

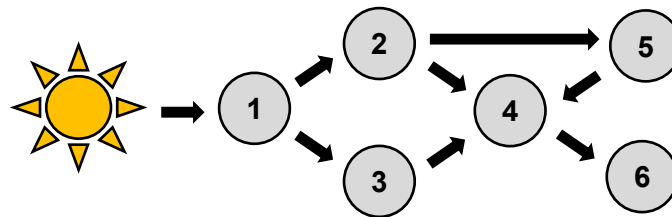
SECTION A

1.1 Which of the following diseases is caused by a virus?

- A Tuberculosis
- B Athlete's foot
- C AIDS
- D Typhoid fever

(2)

1.2 What will happen in the following food web if number 2 became extinct?

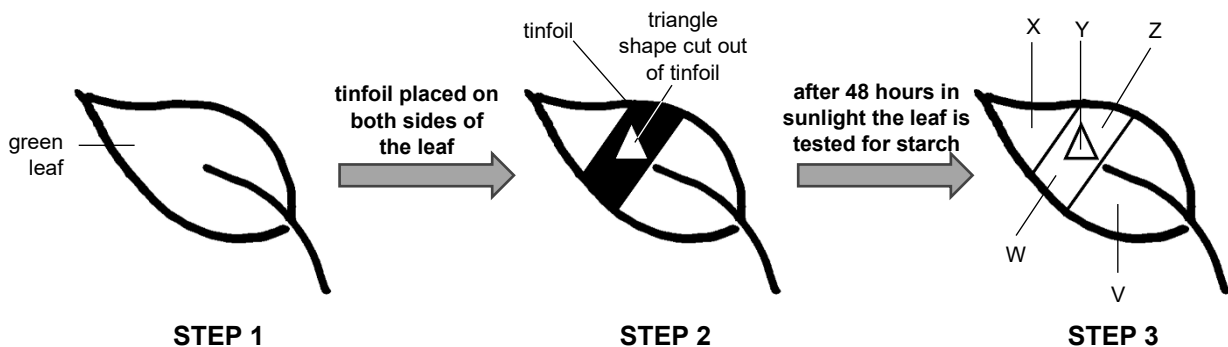


- A 4 will increase
- B 1 will decrease
- C 3 will decrease
- D 1 will increase

(2)

1.3 A learner performed the following investigation to determine if sunlight is needed for photosynthesis.

The leaf of a green plant was destarched and then treated as shown in the diagrams below. The leaf was left in the sunlight for 48 hours before it was tested for the presence of starch.



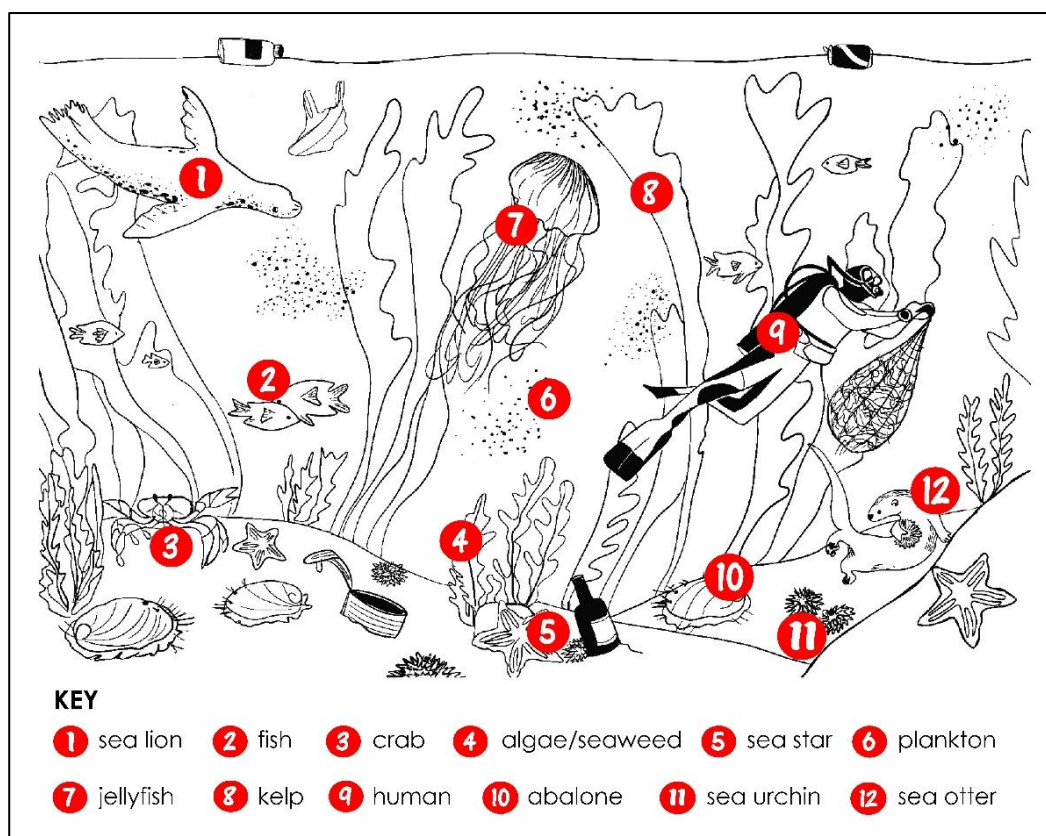
Which LETTER(S) on the leaf in **STEP 3** will test positive for starch?

- A W, V, Z and X
- B X, V and Y
- C X, W and Z
- D Only Y

(2)

SECTION B

2. The picture below shows a kelp forest ecosystem in the ocean.



2.1 List TWO biotic factors in this ecosystem that are also producers. (2)

2.2 Abalone (*perlemoen*) are grazing sea snails. They feed on algae or floating scraps of kelp.

2.2.1 Classify the mode of nutrition of abalone. (1)

2.2.2 Which trophic level will include the abalone in a food chain? (1)

2.2.3 Draw a food chain from the diagram that includes abalone and has at least THREE trophic levels. (4)

2.3 Most of the organisms in this ecosystem eat more than one item. Provide ONE reason why it is important to have more than one source of food. (1)

2.4 Two negative human impacts are shown in the picture above. List these TWO human impacts and briefly explain how each one affects the ecosystem. (4)

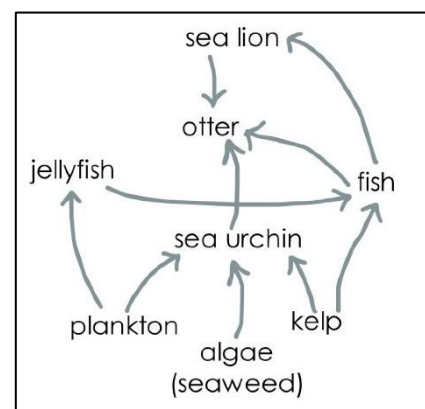
2.5 A partial food web for this ecosystem is shown alongside.

2.5.1 Identify TWO mistakes in the food web. (2)

2.5.2 Otters have been hunted and killed for their fur. This devastating human impact has caused significant problems for kelp forests.

Explain the effect of a lack of sea otters on the producers of this ecosystem.

(4)



MEMORANDUM – GRADE 8 LIFE AND LIVING

SECTION A

- 1.1 C✓✓ (2)
1.2 D✓✓ (2)
1.3 B✓✓ (2)

SECTION B

- 2.1 kelp, plankton, algae/seaweed✓ (mark only the first two) (2)
- 2.2
- 2.2.1 heterotrophic✓ (1)
- 2.2.2 second✓ (1)
- 2.2.3 algae/kelp✓ → abalone✓ → sea otter/human✓ OR ✓ for arrows pointing in correct direction
algae/kelp✓ → abalone✓ → sea otter✓ → sea lion (4)
- 2.3 - Some food sources might be seasonal✓ / not be available during certain times of year.
- Some food sources might go extinct✓ due to other factors (poaching/disease) / not be available anymore.
- The organism will not go hungry or extinct as it is more adaptable✓ / can alternate its food sources as required. (mark only the first one) (1)
- 2.4 Pollution✓ – harmful substances or solid waste is dumped into water ecosystems and can be harmful to plants and animals✓.
- Poaching✓ – humans illegally remove/kill organisms (e.g. abalone) leading to the overuse of these organisms and their products / a species may go extinct✓. (4)
- 2.5
- 2.5.1 - The arrow should point from the fish towards the jellyfish (fish → jellyfish)✓
- The arrow should point from the sea otter towards the sea lion (sea otter → sea lion)✓ (2)
- 2.5.2 - The number of sea urchins (and fish) would increase✓ dramatically because
- sea otters are the only animals that eat the sea urchins✓.
- Sea urchins would over-populate✓ the ecosystem and
- consume too much kelp, algae and plankton / producers✓.
- This dramatic reduction in producers may cause the ecosystem to collapse✓. (any 4) (4)

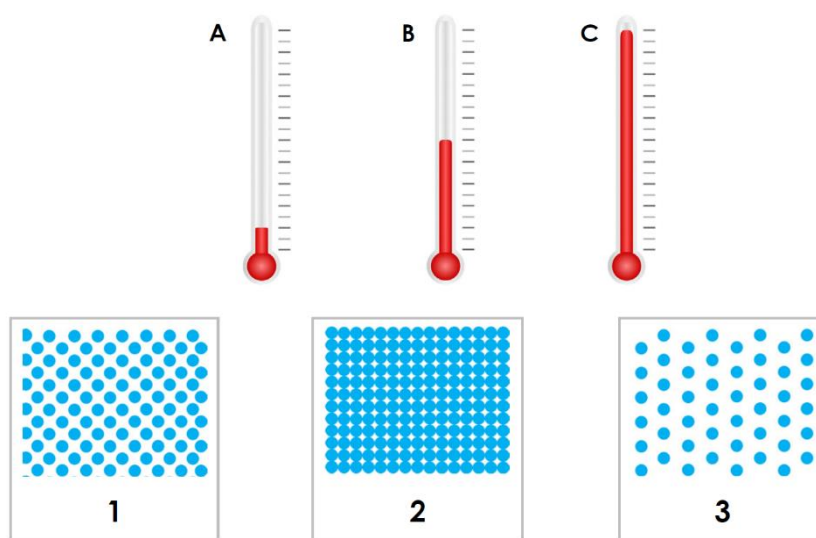
SECTION A

1.1 The subatomic particles that are found in the nucleus of an atom include...

- A protons only
- B neutrons and electrons
- C electrons only
- D protons and neutrons

(2)

1.2 Pictures **A**, **B** and **C** show three thermometers at different temperatures. Representations **1**, **2** and **3** show the particles inside the thermometers.



Which number (1 to 3) is the best representation of the particles inside each thermometer (A to C)?

	Thermometer A	Thermometer B	Thermometer C
A	1	2	3
B	2	1	3
C	3	1	2
D	3	2	1

(2)

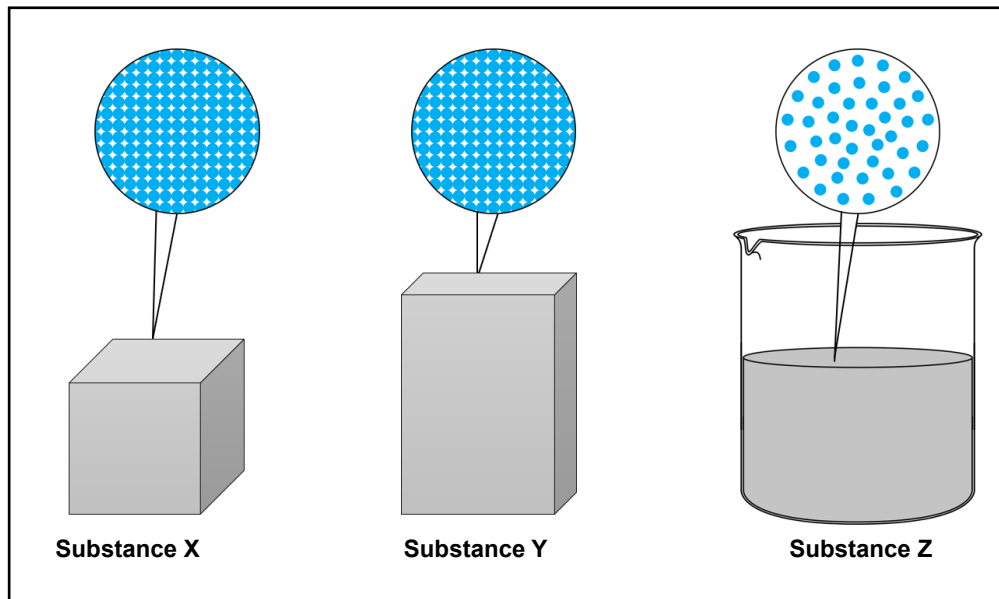
1.3 Water sinks in sunflower oil, but floats on milk. Milk floats on mercury but sinks in water. Which one of the following is the correct arrangement of these substances from the highest to the lowest density?

- A mercury → milk → water → sunflower oil
- B sunflower oil → water → milk → mercury
- C milk → sunflower oil → mercury → water
- D sunflower oil → water → milk → mercury

(2)

SECTION B

2. Three substances, **X**, **Y** and **Z**, are shown below. The images in the circles show the arrangement of the particles that make up each substance.



- 2.1 Identify the state of matter of substances **X** and **Z** respectively. (2)
- 2.2 Explain which substance's particles, **X** or **Z**, will have the highest average kinetic energy. (3)
- 2.3 Substance **X** has a mass of 40 g and the following measurements:
- Length = 2 cm*
Breadth = 2 cm
Height = 2 cm
- 2.3.1 Calculate the volume of substance **X**. Show all calculations. (4)
- 2.3.2 Calculate the density of substance **X**. Show all calculations. (4)
- 2.4 Substance **Z** has a density of $0,9 \text{ g/cm}^3$. Explain whether substance **X** will float, sink or be suspended in substance **Z**. (2)
- 2.5 Explain how you will determine whether substance **X** and substance **Y** are made of the same material or not. (5)

MEMORANDUM – GRADE 8 MATTER AND MATERIALS

SECTION A

- 1.1 D ✓✓ (2)
1.2 B ✓✓ (2)
1.3 A ✓✓ (2)

SECTION B

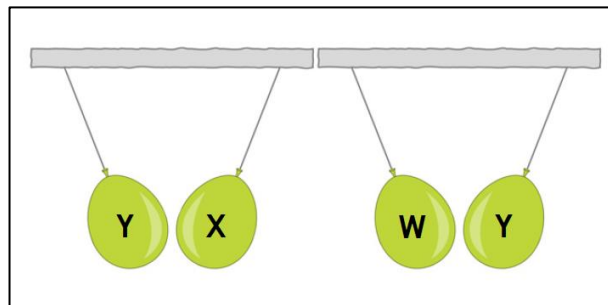
- 2.1 X – solid ✓
Z – liquid ✓ (2)
- 2.2 Substance Z ✓
- its particles are further apart ✓ / have larger spaces between the particles which
- allows the particles to move more freely ✓ / fast and have more kinetic energy (3)
- 2.3
2.3.1 Volume = $\ell \times b \times h$ ✓ = $2 \times 2 \times 2$ ✓ = 8 ✓ cm^3 ✓ (4)
- 2.3.2 $D = \frac{m}{V}$ ✓ = $\frac{40}{8}$ ✓ = 5 ✓ g/cm^3 ✓ (4)
- 2.4 Sink ✓ – the density of substance X is higher ✓ than the density of substance Z. (2)
- 2.5 - Weigh each substance to determine its mass ✓
- Calculate the volume of each substance ✓
- Calculate the density ✓ of each substance with the formula $D = \frac{m}{V}$
- Compare the densities ✓ of the two substances
- If they are the same, they are made of the same material ✓*
- If they are different, they are made of different materials ✓*
(2 compulsory marks ✓* and any 3 other marks) (5)

SECTION A

1.1 Which one of the following is a NOT a luminous object?

- A The moon
- B The sun
- C A light bulb
- D A candle

1.2 In the experimental setup below, the charge interactions between three balloons (**W**, **X** and **Y**) were investigated. Balloon **X** is known to have a negative charge. Balloons **W** and **Y** may be either positive or negative.

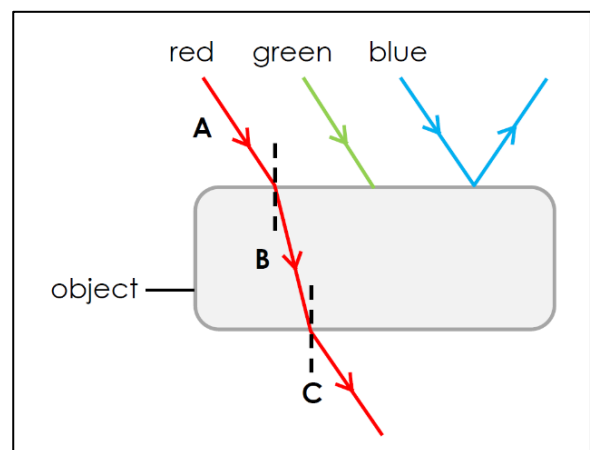


What would happen if balloon **X** and **W** were held close to each other?

- A They would attract each other.
- B They would repel each other.
- C They would have no effect on one another.
- D They would attract each other, touch and then repel each other.

1.3 The diagram shows light of various colours striking an object. Some of the colour wavelengths are reflected, some are absorbed, and some pass through.

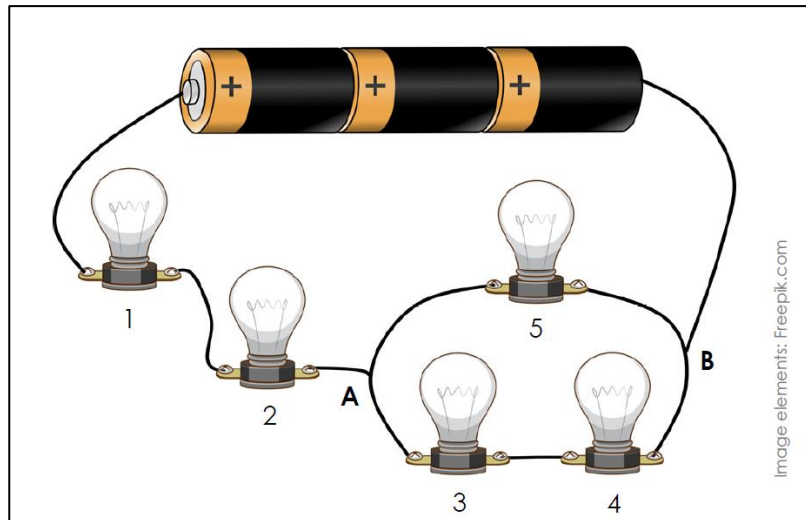
Which option below correctly identifies the colour of the object when viewed from above and below respectively?



	Viewed from above	Viewed from below
A	red	blue
B	green	red
C	red	green
D	blue	red

SECTION B

2. The circuit below contains five identical light bulbs numbered **1** to **5**. **A** and **B** are points along the circuit.




- 2.1 Draw the symbol for a light bulb used in circuit diagrams. (1)
- 2.2 What happens to the current at point **A** and **B**? (2)
- 2.3 Give the NUMBERS of any TWO light bulbs that will glow with the same brightness. (2)
- 2.4 Give the NUMBER of a light bulb that can be removed without causing the remaining light bulbs to stop glowing. (1)
- 2.5 Explain the effect that the removal of the light bulb in QUESTION 2.4 will have on the brightness of the remaining light bulbs. (3)
- 2.6 Light bulb **4** breaks. Give the NUMBER(S) of the light bulb(s) that will:
 - 2.6.1 continue to glow (3)
 - 2.6.2 stop glowing (1)

MEMORANDUM – GRADE 8 ENERGY AND CHANGE

SECTION A

- 1.1 A ✓✓ (2)
1.2 B ✓✓ (2)
1.3 D ✓✓ (2)

SECTION B

- 2.1  (1)
- 2.2 – The current divides at A ✓ into the two parallel pathways and
– it recombines at point B ✓ (2)
- 2.3 1 ✓ and 2 ✓ OR
3 ✓ and 4 ✓ (mark only the first two) (2)
- 2.4 5 ✓ (1)
- 2.5 – The remaining light bulbs are now all connected in series ✓
– The brightness of light bulbs 1 and 2 will dim slightly ✓, while light bulbs 3 and 4 will glow slightly brighter ✓
– All four bulbs eventually glow with the same brightness ✓ (any 3) (3)
- 2.6
- 2.6.1 1 ✓, 2 ✓ and 5 ✓ (3)
- 2.6.2 3 ✓ (1)