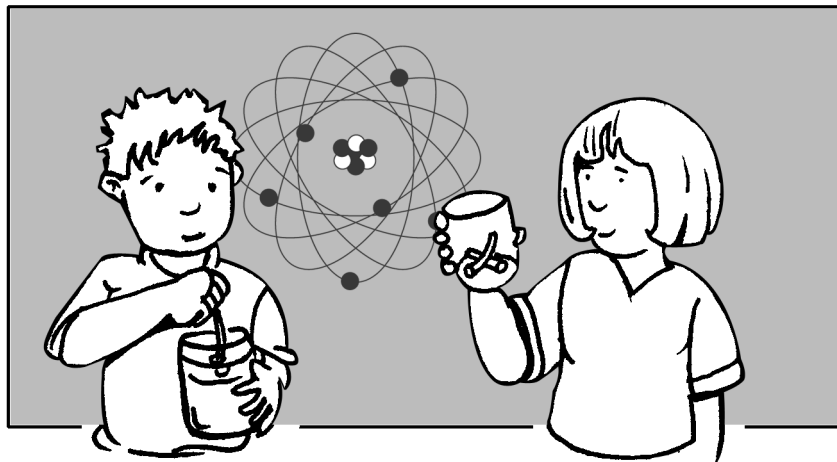


# Science

VELS Teaching & Assessment Resource

Year 4

Level 3



**TEACHER RESOURCE**

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# Introduction

In this teaching resource you will find a year planner, term planners and week-by-week lesson plans, as well as corresponding assessment record sheets, reproducible teaching aids and homework sheets. Each week-by-week lesson plan lists students' objectives, teaching resources, skills, step-by-step activities, assessment suggestions and a list of associated terms. Some lesson plans include extension activities.

Each lesson plan is designed to be used in conjunction with the student workbook and the appendices (see the back of this book). Flick through the lesson plans and you will notice that each time a work sheet, homework sheet, assessment record sheet or other resource is required, its page number is cross-referenced. Thus the week-by-week lesson plans form the skeleton for all your science lessons.

In the appendices at the back of this book you will find assessment record sheets (Appendix I) and reproducible teaching aids (Appendix II). The activities in the lesson plans make use of materials that are fun and inventive yet easily found around the classroom or at home. 'Technology Application' indicates how technology is integrated into the classroom. The activities can be taught in one block or individually throughout the week.

The student workbook encourages active student participation and helps develop a wide range of skills from discussing and analysing to hypothesising and cooperating. The workbook also serves as a record of each student's observations and an outline of how each student's scientific knowledge has developed.

Use this book, *VELS Science Teaching and Assessment Resource – Year 4*, in conjunction with the student workbook. It will make teaching easier by providing the resources for the VELS standards for Science, Level 3, in an easy-to-use format.

# Progression Points

## Progressing Towards Level 3

### Progression Point 2.25

#### Science Knowledge and Understanding

- Awareness of similarities and differences between materials in a group
- Awareness of the living and non-living components of the environment
- Changes related to one or more of matter, space, energy and time

#### Science at Work

- Recording of observations made during teacher-directed experiments involving measurement and the collection and recording of data
- Reporting of observations and experiments using both general and science-specific language
- Recognition of simple patterns evident in data collection
- Awareness of safety procedures undertaken during experiments
- Awareness of science activities occurring in local community

### Progression Point 2.5

#### Science Knowledge and Understanding

- Sorting of materials using basic criteria such as size, shape, colour and weight, and awareness that different criteria will result in different groupings
- Knowledge of interactions that are observed occurring between living and non-living components of the environment
- Knowledge of how change related to one or more of matter, space, energy and time may be of benefit to society

#### Science at Work

- Recording of observations made over time, subsequent prediction and their testing in teacher guided experiments
- Reporting of observations and experiments using science specific language to record what went well and where difficulties were encountered
- Recognition of trends evident in collected data
- Use of specific safety procedures during experiments
- Knowledge of the science involved in a social issue or problem

### Progression Point 2.75

#### Science Knowledge and Understanding

- Classification of a range of materials as solids, liquids and gases, with reference to the observable properties of the materials
- Understanding of events which may affect the sustainability of interactions occurring between living and non-living components of the environment
- Understanding of how change related to one or more of matter, space, energy and time may both benefit and harm society

#### Science at Work

- Generation of questions about situations and phenomena which lead to collaborative planning, designing, and conducting of experiments
- Reporting of experiments using science specific language to record variables and characteristics of a fair test
- Understanding of patterns and related trends evident in collected data
- Understanding and recording of required safety procedures during experiments
- Understanding of how the work of a particular scientist has benefited society

# INVESTIGATING GASES

## OBJECTIVES

- Investigate gases in the context of those we use in our lives

## RESOURCES

balloons  
warm water  
sugar

yeast  
PET bottles  
eucalyptus oil

## SKILLS

experimenting  
observing

## PROGRESSION POINTS

The following lesson provides opportunities for students to demonstrate:

### Progression Point 2.5 Science at work

- Recording of observations made over time, subsequent prediction and their testing in teacher guided experiments
- Reporting of observations and experiments using science specific language to record what went well and where difficulties were encountered
- Recognition of trends evident in collected data
- Use of specific safety procedures during experiments

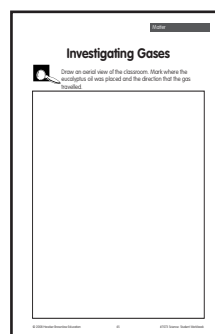
### Progression Point 2.75 Science knowledge and understanding

- Understanding of how change related to one or more of matter, space, energy and time may both benefit and harm society

### Progression Point 2.75 Science at work

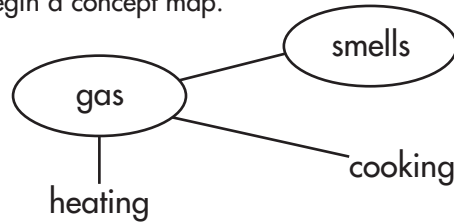
- Generation of questions about situations and phenomena which lead to collaborative planning, designing and conducting of experiments
- Reporting of experiments using science specific language to record variables and characteristics of a fair test

## CORRESPONDING WORK SHEET



## ACTIVITIES

- Tell the students that gas takes up all of the space in a container that is not taken up by solids or liquids. Remind students that a gas is made up of bits that move quickly and freely, spreading out in the air. Air is a gas mixture.
- Hand a couple of balloons to students and ask them to blow them up. This demonstrates that gas is filling the balloon, taking up the available space.
- Discuss gases that may be detected by smell, such as the gas in ovens and stoves or the gas at the petrol station.
- In groups, have students brainstorm uses for gas, such as breathing, fuelling a car, cooking and heating, carbonating drinks, aerosol cans, pump packs and so on.
- Have students share their group discussion and lists. As students suggest ideas, and generate questions, begin a concept map.



- Discuss safety procedures for the following activities and fair testing.
- Have groups of students make a gas by mixing warm water, sugar and yeast in a soft-drink bottle. Place a balloon over the top immediately after the water is added and tell students to observe what happens.
- Ask the students which gas is formed. Tell them that the gas is carbon dioxide. When sugar and yeast are mixed the yeast uses the sugar for food (energy) and forms a gas – carbon dioxide.
- Position the students around the room. At first, ask them to stand. Place some eucalyptus oil in a corner of the room near a draught. Ask each student to sit when they can smell the oil. Video the students as they are engaged in this activity.
- After most can smell this, ask questions about who smelt it first, who smelt it last, did it travel to everyone, what made it travel around the room, and so on. Play the video back to the students when discussing the movement of the gas. Add this information to the concept map about how gas travels. Have students draw the path the gas travelled in their workbooks.

Discuss pollution.

OR

Plan collaboratively; designing and conducting experiments/research to answer questions that were generated.

Note any scientific language and descriptive words you hear the students use on the assessment record sheet (Appendix I, page 93).

## EXTENSION

## ASSESSMENT

## LANGUAGE

Introduce and explain the following terms:

<i>gas</i>	<i>sugar</i>
<i>carbon dioxide</i>	<i>mix</i>
<i>yeast</i>	<i>create</i>
<i>oxygen</i>	<i>draught</i>
<i>spread</i>	<i>hear</i>
<i>travel</i>	<i>cook</i>
<i>smell</i>	