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Cultural science

Strand

Science and Society

Key concept

Historical and cultural factors influence the nature and direction of science which, in turn, affects the development of society.

Purpose

Activities in this module are designed to help students understand that communication has an important influence on the development of conceptual understanding. Students have opportunities to:

- become familiar with some different explanations for familiar phenomena;
- investigate the characteristics and effectiveness of different ways of communicating.

Overview of activities

The following diagram shows the activities in this module and the way in which these are organised in **introductory**, **developmental** and **culminating** phases.

Introductory ►

How we
communicate
Comparing
communication

Developmental ►

Faces on the moon
Learning through
pictures
Science through mime
Science in storybooks
Starry stories

Culminating

How do I know how
to use it?



Core learning outcomes

This module focuses on the following core learning outcomes from the Years 1 to 10 Science Syllabus:

Science and Society

2.1 Students discuss their own ideas about the ways that science can be described and compare their ideas with those of others.

3.1 Students relate some of the ways that people of various historical and cultural backgrounds construct and communicate their understandings of the same natural phenomena.

Core content

This module incorporates the following core content from the syllabus:

Science and Society

Communication of scientific ideas

Changes in scientific ideas over time

- factors which assist/hinder the development of scientific ideas
- comparison of ideas

Assessment strategy

Suggestions for gathering information about student learning are provided in each of the activities in this module. Once sufficient information has been collected, judgments can be made about students' demonstration of outcomes. Typical demonstrations of this module's intended outcomes are provided here to indicate the pattern of behaviour to look for when making judgments.

Science and Society

2.1 Students discuss their own ideas about the ways that science can be described and compare their ideas with those of others.

Students may:

- recognise that science can be described in different ways;
- communicate their understandings of scientific phenomena in a variety of ways;
- access information from a variety of sources to complete a task;
- listen to others as they explain ideas;
- formulate questions to clarify understanding.

Science and Society

3.1 Students relate some of the ways that people of various historical and cultural backgrounds construct and communicate their understandings of the same natural phenomena.

Students may:

- reflect on the variety of means of communication;
- make links between the opportunities to communicate understandings and the diversity of explanations for the same phenomena;
- evaluate the effectiveness of different means of communication;
- describe the ways that various cultures communicate(d) their knowledge.

Background information

Current scientific conceptions

Surface of the moon

The surface of the moon is cold, barren and lifeless. Its temperature may vary from 130°C at lunar noon to minus 175°C at night. The surface of the moon has no water and the moon has no atmosphere. As a consequence, there is no weather on the moon and no weathering of the moon's surface.

Low flat areas make up about one-third of the moon's surface. These flat areas are filled with a dark coloured lava with a basaltic composition similar to that found on the island of Hawaii. Long valleys are thought to be collapsed lava tunnels that appeared as the lava cooled, hardened and contracted.

Craters, mountains and steep cliffs make up the rest of the surface. The most obvious features of the moon's surface are craters. The craters range in size from 70 to 250 kilometres in diameter. Some of the craters resemble the volcanic craters on Earth and are thought to be the result of volcanic activity.

Other craters called 'explosion craters' were probably caused by the impact of meteorites. 'Rays' appear as bright areas radiating out from explosion craters like the spokes of a wheel. The rays may extend up to 3000 kilometres or more and are thought to be made of fine dust-like material blown out during the impact.

Structure of stars

Stars go through a life cycle and at different stages in the cycle they have different characteristics. Stars change colour from white to red as they age.

The Earth's sun is a yellow star. In the core the temperature is about 15 million°C. In the core, nuclear reactions are taking place that convert hydrogen to helium and release enormous amounts of energy including light and heat energy. This energy is carried from the core to the outer layer where the energy is converted to visible light. The temperature at the surface of the sun is about 6000°C. An analogy for this is heating an iron bar until it glows, giving off light. The hotter the bar gets, the more it glows.

Students' prior understandings

Some students may not be aware of the different means of communication available to people in the past and in various cultures.

They may not realise the importance of the relationship between the means of communication and the development of conceptual understanding.

They may not make links between storybooks and developing knowledge and understandings about science.

Terminology

Terms associated with communication and science are essential to the activities in this module — for example:

communication	social
culture	story
information	understanding
report	

Students may already be familiar with some of these terms and understand their meanings and use in scientific contexts. If so, the activities in this module will provide opportunities for them to evaluate current usage. If not, these activities will provide opportunities for students to develop their understandings.

School authority policies

Teachers need to be aware of and observe school authority policies that may be relevant to this module.

Safety policies are of particular relevance to some of the activities that follow. It is essential that demonstrations and student activities are conducted according to procedures developed through appropriate risk assessments at the school.

Support materials and references

Cannon, Janelle 1993, *Stellaluna*, Koala Books, Sydney.

Cannon, Janelle 1997, *Verdi*, Koala Books, Sydney.

Carle, Eric 1991, *A House for a Hermit Crab*, Simon and Schuster Children's Publisher, New York.

Ryder, Joanne 1982, *The Snail's Spell*, Viking Penguin, New York.

Snowder, B., Western Washington University Planetarium, *Starlore of Native America*. Available URL: <http://www.ac.www.edu/-skywise> (accessed November 2000).

Whatley, Bruce 1992, *Looking for Crabs*, Harper Collins, Sydney.

Winch, Gordon 1986, *Enoch the Emu*, Childers Pty Ltd, Noosa, Queensland.

The following website has Aboriginal Dreaming stories:
Joyzine and the Adventures of Zoe. Available URL:
<http://www.joyzine.zip.com.au/australia/dreaming/dreaming.htm>
(accessed June 2000).

ACTIVITY**How we communicate***Introductory***Focus**

This activity provides opportunities for students to reflect on the characteristics of different ways of communicating.

Materials

- resource materials with historical information about means of communication

Teaching considerations

Students may need encouragement to think of some ancient ways of communicating — for example, smoke signals, cave paintings or stone tablets.

**Working scientifically**

Time: 40 minutes

Suggesting
Discussing thinking

- Students discuss what it means to communicate. They then brainstorm different ways of communicating and create a list.
- Students investigate when various forms of communication were first used. They construct a timeline of ways of communicating and display this on the classroom wall.

**Gathering information about student learning**

Sources of information could include:

- students' contributions to the brainstorming;
- students' collection of information regarding ways of communication;
- students' contributions to the construction of a timeline.

ACTIVITY**Comparing communication***Introductory***Focus**

This activity provides opportunities for students to compare the effectiveness of different ways of communicating.

Materials

No particular materials are required.

Teaching considerations

The timeline constructed in the previous activity 'How we communicate' would be a useful resource for this activity.

**Working scientifically**

Time: 30–40 minutes

Engaging with problems

Formulating questions

Looking for patterns and meanings

Seeking reasons

Constructing meaning

Examining and evaluating

Making comparisons

Suggesting

Synthesising

Discussing thinking

► Students compile a list of means of communication. They discuss criteria to use when comparing the effectiveness of each of these. Criteria could include:

- type of information;
- speed with which information can get from one person to another;
- speed with which the information can get from one town/state/country to another;
- amount of detail that could be included in the transmission;
- volume of information that could be transmitted at any one time;
- accuracy of the information when it reaches another person;
- number of people the information can reach;
- accessibility of the information (by the general population, by people with disabilities);
- dependence of the means of communication on other factors (for example, electricity supply, printing press);
- cost of the communication.

► Students construct a table to gather information on all the forms of communication they have listed. The forms of communication would be on one axis of the table. The criteria for comparison would be on the other. The table could look like the following example:

Information on types of communication

Means of communication	Criterion						
	Type of information	Speed — person to person	Speed — town to town	Detail	Volume	Accuracy	Number of people
speech							
drawing							
email							

- ▶ In small groups, students discuss what they consider to be the most effective means of communication. They share their ideas with the rest of the class.
- ▶ Students reflect on the forms of communication and transport available in the past and in a range of cultures. They discuss how easy or difficult it would have been for people to share their thinking and understandings with others. Students compare forms of communications and transport of 5000, 1000, 500, 10 years ago and the present.
- ▶ Students suggest reasons why many different explanations or ideas could arise to explain the same phenomena.



Gathering information about student learning

Sources of information could include:

- students' contributions to class discussion;
- students' contributions to group discussion and activities;
- students' comparisons of communication at different times.

ACTIVITY

Faces on the moon

Developmental

Focus

This activity provides opportunities for students to reflect on the ways different cultures have explained the same natural phenomena.

Materials

- Resource Sheet 1, 'Moon stories'
- information about the surface of the moon

**Working scientifically**

Time: 30–40 minutes

Constructing meaning

Making comparisons

Retelling and restating

Creating presentations



Resource Sheet 1

- ▶ Students form groups of five. These will be the 'home' groups. Students number from one to five.
- ▶ Students move into new groups according to their number so that all the 'ones' are together, all the 'twos' are together and so on. These will be the 'expert' groups. Each expert group receives a copy of a different moon story from Resource Sheet 1. For example, all the 'ones' get a copy of story one, the 'twos' each get a copy of story two and so on.
- ▶ Students in each 'expert' group read and discuss their story so that each person understands it.
- ▶ Students return to their home groups and, in turn, retell their stories to the rest of the group.
- ▶ The whole class then discusses interesting aspects of the stories and suggests ways in which the stories are alike or different.
- ▶ In their groups, students then research current scientific understandings of the appearance of the moon's surface.
- ▶ Students communicate these understandings to another audience. For example, they could create a poster to be displayed in the school library or write and illustrate a story for younger students.

**Gathering information about student learning**

Sources of information could include:

- students' engagement with, and participation in, the expert groups;
- students' retelling of the story to the home group;
- students' collection and synthesis of current information about the moon;
- students' communication of current ideas about the moon.

ACTIVITY**Learning through pictures***Developmental***Focus**

This activity provides opportunities for students to consider drawings as a means of communicating information about science.

Materials

- Resource Sheet 2, 'Pictures from ancient Egypt' (for each student)
- resource materials providing information on various processes

Teaching considerations

Students with vision impairment may need assistance for this activity. Seek advice from their support teacher.

**Working scientifically**

Time: 60–70 minutes

Collecting information

Applying ideas and concepts

Constructing meaning

Interpreting data

Clarifying ideas and concepts

Illustrating



Resource Sheet 2

► Students examine the pictures drawn by the ancient Egyptians to illustrate various processes developed in their culture (Resource Sheet 2).

► They discuss the advantages and disadvantages of this means of communication. Points for discussion could include:

- the need to know something about a process to interpret the drawings;
- the lack of words resulting in specific details not being included;
- how pictures show clearly things that cannot be described easily in words.

► Students select a process, collect information about it and then draw pictures to illustrate it. Processes that could be illustrated include:

- the life cycle of a bee, butterfly or ant;
- interactions between animals in the environment;
- the way that animals build their homes — bower bird, swallows, platypus;
- the rock cycle, weathering and erosion;
- the water cycle.

► Students discuss the nature of the information they were able to include or not include in the illustrations.

**Gathering information about student learning**

Sources of information could include:

- students' contributions to discussions;
- students' collection and synthesis of information about processes;
- students' translations of the selected processes into pictures;
- students' identification of the information they were not able to include.

ACTIVITY

Science through mime

Developmental

Focus

This activity provides opportunities for students to reflect on the use Aboriginal and Torres Strait Islander people made of mime and dance to communicate.

Materials

- videos showing the characteristics and behaviours of animals

Teaching considerations

Contact local Aboriginal and Torres Strait Island community members to invite them to the school to show students dances that represent animals.

Students could go to a zoo or nature park or watch videos to gain information about ways various animals move and interact with their surroundings.

**Working scientifically**

Time: 20–30 minutes presentation and discussion of the dance;
40–60 minutes research and preparation of the mime

- ▶ Students watch the dancers and discuss with them how they represented different characteristics of animals.
- ▶ Students in small groups select an animal they would like to represent. They research the habits and characteristics of the animal and then prepare a mime or dance to ‘tell’ other students about it. Group members could also represent parts of the environment, for example — trees or other plants, rocks, prey, predators, other animals of the same kind.
- ▶ The rest of the class identify the animal from the mime or dance.
- ▶ Students evaluate the usefulness of this form of communication. Points for discussion could include:
 - the limitations of the human body in representing an animal that has a very different body shape, for example, that of a snake;
 - the need for groups to establish rules and conventions so that particular movements have specific meanings;
 - why people who belong to the same group are able to understand the communication and people from other groups may not;
 - the different interpretations people may have of the same experience;
 - the amount of specific information and detail that can be provided;
 - the restriction of not being able to use words or sounds. (Students who are deaf/hearing impaired and who sign may not regard forms of communication that do not use spoken words and sounds as restricting as hearing students.)
- ▶ Students discuss the ways they would prefer to communicate information about the animals they studied.

Collecting information
Formulating questions
Looking for patterns and meanings
Playing
Constructing meaning
Creating analogies
Making links
Creating presentations
Improvising and performing

► Students discuss the ways they collected information about, and developed an understanding of, their animals. They compare this with the resources traditionally available to Aboriginal and Torres Strait Island people when they developed their dances.

Questions for discussion could include:

- To collect information about animals' movements, what resources would you use?
- Are the resources you would use available to all contemporary groups of people? Explain.
- Were the resources available to people in Australia in the past — 10 years ago, 50 years ago, 100 years ago, 1000 years ago? Explain.
- How could people in traditional communities collect information about the habits of specific animals — for example, how they move, where they live.



Gathering information about student learning

Sources of information could include:

- students' analysis of mime or dance as a form of communication;
- students' gathering and selection of information about an animal;
- students' presentations of the mime or dance;
- students' contributions to the discussion about ways of collecting information.

ACTIVITY

Science in storybooks

Developmental

Focus

This activity provides students with opportunities to reflect on the science presented in children's stories.

Materials

- selection of children's stories (see Support materials and references, p. 4)

Teaching considerations

It may be necessary to model the process of text analysis for the students.

**Working scientifically**

Time: 40 minutes

Engaging with problems
Analysing
Constructing meaning
Examining and evaluating
Synthesising
Clarifying ideas and concepts
Retelling and restating

- ▶ In small groups, students select a book and read the story. They discuss the story and identify the information about the animal that they have gained.
- ▶ On a piece of butcher's paper they list the facts under a heading 'I learned these facts about a (name of animal) from the book (name of book and author)'.
- ▶ Students, individually or in groups, write an information report using the facts included in the list.
- ▶ Students reflect on the differences between the two genres (a picture storybook and an information report) as a means of presenting information and how the genre influences understanding. Questions to guide discussion could include:
 - Which was easier to get information from, the story or the report?
 - What made it easier?
 - Which version did you enjoy most and what made it enjoyable?
 - Which do you remember most clearly?
 - What role did the pictures play in the storybook?
 - Why do we not present all information in a storybook format?
 - What are good ways for scientists to present information?

**Gathering information about student learning**

Sources of information could include:

- students' analysis of the text;
- students' translations of the facts and ideas from the story into an information report;
- students' reflections on the differences between two ways of presenting information.

ACTIVITY

Starry stories

Developmental

Focus

This activity provides opportunities for students to explore the understandings people from different cultures and times have of the stars.

Materials

- Resource Sheet 3, 'Starry stories'
- resources with information about stars and how information about stars is collected

Teaching considerations

An Aboriginal Dreaming story describing the origin of the Southern Cross is available at URL: <http://www.joyzine.zip.com.au/australia/dreaming/dreaming.htm>. (This website includes many different stories and articles.)

**Working scientifically**

Time: 60 minutes

Collecting
information

Constructing
meaning

Making comparisons

Creating
presentations

Discussing thinking



Resource
Sheet 3

- ▶ Students form groups of four. These will be the 'home' groups. Students number from one to four.
- ▶ Students move into new groups according to their number, so that all the 'ones' are together, all the 'twos' are together and so on. These will be the 'expert' groups. Students in the expert groups receive copies of a story from Resource Sheet 3. For example, all the ones get a copy of story one, the 'twos' each get a copy of story two and so on. Students in each expert group read and discuss their story so that each person understands it.
- ▶ Students return to their home groups and retell their stories.
- ▶ The whole class then discusses interesting aspects of the stories and suggests ways in which stories are alike or different.
- ▶ Students use resources to clarify their ideas about current scientific conceptions about stars.
- ▶ They make a list of the tools and equipment used by scientists to collect information about stars. They discuss the nature of the information collected and how scientists share this information.
- ▶ Students prepare a poster communicating to the rest of the class their understanding of stars or how information about stars is collected.

**Gathering information about student learning**

Sources of information could include:

- students' contributions to discussions;
- students' retelling of the story to the home group;
- students' collection and synthesis of current information about the stars and how information is collected about them;
- students' posters.

ACTIVITY**How do I know how to use it?****Culminating****Focus**

This activity provides opportunities for students to work cooperatively to solve a problem.

Materials

- Resource Sheet 4, 'Tools and how they are used'
- apple corer
- caliper
- metal holder for a desk calendar
- refill for the desk calendar
- set of soil sieves
- apple
- marble
- mixture of beans, rice and salt

Teaching considerations

Students work in groups of four. One student will have a written description of a tool or implement. The second student will have a picture of the tool or implement. The third student will have the actual tool or implement. The fourth student will have a statement of what the tool is used for. At the beginning students are not to communicate or share information with each other.

The tools shown on Resource Sheet 4 are provided as examples only. Other tools readily available and unfamiliar to students could be used.

**Working scientifically**

Time: 30 minutes

Clarifying and challenging

Looking for patterns and meanings

Seeking reasons

Constructing meaning

Making links

Synthesising

► Students form groups of four. These will be the 'home' groups. Students number from one to four.

► Students move into new groups according to their number, so that all the 'ones' are together, all the 'twos' are together and so on. These will be the 'expert' groups. Students in the expert groups receive copies of information in different formats. All the ones are given a copy of the description of a tool or implement; the twos are each given a copy of the picture; the threes are given the actual implement; the fours will have a statement of what the tool is used for. Students in each expert group read or examine the information they have and develop their understanding of it. They do not discuss their ideas with the others in their group at this stage.

► Students return to their home groups. Each home group is given a task (from Resource Sheet 4) to complete. In their home groups students share the information they have and work together to perform tasks.

R **Resource Sheet 4**

► Students share their experiences of this activity. Questions to guide discussion could include:

- How did it feel to have only a small part of the information?
- What did you want to do?
- How did it feel when you were able to communicate fully with other members of the group about the information they had?
- How do the various parts of this activity relate to people at different times in history? (In the past some people may have known what something did but that was all the information they had. Others may have seen an object or read a description of an object but not known what it did.)



Gathering information about student learning

Sources of information could include:

- students' contributions to discussions;
- students' working with others in a group;
- students' making links between the activity and the development of ideas in the past.

Moon stories



In Malaysia some people believed that the man in the moon was a hunchback sitting under a banyan tree making a fishing line. The line was being eaten at the other end by a rat. That was a good thing; for if the man were to finish his line, he would use it to fish everything on Earth up to the moon.

The people of Rantum, a tiny island community off the north-western coast of Germany, associated the man in the moon with the tides. They believed that the man was a giant who caused the tide to come in by bending over to scoop up lunar waters, which he poured onto the Earth. When he stood erect and rested from his work, the water flowed back, and the tide ebbed.

In New Guinea it was believed that the surface of the moon looked like the finger marks of boys who tried to steal the moon from an old woman who kept it in a pot. When the boys opened the pot, they tried to grab the moon, but it escaped.

In the Cook Islands it is said that the moon's surface looks like a girl making tapa. Tapa is a paper-like cloth made by pounding the inner bark of the paper mulberry tree. The stones holding down the tapa are visible; and when the girl pushes the stones aside, it thunders.

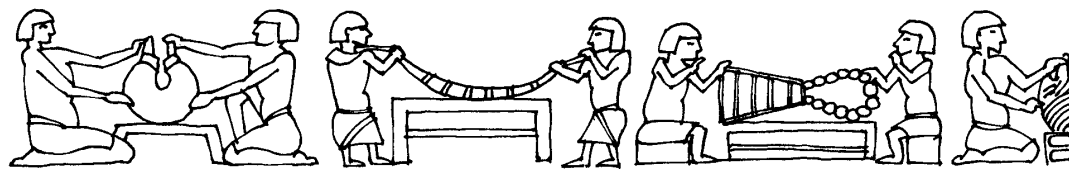
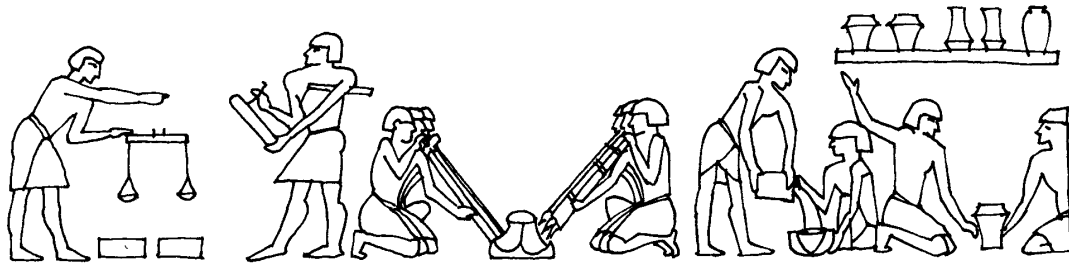
An Iroquois (native North American) story says the marks on the moon's surface belong to a woman banished because of her constant complaining that she could not prophesy the end of the world. There she sits and weaves while her cat sits beside her. Once a month she puts down her weaving to stir a pot of boiling maize. When she does this, her cat undoes all her weaving so that she has to start all over again.

Pictures from ancient Egypt

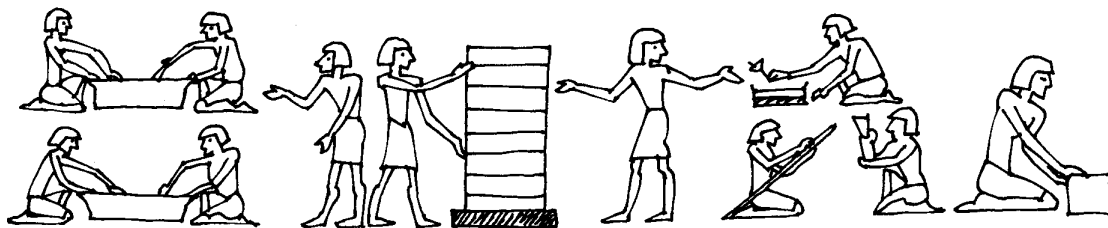
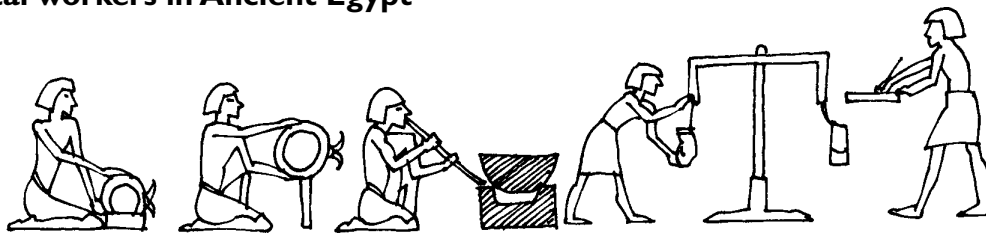
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Resource Sheet 2

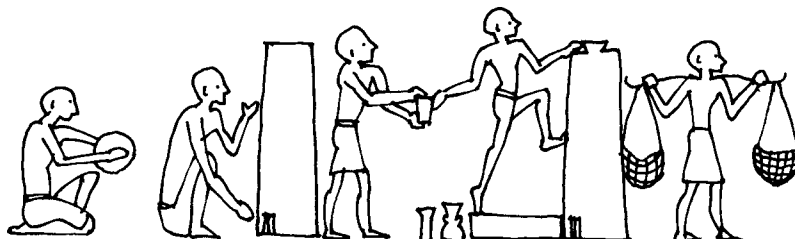
CULTURAL SCIENCE • MIDDLE PRIMARY



Metal workers in Ancient Egypt



Egyptian goldsmiths washing, melting and weighing gold



Egyptians making pottery with a furnace

Starry stories



Two stories about the Pleiades star cluster

The Pleiades is a star cluster in the constellation of Taurus (the bull).

The cluster forms the bull's shoulder.

The Lost Children

'The Lost Children' is a native North American story from the Blackfoot tribe.

There were once six young brothers who were orphans. They lived on handouts and wore castaway clothing. No-one cared much about them except the camp's pack of dogs. They loved the dogs and played with them all day. People were unkind to the boys because of their ragged clothes and uncombed hair. The brothers were teased by the other children who wore fine buffalo robes. The boys no longer wanted to be people. They considered becoming flowers but the buffalo might eat them. Stones? No, stones could be broken. Water could be drunk; trees could be cut and burned. Finally they decided they wanted to be stars. Stars are always beautiful and cannot be destroyed. The boys went up into the sky to become stars (Pleiades). The Sun welcomed the boys and the Moon called them her lost children.

The Seven Sisters

'The Seven Sisters' is a Greek legend.

There were once seven sisters who were very beautiful. Orion, the giant hunter, saw them and wanted to take them as his wives. He chased the sisters, and they ran away from him. But he was a giant and very fit, so with every step he got closer and closer. Afraid of being caught, the sisters called out to Zeus (the king of the gods) to help them. Zeus turned them into doves and placed them in the sky.

(continued)

Source: 'The Lost Children', Snowden, B., Western Washington University Planetarium, *Starlore of Native America*. Available URL: <http://www.ac.www.edu/-skywise> (accessed November 2000).

Starry stories (continued)



Resource Sheet 3

The Big Dipper

The Big Dipper is part of the constellation of Ursa Major — the Great Bear. The Big Dipper forms the tail and back of the bear.

Coyote, Wolves and Bears

‘Coyote, Wolves and Bears’ is a native North American story from the Wasco tribe.

Once there were five wolves who shared meat with a coyote. One night the wolves were staring at two animals up in the sky. They wanted to get to them but didn’t know how. So the coyote took his bow and shot an arrow into the sky where it stuck. He shot another arrow which stuck into the first. Then he shot another and another until the chain of arrows reached the ground. The five wolves and the coyote climbed the arrows. The oldest wolf took along his dog.

When they reached the sky, they could see that the animals were grizzly bears. The wolves went near the bears and sat there looking at them. The bears looked back. The coyote thought they looked good sitting there so he left them and removed his arrow ladder.

The three stars of the handle of the Big Dipper and the two stars of the bowl near the handle are the wolves. The two stars on the front of the bowl that point to the North Star are the bears. Alcor, the little star by the wolf in the middle of the handle, is the dog.

(continued)

Source: Snowden, B., Western Washington University Planetarium, *Starlore of Native America*.
Available URL: <http://www.ac.washington.edu/~skywise> (accessed November 2000).

Starry stories (continued)



A story about Orion

Orion is a constellation easily seen in the night sky. The three stars of Orion's belt also form part of another popular constellation called the saucepan.

Orion and Artemis

'Orion and Artemis' is a Greek legend.

Orion was a giant and a great hunter. Artemis, the goddess of the moon and of the hunt, admired his skill and fell in love with him. Soon she neglected her duties, which included lighting the night sky. This made Apollo, her brother, very upset.

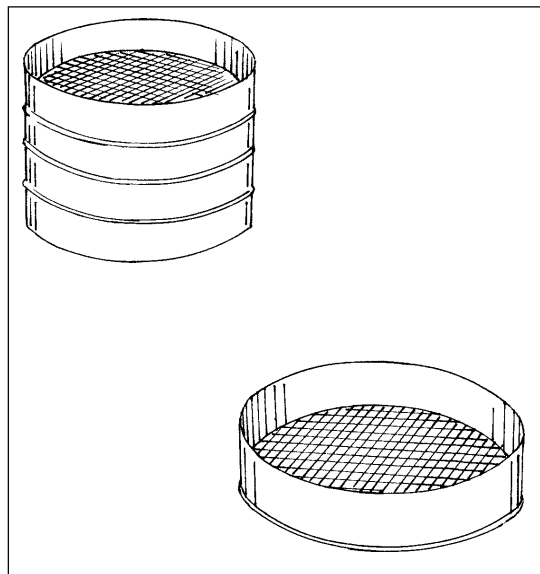
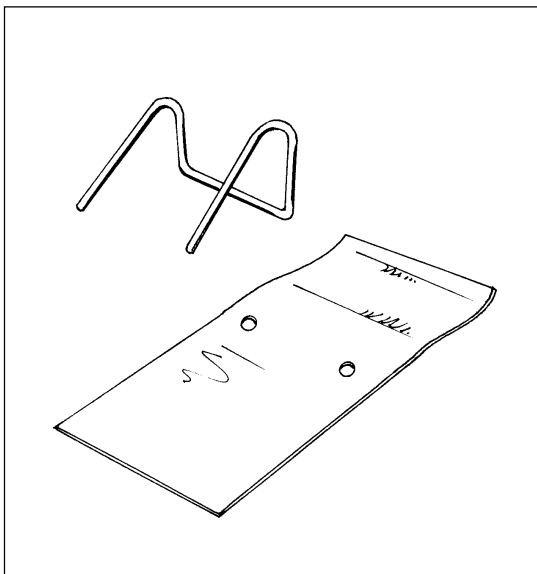
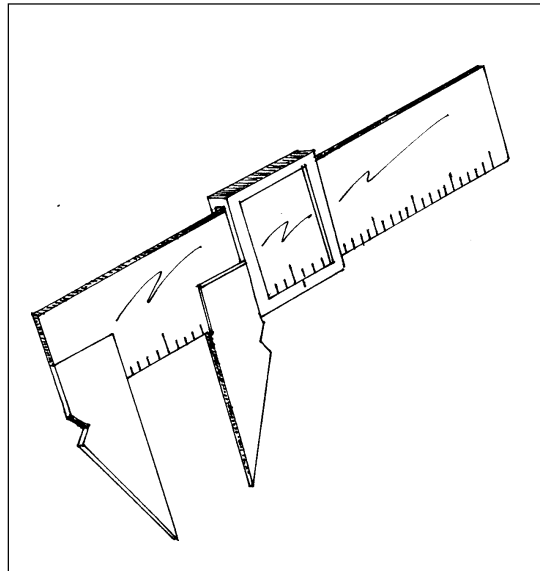
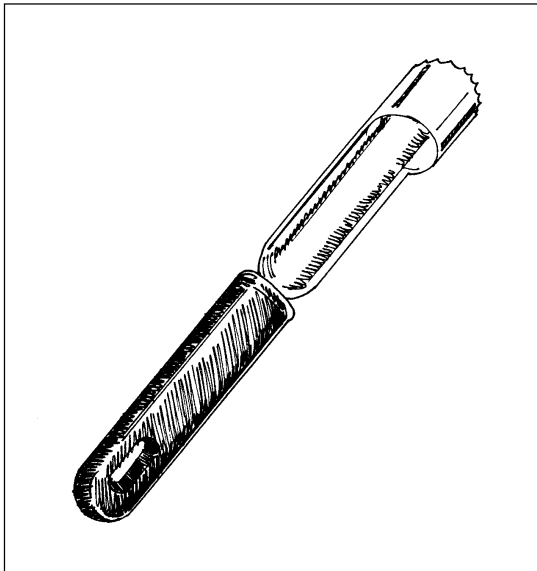
One day Apollo saw Orion swimming far out to sea and decided to trick his sister into killing the giant. Apollo challenged Artemis to hit a dot among the waves. Not realising that this was Orion, Artemis shot an arrow and killed him. Later, when Orion's body was washed up on the shore, she saw what she had done. She was so sad that she placed his body in the sky, together with his hunting dogs. Her sadness explains why the moon looks so cold.

Tools and how they are used

R4

Resource Sheet 4

CULTURAL SCIENCE • MIDDLE PRIMARY



What each tool is used for

1. It is used to cut the core out of an apple.	2. It is used to measure the diameter of spheres or cylinders.
3. It is used to hold a desk calendar.	4. These are used to separate particles of different sizes.

(continued)

Tools and how they are used (*continued*)

R4

Resource Sheet 4

Description

1. This instrument is made of two parts — a cutting blade and a handle. The cutting blade is shaped like a cylinder.
2. This instrument has a long section like a ruler and, like a ruler, it has a scale marked along it. At one end of this long piece is a pointer. Attached to the long piece is a square with a pointer attached to it. This square can be moved along the scale causing the two pointers to come closer together or move farther apart.
3. This object is made of two parts that can be fitted together.
One part is a flat piece of metal 8 cm wide by 20 cm long. About a third of the way along it a slit (5 cm by 0.5 cm) is cut out of the metal. Farther along are two holes (0.5 mm in diameter) about 5 cm apart. The second part is also metal. It is like a very thick wire and has been bent in four places. The two ends of the wire fit into the holes in the sheet of metal.
4. This tool is a series of round metal containers with a wire mesh base. They are all the same size so they can fit into each other. The size of the holes in the wire mesh is different in each container.

Tasks

1. You have to cut the core out of an apple without changing the basic shape of the apple.
2. You have to measure the diameter of the marble you have been given.
3. You have to make a stand for a desk calendar.
4. You have to separate a mixture of beans, rice and salt.

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This sourcebook module should be read in conjunction with the following Queensland School Curriculum Council materials:

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Years 1 to 10 Science Sourcebook: Guidelines

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