as a presentation.

ACTIVITY 4

FIRE ESCAPE PLAN, MAP AND FIRE DRILL

Make opies of the grid

- Help learners draw an aerial view of their school buildings.
- Instruct learners to draw an aerial view of school buildings on the page grid darkening the location of their classroom.
- Remind learners will to count the number of buildings and the relative size of each as well as the playground area surrounding the school.
- Tell learners to pair up and leave the classroom with pages grid and a pencil.
- Have them use the grid drawing of your school to map out a fire escape route from their classroom to a safe place where everyone will stay until hearing the “All clear” signal to return to class.
- They are to invent an “All clear” signal.
- When they return to class discuss the school's fire drill procedure with the learners.
- Tell learners to paste their completed plan in their workbook.

NOW PLAN A WHOLE SCHOOL FIRE DRILL

- Before you organise the whole school fFire dDrill make sure learners are well informed about the fire plan.
- Discuss the exercise with the principal and other staff members.
- Make arrangements for learners with special needs.
- Appoint a few of the lLearners as mMonitors who will during the drill check to see that no one has been left behind.
- The monitors must give their teacher feedback about their task after the drill.
- Hold a class discussion after the fFire dDrill. Have the class fFire dDrill mMonitors discuss the following:
  1. Did your class evacuate quickly enough?
  2. Did the mMonitors do their job?
  3. What first- aid techniques should learners apply if someone's life is at risk?
  4. If you notice a fire, who should you phone or otherwise inform?
  5. What safety measures can one put in place during a fire?

- Discuss with the class how each of them can make their fFire dDrill better and safer.

Reprinted from: www.you.co.za February 17, 2005

ACTIVITY 5

MY ROLE IN KEEPING SOUTH AFRICA BEAUTIFUL

- Form groups of five learners.
- Ask them to look at the Conservation diagram in their workbooks.
- Ask them to think about how accidental, wild and uncontrolled fires can endanger lives and property.
- Learners are to study all the aspects written in bold and discuss how they could be related to wild fires.
- Have them make a list of ways in which each of them can help to raise fire prevention awareness in their community and help prevent fires to keep South Africa beautiful.

  They are to present their ideas to the class as you write and consolidate their ideas on the board.

ACTIVITY 6

JUNIOR FIRE MARSHAL QUIZ

- Answer all the questions correctly on the junior fire marshal quiz.
- Have a ceremony to award learners the Junior Fire Marshal Certificate to take home to hang on their walls.

JUNIOR FIRE MARSHAL QUIZ ANSWERS

1. What protects the beauty of my South Africa environment for me and for future generations? Write a sentence.

   _____

2. It is my responsibility to pollute our land. F
3. Big fire beaters and lots of water will help to keep a veld fire burning. F
4. What should I do if my clothes catch fire? Stop ! Drop ! *and* Roll !
4. It is my job to report fire hazards. T
5. A burning plantation is something I should be concerned about. T
6. If I see matches in a room I should pick them up. F
7. Burning garbage helps to recycle waste and prevent pollution. F
8. Most wild fires are started by people being careless. T
9. My school and home do not need a fire escape plan. F
10. Being a fire marshal is a very important job. T

WORKING ON FIRE ASSESSMENT RUBRIC

	1	2	3	4	POINTS
Level of engagement in class	Learner proactively contributes to class by offering ideas and asking questions more than once per class.	Learner proactively contributes to class by offering ideas and asking questions once per class.	Learner rarely contributes to class by offering ideas and asking questions.	Learner never contributes to class	
Listening skills	Learner listens when others talk, both in groups and in class. Learner incorporates or builds on the ideas of others.	Student listens when others talk, both in groups and in class.	Learner does not listen when others talk, both in groups and in class.	Learner does not listen when others talk, both in groups and in class. Learner interrupts.	
Behaviour	Learner almost never displays disruptive behaviour during class.	Learner rarely displays disruptive behaviour during class.	Learner occasionally displays disruptive behaviour during class.	Learner almost always displays disruptive behaviour during class.	
Attitude	Learner almost always approaches project assignments with interest.	Learner usually approaches class projects with interest.	Learner rarely approaches class projects with interest.	Learner almost never approaches class projects with interest	
Creativity	Learner displays creativity and enthusiasm for class projects	Learner usually displays creativity with class projects	Learner rarely displays creativity or enthusiasm with class projects	Learner almost never shows creativity or enthusiasm for class projects	

ACTIVITY 1

SPACE & SHAPE

L03 AS2 Describes, sorts and compares two-dimensional shapes and three-dimensional objects from the environment according to geometrical properties including:

- Shapes of faces
- Number of sides
- Flat & curved surfaces
- Straight & curved sides

AS3 Investigates and compares (alone and/or as a member of a group or team) two-dimensional shapes and three-dimensional objects studied in this grade according to properties listed above by:

Making three-dimensional models using cut-out polygons (supplied)

1. Divide learners into manageable groups
2. Refer them to the relevant page of the activity book
3. Let them read through and demonstrate their understanding of the content
4. Let them do activity 1.1 to 1.3 in pairs
   Give constructive feedback

1.1

R 2 735 x 26 cattle	=	R 71 110
	+	
R 75 000 x 5 tractors	=	R 375 000
Money Lost		R 446 110

1.2

House	R 435 000
Furniture	R 600 000
Money in safe	R 170 000
Cattle	R 71 110
Tractors	R 375 000
Car	R 126 000
Total	R 1 777 110

1.3 Perimeter (L + B)2
=(15cm + 15cm)2
=(60cm)

1. Practical activity (project) i.e. group work

   Provide each group with the following resources:

   a. A square template of flat surface (An example is on the next page of this book, but there is also a copy in the learner's book).

   b. Flat cardboard (i.e. empty containers of Corn Flakes, powder soap etc.)

   c. Pen / pencil

   d. Pair of scissors

   e. Elastic bands (size 12)

   f. Net shown on sheet of paper

2. Let each group leader read through the instructions from their activity book before they do the project.

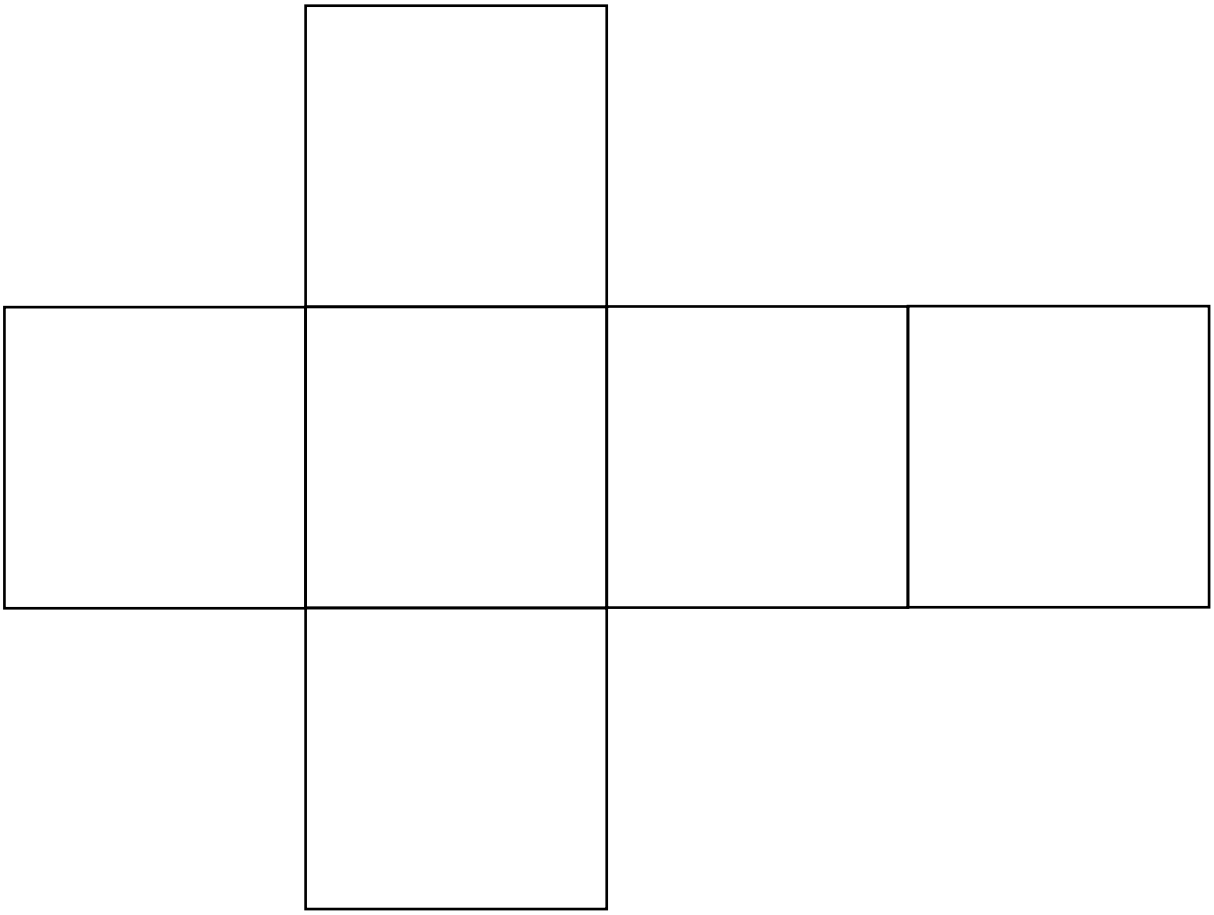
3. Observe and give assistance where necessary

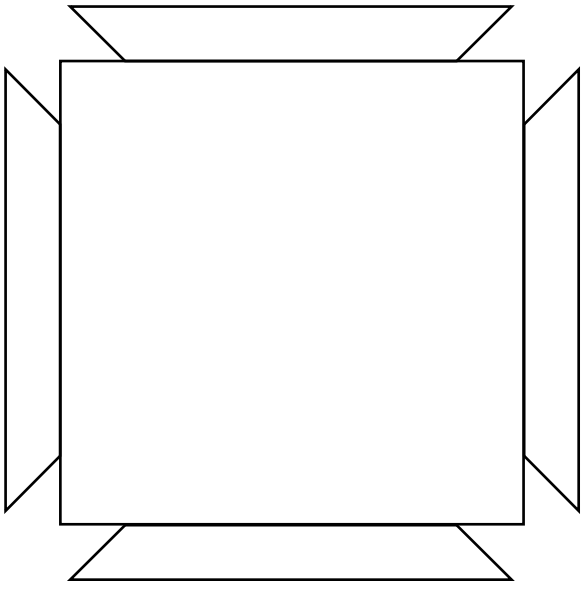
4. After they have made the safe box (i.e. a cube) explain the following before they complete the table
   - A face is a flat surface of mathematical solids
   - Edge is a straight line where two faces meet
   - Vertex is the point where two or more edges meet to form a corner

   Example:

Shape	No. of Vertices	No. of Edges	No. of Faces
cube	8	12	6

TEMPLATE FOR SAFE





ACTIVITY 2

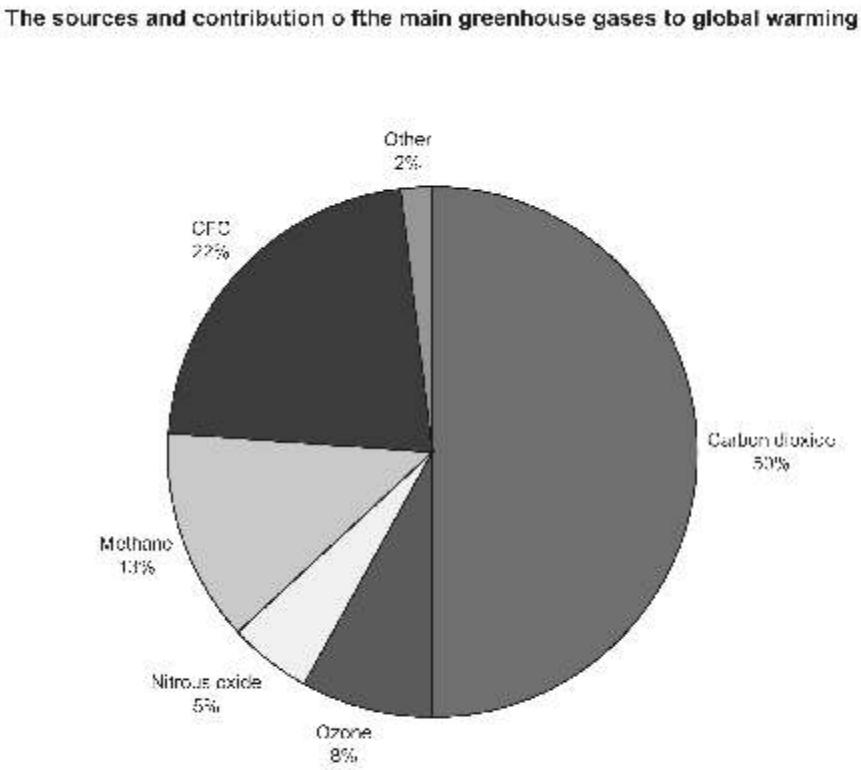
LO5 Data handling

AS 7 Critically reads and interprets data presented in a variety of ways (including own representations, representations in the media – words, graphs, pie graphs) to draw conclusions and make predictions sensitive to the role of:

- Context (e.g. rural/urban, national/provincial)
- Categories within the data (e.g. age, gender, race)
- Other human rights issues

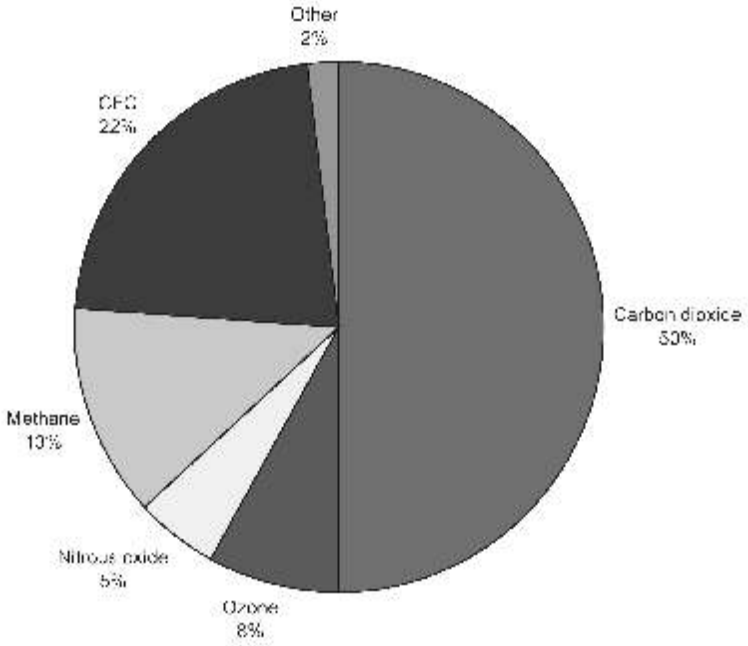
1. Before doing this activity make sure that your learners can use protractors
2. Learners must be able to read and write degrees
3. Use the protractor to draw the pie chart as shown below

2.1 Pie chart:



2.1 Carbon dioxide
2.2 Yes
2.3 Open-ended question

The sources and contribution o fthe main greenhouse gases to global warming



ACTIVITY 3

Activity 3

L04 Measurement AS5
L01 AS6
L01 AS8

- Learners must be familiar with the SI units and must be able to do conversion

3.1 Numbers of trees burnt down
28 336 x 1 666
= 47 207 776 trees

3.2 Money lost through the burning down of plantations
47 207 776 x R 10
= R472 077 760

3.3 A hectare is 100m x 100m = 10 000m²

3.4 It is a 2-D shape

3.5 To find the m² burnt down
28 336 x 10 000
= 283 360 000m²

3.6 Open-ended question

ACTIVITY 4

L01 Numbers; operations and relationships

AS4 Recognises the place value of digits in

- Whole numbers to at least 9 digit numbers
- Decimal fractions to at least 2 decimal places

AS8 Estimates and calculates by selecting and using operations appropriate to solving problems that involve:

- Rounding of to the nearest 100 and 1000
- Addition and subtraction of whole numbers

1. Divide learners into manageable groups
2. Refer them to the relevant page of the activity they are going to do
3. Give them detailed information about aerial assistance as reflected in the activity book
4. Let them read through and demonstrate their understanding of the content
5. Ask them to answer the questions given on their activity sheet
6. Allow for open discussion about their answers
7. Let each group report back about their final answers
8. Consolidate their answers by giving them constructive feedback

4.1

	Number	Value
A	121 111, 89	R 20 000, 00
B	869 649, 00	R 40, 00
C	2 543 340, 00	R 2 000 000, 00
D	121 111, 89	R 000 000, 80

4.2 To find the number of hours spent by the 3 aircraft:

100.7 hrs
\+ 138.7 hrs
\+ 970.0 hrs
1209.4 hrs

nearest whole number = 1209

4.3 To find the number of days, take 1209 hrs from (no 4.2) and divide by 24 hrs
i.e. 1209 ÷ 24 = 50 days

4.2 To find the total loss of the 3 aircraft:

R 121 111, 89
\+ R 869 649, 00
\+ R 2 543 340, 00
R 3 534 100, 89

Nearest hundred R 3 534 100
Nearest thousand R 3 534 000

SOCIAL SCIENCES

LEARNING OUTCOME 1: HISTORICAL ENQUIRY

The learner will be able to use enquiry skills to investigate the past and present.
The learner asks questions about aspects of the past using objects, pictures, written sources, buildings, museum displays and people (oral history).

ASSESSMENT STANDARDS:

1. Records and organises information from a variety of sources (e.g. oral, written and visual sources, including maps, graphs and tables, objects, buildings, monuments, museums) [works with sources].
2. Uses information from sources to answer questions about people, events, objects and places in the past [answers the question].
3. Communicates knowledge and understanding in a variety of ways, including discussion, writing a paragraph, constructing a book, collage, poster, artwork, drama, dance and music [communicates the answer].

LEARNING OUTCOME: 2 HISTORICAL KNOWLEDGE & UNDERSTANDING

1. The learner will be able to demonstrate historical knowledge and understanding.

ASSESSMENT STANDARDS:

1. Uses common words and phrases relating to the passing of time (e.g. old, new, before, after, months, years [chronology and time].
2. Gives reasons for and explains the results of actions of people in the past in a given context [cause and effect].
3. Identifies similarities and differences between past and present ways of doing things in a given context [similarity and difference].

ACTIVITY 1

INVESTIGATION OF HOW FIRE WAS DISCOVERED

- Discuss with your class the value of data collection. Encourage Learners to put as much information about early discovery of fire by their ancestors. See if learners can incorporate facts from their interviews in their drawing. Refer to Arts & Culture section on interviews.

- Data collection is a very important skill to learn. Many of life's situations require data collection. It is necessary if we are to make informed decisions. All jobs and all ways of life require us to gather and use information. Every single activity we do is guided by the data we have absorbed and stored over the course of our lives.

"Tools of The Trade Skills and Techniques for Environmental Education in Namibia", Author: du Toit, Derick, Published by: Desert Research Foundation of Namibia Minister of Education and Culture, 1995.

NEW VOCABULARY WORDS

- Introduce these new words to be sure learners understand their meanings.
- Ask them to use these new words when writing the information they gather during their interviews.

FRICTION: Rubbing of one surface against another.
FLINT: Very hard stone that can produce sparks when struck with steel.
SMELTING WORKS: A place where ore is heated and melted to obtain the metal it contains.
FORGE: To shape by heating in a fire and hammering into desired shape.

CONDUCTING INTERVIEWS

- Review the learner's Interview Worksheet questions and instructions with them before they begin their interviews. These questions follow:

1. Ask your parents, grand parents, neighbours or the elders from your community to tell you any stories they can remember about how fire was discovered many, many years ago. Record these stories.
2. Ask parents, grand parents or community elders to tell any stories they can remember about how fire was used by their ancestors. Record these stories.
3. Make a list of the dangers and the benefits of each use of fire in the stories you collect.
4. Make a list of how fire is used today by your family, your neighbours, and your community in their homes or in your cultural ceremonies and rituals such as dance, music, and customs.
5. Draw a picture of how your family or ancestors used fire.
6. Bring to class any articles used by your ancestors or family to keep fire burning for cooking, hunting or for keeping warm.

Learners are to come to class prepared to make a class presentation about the information they have gathered.

ACTIVITY #1 – RUBRIC

	1	2	3	4	POINTS
Returned homework assignment on time.	Completed one interview response question	Completed two interview response questions.	Completed three interview response questions.	Completed four interview response questions.	
Responses are clearly written and easy to read.	One-word sentence.	Two-word sentences.	Three-word sentences.	Four-word sentences.	

ACTIVITY 2

- In class lLearners will show and tell what they have learned through their interview process with their ancestors.
- Learners will list how fire was discovered, how it was used, and what were the dangers and benefits of each use of fire in the stories they have been told.

ACTIVITY #2 – RUBRIC

	1	2	3	4	POINTS
Brings samples and/or pictures, objects to clarify the interview process.	Voluntarily describes how object, samples or photographs were acquired.	Includes some additional facts not anticipated.	Encourages other Learners to follow this experience.	Develops a plan to expand on the class and homework assignment.	
Presents experience to class.	Reads from responses gathered at home.	Adds feelings about asking for parents or neighbours to respond.	Indicates increased learning of the interview process.	Demonstrates confidence in making a class presentation.	

ACTIVITY 3

HISTORY OF FIRE

- Read “Life in the Iron Age” to the class.
- Have them read along with you from the story in their workbooks.
- Divide class into groups four to five learners.
- Learners in groups of four or five will create a poster or drawing of how fire was used during the Iron Age.

LIFE IN THE IRON AGE

- We are not sure how people first discovered fire. But all the people of the world have a different story to explain how fire was first discovered.

We know that people lived in the Gauteng area nearly 900 years ago. They planted crops, kept cattle and made tools from wood, clay and iron. These settlers used fire to provide warmth, for cooking, for protection from wild animals and to extract iron from ore.

Twelve people laboured for ten days to make a spearhead for a weapon. They gathered great mounds of wood, then burned it to make charcoal. The charcoal fuelled the furnace at the smelting works where the spearhead was forged into shape. In time, having used all the wood around, the whole community had to move to another area.

Bird Life South Africa (2000) Learning for Sustainable Living: An Integrated Learning Resource for Environmental Education

ACTIVITY #3 – RUBRIC FOR ASSESSMENT OF POSTER

	1	2	3	4	POINTS
Group created poster or drawing illustrating how fire was used during the iron age.	Poster was sloppy, incomplete and poorly planned.	Poster illustrates most of the points covered in interviews.	Poster was complete, neatly drawn and included all points from the story.	Poster showed comprehensive understanding and was beautifully executed.	

ACTIVITY 4

DISCOVERY OF FIRE

- Let the learners read, “How Fire Was Discovered”.
- They are to discuss and agree upon answers to the three questions about the story.
- Call upon three groups to each present their answer to one question to the class.
- Allow this process to evolve into a class discussion concerning the three questions and the answers the class decides upon for each question.

QUESTIONS AND ANSWERS:

1. What happened to the meat when it was put over the fire? Write a sentence.
   It gets very hot and the meat turns from red to brown.
2. What did Ka Kani use to make fire? Make a list.
   Twirling one stick in a hole in the other stick
   Dropped some scraps of dray bark into the smoking hole
   Blew gently but steadily into it
   Quickly and carefully tipped the bark into a ball of dry grass
   Blew on the ball of dry grass
3. What did Ka Kani do when he saw smoke coming from the stack? Write a sentence.
   Ka Kani blew on the stack and tipped it into the dry grass.

ACTIVITY 5

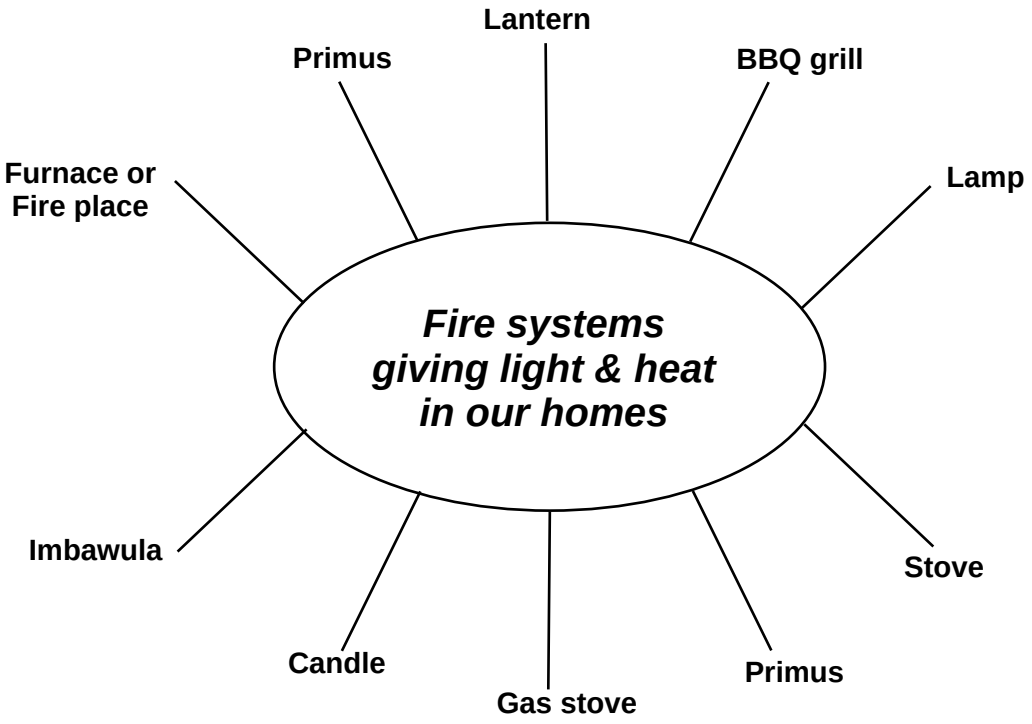
THE DANGER OF FIRE

- Let the learners read “New Skills, New Power, New Progress”.
- Talk to the learners about the danger to the homes of the rural villagers when fighting a wild fire.
- Ask what learners can do to help prevent wild fires in rural areas.
- Talk to the learners about good and bad uses of fire.
- Initiate a class discussion about the knowledge about fires the learners have gained in these activities.

LO 2: Constructing Science Knowledge
AS: Recalls meaningful information.

ACTIVITY 1

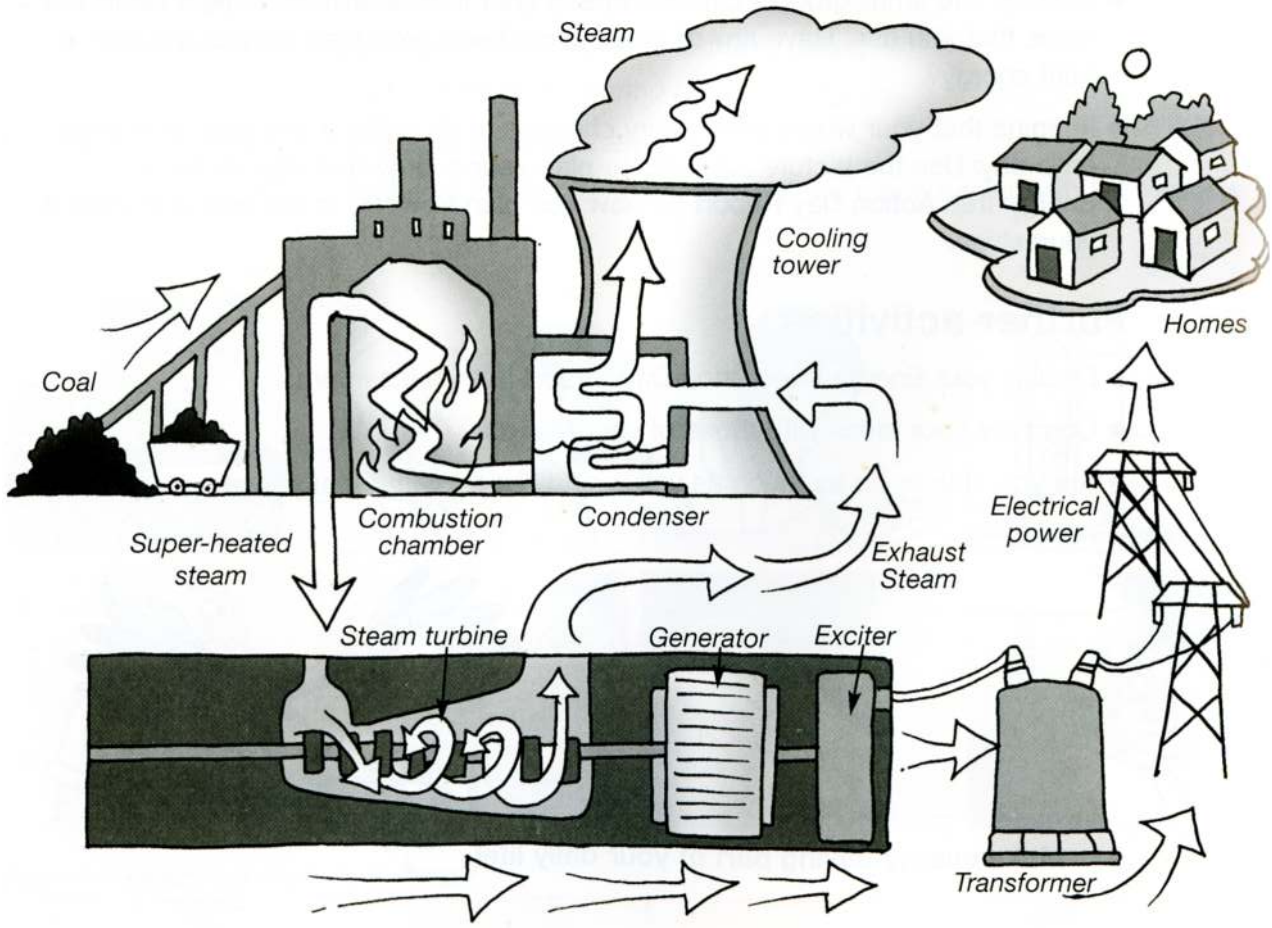
1. Divide the class into groups of five.
2. On their activity sheet they will find a definition of a system. You may have a candle in class to show the wax and the wick (the thread running through it). Ask them how many parts a candle has. Use a lamp, let them discuss the different parts of that: A container for oil, a wick, something to turn the wick up and down, a glass to cover the flame. Do they know why it is open on top? (This they will be able to answer at the end of our lessons), etc.
3. Ask them to discuss fire systems they use in their homes, and complete the mind map on the activity sheet.
4. Consolidate their answers by drawing a mind map on the board and fill in their responses.
5. They might come up with the following:



6. Expanded opportunity. Learners might also come up with "electric stove". Ask them wether that is a fire or a flame. Lead them to understanding the section on power stations. There is fire, but they are burning at the power station where air pollution is also a big problem. If we save electricity, we prevent this pollution.

LO 2: Constructing Science Knowledge.
AS: Categorizing

ACTIVITY 2



Use the information that follows to interpret this diagram.

WHAT TO DO

Read this simple description of how electricity is made.

- The diagram shows a steam turbine electric power station. þ Coal is burned to create the heat to make steam.
- Steam under high pressure is piped into the turbines.
- The steam spins the shafts of the wheels of the turbines.
- These turbine machines produce mechanical energy.
- The turbines drive the generators that produce electricity.
- An electromagnet in the generator creates the char e that is transmitted as electricity.
- Wires carry high voltage electric current from the power station to a sub-station.
- From there the electricity is distributed across South Africa.

Use scientific language to answer these questions.

- How is coal brought into, and used, in the power station?
- Where is water heated into steam, cooled and recycled?
- Where are pollutants released into the air?

Discuss your report with another learner. Is your report clear to him or her?

1. Draw their attention to fires that are good – those that they have named in their mind map. But, some fires can also be bad for us. We call them destructive fires or wild fires. They are useless and can be dangerous to us.

2. Ask them to look at fires listed in their activity books and explain what it means to categorize. We are going to sort these fires into good and bad fires.

3. Discuss the fires listed on the activity sheet. Use the glossary to find the meanings of difficult words. Let them read the words out loud. Make sure the learners know what to do in this activity and help them while they are doing it. Remember our role to be continuously assessing the progress of our learners!

4. You can adapt this activity to specific grades or specific learners to work on their level, e.g.

Teacher: Help Gr. 4 to discover useless/useful categories. Gr. 5 – Create own categories, explain Gr. 6 – Two variables e.g. fire started by nature / by man

Discuss these issues. They may have different view points

5. We will later learn or discover that some wild fires that happen naturally can be good or beneficial. But, ALL FIRES ARE DANGEROUS. DO NOT PLAY WITH FIRE!!

6. Some of the examples could be placed in both categories, especially the ones that are printed in bold. It is necessary though, that the learners discuss, even in their home language, the pro's and cons of using them. Learners must be encouraged to do critical thinking.

Examples of fires and flames	
1. Candles	15. Lantern
2. Burning house	16. BBQ grill
3. Oil burning in a pan	17. Paraffin stove
4. Imbawula	18. Person's clothes on fire
5. Forest fire	19. Fire break
6. Wood stove	20. Lightning started veld fire
7. Gas bottle exploding	21. Burning wheat field
8. Arson	22. Controlled fire
9. Oil lamp	23. Fire used in hunting
10. Veld fire	24. Furnace/ fireplace
11. Grass fire	25. Burning orchard
12. A shack on fire	26. Burning plantation
13. Gas stove	27. Burning grass to improve grazing
14. Imbawula falling over	28. Fire to clear land

- Categorizing useful and useless fires:
- Write your own headings.
- Only write the number, not the entire words or phrase.

Heading: Useful fires	Heading: Useless Fires
Number: 1, 4, 6, 9, 13, 15, 16, 17, 19, 22, 23, 24, 27, 28	Number: 2, 3, 5, 7, 8, 10, 11, 12, 14, 18, 20, 21, 25, 26

LO 1: Scientific Investigations
AS: Plan, conduct and record, evaluate and communicate findings. (Steps in the scientific process) Integrate with languages and arts and culture.

ACTIVITY 3

FIRE IN THE VETKOEK PAN!

1. ..... "FIRE! Quick! Get some water "
2. ..... "No, not water! It'll spread the fire"
3. ..... "How can we put it out?"
4. ..... "We need a fire extinguisher".
5. ..... "Fires are like people"

(Jay puts some cardboard over the flames)

6. ..... "Jay, what are you doing? That cardboard is going to burn!"
7. ..... "The fire has gone out!
8. ..... "Jay had the right idea. If you stop oxygen from getting to a fire it will go out"
9. ..... "Awuzwe-ke mfanawam'. Here is the first vetkoek" "Brilliant, Jay."
10. ..... "Someone is coming!" "Is that the man who was sleeping in the car?"
11. ..... Warm yourself at the fire, baba". I'll make you a vetkoek"

12, 13 & 14 are on the pictures.

Decide who is going to say what.

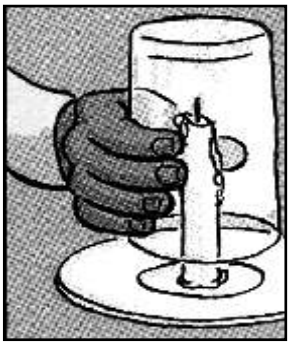
15. ..... In the beginning of the world when the rocks were young…"
16. ..... The wind is strong tonight".

(Ayanda put a glass over the candle to prevent it from being blown out by the wind)

17. ..... "Don't let the candle go out, Ayanda".
18. ..... "Hey you have put it out!"
19. ..... "But I just held the glass over it to protect it from the wind..."
20. ..... "Like this"

(She puts the glass over the flame)

21. ..... "Why does the candle go out when you put the glass over it?"



22, 23 & 24 are on the pictures. Decide who is going to say what.

25. ..... "Wrong, Spider. The smoke only came after the flame went out".
26. ..... "The flame goes out because the glass stops the flame from getting enough oxygen. (They try the experiment again.)
27. ..... "You are right about the smoke. But how do we know that it is going out because there is not enough oxygen?
28. ..... "Do you remember when Jay used the cardboard to put out the fire, the fire stopped burning? It must have been because it was not getting enough oxygen."
29. ..... "The flame goes out so fast. It must use up the oxygen very quickly."
30. ..... "Fire also gives out other gases like carbon dioxide. These collect in the glass."
31. ..... "The carbon dioxide also helps to put the flame out."
32. ..... "Do you want me to tell you a story or don't you?"
33. ..... "Okay, Bra Joe, we're ready now".

ALL THE CHILDREN SING THIS SONG TO A TUNE THEY HAVE COMPOSED

1. Divide the learners into groups of five.
2. Make photocopies of the story and hand out tot he learners - two can share a copy.
3. Read through the story with the learners.
4. Help them with difficult words.
5. Let them decide in their group who is going to say what.
6. They write their names next to the sentences they will say. There is a space for their names. Remember, it is a conversation, and not just a reading lesson.
7. It means that they will go through the story a couple of times to know it well. Let them practise the reading of their roles and do the actions.
8. The story ends with a song they can find a tune for and sing as a group.

Activity 3.1

The story below informs us about how a fire can be extinguished and an experiment supporting a scientific investigation. In class we are going to play this story, to enable us to recall all this knowledge again in our written activities.

You can do this role play in groups. The sentences are numbered, to make it easier to answer the questions in the written work assignment. Assign roles to each member of the group. Fill in the name of the learner who has to read each sentence in this little drama. Then read your parts, put in some actions, and present to the rest of the class! ENJOY IT!!

Activity 3.2

The scientific process is a very important part of natural science. It forms part of LO 1 and includes a lot of skills that learners should develop in the intermediate phase. Whenever we **do science** we must keep these skills in mind. In this activity we are helping the learners to **identify** these skills or steps in the story they have just played. Please let them not be scared of natural science. Let them do the play and this activity!!!

Information given		Number
1.	A problem that they experienced	1
2.	A solution to the problem	6, 7
3.	All the sentences that suggest hypothesis or a theory	17, 19, 22, 23, 24
4.	The observations they made	7, 18, 25, 29
5.	A technological solution to make a fire indoors for warmth	12
6.	Apply knowledge in another situation	2, 5, 28
7.	An investigative question	21, 27
8.	Repeating an experiment to test a result	26
9.	What science knowledge they gained	2, 8, 28, 30, 31
10.	Another gas on which they can perform an experiment	30
11.	Make a conclusion	8, 26, 31

Activity 3.3

1. Introduce the learners to a second story: back in class. They have it available in their books.

2. Since Bra Joe taught them the song, something very dangerous happened to him. Tell the learners about that.

Teacher:	We have learned from Bra Joe's experience that we cannot live without oxygen. (She draws a triangle on the board, and writes oxygen at the top angle) What else do we need to live?
Sipho:	Food, Miss! (Teacher writes food next to the second angle)
Teacher:	Okay, what else do we need? Especially now that winter's coming?
Gift:	Jerseys to keep us warm. (Teacher writes warmth on the third angle)
Jabulani:	Miss, when I was young the wind blew down our shack. My family spent the whole night outside. We were very cold. Our friends gave us wood to make a fire.
Sipho:	Yes, fire gives us warmth.
Gift:	And you can cook on them.
Teacher:	That's right. And fires are like us. They also need oxygen, food and warmth. Fuel is the food that fires need. Can you name a fuel?
Sipho:	Wood
Gift:	Paper
Jabulani:	Paraffin
Teacher:	That's right. And most often fuels need to be hot enough to start to burn. Fire also need oxygen, but it's hard to show that because oxygen is invisible.
Frans:	Can we do the experiment that Jay and Ayanda did with the candle and the glass? That shows that fires use up oxygen.

What happened to Bra Joe?

The burning imbawula used up all the oxygen in the room. The window could not open to let in fresh air. When the fire burns up most of the oxygen, it cannot burn properly. It starts to give off a poisonous gas called carbon monoxide. This gas made Joe unconscious and could have killed him if the others did not arrive on the scene.

ALWAYS HANDLE A CANDLE WITH CARE !!

3. Explain the science behind what happened to Bra Joe.

4. The children role play this episode of the story and do the actions (experiments) included in the story (Let them **play science** !!)

4.1 Assign roles to every learner. Let them read their sentences.

4.2 Please keep SAFETY in mind and do not leave the room while candles are burning.

4.3 Let them repeat the rhyme: ALWAYS HANDLE A CANDLE WITH CARE!!

4.4 After they have played the story, let them complete the work sheet in groups.

4.5 Make a copy of the assessment rubric for every group. They must stick this into their work books.

4.6 Discuss the assessment rubric with them. This assessment can be recorded as a short investigation. Learners must always be informed about the criteria you use for assessing them **before** they do the task.

WORK SHEET

Fire needs oxygen to burn. Try the experiment that was done in these pictures.

1. Look at this picture. List the things one will need for the experiment.
   1.1 Matches
   1.2. Candles
   1.3 Small jar
   1.4. Large jar

2. Collect these things.

3. Conduct the experiment and record data:
   3.1 Put the small jar over the candle. Time how long it takes before the candle goes out.

   3.2 Record your answer here: When I put the small jar over the candle, it took _____ seconds before the candle went out.

   3.3 Now put the large jar over the candle and record the time it takes before the candle goes out.

   3.4 Record your answer here: When I put the large jar over my candle, it took _____ seconds before the candle went out.

   3.5 Talk about why the candle burnt for a longer time in the large jar. Write down what your group has decided (We call this our conclusion): The candle burnt for a longer time in the large jar because There was more oxygen in the large jar. The candle took longer to use up the oxygen in the large jar. There was less oxygen in the small jar.

RUBRIC FOR ACTIVITY 3.4

Criteria	Level 4	Level 3	Level 2	Level 1
Planned for all equipment	The group functioned independently to identify and list all equipment needed for the experiment.	The group identified needed equipment but needed adult help in listing all equipment needed for the experiment.	The group needed adult help in identifying and listing most equipment needed for the experiment.	The group was unable to identify or list most equipment needed for the experiment.
Conducted experiment	Procedures were outlined in a step-by-step fashion that could be followed by anyone without additional explanations. No adult help was needed to accomplish this.	Procedures were outlined in a step-by-step fashion that could be followed by anyone without additional explanations. Some adult help was needed to accomplish this.	Procedures were outlined in a step-by-step fashion, but had 1 or 2 gaps that required explanation even after adult feedback had been given.	Procedures that were outlined were seriously incomplete or not sequential, even after adult feedback had been given.
Safety	Experiment is carried out with full attention to relevant safety procedures and posed no safety threat to any individual.	Experiment was carried out with attention to relevant safety procedures and posed no safety threat to any individual, but one safety procedure needed to be reviewed.	Experiment was carried out with some attention to relevant safety procedures, but several safety procedures needed to be reviewed.	Safety procedures were ignored and/or some aspect of the experiment posed a threat to the safety of the student or others.
Recorded the time	Data was collected several times. It was summarized, independently, in a way that clearly described what was discovered.	Most data was collected more than one time. It was summarized, independently, in a way that clearly described what was discovered.	All data was not collected more than one time. Adult assistance was needed to clearly summarize what was discovered.	Data was collected only once and adult assistance was needed to clearly summarize what was discovered.
Wrote a conclusion	Learners provided a detailed conclusion clearly based on the data and related to previous class discussion.	Learners provided a somewhat detailed conclusion clearly based on the data and previous class discussion.	Learners provided a conclusion with some reference to the data eliminating several important details.	No conclusion was apparent OR important details were overlooked.
Group participation	Used time well and focused attention on the experiment.	Used time pretty well. Stayed focused on the experiment most of the time.	Did the experiment but did not appear very interested. Focus was lost on several occasions.	Participation was minimal OR one or more learners were hostile about participating.
Completed the worksheet	Worksheet was clearly and neatly presented, there were no misspellings and headings and subheadings were visually organized.	Worksheet was neatly handwritten and there were one or two misspellings and incorrect notations.	Worksheet was handwritten with two or more misspellings and incomplete notations.	Worksheet looked sloppy with cross-outs, multiple erasures and/or tears and creases.

LO 2: Constructing Science Knowledge

AS Recalls meaningful information

Describes features which distinguish one category from another

Interprets information using alternative forms of the same information.

ACTIVITY 4

1. This is an activity suitable for grade 6, but it does not mean that lower grades cannot attempt and complete it successfully.

2. They are again going to use the information they have gathered in the previous activities, but are going to interpret and present it in a different form.

3. Divide the learners in groups of five. Strategy: Numbered heads together.

4. Tell them that each and every member in the group must be able to explain the content illustrated on the diagrams and written in the text. If their number is called out, they must try to explain it the best way they can. Help the learners to gain confidence in themselves, by encouraging them while they are preparing their presentation. The whole group may come to support the one who must present.

5. A rubric is designed to assess this activity. Make a copy of it for each group and let them stick it in their work books.

6. Point out every person's responsibility in preventing destructive, wild fires. (Under living things: Releases energy to do useful or useless or bad things. We can make choices, because we are human beings, having values and attitudes that show in our behaviour).

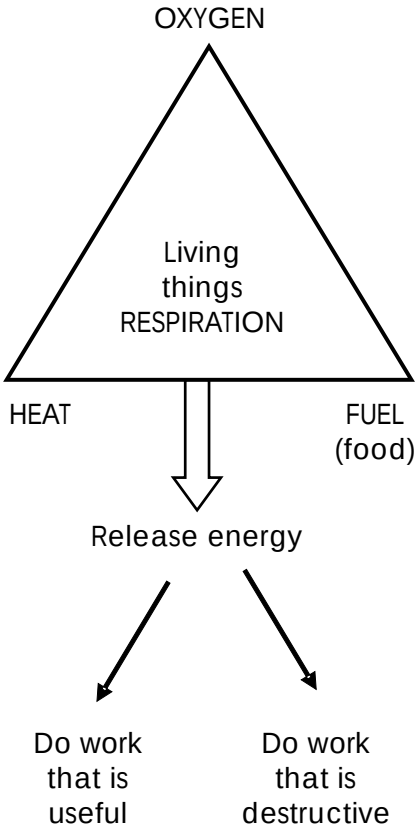
7. Help them to compare respiration to combustion.

8. Point out the similarities and differences between the two processes.

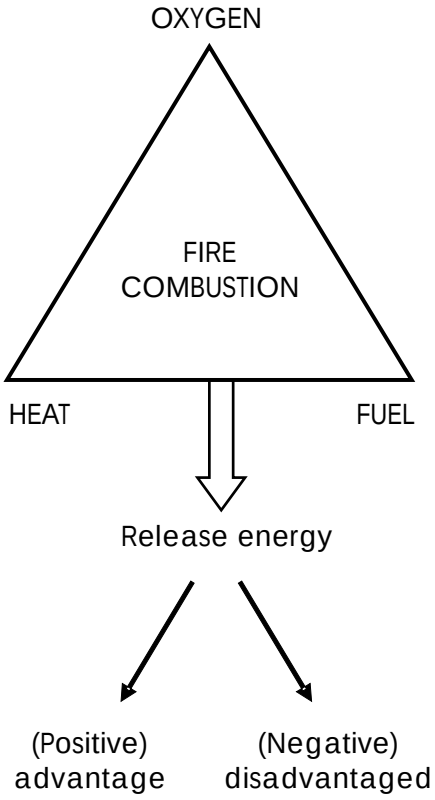
9. This activity could be recorded as a translation task or as a presentation.

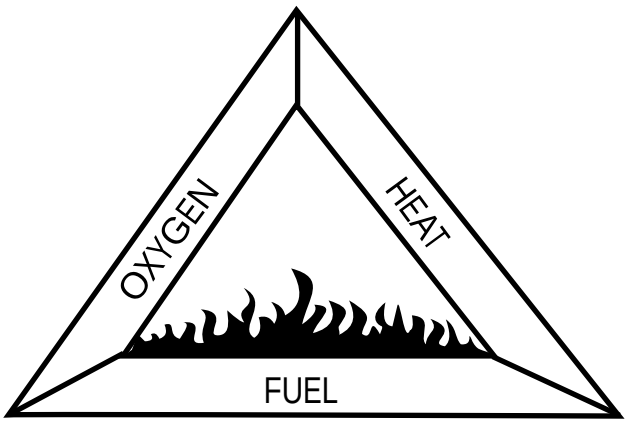
DIAGRAM AND FLOW CHART:

WHAT DOES A FIRE NEED TO BURN, COMPARED TO WHAT LIVING THINGS NEED.



Make a responsible choice!





Fires that are useful are those that we can control. Fires that become out of control are wasteful and destructive.

The fire triangle shows us the three factors that are needed for a fire to burn.

From that we can derive that we could also put out or extinguish a fire by taking away one of these factors.

RUBRIC FOR PRESENTATION ON FLOW CHART ACTIVITY
(The fire triangle comparing human beings and fire):

Criteria	Level 1	Level 2	Level 3	Level 4	Level obtained
Audibility & clarity	Barely audible and impossible to understand	Some points missed due to poor audibility and/or little clarity	The important points are all conveyed	Information is conveyed in such a way that the audience can hear and understand it all	
Use of language	Language is inappropriate and confusing	Language is not always clear	Language is simple and clear	Language is creative, clear and understandable	
Using visual aids	No visual aids are used	Visual aids are poorly chosen and distract from the presentation	Used the flow chart to explain the presentation	Use of flow chart enhanced the presentation	
Interpreting flow chart	Unable to interpret flow chart at all	Interpretation of flow chart unclear and difficult to understand	Interpretation of flow chart is simple and clear	Interpretation of flow chart is clear, with detail and is insightful	
Describing the fire triangle	Fire triangle not understood and not correctly described	Fire triangle seems to be understood but not correctly described	Fire triangle is correctly described by using text only	Fire triangle is correctly described by using the flow chart	
Comparing ideas	Unable to compare human beings to fires at all.	Able to make unclear comparisons of human beings and fires, which lack sense	Able to make simple and correct comparisons of human beings and fires	Able to make correct, detailed and insightful comparisons between human beings and fires	
TOTAL					

ACTIVITY 5

1. Read and explain the information in the learners' activity books.

   Use the information on the Fire Danger Index (FDI) to construct a bar graph, using the colours indicated for each category (blue, green, yellow, orange or red), indicating the danger of fire, as well as the data given by the South African Weather Bureau during a certain week.

2. Discuss the Fire Danger Index with them.

Data given:

Day of the week	Fire index
Monday	40
Tuesday	8
Wednesday	70
Thursday	95
Friday	100
Saturday	50
Sunday	10

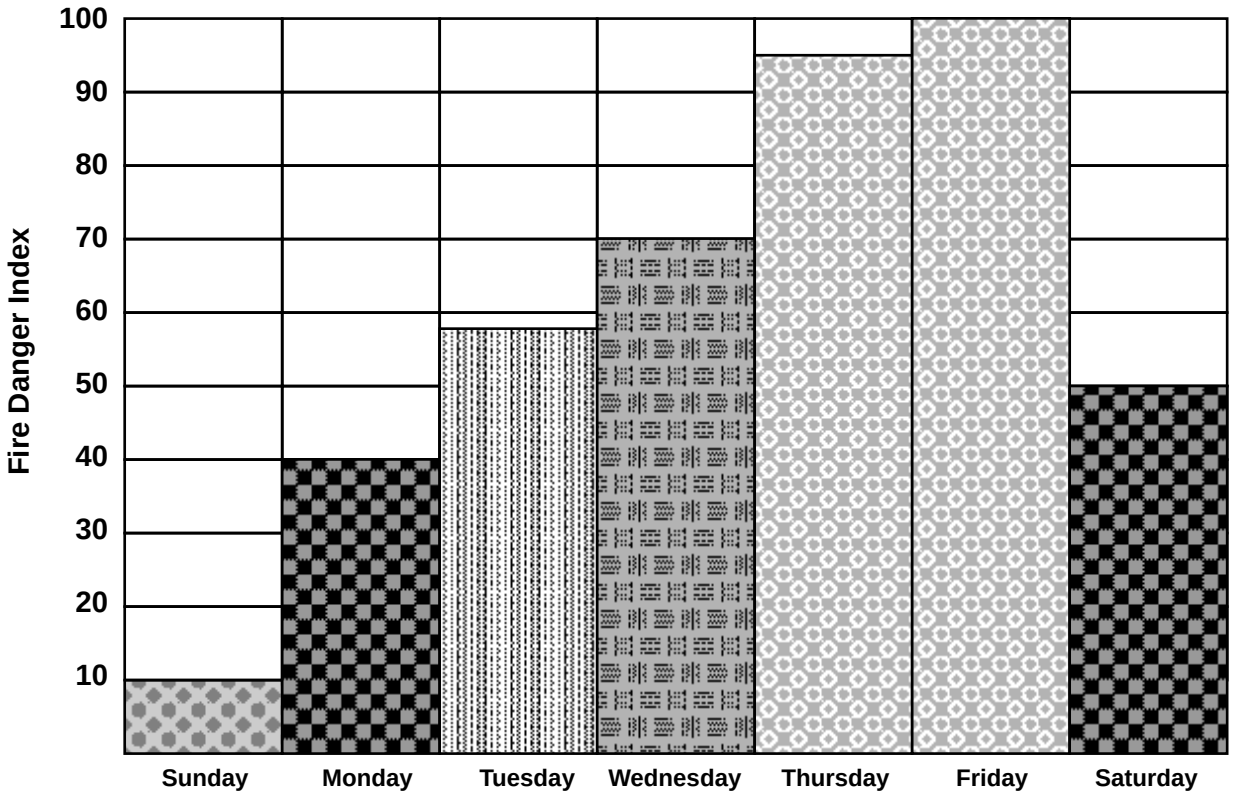
3. Explain what a bar graph is and help them to construct it in their work books.

4. You can also copy this template and let them paste it in their books.

5. This activity can be recorded as a translation task.

6. If your learners have not done bar graphs before, they will need a lot of help. Take them through this exercise slowly.

FIRE DANGER INDEX FOR A CERTAIN WEEK



0 - 19		The fire danger rating is insignificant – safe to make a fire
20 - 44		The fire danger rating is low – There is a moderate chance of fire, and fire will spread slowly
45 - 59		The fire danger rating is moderate – Conditions are dangerous and fires will ignite easily and will spread rapidly
60 - 74		The fire danger rating is high – conditions are very dangerous and fires will ignite easily and will spread rapidly
75 - 100		The fire danger rating is high – conditions are extremely dangerous. Flames can travel up to 4km per hour and their height can vary from 5 – 15m or more

8.2 Answer the following questions by studying your bar graph and the FDI.

a) On which days was there danger of flames higher than 10 metres?
b) What colour is used to indicate it?
c) On which days will it be safe to make a fire?
d) What would be the colour index for that?
e) How would you explain the danger rating for Wednesday?
f) Will it be possible for people with wet sacks to extinguish a fire if the flames are 5 to 15 metres or more in height? Explain your answer.
g) Why is fire such a hazard in August?
h) On Thursday a group of workers started making arrangements for controlled burning. Do you think they are doing the right thing? Explain your answer.
i) What is the speed at which the fire can spread on a red day?
j) Which fuels could burn on a red day? Study all the information to make a list,

8.2 Memo for questions

a) Thursday & Friday
b) Red
c) Tuesday & Sunday
d) Blue
e) The rating is high. Conditions are very dangerous. Fires will ignite easily and will spread rapidly.
f) No. Flames are too high to reach them.
g) Windy month
h) No. Conditions are extremely dangerous.
i) 4km per hour
j) Grass, dry leaves, trees, orchards, plantations, sugar cane

USE THE RUBRIC ON THE FOLLOWING PAGE TO ASSESS THE LEARNER'S BARGRAPH.

Criteria	4	3	2	1
Bar graph drawing in general	Lines are clear and not smudged. There are almost no erasures or stray marks on the paper. Colour is used carefully to enhance the bar graph. A variety of texture is used to shade bars. Overall, the quality of the drawing is excellent.	There are a few erasures, smudged lines or stray marks on the paper, but they do not greatly detract from the graph. Colour is used carefully to enhance the bar graph. Overall, the drawing is good.	There are a few erasures, smudged lines or stray marks on the paper, which detract from the bar graph OR colour is not used carefully. Overall, the quality of the drawing is fair.	There are several erasures, smudged lines or stray marks on the paper, which detract from the bar graph. Overall, the quality of the bar graph is poor.
Title and Labels	Title is information, centered, and larger than other text. Every item that needs to be identified has a label. It is clear which label goes with which bar in the graph.	The title is adequate. Almost all items (90%) that need to be identified have labels. It is clear which label goes with which bar in the graph.	The title and most items (75 – 89%) that need to be identified are correct. It is clear which label goes with which bar in the graph.	Less than 75% of the items that need to be identified have labels OR it is not clear which label goes with which bar in the graph.
General formatting	Unlined paper is used. The bar graph is large enough to be clear (about ½ a page of typing paper). Learner name, class and date are in the lower left corner. There is a figure caption that describes the bar graph.	Unlined paper is used. The bar graph is large enough to be clear (about ½ a page of typing paper). Learner name, class and date are in the lower left corner.	Unlined paper is used. The bar graph is a little too large or a little too small. Learner name, class and date are in the lower left corner.	Lined paper is used AND/OR the bar graph is much too small or much too large.
Bar Graph details	All assigned details have been added. The details are clear and easy to identify.	Almost all assigned details (at least 85%) have been added. The details are clear and easy to identify.	Almost all assigned details (at least 85%) have been added. A few details are difficult to identify.	Fewer than 85% of the assigned details are present OR most details are difficult to identify.
Accuracy	95% or more of the assigned data is drawn accurately and is recognizable. All assigned data is labeled accurately.	85 – 94% of the assigned data is drawn accurately and is recognizable. All assigned data is labeled accurately.	85 – 94% of the assigned data is drawn accurately and is recognizable. 85 – 94% of the assigned data is labeled accurately.	Less than 85% of the assigned data is drawn AND/OR labeled accurately.
Knowledge gained	When asked about 10 items in an unlabelled bar graph, learner can identify	When asked about 10 items in an unlabelled bar graph, learner can identify 8	When asked about 10 items in an unlabelled bar graph, leaner can identify 6	When asked about 10 items in an unlabelled bar graph, learner can

ACTIVITY 1

- Use this guide together with the learners' activity book to plan your lessons.

LO1: Demonstrate knowledge and understanding of the economic cycle within the context of the economic problem.

- It is based on AS 3 of grade 5, but learners from other grades could also benefit from it.

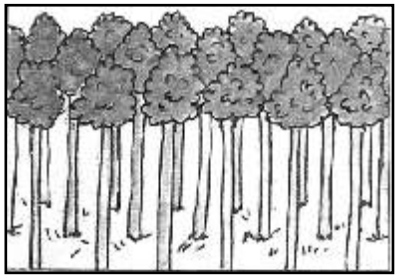
Context: The consequences of fire in the economic cycle of a forestry company and community.

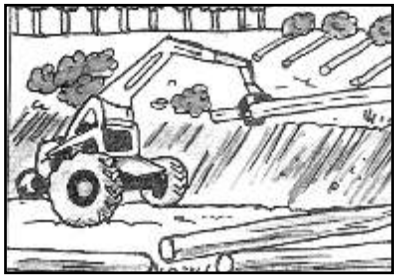
THE CYCLE OF TREE PRODUCTION

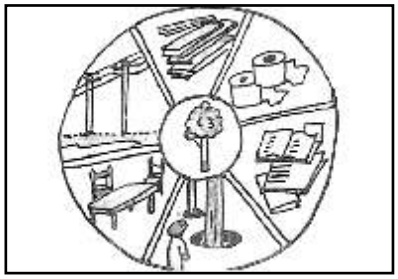
In order to have the products of forestry, a whole cycle must be completed. This cycle can sometimes take up to 20 years.

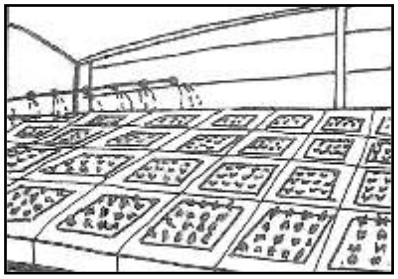
ACTIVITY 1.1.

1. Read about the various stages of the tree cycle (Sentences 1 through 6).
2. Learners then match the pictures below by adding the letter for each picture you select, into the spaces provided.
3. Answers:
    1. Seedling being carefully grown in trays in protected area. Picture **E**……..
    2. Small plant being planted in prepared soil. Picture **C**. ……..
    3. Young trees. Picture …… **F**.
    4. Ten years from first planting trees, they reach full height. Picture …… **A**.
    5. Trees are harvested. Picture …… **D**.
    1. Timber from trees is sold to industries for use in creating jobs and manufacture of various items. Picture ……..
    6. B.

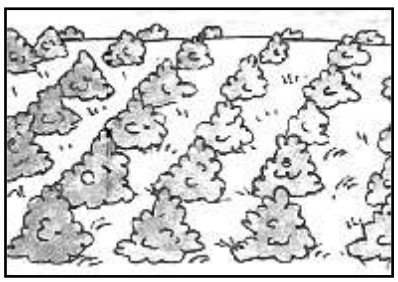
A) 

D) 

B) 

E) 

C) 

F) 

ACTIVITY 2

ACTIVITY 1.2

- Learners are to answer the following questions based on the tree cycle:
- You must also study the information for **ACTIVITY 2** to complete this activity.

1. It takes many years for the cycle to be completed. These trees are grown because we have needs. Name the products needed by consumers and name some of the products that are made form the trees.
   Answer: ***Poles (electricity, telephone), toilet paper, furniture, books, planks.***

2. Which trees can give us these products: Trees in picture A, or trees in picture F. ?
   Answer: ***A***

3. Which jobs are offered to people in pictures C and E?
   Answer: ***C: Planting: carefully stack on trailers, transport and plant the seedlings.***
   E: Care for seedlings, watering, sheltering, transport.

4. Which jobs are created when the trees are harvested?
   Answer: ***Sawing the trees, loading poles on lorries, drivers driving lorries, operator for forklift.***

5. Which equipment or machines are used in the harvesting process?
   Answer: ***Chain-saw, forklift, lorries***

6. If a fire destroys the trees in picture F, would they be ready to be harvested at the end of their growth cycle?
   Answer: ***No***

7. Study all the steps these trees have passed through and consider for how many years people had to be employed and paid. This will be money which will go up in flames if a fire destroys these trees. Will the forestry company get any money for all the steps up to this stage F?
   Answer: ***No***

8. Will there still be jobs for the people who had to care for these trees; such as removing weeds, protecting the trees from grazing by cattle, protecting the trees from fire?
   Answer: ***No***

9. Will any timber be harvested or any products made from these trees if they are burnt?
   Answer: ***No***

10. Will this have a positive or negative impact on the community?
    Answer: ***Negative***

11. Will the forestry company make a profit or suffer a loss as a result of this fire?
    Answer: ***Suffer a loss***

12. Will the company be able to grow, become bigger and stronger, offer more jobs, if there are no trees to harvest?
    Answer: ***No***

13. If the growth cycle of the tree is broken before it gets to a mature tree, what must the company do? E.g. Start right at the beginning by planting seeds, or will it be better to wait till the ten years have passed and then start with seeds again? Give a reason for your answer.

    Answer: ***There is no sense in waiting for the cycle to be completed, because it is broken. They will have to start from the very first step as soon as possible.***

14. How many years, do you think will be wasted if the mature trees are burned down before they could be harvested?
    Answer: ***At least ten years.***

ACTIVITY 2

LO 1: The economic cycle.

AS ADDRESSED: **Gr 4 AS 1 & 3,**
Gr 5 AS 2
Gr 6 AS3

- Explains the effect of natural disasters, like fire on formal and informal businesses.
- Compares the rights and responsibilities of each of the participants in the production of resources.
- Describes the roles of households in the economic cycle.
- Presents various flows of resources in the economic cycle (the flow of wages to households in exchange for labour).
- Identifies and describes the role of government in the use of resources.

The cycle of product and payment.

- It must be stated clearly that the product required in forest management is:

A FULL-GROWN TREE.

Anything less than this is not going to create employment, either in the forest or in the industry that the wood from the trees is supplied to. Trees are valuable and should be cared for at all stages of growth.

THE TREE CYCLE

Step in tree cycle	Action: When and what employment is required	Payment takes place for employees' actions.
1. Seedlings	Care Transport	Employees on contract take care of seedlings by watering and sheltering them in sheds.
2. Soil and land preparation.	Suitable land is selected. Soil is prepared.	Forestry company employs contractor. Contractor employs labour. Labourers prepare land using tools, tractors - managed and guided by contractor.
3. Planting	Trays of small plants are carefully stacked on trailers and taken to previously prepared land	Labourers, employed by contractor, carefully plant trees.
4. Growth process to small trees Growth process to medium-size young trees	Weeding by hand. Weeding chemically Weeding mechanically. Controlling noxious weeds.	Manual labour. Machine and labourers Labour
5. Growth process to mature tall trees	Protect from fire	Good quality tree produced.
6. Harvesting of mature trees.	Harvest to required specification.	Supply to order.

ACTIVITY 2.1.

- Learners get information directly from the table provided.
- This ACTIVITY is to make learners aware of the terminology CYCLE and to the importance of every role player.
- Learners are to study the cycle above.
- The economic cycle also includes the flow of money. In this case money is flowing into the households of people employed for each step in the tree cycle.
- Learners will work in groups of 6.
- Count from 1 to 6 and each team member receives a number.
- Their number now correlates with the step in the tree cycle.
- Ask learners to imagine they are employed at that step.
- They are to describe to the rest of the group which role they play in the delivering of tree products to fulfill consumer needs and wants, and for what they will receive payment.
- Have the learners think of what will happen to the cycle if they do not do their job properly.
- Ask them to answer the question: What will be the long-term result of their irresponsibility?

ACTIVITY 2.2

- Teachers will be given extra information on budgeting which they could make available to learners when doing this ACTIVITY.
- Continue the thinking and imagining from the previous Activity.
- Ask them to imagine: after receiving payment, they go home with the wage they have earned.
- They are the head of the household.
- They are to make a list of all the expenses they will have to cover with this wage.
- They must decide what they are going to save.
- This list will show the needs and wants of their own family.
- They must also distinguish between needs and wants (nice-to-haves).

  In this activity they will discover how important it is to draw up a budget.

Our Household Budget

The main objective of any budget is to try to live within the avilable income and to provide (save) for irregular expnenses that are not paid every month or that come as a nasty shock (like illness, breakage of equipment, vehicle and so on). See how you can help your family.

BUDGETING - A FAMILY AFFAIR!

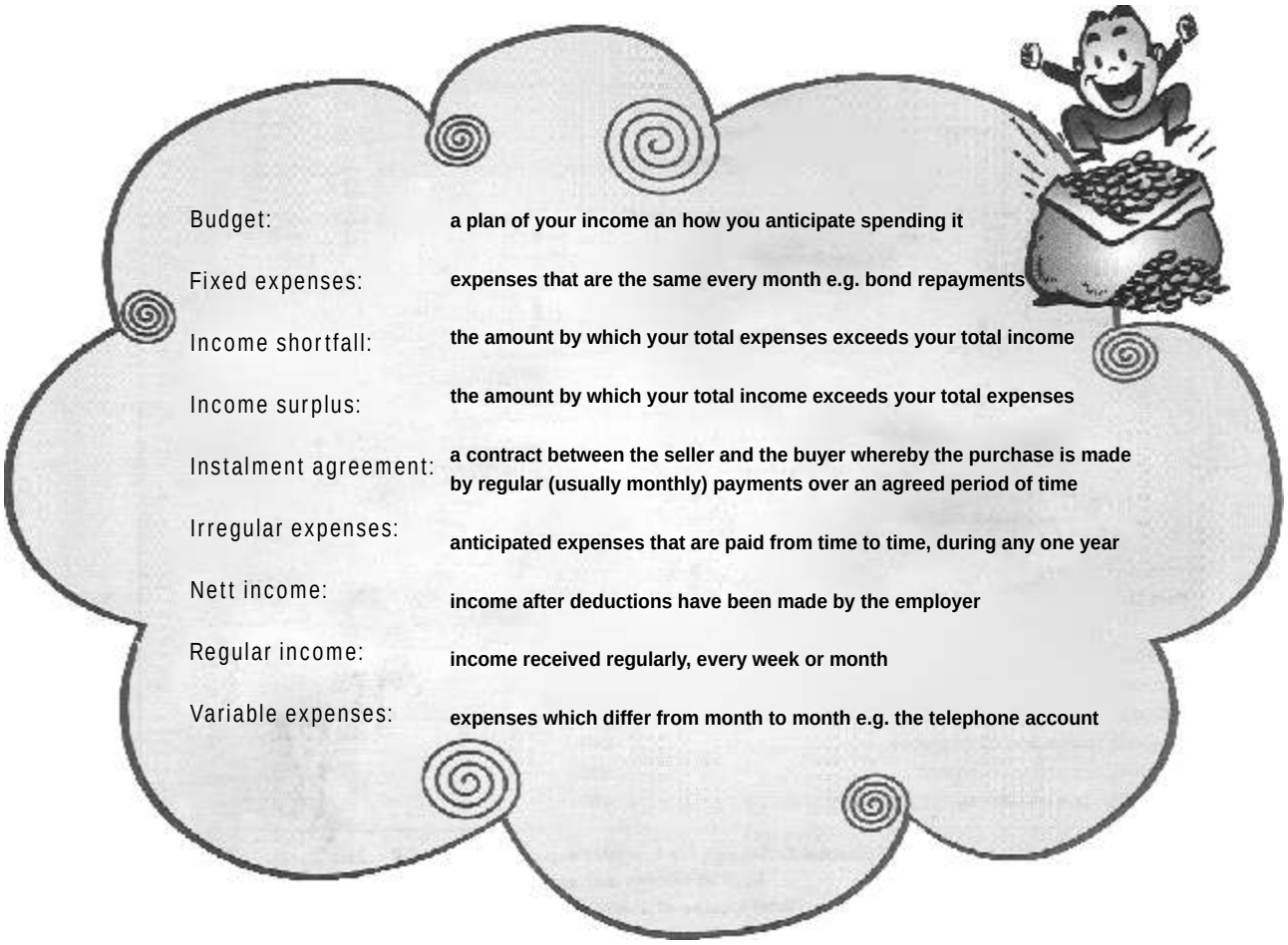
This is a family activity. Do the activity with your parents or guardian. The information on your household budget is personal and confidential and you will not bring this information back to class.

Should the family have any problems completing this household budget, you may like to consult with your educator in private.

Work through a monthly budget with your family members, using the template provided, to help you to plan the household's finances. Use John's budget as a guide.

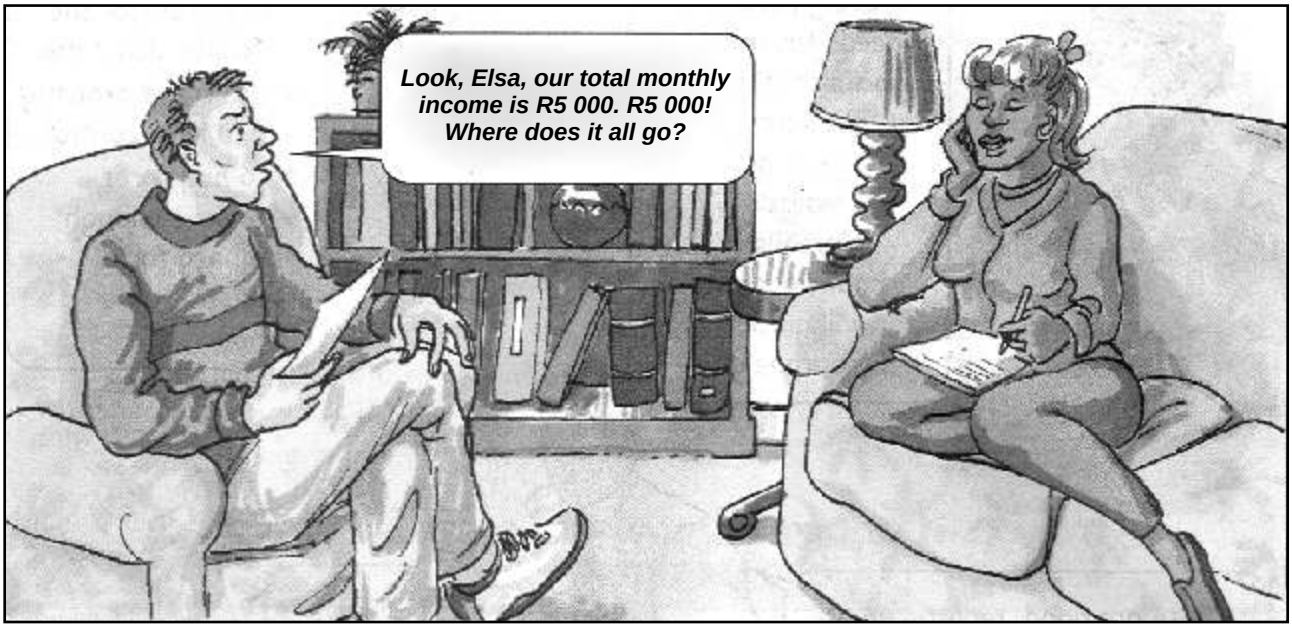
NOTE: We suggest you copy the following template onto clean writing paper and adapt it for your family's requirements.

Stanley Standard says "Let's explore some new vocabulary!"



Budget:	**a plan of your income an how you anticipate spending it**
Fixed expenses:	**expenses that are the same every month e.g. bond repayments**
Income shortfall:	**the amount by which your total expenses exceeds your total income**
Income surplus:	**the amount by which your total income exceeds your total expenses**
Instalment agreement:	**a contract between the seller and the buyer whereby the purchase is made by regular (usually monthly) payments over an agreed period of time**
Irregular expenses:	**anticipated expenses that are paid from time to time, during any one year**
Nett income:	**income after deductions have been made by the employer**
Regular income:	**income received regularly, every week or month**
Variable expenses:	**expenses which differ from month to month e.g. the telephone account**

Mike and his wife sit down to work out a budget together.



TOTAL MONTHLY EXPENSES
Working out your total monthly expenses can be difficult and time-consuming, but worth it. Make sure you include all your expenses.

At the beginning of the month, write down what you expect the pay for each of the following items. Then, at the end of the month, write down what you actually spent on each of those items. The result will help you to work out a realistic budget the following month.

EXPENSES

Rent / bond repayments
Insurance premiums
Electricity / water / gas / paraffin
Loans: bank
microlender
mashonisa
Accounts: clothing shop
furniture shop etc.
Entertainment
'Groceries
Clothes
Transport
School or university fees
Personal - alcohol, cigarettes, take-aways, sweets, drinks, lotto tickets, etc.
Telephone
Other

MONTH: .....

	Money out	Money in
Part A: Monthly income of the household		
Partner A's nett income		R
Partner B's nett income		R
Other regular income:		
Other		R
.....		R
.....		R
Total household income		**R**
Part B: Monthly fixed expenses of the household		
Fixed expenses:		
Bond repayments on house	R	
School fees	R	
Instalment agreements:	R	
.....	R	
.....	R	
.....	R	
Shop accounts:	R	
.....	R	
.....	R	
.....	R	
Insurance:	R	
.....	R	
.....	R	
.....	R	
Loan repayments:	R	
.....	R	
.....	R	
Entertainment:	R	
.....	R	
.....	R	
.....	R	
Savings:	R	
.....	R	
.....	R	
Other fixed expenses:	R	
Sub total B: Fixed expenses:	**R**	
Part C: Monthly changing expenses of the household		
Changing expenses:		
Groceries:	R	
.....	R	
.....	R	
.....	R	
.....	R	
Sub total C: Changing expenses:	**R**	
Part D: Savings for irregular expenses		
.....	R	
.....	R	
.....	R	
.....	R	
.....	R	
.....	R	
Sub total D: Savings for irregular expenses:	**R**	
Total of savings and expenses:	**R**	
Total income of household:		**R**
Surplus income (+) or shortfall (-):		**( ) R**

THE TEN STEPS TO MANAGING YOUR MONEY

Prosperity is not only how much you earn. It is also how well you manage your money.

1. Write down your monthly take-home salary.
2. Draw up a monthly budget, and work with your whole family to make the budget fit your income.
3. Get rid of the "I-must-have-it-now" mentality.
4. Use all extra money (bonus, overime etc.) to pay off debt.
5. Use credit wisely - stick to your limits.
6. Chooses the right insurance policies to suit your family's needs. Don't overdo it.
7. Save, save, save. Even if it is very little every month.
8. It is people who save who can cope with emergencies without getting into financial trouble.
9. If you are in trouble, or you don't have enough to save, look at ways for you and your family to earn extra money. e.g. home industry, gardening, woodwork. Let the whole family help!
10. As the expression goes, do not borrow from Peter to pay Paul.
    Get professional advice!

DANGERS TO WATCH OUT FOR

1. **NEVER borrow money or buy insurance for the wrong reasons.**
   Ask yourself: Do I really need the extra insurance?
   Is it essential? Can I afford it?
   Do I really need the things I want to buy? Can't it wait?

2. **NEVER let your friends or colleagues influence you. Never buy anything to impress other people.**

3. **NEVER borrow from Peter to pay Paul.**

4. **NEVER borrow from an unregistered microlender.**

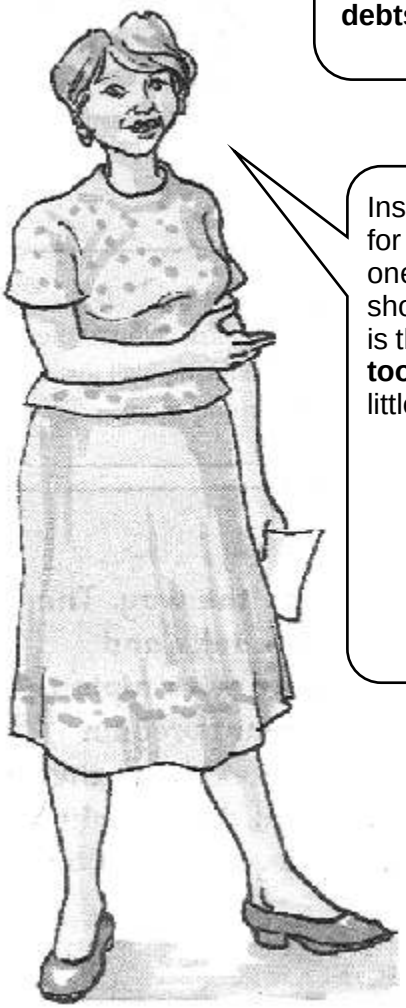
Every person who receives a salary has the right to enjoy the fruits of his or her labour.

Yet for many of us this is not the case. We work hard. We perform a valuable service. But we can barely make it to the end of each month without borrowing or doing without the basic necessities of life.

This should not happen!

WHERE DOES THE PROBLEM LIE?

The problem lies with the number of premiums for **insurance policies** that most public servants have taken out, as well as with the **debts** that they have accumulated.



Insurance is good. it shows concern for the future and for the welfare of one's family. Every wise person should have insurance. The problem is that too many public servants have **too many** insurance policies, with little understanding of their value.

Not all insurance policies are equally suitable. Buying more policies is not the answer, but rather having **fewer policies that you really need.**

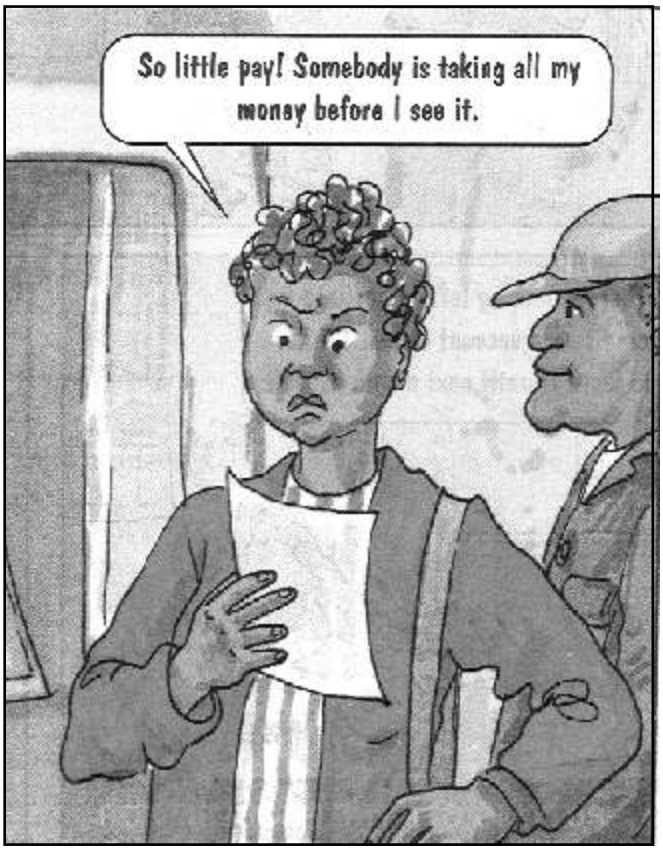
Credit is good when used correctly, but sometimes it can be abused. Loans are very easily available - sometime unfortunately so!

Many South African take out loans or have credit accounts with microlenders, banks, clothing shops or furniture shops. Buying on credit is borrowing money that you do not have. It is to be paid bak, with interest every single month.

As soon as you miss a payment, the interest payment increases. The debt gets worse. You can even loose the things you bought!

Credit accounts have to be managed very carefully to prevent them from getting out of control. this is your responsibility!

THIS STORY SUMS UP THE SITUATION.
DOES IT SOUND FAMILIAR TO YOU?



Too many insurance policies - too many debts.

ACTIVITY 2.3.

- Present learners with the following scenario:

Scenario:

- Ask learners to imagine that a devastating wild fire breaks out in a forest of mature trees.
- They are to identify who are the people who will be directly affected by it.
- Ask them to list all the other people who will also be affected.
- They are to study and discuss in their groups how this fire will impact on each step in the tree cycle.
- They may be guided by the following pictures and information.

Forest fire caused by neglect or intentional arson.

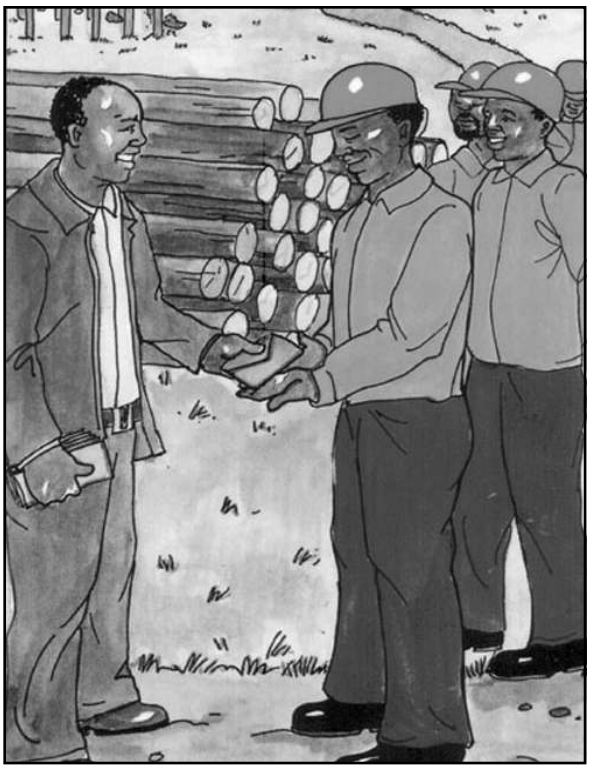
Umlilo ubangelwa ngamabomu noma owenzeke ngokunganaki.

Labour employed - cutting trees with chainsaw

Abaqashwa banquma izihlahla ngamasagaUmlilo ubangelwa ngamabomu noma owenzeke ngokunganaki.

Contractor paying the contracted labourer for work done.

Umqashi ukhokhela abasebenzi amaholo abo.



Person intentionally lighting fire / person smoking out bees resulting in fire being caused.

Umuntu ulayitha / uthungela umlilo ngamasibomu / ngenhloso umuntu uvuthela izinyosi ngentuthu yomlilo okuphumela ekusheni kwehlathi.

Forest has been damaged. There can be no harvesting of this plantation. Community suffering because of no work.

Ihlathi lilimele lacekeleka phansi. Lelihlathi angeke lisavuneka umphakathi usozothwala kanzima ngoba umsebenzi alusatholakali.

Firefighters working hard to extinguish flames.

Umsebenzi wakwa noma wenkontileka ucisha amalangabi omlilo.

A employee inspecting the damage to the plantation. He is worried because of the destruction of trees and the fact that there will be no work now..

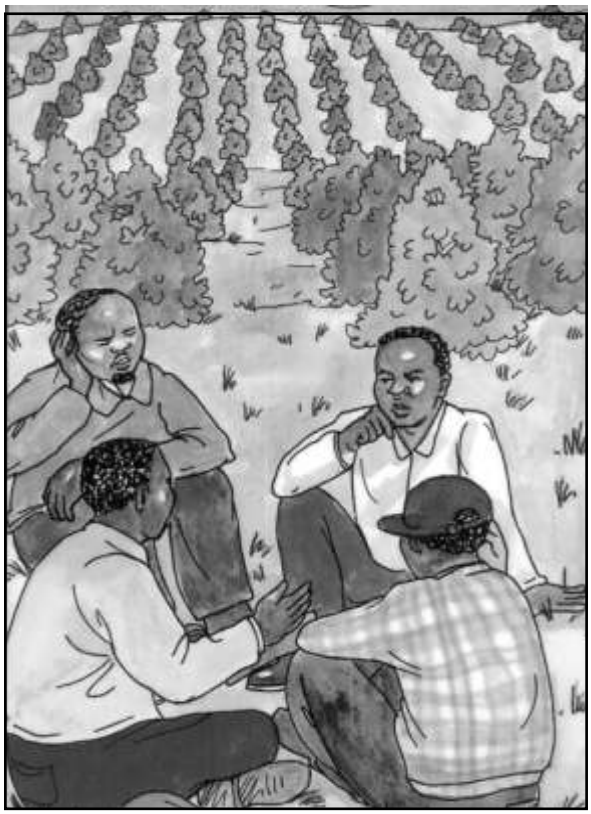
Umsebenzi we mahlathi uhlola ihlathi ngemuva komlilo osulimaze ihlathi Ukhathazekile ngokonakala kwelezi hlahla ngoba lokhu kusho ukuncipha kwamathuba omsebenzi.

Forest company personnel telling buyer of poles, that there are no poles to buy because there have been fires.

Boso Mahlathi batshela abantu abazothenga izingodo ukuthi azihkho ngoba kube nomlilo omkhulu oshise ihlathi lonke.

Adult men - sitting talking - small trees in the background - no work. Planning small business ideas for this time of season.

Umsebenzi we mahlathi uhlola ihlathi ngemuva komlilo osulimaze ihlathi Ukhathazekile ngokonakala kwelezi hlahla ngoba lokhu kusho ukuncipha kwamathuba omsebenzi.



ACTIVITY 2.4.

- Read the following news article that appeared in a local newspaper.

FIRE CAUSED R 100 MILLION DAMAGE

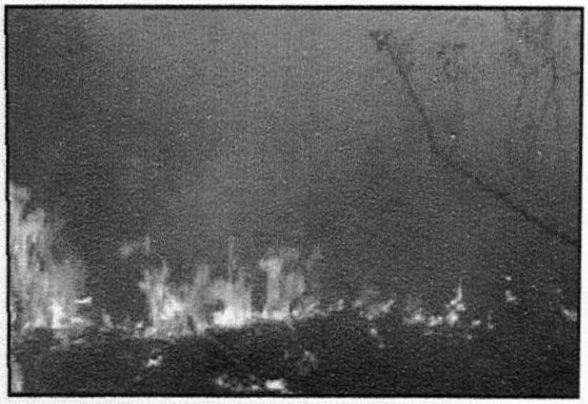
NELSPRUIT

In 2001, veld fires damaged about 30 000 hectares of plantation and grazing in Mpumalanga, causing an estimated R 100 million damage. Fire fighters spent days fighting the fire, and made use of helicopters and aeroplanes to put out the fire.

The effect of the fire will be felt for the next 15 years, by paper, wood and other industries. People and businesses suffered great losses.

In a letter to the premier of the province, a business man said that the damage that was caused by the fire could have a very negative impact on business in the region (economic impact). Because the fire destroyed the raw materials, like timber, businesses could not manufacture timber products. This means that they had no products to sell, and could not afford to employ people.

The premier instructed the police to find out who had started the fire. The damage caused by the fire was so great, that the government declared Mpumalanga a disaster area.



The government sent food and blankets to the people whose homes burnt down. Rural farmers lost a lot of their livestock, which died in the fire. (social impact) Big industries like Sappi and Mondi lost many hectares of valuable timber.

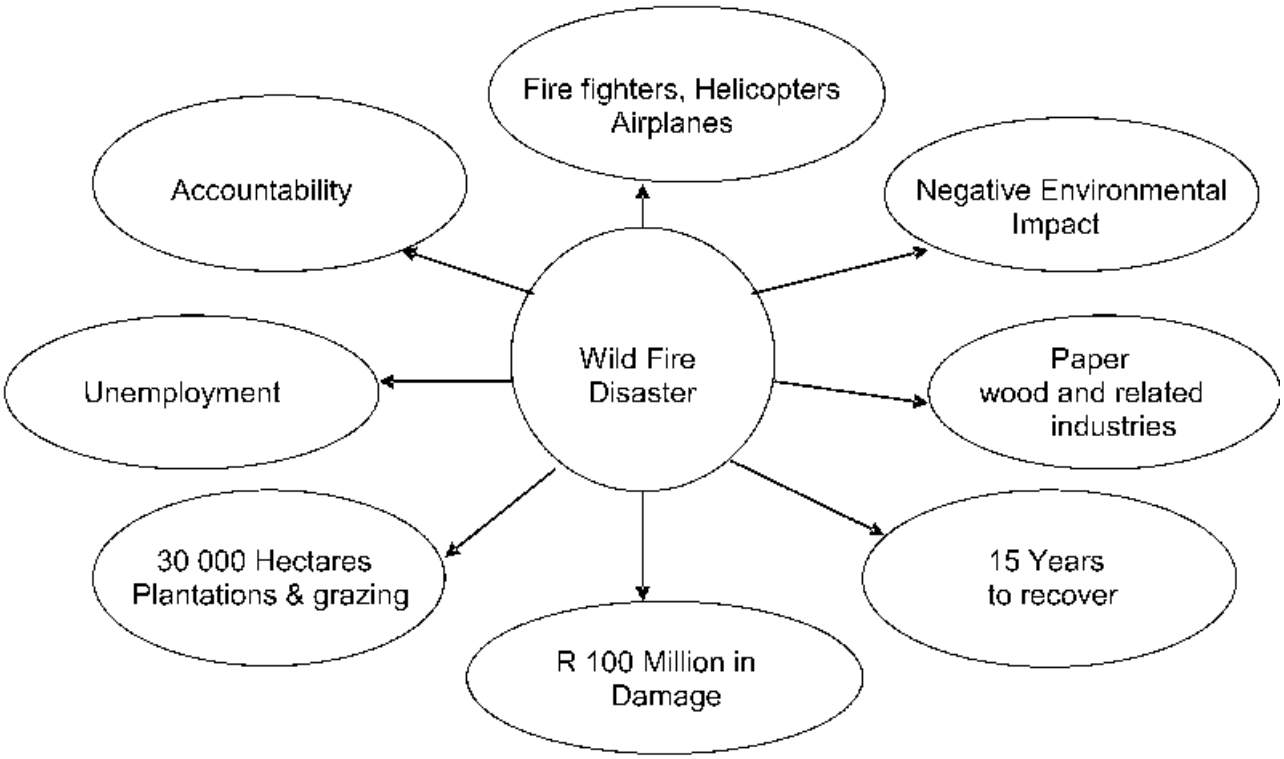
ACTIVITY 2.5.

- Tell learners to refer back to the newspaper article in the previous Activity 2.4.
- Learners are to carefully **UNDERLINE** sentences and parts of sentences that inform them about the following aspects in the article:

  - parts of sentences referring to damage done.
  - money lost.
  - how the fire was combated.
  - the time it will take to recover.
  - the industries which will be affected.
  - the effect on business.
  - the effect on employment.
  - how people who lost their homes were helped.
  - What is a disaster area?
  - Accountability:
    What consequences should there be for the person responsible for the fire disaster.

ACTIVITY 2.6.

- Tell learners to complete the mind map by indicating the key issues they have underlined in the previous activity.
- In an oral presentation learners are to point out the economic effects of the wild fire disaster.
- Hint: learners could write the aspects they want to cover on flash cards, and add them during their presentation or collect pictures from newspapers to aid or enhance their presentation.
- Assess learner's presentation, using the rubric for this Activity.



ACTIVITY 2.6 – RUBRIC

Assessment criteria	Level 1	Level 2	Level 3	Level 4
Audibility & clarity	Barely audible and impossible to understand.	Some points missed due to poor audibility and/or little clarity.	Presentation was audible and contained most all points with clarity.	Presentation was audible, contained all points and demonstrated creativity and comprehensive understanding.
Use of language	Language is inappropriate and confusing.	Language is not always clear.	Use of language was satisfactory.	Impressive use of language in presentation.
Use of mind map or other visual aids.	No mind map or other visual aids are used.	Mind map information or visual aids are poorly chosen and distract from the presentation.	Mind map and/or visual aids are used to complement the presentation.	Mind map or visual aids are carefully chosen and skillfully used to enhance the presentation.

sappi

MPUMALANGA
DEPARTMENT OF
EDUCATION

EHLANZENI REGION

KWAZULU NATAL
DEPARTMENT OF
AGRICULTURE & ENVIRONMENT

EZEMVELO
KZN WILDLIFE

WORKING
ON FIRE
PROGRAMME

AGRI SA

FORESTRY SOUTH AFRICA