

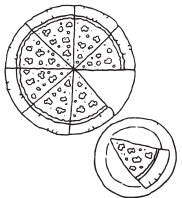
GRAPHIC ORGANISERS AND OTHER VISUAL STRATEGIES

BOOK 6



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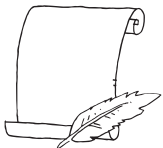
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Index of Activities

This chart shows the standards that are covered in each chapter.

MATHEMATICS	Standards are covered on pages
Numbers and Operations—Understand numbers, ways of representing numbers, relationships among numbers and number systems.	15, 18
Algebra—Represent and analyse mathematical situations and structures using algebraic symbols.	15
Geometry—Analyse characteristics and properties of two- and three-dimensional geometric shapes and develop mathematical arguments about geometric relationships.	28
Data Analysis and Probability—Formulate questions that can be addressed with data, and collect, organise and display relevant data to answer them.	9, 12, 22
Data Analysis and Probability—Select and use appropriate statistical methods to analyse data.	9, 12
Data Analysis and Probability—Develop and evaluate inferences and predictions that are based on data.	9, 12
Data Analysis and Probability—Understand and apply basic concepts of probability.	9, 22
Problem Solving—Apply and adapt a variety of appropriate strategies to solve problems.	25
Problem Solving—Monitor and reflect on the process of mathematical problem solving.	25
Communication—Communicate mathematical thinking coherently and clearly to peers, teachers and others.	25
Communication—Analyse and evaluate the mathematical thinking and strategies of others.	25

SCIENCE	Standards are covered on pages
Science as Inquiry—Ability to conduct scientific inquiry.	31, 34, 37
Science as Inquiry—Understand about scientific inquiry.	34, 37
Physical Science—Understand motions and forces.	34
Life Science—Understand structure and function in living systems.	40, 44
Life Science—Understand regulation and behaviour.	40
Earth and Space Science—Understand structure of the earth system.	48

SOCIAL STUDIES	Standards are covered on pages
Understand culture and cultural diversity.	55
Understand the ways human beings view themselves in and over time.	55, 58, 61
Understand the interactions among people, places and environments.	52, 55
Understand how people create and change structures of power, authority and governance.	64, 68
Understand the ideals, principles and practices of citizenship in a democratic society.	68

ENGLISH	Standards are covered on pages
Read a wide range of print and nonprint texts to build an understanding of texts, of self and of the cultures of Australia and the world; to acquire new information; to respond to the needs and demands of society and the workplace; and for personal fulfilment (includes fiction and nonfiction, classic and contemporary works).	71, 80
Read a wide range of literature from many periods in many genres to build an understanding of the many dimensions (e.g. philosophical, ethical, aesthetic) of human experience.	71
Apply a wide range of strategies to comprehend, interpret, evaluate and appreciate texts. Draw on prior experience, interactions with other readers and writers, knowledge of word meaning and of other texts, word identification strategies and understanding of textual features (e.g. sound-letter correspondence, sentence structure, context, graphics).	71, 77, 80, 83
Adjust the use of spoken, written and visual language (e.g. conventions, style, vocabulary) to communicate effectively with a variety of audiences and for different purposes.	74, 83
Employ a wide range of strategies while writing, and use different writing process elements appropriately to communicate with different audiences for a variety of purposes.	71, 74, 77, 80, 83
Apply knowledge of language structure, language conventions (e.g. spelling and punctuation), media techniques, figurative language and genre to create, critique and discuss print and nonprint texts.	74, 77, 83
Conduct research on issues and interests by generating ideas and questions, and by posing problems. Gather, evaluate and synthesise data from a variety of sources (e.g. print and nonprint texts, artefacts, people) to communicate discoveries in ways that suit the purpose and audience.	71
Use a variety of technological and informational resources (e.g. libraries, databases, computer networks, video) to gather and synthesise information and to create and communicate knowledge.	71, 83
Participate as knowledgeable, reflective, creative and critical members of a variety of literacy communities.	74, 80, 83
Use spoken, written and visual language to accomplish a purpose (e.g. for learning, enjoyment, persuasion and the exchange of information).	74, 77, 80, 83

Statistically Speaking: Double Bar Graph

Skills Objectives

Represent and interpret data in a bar graph.

Recognise patterns.

Double Bar Graphs present facts and statistics in a visual form that makes the information easier to compare. This helps students organise and interpret contrasting data and draw conclusions about the information.

1. Tell students that you are going to conduct a class survey about favourite seasons. Write *Spring, Summer, Autumn* and *Winter* on the board. Ask students to raise their hand for their favourite season. Record the number of responses in each column.
2. Draw a bar graph on the board, with the numbers 1–20 along the vertical axis and the names of the seasons along the horizontal axis. Illustrate how the information from the survey is shown as bars on the graph.
3. Repeat the survey. This time, divide the class into two groups, A and B. Survey Group A and Group B separately. Redraw the bar graph on the board showing the results for both groups for each season. Explain that this is a double bar graph.
4. State that showing the results of a survey is one way a bar graph may be used. Share the following data about average temperatures in Australian cities in January and July. Explain that you will be using a double bar graph to track two sets of data and compare the average temperatures of the hottest and coldest months.

Average Temperatures		
City	January	July
Sydney, NSW	26°C	16°C
Melbourne, Vic	26°C	13°C
Brisbane, Qld	29°C	20°C
Perth, WA	30°C	17°C
Hobart, Tas	21°C	12°C
Darwin, NT	32°C	31°C
Adelaide, SA	28°C	15°C

5. Draw the axes on the board. Label the horizontal axis *Cities* and the vertical axis *Temperature*. Ask students: *Which city has the warmest temperature in July? Which city has the least temperature difference between January and July?* The answer to both questions is *Darwin*.

Materials

Double Bar Graph activity

outdoor thermometer

Gills and Lungs

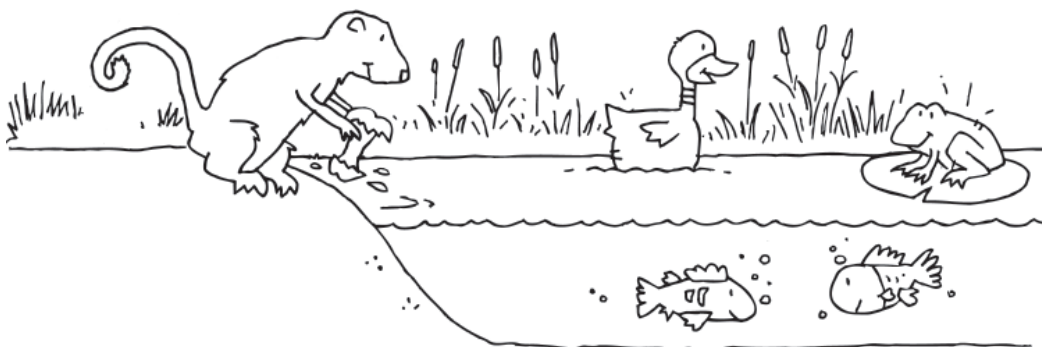
Fish and mammals process air and oxygen differently. Fish have gills so that they can take oxygen from the water. Mammals have lungs so that they can take oxygen from the air.

Gills

Most fish take water in through the mouth. When the mouth closes it forces the water across the gills and out the gill slits. The water exits a different way than it came in. Water contains much less oxygen than air, so gills have to be better than lungs at drawing out oxygen. To do this, the blood in the gills moves in the opposite direction to the water flow. (In fish, blood is pumped in only one direction by a two-chambered heart.) Gills contain paired filaments attached to a sturdy but hollow gill arch. The arches have arteries inside them. These arteries divide into smaller arterioles inside the filaments. Each filament has tiny folds called *lamellae* that increase surface area. Tiny capillaries from the arterioles carry blood to the inner surface of the lamellae. Oxygen then spreads into the blood through this thin membrane.

Lungs

Most land animals, including humans, breathe in air through their nose and mouth. Lungs then draw in oxygen from the air. As the animal inhales, the diaphragm and muscles between the ribs contract and expand the chest cavity. Air flows in through the bronchi and inflates the lungs. The air then flows through smaller and smaller bronchioles until it reaches the alveoli. Oxygen spreads into the blood through a thin membrane in the alveoli. (In mammals, blood is pumped in two directions by a four-chambered heart.) Oxygen is exchanged for carbon dioxide, which is breathed out the same way it came in. It is exhaled through the nose and mouth.



Roots of a Movement: Network Tree

Materials

Network Tree activity
overhead projector
and transparency

Skills Objectives

Use prior knowledge.
Classify information.
Understand historical relationships.
Draw conclusions from research.

Network Trees are hierarchical graphic organisers. They can help students sort or classify information, and show how elements are related. The network tree is an excellent tool for helping students get a clear overview of complex topics, such as the Land Rights Movement, and organise data from multiple sources to reflect superordinate and subordinate elements.

1. Ask students if they have ever had an argument with a friend or family member. If so, tell them to consider how it developed. Explain that disagreements are rarely caused by one thing, but usually a combination of causes.
2. Relate your discussion to the Land Rights Movement by explaining that the decision to push for land rights by Indigenous Australians didn't just happen overnight. There were many social factors and events that led up to the birth of this movement. Several reasons and many events led to this outcome, but you will examine only one major event – the Gurindji strike. Ask volunteers to tell what they know about the event, and write their answers on the board.
3. Give students a copy of the **Network Tree activity (page 60)**, and place a transparency of the activity on the overhead projector. Write *Land Rights Movement* in the bottom box. Write *Gurindji strike* in one of the connecting boxes. Point out the three lines connected to each box. Explain that these are for details about the event. The Gurindji people were being paid poorly (less than half of what white workers earned for the same job) and were forced to live in horrible conditions on their own land, by those who had taken it from them. Write *Exploitation* on the first line.
4. Then ask: *Who can tell me what the Gurindji people did?* Answers might include: *Workers and their families walked off Wave Hill cattle station and began a strike that would end up lasting for seven years.* Write *Seven year strike* on the next line. However improved pay and conditions was only one thing the Gurindji were campaigning for – what they really wanted was the return of their land. They set up their own settlement,

called Daguragu. Add that the Gurindji petitioned the Governor-General for an area of land near Wave Hill. The Governor-General denied their request. However there was growing support for the strike in wider Australia. Write *support for strike grows* on the last line.

5. Divide the class into small groups, and have each group research important events in the history of the Land Rights Movement. Tell them to fill in their network trees with facts from their research.
6. Invite students to share their results. Then have each group take turns contributing to a larger network tree on a Land Rights themed bulletin board. Make sure all main ideas and details are represented on the finished bulletin board.

Extended Learning

- On 16 August 1975 the Prime Minister, Gough Whitlam, symbolically and literally gave the Gurindji people back their land by pouring sand into the hand of Vincent Lingiari, the activist who had led the walk off. Many nations celebrate events from their political history. Have the class design a celebration to commemorate this event and show them the famous photo of Whitlam handing the land back to Lingiari and the Gurindji people.
- Have students add to the network tree for each of the following events in the history of the movement for Land Rights: the Yolngu Bark Petitions, Aboriginal Land Rights Acts, the Mabo decision, the Native Title Act and the Wik decision.

Name _____ Date _____

Network Tree

Directions: Write your topic in the bottom box. In the smaller boxes, write main ideas about that topic. On the lines, write details about each main idea.

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Comparing Points

Directions: Title each column with a topic you will compare. Write the facts in the corresponding columns.

