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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, during 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	Page title	Cross-curricular link
connect	64	Outfits around the world	Humanities and Social Sciences
create	49	Zoo exhibits	Science
	88	Fraction flowers	Mathematics
	100	Say it with symbols	Humanities and Social Sciences
	125	Look at my neighbourhood	Humanities and Social Sciences
critique	142	In my opinion	English
decide	24	A role to play	Science
	99	Zoo jobs	Design and technologies
deduce	3	Triangle sums	Mathematics
	53	Turbo the tortoise	Mathematics
	63	Two riddles	Mathematics
	115	Map grid	Mathematics/Humanities and Social Sciences
	124	On the loose	Science
	136	What talent!	Mathematics/Logic
	146	Putting facts together	English/Logic
demonstrate	19	Safety first	Health and Physical Education
	28	How many eggs?	Mathematics
describe	27	What is it?	English
	48	Number hunt	Mathematics
design	76	Quadrilateral quilt	Mathematics/Design and Technologies
determine	33	Bumper car thrills	Mathematics
	68	Maths machines	Mathematics
	83	Money match	Mathematics
	89	Melting over time	Science
diagram	127	Swimming in plastic	English
distinguish	41	Mr. Km ² tiles	Mathematics
evaluate	9	Hide and seek	Science
	21	On the go	Mathematics
	34	Tools of the trade	Science
	47	Ears that hear everything	English
	69	My life as a turtle	Science
	116	Camouflage!	English/Science
	152	Chow down!	Science

Behavioural verb definitions

imagine: to see an idea or picture in your mind

infer: to figure out using observations and what you know

inquire: to ask for information

interpret: to decide what something means

interview: to ask someone questions about his or her life

invent: to create for the first time

justify: to give a good reason for something

model: to make a drawing of something that is happening

order: to list things in a certain way

organise: to arrange and order information to make it useful

persuade: to make

someone want to do something

plan: to find a good way to do something

predict: to tell what will probably happen

prioritise: to figure out what is most important

prove: to show that something is true or false

rank: to put in order by value

recommend: to tell the best ideas

represent: to show in a drawing or a graph or with a symbol

revise: to improve something by changing it

rewrite: to change something by writing it again

sequence: to put things in the order they happen

solve: to find a solution to a problem

sort: to put things into groups

state the rule: to tell the way something is done

summarise: to tell important information in a few words

support: to explain a choice

theorise: to have an idea why or how something happens

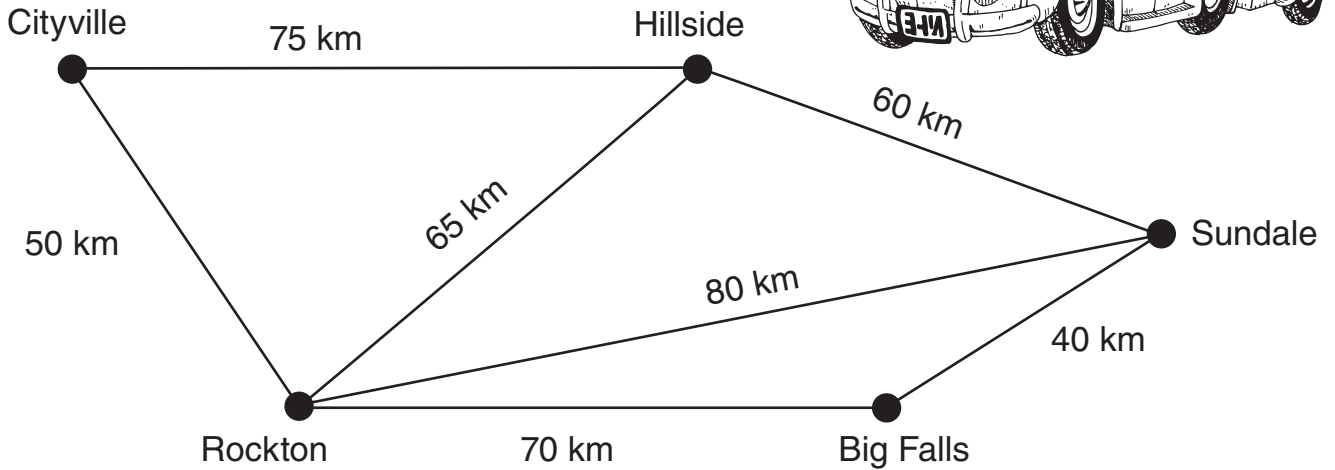
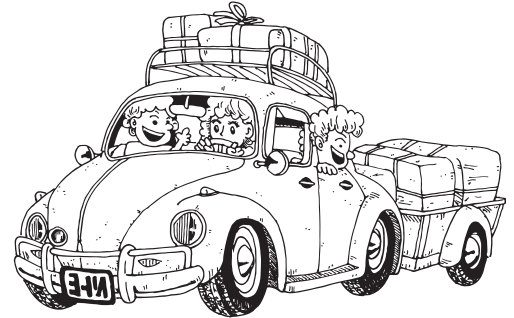
value: to judge what something is worth

visualise: to imagine how something will look

On the go

evaluate: to judge carefully

The Guerreros are travelling from Cityville to Big Falls. They also want to visit the other three towns on the way, but they don't want to drive over a road more than once.
























1. Examine the map. List the different routes the Guerreros can take. For each route, write the towns in the order they would be seen and the number of kilometres the family would travel.

2. **Evaluate** the routes. Which route do you think is the best? Explain why.

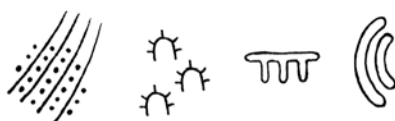
Picture words

apply: to use what you know in a new way

Long ago, Indigenous Australians used cave paintings to record events. Look at this cave painting ‘dictionary’.

 star or sun	 four men sitting with spear	 heavy rain	 sitting down place (campfire) campsite with tracks	 people dancing	
 cloud	 waterhole running water	 main campsite, stone, well, hole, fruit	 person sitting	 fire	 water, rain, snake, or a rainbow
 women sitting with digging sticks and coolemons	 elder	 windbreak	 sparse trees	 body paint	
 emu tracks	 kangaroo tracks	 possum tracks	 human tracks	 ceremonial hair belt	

For example, this picture sentence probably means ‘One rainy day, a man went to hide under a group of trees and hide from the wind’.



- Apply** the dictionary to figure out the picture sentence and write it as a complete word sentence.



- Apply** the dictionary to write your own picture sentence, then write it as a word sentence below.

Unique animals

examine: to look at closely

Examine the animals and answer the questions.

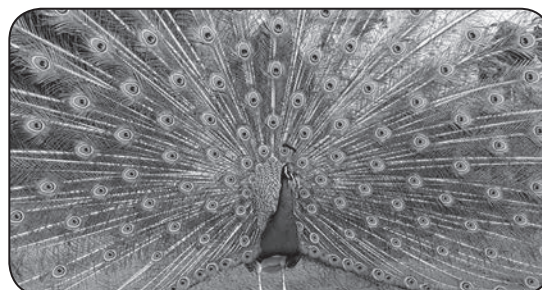
1.



What features make a giraffe different from other animals?

Which feature helps it eat?

2.



What features make a peacock different from other animals?

Which feature helps it find a mate?

3.



What features make a skunk different from other animals?

Which feature keeps enemies away?

4.



What features make a tree frog different from other animals?

Which feature helps it climb?

decide: to choose after thinking

The Sky City Zoo uses different materials for different jobs around the zoo. Here are four zoo jobs. **Decide** the best materials and tools for the job.

Job 1



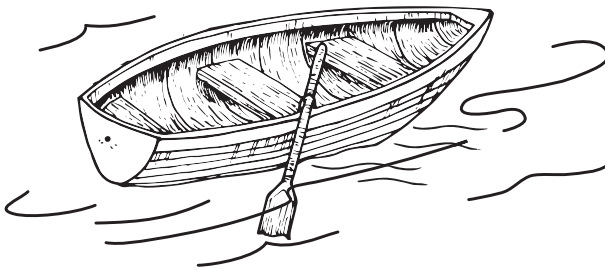
provide protection for the fruit trees from sunburn

Job 2



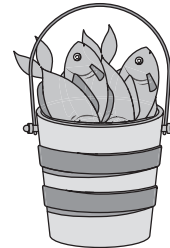
provide a sleeping environment for an elephant

Job 3



a small boat is needed to get to the penguins

Job 4



a feeding container is needed to lower into the pond for the otters

1. Job 1 material: _____ kind of tools needed: _____
2. Job 1 material: _____ kind of tools needed: _____
3. Job 1 material: _____ kind of tools needed: _____
4. Job 1 material: _____ kind of tools needed: _____
5. What is a zoo job that would require the use of glass?
