

Contents

About higher-order thinking skills (HOTS) .. iii	Higher-order thinking categories.....vii–xi
Ten tips for tackling tough tasks..... iv	Behavioural verb definitions xii–xiii
What’s inside?.....v	Activities2–151
How to use this book vi	Answers152–159

About higher-order thinking skills

Teachers report that their curricula are lacking in materials that help students learn to think critically. This book provides practice applying higher-order thinking skills in English, maths, science, and humanities and social sciences contexts.

What are higher-order thinking skills?

They are not the skills—such as alphabetising or calculating a perimeter—used in specific academic subjects. Rather, they are skills used across all curriculum areas and in non-academic situations; the skills for making use of information.

In this book, higher-order thinking skills are represented by behavioural verbs. Each page focuses on one behavioural verb, which is defined at the top of the page. Each behavioural verb is emphasised in the instructions so students become aware of when and how they are using the thinking skill.

Why is it important to practise higher-order thinking skills?

Teachers may debate which is the most important curriculum area or skill in school, but some things are widely accepted by teachers and academics alike:

- Students need well-developed thinking skills to be successful in the classroom, on assessments and in the real world.
- Students can learn to think better if they’re taught how to do so.
- Critical thinking skills are more important than ever in today’s competitive, rapidly changing, technology-based environment.

Young children naturally use thinking skills. They learn autonomy through exploration, observe their environment using logic and reasoning, try new things and think creatively. As children grow and enter an academic setting, some of their natural curiosity and problem-solving instincts are not engaged as often as they could be.

While all thinking skills are important, students generally get ample practice with recall, recognition, identification and comprehension. Therefore, this book focuses on thinking skills that are more challenging to incorporate. These include analysing, predicting, modelling, composing, organising, evaluating options, designing, critiquing and problem-solving.

People with strong critical thinking skills can accomplish a great deal, whether or not they have background knowledge in a topic. Critical thinkers know how to acquire new knowledge and how to approach problem-solving. They also know how to persevere and use productive struggle to find an answer.

Higher-order thinking categories

Behavioural verb	Page number	Page title	Cross-curricular link
Adapt	80	Let's play	English
Analyse	29	Arty designs	Mathematics
	40	Word relationships	English
	67	Why so callus?	Health and Physical Education
	96	Tiana's tables	Mathematics
	103	Analogies	Civics and citizenship
	110	Wolf in sheep's clothing	English
	119	A puzzling plot	Mathematics
	125	Complete relationships	English
Apply	140	Mountains and molehills	English
	36	Royal rounding	Mathematics
	89	Notation equations	Mathematics
	99	Global time	Geography/Mathematics
	118	Dot and dash alphabet	English/History
Arrange	157	Bus time	Mathematics
	41	Family portrait	Mathematics
	79	Jazzy jewellery	Mathematics
Assemble	91	Subtraction stumper	Mathematics
	34	Menu challenge	Mathematics/Health
Categorise	59	Inventing words	English/Mathematics
	30	Tell me why	English
	47	All about energy	Science
	90	Anagram groups	English
	127	All things science	Science/Geography
Compare	147	A grizzly's kingdom	Science
	12	Massive difference	Mathematics
	27	Canine cousins	Science
	45	Compare poems	English
	70	How different are they?	English
	81	A decimal path	Mathematics
	92	Dense boxes	Mathematics
107	Tale of two cycles	Science	
Complete	72	Words in space	Science

Behavioural verb definitions

adapt: to change something for a new purpose

analyse: to look at how parts go together

apply: to use what you know in a new way

arrange: to put in order

assemble: to put parts together

categorise: to put things into groups

change: to make something different

compare: to look for things that are the same or different

complete: to make something whole

compose: to write creatively

conclude: to decide using facts, data and inferences

conjecture: to make a guess using incomplete information

construct: to form by putting parts together

convert: to change the form of something

create: to make something new

critique: to tell what is good and bad about something

debate: to express opposing points of view

decide: to choose after thinking

deduce: to use clues to figure something out

defend: to give reasons why you think someone is right

describe: to tell how something looks, sounds, smells or feels

design: to plan how something will look

determine: to figure out using facts or what you observe

devise: to create a method to do something

distinguish: to tell the difference between things

evaluate: to judge carefully

examine: to look at closely

exemplify: to be a good example of something

experiment: to try doing things to see their effect

explain: to give good reasons for your thoughts

extend: to make longer

extrapolate: to use data to estimate beyond the range of the data

form: to bring parts together to make something

formulate: to produce by thinking carefully

generate: to produce

hypothesise: to make a good guess based on

Respecting the kangaroo

hypothesise: to make a good guess based on reasons

Read the text.

People who lived hundreds of years ago could only use whatever the land provided. They could not afford to waste anything. For instance, when Aboriginal people hunted kangaroos, they ate the meat and used the other parts to make things they needed.

Read the two lists below. **Hypothesise** how each part might have been used. Draw lines to match each part to how it was probably used.

Parts

hide/fur

teeth

bones

skin

tendons

dung

bladders

How the parts were used

made into water bags

dried and used to sew clothing together or attach spear heads

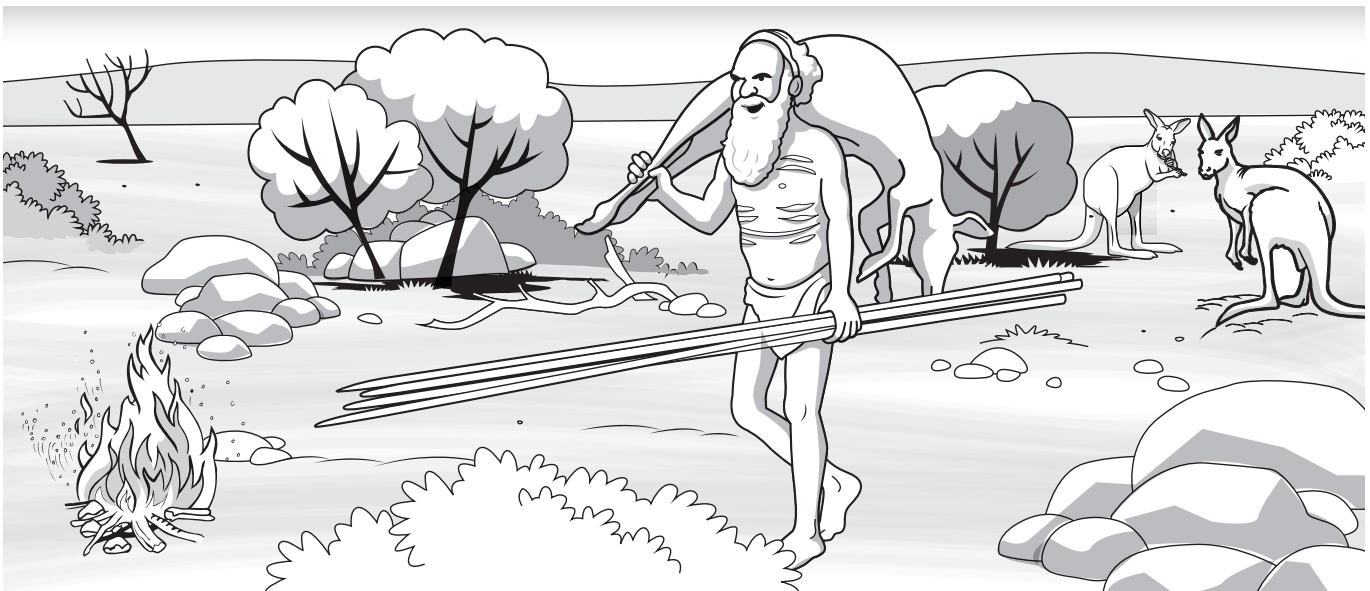
inflated and used as a ball

made into necklaces and headbands

dried and used as tinder for fire

made into points for spears

used for rugs or clothing



Be on the lookout

describe: to tell the features of something or someone

The ruby from the mask of an ancient pharaoh was stolen from a museum. Luckily, security cameras caught pictures of the thieves. Here are pictures of the suspects. **Describe** in detail what the suspects look like for a radio news report.



the lookout



the getaway driver



the burglar

1. the lookout: _____

2. the getaway driver: _____

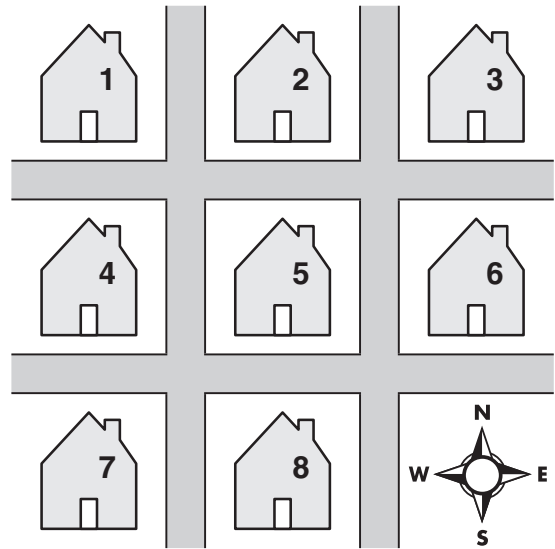
3. the burglar: _____

Whose house?

deduce: to use facts and reason to figure something out

Read the clues to **deduce** each child's house number. Use the grid to help you. Draw an **X** in the space when you know that a house and a child do not match. Draw a circle in the space when a house and a child do match.

- Jackson lives two houses west of Nick.
- Kruti lives directly south of Nick.
- Mei lives between Darcy and Kruti.
- Leah lives east of Marcel.
- Pedro lives 2 houses north of Leah.



1.	1	2	3	4	5	6	7	8
Darcy								
Jackson								
Kruti								
Leah								
Marcel								
Mei								
Nick								
Pedro								

2. Write the correct house number beside each child's name.

Darcy _____ Jackson _____ Kruti _____ Leah _____

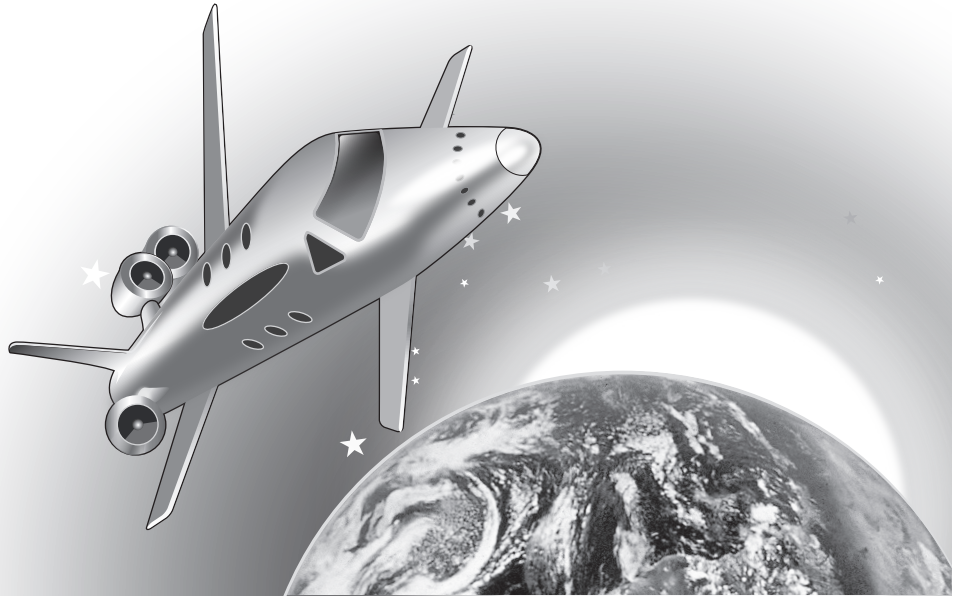
Marcel _____ Mei _____ Nick _____ Pedro _____

Words in space

complete: to make something whole

Unscramble the following word jumbles about the system of planets, then use the answers to **complete** the paragraph.

1. sahtemopre
2. lsaeteslit
3. dastroise
4. omrtese
5. usnverei
6. ilykM yWa
7. rolsa ymstes
8. tEhar
9. antdiorai
10. tlanpes



Space is part of the _____ which lies outside the earth's atmosphere. It includes _____, stars, comets, our sun, moons, _____, meteors, natural and built _____ and spacecraft.

Our own special part of space—the _____—consists of the sun at its centre and the many objects which revolve around it. It is part of the _____ galaxy.

Our planet, _____, is one of the eight planets in our solar system. The planets are surrounded by layers of gases called an _____, which offers protection from the harmful _____ of the sun and objects like _____ which burn up on entry.