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# PAPER C

Practice  
Questions



ICAS International  
Competitions  
and Assessments  
for Schools

**DO NOT OPEN THIS BOOKLET UNTIL INSTRUCTED.**

**STUDENT'S NAME:**

Read the instructions on the **ANSWER SHEET** and fill in your **NAME, SCHOOL** and **OTHER INFORMATION**.

Use a 2B or B pencil.

Do **NOT** use a pen.

Rub out any mistakes completely.

You **MUST** record your answers on the **ANSWER SHEET**.

## SCIENCE

Mark only **ONE** answer for each question.

Your score will be the number of correct answers.

Marks are **NOT** deducted for incorrect answers.

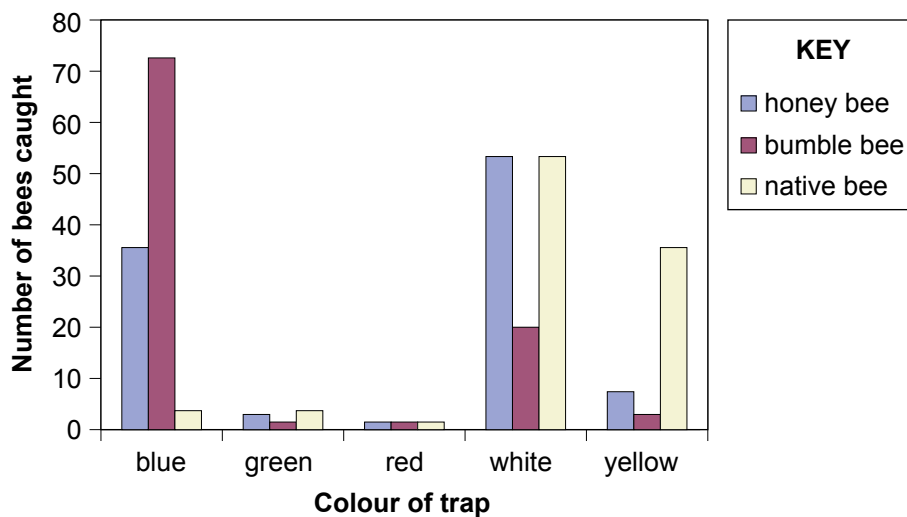
Use the information provided to choose the **BEST** answer from the four possible options.

On your **ANSWER SHEET** fill in the oval that matches your answer.

You may use a calculator and a ruler.

Educational  
Assessment

1. The graph shows the number of each type of bee caught in different coloured traps during an experiment.

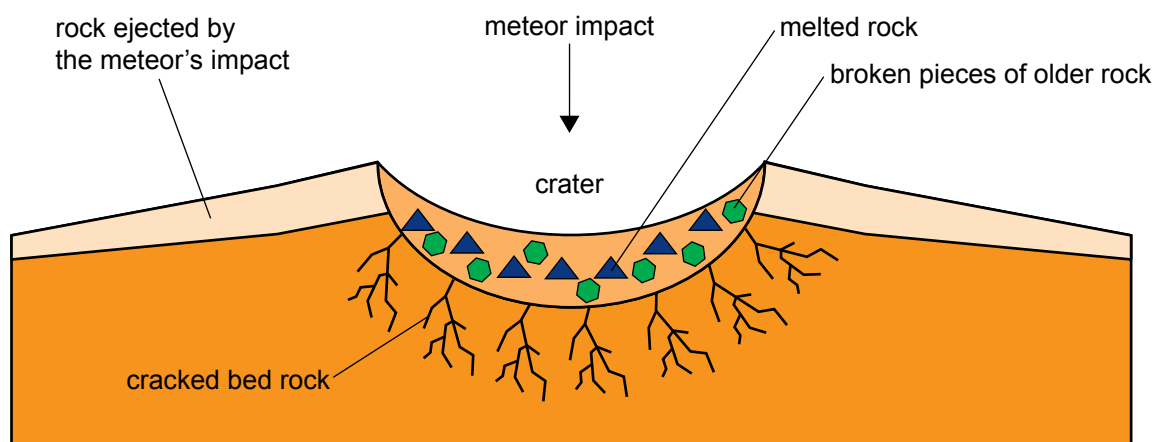


What was the colour of the trap in which most of the honey bees were caught?

- (A) blue
- (B) green
- (C) white
- (D) yellow

2. When a meteor from outer space hits the moon, its impact makes a large crater.

The drawing gives information about a crater on the moon.



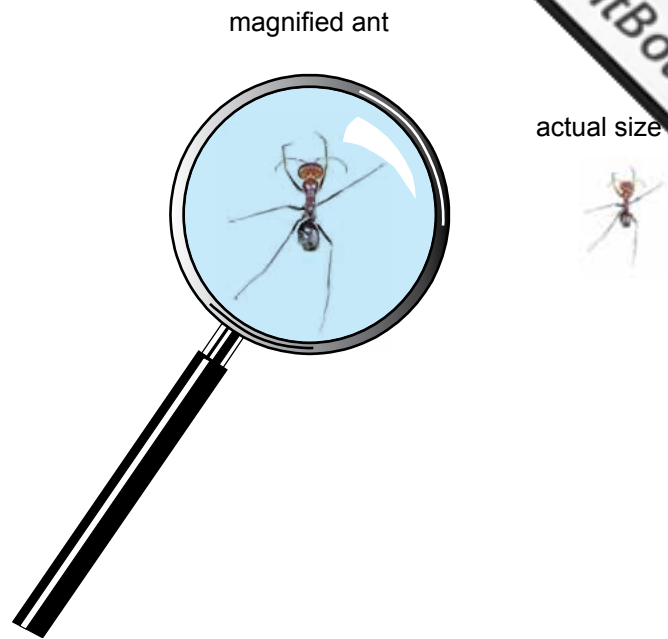
According to the diagram, what type of rock would be found on the crater's surface?

- (A) ejected rock
- (B) cracked bed rock
- (C) melted rock and ejected rock
- (D) melted rock and broken older rock

3. An ant is shown at its actual size and as it appeared through a magnifying glass.

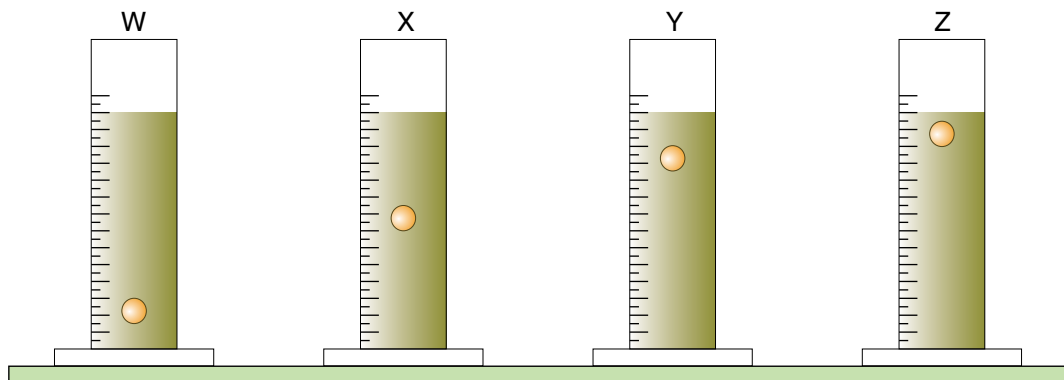
How many times larger did the ant appear through the magnifying glass?

- (A) half as large
- (B) one and a half times as large
- (C) twice as large
- (D) two and a half times as large



4. Viscosity is a measure of a liquid's thickness and stickiness. The more viscous the liquid, the longer it takes for an object to pass through it. Generally, the viscosity of a liquid decreases as temperature increases.

The diagram shows the distances clay balls of the same size pass through four motor oils in the same time. The four oils were at the same temperature.



When cold, high viscosity motor oil may not get to the part of the engine it is supposed to protect. When hot, low viscosity oil may not protect engine parts because it does not stick to them.

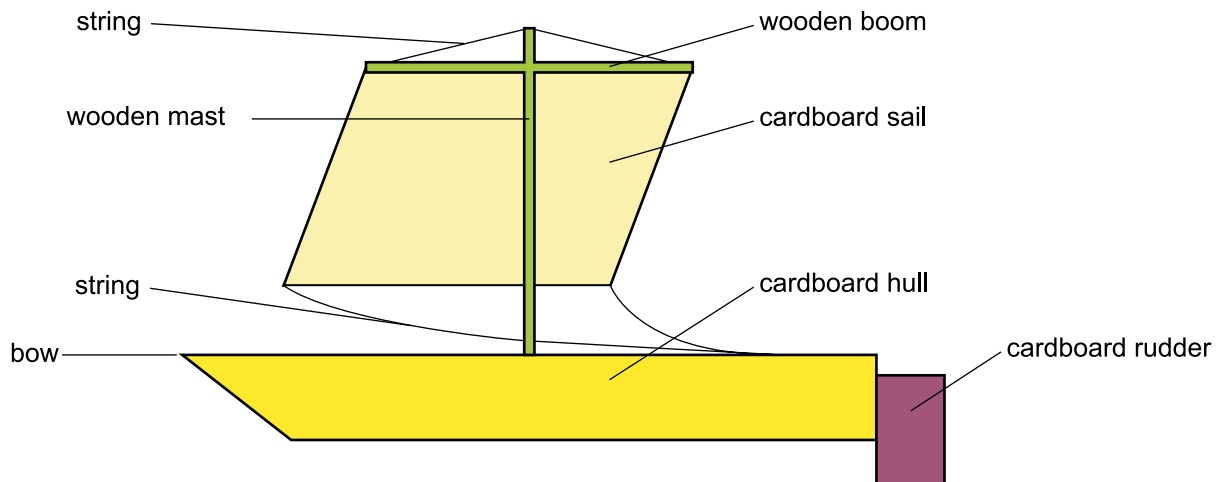
Which motor oil would be best for protecting engine parts at high temperatures?

- (A) W
- (B) X
- (C) Y
- (D) Z

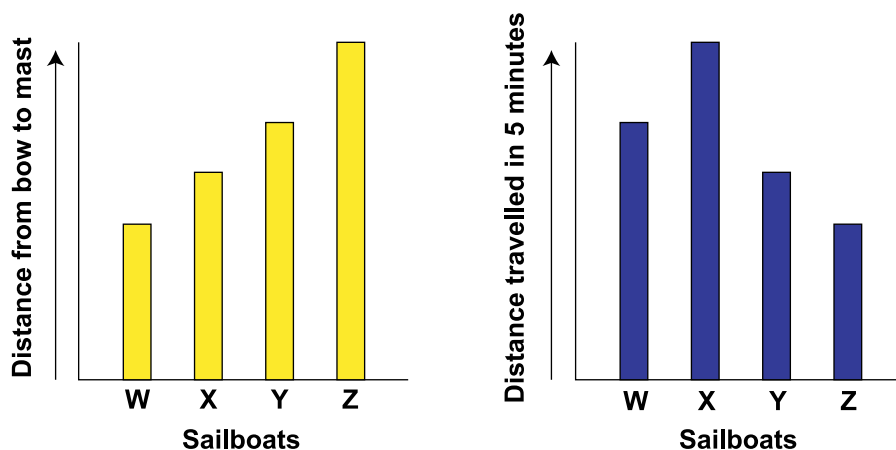
For questions 5 and 6 use the information below.

Some students wanted to know what effect the position of the mast had on the speed of a sailboat.

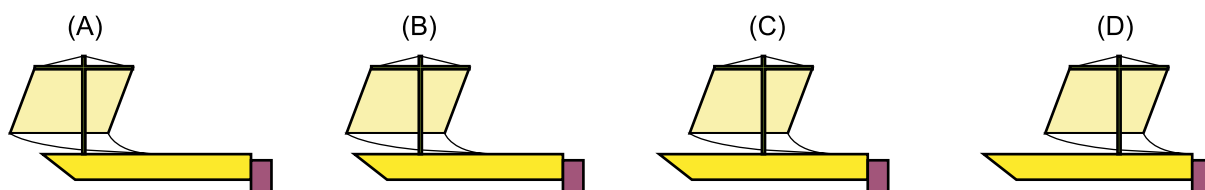
They made four model sailboats (W, X, Y and Z) using the design shown. The sailboats were the same except for the positions of their masts. Each mast was placed a different distance from the bow.



The graphs show the distances from the bow to the mast for each of the boats and the distances each boat travelled in 5 minutes.



5. Which diagram shows the mast position for the fastest sailboat?



6. The students thought that changing the size of the cardboard sail would affect the boat's speed.

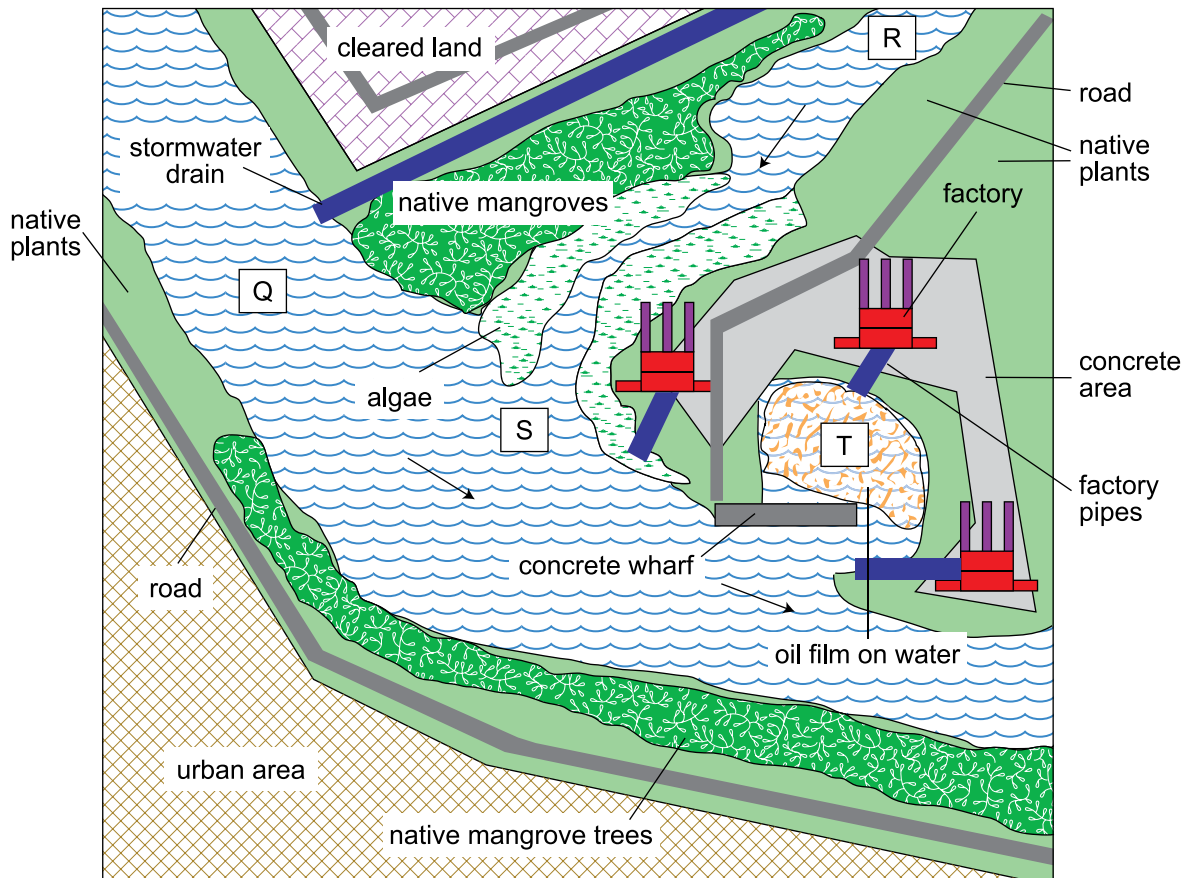
Which of the three slower boats would then need the least change to its sail size to reach the same speed as the unchanged fastest boat?

- (A) W                      (B) X                      (C) Y                      (D) Z

For questions 7 and 8 use the information below.

Some students were asked to rate the health of a local river.

The map shows what they found in and around the river. The arrows on the map indicate the direction of water flow.



The students rated the health of the river as poor in five of the six categories.

River health category	Indicators of good health	Indicators of poor health
1. Land use	river bank is natural and undisturbed	river bank land has been cleared, factories present
2. Litter	river in natural state	plastic and large growths of algae in river
3. Pipes and drains	no pipes or drains enter river	pipes from factories and stormwater drains enter river
4. Structures	no structures, no changes to water flow	large structures, changes to water flow
5. Vegetation	mainly native plants growing on river bank	many non-native plants growing on river bank
6. Water clarity	water in river is colourless	water in river is brown or green, oil film on top of water

7. For which category is there **no** evidence of poor health?

- (A) 2 only      (B) 3 only      (C) 5 only      (D) 6 only

8. Which position in the waterway (Q, R, S or T) is most likely to have the best health rating?

- (A) Q      (B) R      (C) S      (D) T

For questions 9 and 10 use the information below.

Mud bricks are made from a mixture of clay, sand and straw. The mixture is poured into a mould and pressed until it becomes firm. The moulded bricks are then turned out of the moulds and dried over time in the sun.

The table gives some information about mud bricks made by some students. Each student used the same amount of water and made the same amount of brick mixture.

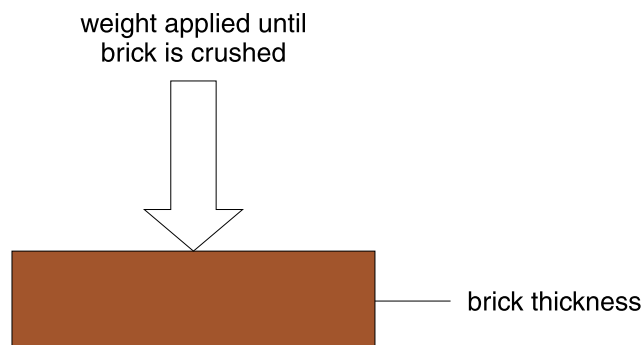
Student	Composition by volume (%)			Brick making Information			
	Clay	Sand	Straw	Straw length (cm)	Size (cm <sup>3</sup> ) (length × width × thickness)	Turning time (hours)	Drying time (days)
Jan	30	40	30	5	50 × 20 × 15	24	20
John	15	70	15	5	50 × 20 × 15	24	20
Mary	15	70	15	10	50 × 30 × 15	24	20
Matt	30	40	30	10	50 × 20 × 15	12	20

9. After 10 days Jan's bricks were dry on both sides, but Matt's bricks were dry on one side only.

What would most likely account for this difference?

- (A) Jan used more sand to make each brick than Matt.
- (B) Jan used less water to make her bricks than Matt.
- (C) Matt's bricks were thicker than Jan's bricks.
- (D) Matt turned his bricks so that one side never faced the sun.

10. The diagram shows how the students tested their mud bricks to see which one was strongest.



Mary's bricks were the strongest.

Which characteristic of the strongest brick distinguishes it from the other bricks?

- (A) brick width
- (B) drying time
- (C) straw length
- (D) brick composition

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### The following year levels should sit THIS Paper:

Australia	Year 5
Brunei	Primary 5
Hong Kong	Primary 5
Indonesia	Year 6
Malaysia	Standard 5
New Zealand	Year 6
Pacific	Year 5
Singapore	Primary 4
South Africa	Grade 5



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### HOW TO FILL OUT THIS SHEET:



- Rub out all mistakes completely.
- Print your details clearly in the boxes provided.
- Make sure you fill in only one oval in each column.

### EXAMPLE 1: Debbie Bach

**FIRST NAME**

**LAST NAME**

Two 5x5 grids are shown, each with the word 'BACH' at the top. The first grid contains the letters 'D', 'E', 'B', 'B', 'I', 'E' in the top row. The second grid contains the letters 'B', 'A', 'C', 'H' in the top row. Both grids have empty cells for letter placement, with some cells containing black squares indicating incorrect letters.

### EXAMPLE 2: Chan Ai Beng

**FIRST NAME**

**LAST NAME**

Two 5x5 grids illustrating the distribution of letters in the Chinese alphabet. The left grid is for 'CHAN' and the right grid is for 'AI BENG'.

**CHAN Grid:**

C	H	A	N	
A	A		A	
B	B	B		
	C			
B				

**AI BENG Grid:**

A	I		B	E	N	G
	A		A	A	A	A
B	B	B		B	B	
C	C	C	C	C		
D	D	D	D			

### EXAMPLE 3: Jamal bin Abas

FIRST NAME

LAST NAME

J	A	M	A	L		B	I	N
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A	<input checked="" type="radio"/>	A	<input checked="" type="radio"/>	A	A	A	A	A
B	B	B	B	B	B	<input checked="" type="radio"/>	B	<input type="radio"/>
C	C	C	C	C	C	C	C	<input type="radio"/>
D	D	D	D	D	D	<input type="radio"/>	D	<input type="radio"/>

A	B	A	S
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input checked="" type="radio"/>	A	<input checked="" type="radio"/>	A
B	<input checked="" type="radio"/>	B	<input type="radio"/>
C	C	C	<input type="radio"/>
D	<input type="radio"/>	D	<input type="radio"/>

**FIRST NAME** to appear on certificate

[illegible]

**LAST NAME** to appear on certificate

[illegible]

**Are you male or female?**

☐ Male ☐ Female



**Does anyone in your home usually speak a language other than English?**

☐ Yes ☐ No

**School name:** \_\_\_\_\_

## DATE OF BIRTH

Day		Month		Year	
0	0	0	0	0	0
1	1	1	1	1	1
2	2		2	2	2
3	3		3	3	3
	4		4	4	4
	5		5	5	5
	6		6	6	6

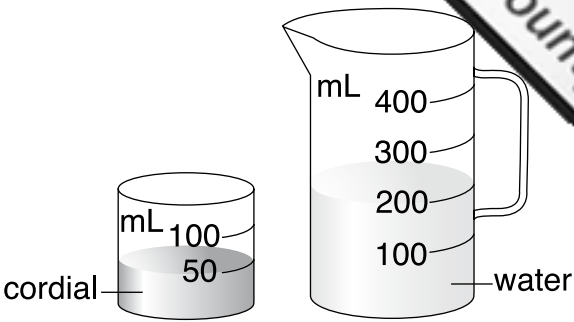
**CLASS**  
(optional)

(A)	(K)
(B)	(L)
(C)	(M)
(D)	(N)
(E)	(O)
(F)	(P)
(G)	(Q)

TO ANSWER THE QUESTIONS

**Example:** Ari added cordial to water to make a jug of drink.  
What will be the volume of the drink in the jug?

- (A) 50 mL
- (B) 150 mL
- (C) 200 mL
- (D) 250 mL



The answer is 250 mL, so you would fill in the oval (D), as shown.

(A) (B) (C) ☒



START

- 1 (A) (B) (C) (D)
- 2 (A) (B) (C) (D)
- 3 (A) (B) (C) (D)
- 4 (A) (B) (C) (D)
- 5 (A) (B) (C) (D)
- 6 (A) (B) (C) (D)
- 7 (A) (B) (C) (D)
- 8 (A) (B) (C) (D)
- 9 (A) (B) (C) (D)
- 10 (A) (B) (C) (D)

QUESTION	KEY	KEY REASONING	LEVEL OF DIFFICULTY
1	C	The question only refers to the honey bee not any of the others, thus we only look at the honey bee (blue) column (bar) graph. From the graph, the highest honey bee column (bar) is for the white trap.	Easy
2	D	From the diagram, melted rock and broken pieces of older rock are found on the crater's surface. Ejected rock has been ejected from the crater and so will not be found on the crater's surface, so answers A and C are wrong. The bed rock is underneath the crater's surface, so B is wrong.	Easy
3	C	The length of the magnified ant's body is about 12 mm while its actual length is about 6 mm. This makes the magnified ant $\left(\frac{12}{6} = 2\right)$ twice as large. (Note that when printing out these questions, some printers may distort the size of the image.)	Medium
4	D	The question only refers to high temperatures. The oil with the greatest viscosity is needed as this type of oil will best stick to the engine parts at high temperatures. The oil with the greatest viscosity is the one in which the ball travels the smallest distance in the same time i.e. the ball drops through it the slowest.	Medium/Hard
5	B	From the first (yellow) graph, we can deduce that option A is boat W, B is boat X, C is boat Y and D is boat Z, as the distance of the mast gets further away from the bow. The speed of the boats is determined by the distance they travelled in 5 minutes, so we must use the second (blue) graph. The fastest boat will travel the greatest distance in 5 minutes; boat X is the fastest. Diagram B shows the mast position for this boat.	Medium/Hard
6	A	Using the second (blue) column (bar) graph, boat W is the second fastest boat, as it travels the second greatest distance in 5 minutes. This boat would need only a slightly larger sail to sail as fast as boat X.	Medium/Hard
7	C	There are two large areas of algal growth, so A is wrong. There are three pipes from factories and one stormwater pipe, so B is wrong. There is an oil film behind the concrete wharf, so D is wrong. Option C is correct because the riverbanks have only native plants, including native mangroves, growing on them.	Medium/Hard
8	B	Q is just below the stormwater drain. S is just downstream of two large algal areas. T is an area covered with an oil film. R is upstream of all this, with banks covered by native plants and native mangroves.	Medium
9	D	What was different between Jan's and Matt's brick? The percentage of sand was the same and so was the size of the brick, so A is wrong. Each student used the same amount of water, so B is wrong. The sizes of the bricks were the same, so C is wrong. The correct answer is D as it is the only thing Matt and Jan did differently. If, over the course of 10 days, Matt turns over the brick at 7 am and again 12 hours later at 7 pm, only one side of the brick would face the Sun.	Medium
10	A	The drying time of Mary's brick is the same as all the others, so B is wrong. The straw length of her brick is the same as Matt's, so C is wrong. Her brick composition is the same as John's so D is wrong. Only the width of her brick is different (50 x 30 x 15).	Medium/Hard

## LEGEND

Level of difficulty refers to the expected level of difficulty for the question.

**Easy** more than 70% of candidates will choose the correct option.

**Medium** about 50–70% of candidates will choose the correct option.

**Medium/Hard** about 30–50% of candidates will choose the correct option.

**Hard** less than 30% of candidates will choose the correct option.