

Science 5–6

End-of-band review

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End-of-band review — Science Levels 5 and 6

This is a school-designed paper. It is not a VCAA instrument. Achievement at Levels 5 and 6 is reported against the Victorian Curriculum achievement standard on teacher judgement; the marks here are one source of evidence towards that judgement.

This review is a piece of class work from your workbook. It is a teaching instrument, not a mock examination. There is no time to beat — take as long as you need. If you want, your teacher will read any question out to you.

You do this review once, after Chapter 11. It looks back across everything you learned in Chapters 1 to 11. You do it in two sessions of about 45 minutes each: Session 1 is Part A, and Session 2 is Part B. The two sessions can come on different days. You do not need a calculator or a formula sheet, and there is no reading time. Your teacher uses your marks to report on what you have learned across the whole of Levels 5 and 6.

End-of-band review · Codes VC2S6U01–VC2S6U09, VC2S6H01–VC2S6H02, VC2S6I01, VC2S6I04, VC2S6I05 and VC2S6I06

Total: 60 marks · Part A — Questions A1 to A25 · 25 marks · Part B — Questions B1 to B10 · 35 marks

Each Part A question is worth 1 mark. Part B marks are written with each question.

Every question in this review points to a part of the Levels 5 and 6 achievement standard. Part A evidences the nine Science understanding codes and the two Science as a human endeavour codes. Part B evidences four inquiry codes on one investigation: VC2S6I01, VC2S6I04, VC2S6I05 and VC2S6I06. The two inquiry codes this review does not evidence — VC2S6I02 and VC2S6I03 — are evidenced by Topic Test 1, Working scientifically. The extracts, word for word:

Students make reasoned predictions, describe patterns and test relationships when investigating observable phenomena. — VC2S6I01 (1A)

They construct representations to organise and process data and information, and describe patterns, trends and relationships. — VC2S6I04 (3A)

They compare their methods and findings with those of others including identification of possible sources of error, suggest improvements to their own and others' investigations, pose questions for further investigation and select evidence to develop reasoned conclusions. — VC2S6I05 (4A)

They communicate ideas, findings, patterns, trends and relationships for a specific purpose and audience, including using various presentation formats, scientific vocabulary and digital tools where appropriate. — VC2S6I06 (5A)

Students explain how natural and human-induced changes in the physical conditions of a habitat affect the survival of organisms. — VC2S6U01 (6A)

They provide examples of how organisms have changed over time and explain how the structural features and behaviours of organisms enable them to survive. — VC2S6U02 (6B)

They relate the movement and arrangement of the particles present in solids, liquids and gases to their observable properties, and model the particles in different mixtures. — VC2S6U03 (7A)

They classify and compare reversible and irreversible changes to substances. — VC2S6U04 (7B)

They model key processes that change Earth's surface. — VC2S6U05 (8A)

They identify natural hazards and propose human actions that can reduce their impacts. — VC2S6U06 (8B)

They model the relationship between the Sun and planets of the solar system and explain how the relative positions of Earth and the Sun relate to the observable phenomena of variable day and night length. — VC2S6U07 (8C)

They identify sources of light and model different pathways of light to explain observed phenomena. — VC2S6U08 (9A)

They distinguish between electrical insulators and conductors, and identify the role of circuit components in the transfer and transformation of electrical energy. — VC2S6U09 (9B)

students describe examples of advances in science achieved by scientists who work individually and in teams, building on the work of others. — VC2S6H01 (10A)

They discuss examples that illustrate how individuals and communities use scientific knowledge, skills and data to inform their actions and make decisions. — VC2S6H02 (11A)

The words in this review are words you learned in Chapters 1 to 11. If you need them, the word lists are at the end of every subtopic.

In this review you will:

- name a physical condition of a habitat (A1)
- say what happens when a dam dries out (A2)
- pick the change to a habitat that humans cause (A3)
- pick the wombat's structural feature (A4)
- read what a sea-shell fossil on a hill tells us (A5)
- name the particles in a solid (A6)
- say why air can be compressed (A7)
- name the mixture that salt water is (A8)
- say why melting ice is reversible (A9)
- pick the irreversible change (A10)
- name the process that carries rock pieces away (A11)
- name the process that settles carried mud (A12)
- pick the natural hazard (A13)
- choose the action that reduces flood impact (A14)
- name the force that holds the planets in orbit (A15)
- say why June days are short in Melbourne (A16)
- say how torch light travels (A17)
- say why a face shows in a still pond (A18)
- say why a tree makes a shadow (A19)
- pick the electrical conductor (A20)
- say what energy a torch transforms (A21)
- name scientists working together across countries (A22)
- say when scientific knowledge changes (A23)
- read a council using creek data (A24)
- read a farmer using salt data (A25)
- tabulate the group's sunrise and sunset record (B1)
- graph the length of daylight across the year (B2)
- describe the pattern in the data (B3)
- predict the length of daylight on 15 January 2027 (B4)
- find the two differences between the group's table and the record (B5)
- suggest one improvement for each difference (B6)
- judge Noah's claim about the clocks (B7)
- write one further investigable question (B8)
- judge the two claims in the group's conclusion (B9)
- write a letter of advice to the sports coordinator (B10)

Part A — 25 marks

Session 1, about 45 minutes. Twenty-five questions, each worth 1 mark. Choose the one best answer — A, B, C or D — and write the letter of your answer. A question gets its mark, or no mark.

A1. (1 mark · VC2S6U01) A habitat is the place where a living thing lives. Which one is a **physical condition** of a habitat?

- A. The number of animals living there
- B. The temperature of its water
- C. The food chains between its animals
- D. The predators that hunt there

A2. (1 mark · VC2S6U01) A farm dam slowly dries out over a hot summer. What is most likely to happen to the small fish living in the dam?

- A. Their habitat loses water, so fewer of them survive.
- B. They grow faster because the water is warmer.
- C. They turn into a different kind of animal.
- D. Nothing changes, because fish do not need water.

A3. (1 mark · VC2S6U01) Which one is a change to a habitat that is caused by humans?

- A. A storm knocks down old trees.
- B. A river floods after heavy rain.
- C. Lightning starts a bushfire.
- D. Bushland is cleared to grow crops.

A4. (1 mark · VC2S6U02) A **structural feature** is a part of an organism's body. Which one is a structural feature that helps a wombat survive?

- A. It sleeps in its burrow during the hot day.
- B. It has strong claws for digging its burrow.
- C. It comes out at night to feed.
- D. It hides from predators in long grass.

A5. (1 mark · VC2S6U02) A fossil of a sea shell is found in rock high on a hill in Victoria. What does the fossil tell us?

- A. The land where the rock formed was once under the sea.
- B. A bird carried the shell to the top of the hill.
- C. Sea shells still live on the hill today.
- D. Someone buried the shell on the hill.

A6. (1 mark · VC2S6U03) In the particle model of a solid, the particles are...

- A. far apart and moving quickly in all directions
- B. close together and sliding over one another
- C. not moving at all
- D. packed close together and vibrating in place

A7. (1 mark · VC2S6U03) Air in a blocked syringe can be **compressed** — squashed into a smaller space. Air can be compressed because...

- A. air particles get smaller when they are pushed
- B. air is not made of particles
- C. there are large spaces between the particles of air
- D. air particles disappear when they are pushed

A8. (1 mark · VC2S6U03) Salt is stirred into a glass of water until no grains can be seen. The salt water is...

- A. a gas, because the salt has disappeared
- B. a solution, because the salt has dissolved in the water
- C. a new substance, because the salt cannot be seen
- D. only water, because nothing has changed

A9. (1 mark · VC2S6U04) Melting ice is a **reversible** change because...

- A. a new substance is made when the ice melts
- B. the melted water can never become ice again
- C. the ice disappears once it has melted
- D. the melted water can be frozen back into ice

A10. (1 mark · VC2S6U04) An **irreversible** change is a change that cannot be undone. Which one is an irreversible change?

- A. Frying an egg
- B. Freezing water into ice
- C. Melting chocolate
- D. Dissolving sugar in water

A11. (1 mark · VC2S6U05) Strong wind carries sand along a beach. The moving sand hits the rock, breaks pieces off, and the wind carries the pieces away. The carrying away of the pieces by the moving wind is called...

- A. weathering
- B. erosion
- C. deposition
- D. dissolving

A12. (1 mark · VC2S6U05) The Goulburn River carries mud downstream. Where the river slows down, the mud settles on the river bed and the banks. The settling of carried material in a new place is called...

- A. erosion
- B. weathering
- C. deposition
- D. evaporation

A13. (1 mark · VC2S6U06) A **natural hazard** is a natural event that can harm people, property or the environment. Which one is a natural hazard?

- A. Traffic on a busy road
- B. A fence built by farmers
- C. A power cut in a town
- D. A bushfire started by a lightning strike

A14. (1 mark · VC2S6U06) Which action can reduce the impact of flooding on a town?

- A. Building more houses on the floodplain
- B. An early-warning system that tells people a flood is coming so they can move to safety
- C. Cutting down the trees along the river
- D. Ignoring the Bureau of Meteorology's warnings

A15. (1 mark · VC2S6U07) The force that keeps Earth and the other planets in orbit around the Sun is...

- A. gravity
- B. magnetism
- C. friction
- D. electricity

A16. (1 mark · VC2S6U07) In June, the days in Melbourne are shorter than the days in December. The best explanation is that in June...

- A. Earth is further from the Sun
- B. the Sun gives out less light
- C. clouds block most of the Sun's light
- D. the southern hemisphere is tilted away from the Sun

A17. (1 mark · VC2S6U08) Light from a torch travels...

- A. around corners on its own
- B. in a circle around the torch
- C. in a straight path
- D. only through air

A18. (1 mark · VC2S6U08) A student sees their own face in a still pond. The face can be seen because light from the student's face is...

- A. reflected by the surface of the water
- B. absorbed by the water
- C. transmitted through the water
- D. refracted by the air

A19. (1 mark · VC2S6U08) On a sunny day, a tree makes a shadow on the ground. The shadow forms because...

- A. the tree gives out darkness

B. light travels in straight paths and the tree blocks the light

C. the Sun gives out no light behind the tree

D. the ground makes the shadow on its own

A20. (1 mark · VC2S6U09) A **conductor** is a material that lets electrical energy pass through it easily. Which material is a conductor?

A. Rubber

B. Plastic

C. Glass

D. Copper

A21. (1 mark · VC2S6U09) A torch runs on a battery. The torch transforms electrical energy into...

A. chemical energy only

B. sound energy only

C. light energy and heat energy

D. movement energy only

A22. (1 mark · VC2S6H01) Scientists in Australia and scientists in Japan study the same question, share their data, and write one report together. This is an example of...

A. collaboration

B. competition

C. measuring

D. predicting

A23. (1 mark · VC2S6H01) Scientific knowledge changes over time. When does an idea in science most often change?

A. When the scientists studying it retire

B. When enough people vote for a different idea

C. When the idea becomes too old

D. When better evidence arrives

A24. (1 mark · VC2S6H02) A council reads the water-quality data for a creek before it decides where to build a new drain. This is an example of...

A. a fair test

B. using scientific data to make a decision

C. making a prediction

D. finding a source of error

A25. (1 mark · VC2S6H02) The water in a farm dam is getting saltier. The farmer tests the water, reads about how salt moves through soil, and then plants trees that can grow in salty soil. The farmer is...

A. guessing without any evidence

B. measuring for no reason

C. using scientific knowledge and data to make a decision

D. changing the weather to fix the dam

Part B — 35 marks

Session 2, about 45 minutes. Ten questions, all about one investigation write-up. The marks for each question are written with the question. You will work with the group's write-up below and the Geoscience Australia record that follows it.

Words to know for Part B

- **sunrise** — the time the Sun first appears above the line where the sky meets the land or sea.
- **sunset** — the time the Sun disappears below that line in the evening.
- **length of daylight** — the time between sunrise and sunset: how long the Sun is up.
- **AEST** — Australian Eastern Standard Time: Victoria's clock from April to October.
- **AEDT** — Australian Eastern Daylight Time: Victoria's clock from October to April, set one hour ahead of AEST.
- **tilt** — Earth leans to one side as it travels around the Sun; that steady lean is Earth's tilt.
- **hemisphere** — half of Earth. The southern hemisphere is the half south of the equator.
- **prediction** — a statement about what will happen, with a reason.
- **conclusion** — the answer given from the findings of an investigation.
- **source of error** — something in the method or the numbers that can make a result wrong.
- **audience** — the person a piece of work is written for.

The investigation

SCENARIO — a Year 6 group's write-up, built on the real record printed after it. Priya, Marcus and Noah investigated this question:

How does the length of daylight change across the year in Melbourne?

They used Geoscience Australia's sunrise and sunset calculator to find the sunrise and sunset times in Melbourne on the 15th day of each month in 2026. They recorded the times in this table, and then they worked out the length of daylight for each date.

Date	Clock	Sunrise	Sunset	Length of daylight
15 January	AEDT	06:10	20:40	14 h 30 min
15 February	AEDT	06:50	20:20	13 h 30 min
15 March	AEDT	07:20	19:40	12 h 20 min
15 April	AEST	06:50	17:50	11 h 00 min
15 May	AEST	07:10	17:20	10 h 10 min
15 June	AEST	07:30	17:10	10 h 40 min
15 July	AEST	07:30	17:20	9 h 50 min
15 August	AEST	07:10	17:40	10 h 30 min
15 September	AEST	06:20	18:10	11 h 50 min
15 October	AEDT	06:40	19:40	13 h 00 min
15 November	AEDT	06:00	20:10	14 h 10 min
15 December	AEDT	05:50	20:40	14 h 50 min

The group wrote this conclusion:

“Our data shows that the days are shortest in June. Marcus says this is because in June Earth is further from the Sun than in December, so the Sun’s light takes longer to reach us. Noah adds that when the clocks went forward one hour at the start of October, Melbourne gained an extra hour of daylight.”

The record the group used

Here is the record the group read from, exactly as the calculator gave it. The times are in the clock in force on each date: AEDT from January to March and from October to December, and AEST from April to September.

- 15 January (AEDT) — sunrise 06:14, sunset 20:43
- 15 February (AEDT) — sunrise 06:49, sunset 20:18
- 15 March (AEDT) — sunrise 07:18, sunset 19:39
- 15 April (AEST) — sunrise 06:46, sunset 17:53
- 15 May (AEST) — sunrise 07:13, sunset 17:19
- 15 June (AEST) — sunrise 07:33, sunset 17:07
- 15 July (AEST) — sunrise 07:32, sunset 17:19
- 15 August (AEST) — sunrise 07:05, sunset 17:44
- 15 September (AEST) — sunrise 06:21, sunset 18:10
- 15 October (AEDT) — sunrise 06:35, sunset 19:37
- 15 November (AEDT) — sunrise 06:00, sunset 20:09
- 15 December (AEDT) — sunrise 05:52, sunset 20:38

A real record — Melbourne, 2026. Sunrise and sunset in Melbourne on the 15th of each month of 2026, from Geoscience Australia’s sunrise and sunset calculator. The length of daylight is the elapsed time between the two clock times.

Source: Geoscience Australia sunrise and sunset calculator (geodesyapps.ga.gov.au/sunrise) — retrieved 2026-08-22.

- B1.** (3 marks · VC2S6I04) Make a table of the record above. Your table needs a column for the date, the clock, the sunrise time, the sunset time, and the length of daylight. Work out the length of daylight for each date — the time from sunrise to sunset. For example, on 15 March, $19:39 - 07:18 = 12 \text{ h } 21 \text{ min}$.
- B2.** (3 marks · VC2S6I04) Draw a line graph to show how the length of daylight changes across the year. Label both axes and their units, choose a scale that is consistent, and plot all twelve points.
- B3.** (3 marks · VC2S6I04) Describe the pattern in the data. Use numbers from your table in your answer.
- B4.** (2 marks · VC2S6I01) Predict the length of daylight in Melbourne on 15 January 2027. Give the reason for your prediction.
- B5.** (3 marks · VC2S6I05) Compare the group’s table with the record. There are two ways the group’s table differs from the record. Find both of them.
- B6.** (3 marks · VC2S6I05) For each difference you found in B5, suggest one improvement the group could make to their method.
- B7.** (3 marks · VC2S6I05) Noah looks at the record and says, “The Sun set at 18:10 on 15 September, and it set at 19:37 on 15 October. The clocks went forward one hour at the start of October, so Melbourne gained an extra hour of daylight when the clocks changed.” Is Noah right? Explain what the clock change does to sunrise and sunset times, and say what really makes the days longer from September to October.
- B8.** (3 marks · VC2S6I05) Write one further question about daylight that this investigation raises and that you could investigate. Then say what data you would need to answer it.
- B9.** (6 marks · VC2S6I05) The group’s conclusion makes two claims. Judge each claim — say whether it is right or wrong, and give the reason. Then write one sentence that corrects each claim.

- (a) “In June Earth is further from the Sun than in December, so the Sun’s light takes longer to reach us and the days are shorter.” (3 marks)
- (b) “When the clocks went forward one hour at the start of October, Melbourne gained an extra hour of daylight.” (3 marks)

B10. (6 marks · VC2S6I06) Your school’s sports coordinator is planning evening training sessions for the whole year and wants to know how much evening light there is in different months. Write a short letter to the sports coordinator giving your advice. Use numbers from the record to back your advice.

Mark record

Question	Code	Worth	Given
A1 — a physical condition of a habitat	VC2S6U01	1	
A2 — the dam that dries out	VC2S6U01	1	
A3 — the human-caused change	VC2S6U01	1	
A4 — the wombat’s structural feature	VC2S6U02	1	
A5 — the sea-shell fossil on the hill	VC2S6U02	1	
A6 — the particles in a solid	VC2S6U03	1	
A7 — why air can be compressed	VC2S6U03	1	
A8 — the mixture that salt water is	VC2S6U03	1	
A9 — why melting ice is reversible	VC2S6U04	1	
A10 — the irreversible change	VC2S6U04	1	
A11 — the process that carries pieces away	VC2S6U05	1	
A12 — the process that settles carried mud	VC2S6U05	1	
A13 — the natural hazard	VC2S6U06	1	
A14 — reducing the impact of flooding	VC2S6U06	1	
A15 — the force that holds the planets in orbit	VC2S6U07	1	
A16 — why June days are short in Melbourne	VC2S6U07	1	
A17 — how torch	VC2S6U08	1	

Question	Code	Worth	Given
light travels			
A18 — the face in the still pond	VC2S6U08	1	
A19 — why the tree makes a shadow	VC2S6U08	1	
A20 — the electrical conductor	VC2S6U09	1	
A21 — the torch's energy transformation	VC2S6U09	1	
A22 — scientists working across countries	VC2S6H01	1	
A23 — when scientific knowledge changes	VC2S6H01	1	
A24 — the council using creek data	VC2S6H02	1	
A25 — the farmer using salt data	VC2S6H02	1	
B1 — tabulating the record	VC2S6I04	3	
B2 — the line graph	VC2S6I04	3	
B3 — the pattern in the data	VC2S6I04	3	
B4 — the prediction for 15 January 2027	VC2S6I01	2	
B5 — two differences from the record	VC2S6I05	3	
B6 — two improvements	VC2S6I05	3	
B7 — Noah's claim about the clocks	VC2S6I05	3	
B8 — one further investigable question	VC2S6I05	3	
B9 — judging the conclusion's two claims	VC2S6I05	6	
B10 — the letter to the sports coordinator	VC2S6I06	6	
Total		60	

Marking guide

Teacher guidance — End-of-band review · 60 marks. This guide is written so a teacher without a science background can mark the review. Every acceptable response is written out below, and every mark is allocated per response.

About this instrument

- The review is a **school instrument**, not a VCAA examination. There is no VCAA examination at F–10, no external assessment, no study score and no mark that VCAA receives. Achievement at Levels 5 and 6 is reported against the Victorian Curriculum achievement standard on teacher judgement; the marks here are one source of evidence towards that judgement.
- The review is sat once, after Chapter 11, in **two sessions of about 45 minutes each** — Session 1 for Part A, Session 2 for Part B — so it fits a Years 5–6 timetable. The two sessions may come on different days.
- Completion is **untimed** — a student may take as long as they need, and either session may be split further across lessons.
- **Reading support** is permitted: the teacher may read any question aloud on request. Reading is not being assessed. Oral answers count the same as written answers, including in Part B, where the teacher may scribe for a student who finds writing hard.
- There is **no calculator, no formula sheet and no reading time** — all the arithmetic in the review is the clock arithmetic the book teaches, and every figure a student needs is printed in the paper.
- The review is a **teaching instrument for reporting** against the Levels 5 and 6 achievement standard — not a mock examination. It must not be retitled, reformatted or run under exam conditions as one.
- A mark is a record that the evidence was seen. Marks are for reporting against the achievement standard, not for ranking students.

The extracts evidenced

Each question is tagged with the code it traces to. Fifteen of the band’s seventeen content descriptions are evidenced here; the other two — VC2S6I02 (planning investigations) and VC2S6I03 (measuring and recording with reasonable precision) — are evidenced by Topic Test 1, Working scientifically. The fifteen extracts, as quoted at the head of the review:

- VC2S6I01 (1A): “Students make reasoned predictions, describe patterns and test relationships when investigating observable phenomena.”
- VC2S6I04 (3A): “They construct representations to organise and process data and information, and describe patterns, trends and relationships.”
- VC2S6I05 (4A): “They compare their methods and findings with those of others including identification of possible sources of error, suggest improvements to their own and others’ investigations, pose questions for further investigation and select evidence to develop reasoned conclusions.”
- VC2S6I06 (5A): “They communicate ideas, findings, patterns, trends and relationships for a specific purpose and audience, including using various presentation formats, scientific vocabulary and digital tools where appropriate.”
- VC2S6U01 (6A): “Students explain how natural and human-induced changes in the physical conditions of a habitat affect the survival of organisms.”
- VC2S6U02 (6B): “They provide examples of how organisms have changed over time and explain how the structural features and behaviours of organisms enable them to survive.”
- VC2S6U03 (7A): “They relate the movement and arrangement of the particles present in solids, liquids and gases to their observable properties, and model the particles in different mixtures.”
- VC2S6U04 (7B): “They classify and compare reversible and irreversible changes to substances.”
- VC2S6U05 (8A): “They model key processes that change Earth’s surface.”
- VC2S6U06 (8B): “They identify natural hazards and propose human actions that can reduce their impacts.”
- VC2S6U07 (8C): “They model the relationship between the Sun and planets of the solar system and explain how the relative positions of Earth and the Sun relate to the observable phenomena of variable day and night length.”

- VC2S6U08 (9A): “They identify sources of light and model different pathways of light to explain observed phenomena.”
- VC2S6U09 (9B): “They distinguish between electrical insulators and conductors, and identify the role of circuit components in the transfer and transformation of electrical energy.”
- VC2S6H01 (10A): “students describe examples of advances in science achieved by scientists who work individually and in teams, building on the work of others.”
- VC2S6H02 (11A): “They discuss examples that illustrate how individuals and communities use scientific knowledge, skills and data to inform their actions and make decisions.”

The lower-case opening of the VC2S6H01 extract is the authority file’s own. It is reproduced as found and is not a transcription error to be “corrected”.

Marks at a glance

Part	Questions	Code	Marks
Part A	A1–A3	VC2S6U01	3
Part A	A4, A5	VC2S6U02	2
Part A	A6–A8	VC2S6U03	3
Part A	A9, A10	VC2S6U04	2
Part A	A11, A12	VC2S6U05	2
Part A	A13, A14	VC2S6U06	2
Part A	A15, A16	VC2S6U07	2
Part A	A17–A19	VC2S6U08	3
Part A	A20, A21	VC2S6U09	2
Part A	A22, A23	VC2S6H01	2
Part A	A24, A25	VC2S6H02	2
Part B	B1–B3	VC2S6I04	9
Part B	B4	VC2S6I01	2
Part B	B5–B9	VC2S6I05	18
Part B	B10	VC2S6I06	6
Total			60

General marking rules

- Accept answers in the student’s own words. The acceptable answers below are wide by design — if the response shows the understanding, give the mark.
- Spelling does not lose marks.
- Part A items are marked all-or-nothing: each gets its 1 mark, or 0. Accept the letter on its own, or the letter with its text.
- Part B items are part-marked exactly as shown with each question.
- In B1, one slips-of-the-pen transcription or calculation error does not remove the mark for that element; the element is marked on the method, not on perfection across twelve rows.
- In B2 and B10, neatness does not lose marks unless the work cannot be read.
- If an answer is right but the reason is unclear, ask the student to say more — once. If the follow-up shows the understanding, give the mark. If it shows a guess with nothing behind it, record 0 and move on without comment.

Running the review

Give the review once, after Chapter 11. Session 1 holds Part A: twenty-five multiple-choice questions, answered with a letter. Session 2 holds Part B: the ten questions on the group’s investigation write-up, which is printed in the paper.

For B2, give each student grid paper or a blank axis grid; the group's record may also be printed large or projected. The two sessions may come on different days, and there is no time limit on either. No conditions of an exam apply.

About the data

The Part B record is real: the sunrise and sunset times for Melbourne on the 15th of each month of 2026, from Geoscience Australia's sunrise and sunset calculator, retrieved 2026-08-22. The raw calculator responses are kept in `_sources/review_ga_sunrise_sunset.json` in this build. The clocks follow Victoria's daylight saving: AEDT until 5 April 2026, AEST from 5 April to 4 October, AEDT from 4 October.

The SCENARIO write-up is built on that record and carries three planted features for the student to find and judge:

1. **Rounding.** The group rounded every sunrise and sunset time to the nearest 10 minutes; the record carries exact minutes. (This is also secondary evidence towards VC2S6I03, which Topic Test 1 owns: judging the rounding is judging precision.)
2. **A calculation slip.** The group's 15 June row says 10 h 40 min, but their own times — 07:30 to 17:10 — give 9 h 40 min.
3. **Two misconceptions in the conclusion.** Both were already defused in 8C: (a) that June days are short because Earth is further from the Sun — Earth is actually closest to the Sun in January, in Victoria's summer, and the seasons come from the tilt; and (b) that the October clock change adds an hour of daylight — the clock label changes, but both sunrise and sunset move one hour later on the clock and the gap between them is unchanged.

For reference: the longest day in the record is 14 h 46 min (15 December), the shortest is 9 h 34 min (15 June), and $14\text{ h }46\text{ min} - 9\text{ h }34\text{ min} = 5\text{ h }12\text{ min}$.

Part A — answers

A1 · VC2S6U01 · 1 mark

- **Accept: B** — the temperature of its water.
- **Why not the others:** the number of animals, the food chains and the predators are living parts of a habitat, not physical conditions. 6A teaches the physical conditions: temperature, light, water, salinity, soil and shelter.
- **Evidences:** “explain how natural and human-induced changes in the physical conditions of a habitat affect the survival of organisms.”

A2 · VC2S6U01 · 1 mark

- **Accept: A** — their habitat loses water, so fewer of them survive.
- **Why not the others:** drying removes the water the fish need; fish cannot turn into another animal, and warmer, shallower water is not better for them.
- **Evidences:** the 6A case of a condition that gates survival — a pond drying.

A3 · VC2S6U01 · 1 mark

- **Accept: D** — bushland is cleared to grow crops.
- **Why not the others:** storms, floods and lightning-started fires are natural changes; clearing land for crops is the human-caused change.
- **Evidences:** “natural and human-induced changes in the physical conditions of a habitat”.

A4 · VC2S6U02 · 1 mark

- **Accept: B** — it has strong claws for digging its burrow.
- **Why not the others:** sleeping in the day, feeding at night and hiding in grass are things the wombat *does* — behaviours, 6B's other case — not body parts.
- **Evidences:** “explain how the structural features and behaviours of organisms enable them to survive” — and the distinction between a feature and a behaviour.

A5 · VC2S6U02 · 1 mark

- **Accept: A** — the land where the rock formed was once under the sea.
- **Why not the others:** a fossil in rock is evidence of past environments, read as evidence, not a story about birds or burials; sea shells do not live on hills.
- **Evidences:** “provide examples of how organisms have changed over time” — fossils read as evidence.

A6 · VC2S6U03 · 1 mark

- **Accept: D** — packed close together and vibrating in place.
- **Why not the others:** far apart and moving quickly is a gas; close and sliding over one another is a liquid; particles are never still.
- **Evidences:** “relate the movement and arrangement of the particles present in solids, liquids and gases to their observable properties”.

A7 · VC2S6U03 · 1 mark

- **Accept: C** — there are large spaces between the particles of air.
- **Why not the others:** compressing closes up the spaces between particles; the particles themselves do not shrink or disappear, and air is made of particles.
- **Evidences:** the 7A model — using particle arrangement to explain compressibility.

A8 · VC2S6U03 · 1 mark

- **Accept: B** — a solution, because the salt has dissolved in the water.
- **Why not the others:** the salt has not vanished or become a gas, and no new substance has formed — dissolving is a way substances combine into a mixture, and the salt can be recovered.
- **Evidences:** “model the particles in different mixtures” — solutions as one kind of mixture.

A9 · VC2S6U04 · 1 mark

- **Accept: D** — the melted water can be frozen back into ice.
- **Why not the others:** a reversible change is one that can be undone — the original substance can be recovered. No new substance forms when ice melts.
- **Evidences:** “classify and compare reversible and irreversible changes to substances.”

A10 · VC2S6U04 · 1 mark

- **Accept: A** — frying an egg.
- **Why not the others:** freezing, melting and dissolving can all be undone to recover the original substance; cooking makes new substances that cannot be turned back into the raw egg.
- **Evidences:** the 7B case — cooking as the everyday irreversible change, with the new substance identified.

A11 · VC2S6U05 · 1 mark

- **Accept: B** — erosion.
- **Why not the others:** weathering breaks rock down where it sits; erosion is the carrying away of the pieces by moving wind, water or ice; deposition is the settling of the carried material; dissolving is a chemical mixing.
- **Evidences:** “model key processes that change Earth’s surface” — 8A’s weathering-is-not-erosion distinction.

A12 · VC2S6U05 · 1 mark

- **Accept: C** — deposition.
- **Why not the others:** erosion is the carrying, weathering is the breaking down in place, and evaporation is water becoming vapour. The settling of carried material in a new place is deposition.
- **Evidences:** the four named processes distinguished and put in order — 8A.

A13 · VC2S6U06 · 1 mark

- **Accept: D** — a bushfire started by a lightning strike.
- **Why not the others:** traffic, fences and power cuts are made by people; a natural hazard is a natural event. A bushfire started by lightning is the natural event that can cause harm.
- **Evidences:** “identify natural hazards”.

A14 · VC2S6U06 · 1 mark

- **Accept: B** — an early-warning system that tells people a flood is coming so they can move to safety.
- **Why not the others:** building on the floodplain, clearing riverside trees and ignoring warnings all make flooding worse, not better.
- **Evidences:** “propose human actions that can reduce their impacts” — the mechanism shown, not just named: warning gives people time to move.

A15 · VC2S6U07 · 1 mark

- **Accept: A** — gravity.
- **Why not the others:** magnetism, friction and electricity do not hold the planets in orbit. 8C teaches gravity as the force keeping Earth and the other planets in orbit around the Sun.
- **Evidences:** “model the relationship between the Sun and planets of the solar system”.

A16 · VC2S6U07 · 1 mark

- **Accept: D** — the southern hemisphere is tilted away from the Sun.
- **Why not the others:** nearness to the Sun is not the reason — Earth is actually closest to the Sun in January, Victoria’s summer (8C’s defused misconception). The Sun’s output does not change with the seasons, and clouds are weather, not the reason for the seasons.
- **Evidences:** “explain how the relative positions of Earth and the Sun relate to the observable phenomena of variable day and night length” — tilt plus revolution.

A17 · VC2S6U08 · 1 mark

- **Accept: C** — in a straight path.
- **Why not the others:** light does not bend around corners on its own, circle its source, or need air to travel through.
- **Evidences:** “model different pathways of light” — light travels in a straight path, the first of 9A’s consequences.

A18 · VC2S6U08 · 1 mark

- **Accept: A** — reflected by the surface of the water.
- **Why not the others:** a seen face means light came back to the eyes — reflection. Absorbed light would not return; transmitted light goes through the water; refraction is the bending of transmitted light.
- **Evidences:** absorbed, transmitted, reflected and refracted told apart by observation — 9A.

A19 · VC2S6U08 · 1 mark

- **Accept: B** — light travels in straight paths and the tree blocks the light.
- **Why not the others:** nothing gives out darkness, the Sun does not switch off behind objects, and the ground does not make shadows on its own. A shadow is where the straight-path light is blocked.
- **Evidences:** “light travels in a straight path, can form shadows” — how a shadow forms and why it has the shape it has.

A20 · VC2S6U09 · 1 mark

- **Accept: D** — copper.

- **Why not the others:** rubber, plastic and glass are insulators — they are the materials chosen to stop electrical energy passing. Copper is the conductor chosen for wires.
- **Evidences:** “distinguish between electrical insulators and conductors”.

A21 · VC2S6U09 · 1 mark

- **Accept:** C — light energy and heat energy.
- **Why not the others:** a torch gives out light and warms up — it does not make sound or movement, and energy is transformed, not used up.
- **Evidences:** “identify the role of circuit components in the transfer and transformation of electrical energy”.

A22 · VC2S6H01 · 1 mark

- **Accept:** A — collaboration.
- **Why not the others:** sharing data and writing one report together across countries is working together, not competing; measuring and predicting are inquiry skills, not this pattern of working.
- **Evidences:** “advances in science achieved by scientists who work individually and in teams” — collaboration, one of VCAA’s two named mechanisms.

A23 · VC2S6H01 · 1 mark

- **Accept:** D — when better evidence arrives.
- **Why not the others:** ideas in science change on evidence, not on retirement, votes or age. “We changed our minds” is science working, not science failing — 10A.
- **Evidences:** “scientific knowledge changes over time” — a claim revised when better evidence arrived.

A24 · VC2S6H02 · 1 mark

- **Accept:** B — using scientific data to make a decision.
- **Why not the others:** the council is not running a fair test, predicting or error-hunting — it is reading data before deciding. That is the 11A move: data used to identify a problem and make a decision.
- **Evidences:** “how individuals and communities use scientific knowledge, skills and data to inform their actions and make decisions.”

A25 · VC2S6H02 · 1 mark

- **Accept:** C — using scientific knowledge and data to make a decision.
- **Why not the others:** the farmer tested, read and then chose — that is evidence used to consider a response and act, not guessing, pointless measuring or weather-changing.
- **Evidences:** “use scientific knowledge, skills and data to identify problems, consider responses and make decisions”.

Part B — answers

B1 · VC2S6I04 · 3 marks

- **Accept:** a table with columns for the date, the clock, the sunrise, the sunset and the length of daylight, holding all twelve dates, filled from the record. The expected lengths:

Date	Clock	Sunrise	Sunset	Length of daylight
15 January	AEDT	06:14	20:43	14 h 29 min
15 February	AEDT	06:49	20:18	13 h 29 min
15 March	AEDT	07:18	19:39	12 h 21 min
15 April	AEST	06:46	17:53	11 h 07 min
15 May	AEST	07:13	17:19	10 h 06 min

Date	Clock	Sunrise	Sunset	Length of daylight
15 June	AEST	07:33	17:07	9 h 34 min
15 July	AEST	07:32	17:19	9 h 47 min
15 August	AEST	07:05	17:44	10 h 39 min
15 September	AEST	06:21	18:10	11 h 49 min
15 October	AEDT	06:35	19:37	13 h 02 min
15 November	AEDT	06:00	20:09	14 h 09 min
15 December	AEDT	05:52	20:38	14 h 46 min

- **Marks:** 1 for a table with the right columns and all twelve dates; 1 for the sunrise and sunset times copied correctly from the record (one transcription slip allowed); 1 for the twelve lengths of daylight worked correctly (one calculation slip allowed). Accept counting-on working as well as subtraction.
- **Common insufficient responses:** a table that omits the clock column, or holds fewer than twelve rows (0 for the structure mark); lengths copied from the *group's* table instead of worked from the record (0 for the calculation mark).
- **Evidences:** “construct representations to organise and process data” — designing the table from a raw list is the 3A skill; the elapsed-time working is the book’s clock arithmetic. Note the lengths here differ from the group’s rounded ones — that is intentional, and B5 picks it up.

B2 · VC2S6I04 · 3 marks

- **Accept:** a line graph with the months January to December along the horizontal axis, the length of daylight on the vertical axis, both axes labelled with their units, a consistent scale, all twelve points plotted from the student’s B1 table, and the points joined.
- **Marks:** 1 for both axes labelled with units; 1 for a consistent scale that uses the grid sensibly; 1 for all twelve points plotted correctly and joined (one point error allowed).
- Accept the length of daylight in hours and minutes, in hours with halves (e.g. 9.5 h), or in minutes — any one of these, used consistently. A scale that does not start at zero is acceptable if it is consistent and labelled.
- **A column graph:** accept, but cap at **2 of 3** — 3A teaches that change over time is represented by a line graph, and the choice of representation is part of the skill. Say so in the feedback.
- **Common insufficient responses:** points plotted but no axis labels; a scale that changes part-way up the axis; points joined month to month in a zigzag that follows no order.
- **Evidences:** “construct representations to organise and process data and information”.

B3 · VC2S6I04 · 3 marks

- **Accept:** the length of daylight falls from January (14 h 29 min) to its lowest in June (9 h 34 min), then rises again through the rest of the year to its highest in December (14 h 46 min). Also accept values taken from the student’s own correct B1 table, and “about 9 and a half hours” for 9 h 34 min.
- **Marks:** 1 for the shape in both directions (falls to mid-year, rises to year’s end); 1 for naming June as the shortest month and December as the longest; 1 for quoting figures from the table.
- **Common insufficient responses:** “it goes up and down” with no months and no figures (0 — 3A requires quoting figures, not saying “it goes up”); the shape described but no figures quoted (2).
- **Evidences:** “describe patterns, trends and relationships”.

B4 · VC2S6I01 · 2 marks

- **Accept:** a prediction near 14 h 30 min — anything from about 14 h to about 15 h, or “about the same as 15 January 2026” — with a reason that appeals to the yearly cycle: Earth’s trip around the Sun takes one year, so the pattern of 2026 repeats in 2027, and mid-January days are long days.
- **Marks:** 1 for a prediction consistent with the pattern; 1 for the reason.

- **Common insufficient responses:** “longer than December” (15 January 2027 sits near the top of the cycle, beside 15 December, not beyond it — accept only with a reason that fits); a bare “because summer” with no appeal to the repeating pattern (0 for the reason).
- **Evidences:** “make reasoned predictions” — the 1A “I predict ... because ...” form.

B5 · VC2S6I05 · 3 marks

- **Accept:** (1) the group rounded every sunrise and sunset time to the nearest 10 minutes, while the record gives the exact minutes; and
(2) the group’s length of daylight for 15 June — 10 h 40 min — does not fit the group’s own times: 07:30 to 17:10 is 9 h 40 min.
- **Marks:** 1 for the rounding difference; 1 for the June calculation difference; 1 for stating or showing the correct June value (9 h 40 min).
- **Accept** “the group’s times are a bit different from the record, for example 06:10 instead of 06:14” as the rounding difference — the student does not need the word *rounding* if they show what happened.
- **Common insufficient responses:** naming only one of the two differences (mark what is found, up to the marks available); “the group got it wrong” with nothing located (0).
- **Evidences:** “compare their methods and findings with those of others including identification of possible sources of error”. This item also gives secondary evidence towards VC2S6I03: judging the rounding is judging precision.

B6 · VC2S6I05 · 3 marks

- **Accept:** for the rounding — record the times exactly as the calculator gives them, to the minute; if rounding is ever wanted, do it once at the end, not in the working table. For the June slip — check each length of daylight against the recorded sunrise and sunset times before writing the conclusion, for example by counting on from 07:30 to 17:10.
- **Marks:** 1 for each difference improved (2 marks); 1 further mark when at least one improvement says something specific to do differently.
- **Common insufficient responses:** “be more careful”, “try harder”, “check their work” with nothing located — these take the two improvement marks only if tied to one of the differences, and never the third mark.
- **Evidences:** “suggest improvements to their own and others’ investigations”.

B7 · VC2S6I05 · 3 marks

- **Accept:** no, Noah is not right. When the clocks go forward, the label on every clock time moves one hour ahead — sunrise and sunset are both read one hour later on the clock. The length of daylight is the gap between sunrise and sunset, and that gap does not change because of the clocks. The days really do get longer from September to October, but because of Earth’s tilt: through those months the southern hemisphere tilts more towards the Sun. The record shows the real change: 11 h 49 min on 15 September to 13 h 02 min on 15 October.
- **Marks:** 1 for the verdict with the reason that the clock change only shifts the labels; 1 for saying that sunrise and sunset both move one hour later on the clock, so the gap between them is unchanged; 1 for the real reason (the tilt) or for quoting the September-to-October lengths as evidence of a real change.
- **Common insufficient responses:** “Noah is wrong because the record says so” with no mechanism (1 at most); agreeing with Noah (0 — but check whether the student at least located the gap idea before recording 0).
- **Evidences:** “select evidence to develop reasoned conclusions” — the 8C lesson applied: the clock label changes, but the length of daylight is simply the gap between sunrise and sunset.

B8 · VC2S6I05 · 3 marks

- **Accept:** any investigable question with the data it needs. Examples: “Is the pattern the same every year?” — sunrise and sunset records for the same twelve dates in another year. “Does daylight length change the same way in a town closer to the equator?” — sunrise and sunset times for that town on the same dates. “Which

month shows the biggest change from one month to the next?” — the student’s own table, or records taken more often than monthly.

- **Marks:** 1 for a question that data can answer; 1 for naming the data needed; 1 for data that would actually answer that question.
- **Common insufficient responses:** opinion or unanswerable questions (“is summer the best season?”); a question the investigation has already answered (“what is the length of daylight in June?”) — 0 for the question mark.
- **Evidences:** “pose questions for further investigation”.

B9 · VC2S6I05 · 6 marks

- **Claim (a) — accept:** wrong. Nearness to the Sun is not the reason — Earth is actually closest to the Sun in January, in the middle of Victoria’s summer, so nearness cannot make June cold and dark (this was defused in 8C). The real reason is the tilt: in June the southern hemisphere is tilted away from the Sun, so Melbourne spends less of each turn in daylight. Corrected sentence, e.g.: “The days are shortest in June because the southern hemisphere is tilted away from the Sun.”
- **Claim (b) — accept:** wrong. The clock change adds no daylight. It moves every clock label one hour ahead — sunrise and sunset are both read one hour later — and the gap between them, which is the length of daylight, is unchanged. Corrected sentence, e.g.: “The days get longer in October because of Earth’s tilt, not because the clocks changed.”
- **Marks:** for each claim — 1 for the verdict with its reason, 1 for the correct explanation, 1 for the corrected sentence. $3 + 3 = 6$. Accept the claims in either order. A bare corrected sentence with no verdict or reason takes at most 1 per claim.
- **Common insufficient responses:** “wrong because the teacher said so”; a verdict with no reason; correcting (a) by swapping to another misconception (“the Sun gets weaker in winter” — 0 for the explanation).
- **Evidences:** “select evidence to develop reasoned conclusions” — the two 8C misconceptions judged on the record.

B10 · VC2S6I06 · 6 marks

- **Accept:** a short letter to the sports coordinator. A model response:

Dear Sports Coordinator,

Our class investigated how the length of daylight changes across the year in Melbourne, and the evenings change a lot. In the middle of winter, on 15 June, the Sun sets at 17:07 and daylight lasts only 9 h 34 min, so evening training would need to finish early or move indoors. In the middle of summer, on 15 December, the Sun sets at 20:38 and daylight lasts 14 h 46 min, so there is plenty of evening light for training. We suggest planning the late evening sessions for November to January, and earlier sessions for May to July.

From Priya, Marcus and Noah’s class

- **Marks (rubric):** 1 for the format — a letter addressed to the sports coordinator, with a greeting or clear addressee and a sign-off; 1 for a clear purpose and advice about evening training; 1 for quoting figures from the record; 1 for using the quoted figures correctly (date, time and length match the record); 1 for scientific vocabulary used correctly (length of daylight, sunrise, sunset, hours and minutes, and month names or seasons); 1 for advice that suits the audience — something the coordinator can act on, such as later sessions in summer and earlier ones in winter.
- A dictated letter scribed by the teacher is marked the same way — the composition is the skill.
- **Common insufficient responses:** no figures at all (0 for both figure marks); figures that do not match the record (0 for correctness, keep the quotation mark only if a real record figure appears somewhere); a letter that tells the coordinator about the investigation but gives no advice (0 for the audience mark).
- **Evidences:** “communicate ideas, findings, patterns, trends and relationships for a specific purpose and audience”.

Where each question traces in the curriculum

Every question traces to the achievement-standard extract of one of the content descriptions of Levels 5 and 6. The review evidences fifteen of the seventeen; VC2S6I02 and VC2S6I03 are evidenced by Topic Test 1. The extracts for each code are quoted word for word above, under “The extracts evidenced”.

Question	Marks	Subtopic	Owns
A1	1	6A	VC2S6U01
A2	1	6A	VC2S6U01
A3	1	6A	VC2S6U01
A4	1	6B	VC2S6U02
A5	1	6B	VC2S6U02
A6	1	7A	VC2S6U03
A7	1	7A	VC2S6U03
A8	1	7A	VC2S6U03
A9	1	7B	VC2S6U04
A10	1	7B	VC2S6U04
A11	1	8A	VC2S6U05
A12	1	8A	VC2S6U05
A13	1	8B	VC2S6U06
A14	1	8B	VC2S6U06
A15	1	8C	VC2S6U07
A16	1	8C	VC2S6U07
A17	1	9A	VC2S6U08
A18	1	9A	VC2S6U08
A19	1	9A	VC2S6U08
A20	1	9B	VC2S6U09
A21	1	9B	VC2S6U09
A22	1	10A	VC2S6H01
A23	1	10A	VC2S6H01
A24	1	11A	VC2S6H02
A25	1	11A	VC2S6H02
B1	3	3A	VC2S6I04
B2	3	3A	VC2S6I04
B3	3	3A	VC2S6I04
B4	2	1A	VC2S6I01
B5	3	4A	VC2S6I05
B6	3	4A	VC2S6I05
B7	3	4A	VC2S6I05
B8	3	4A	VC2S6I05
B9	6	4A	VC2S6I05
B10	6	5A	VC2S6I06
Total	60		

Total

Part A: 25 marks (25 × 1). Part B: 35 marks (3 + 3 + 3 + 2 + 3 + 3 + 3 + 3 + 6 + 6). **Total: 60 marks.**

Part B is all inquiry: its 35 marks sit in VC2S6I01, VC2S6I04, VC2S6I05 and VC2S6I06, comfortably past the §7.2 minimum of 20 of 35. Part A is understanding and endeavour by §7.2's design. With the six topic tests' 195 marks, the book's assessment total is 255.