

Summary

Test Identification

Name	2021 MY MATH 2.6
Date Created	16 May 2021
Date Modified	06 Jul 2021
Subject	Mathematics
Status	SCORED
Sequence Number	1132719
Total Test Time	59 minutes
Delivery Method	Onscreen

Curriculum Strand

Number Sense & Operations	14	Statistics	11
Algebra	20		

Curriculum Level

5B	1	5P	4	5A	3
6B	14	6P	20	6A	3

Cognitive Processing

Surface	19	Deep	26
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Slider Settings

Strands		Level	
Number Sense & Operations	Most	Level 5	Few
		Level 6	Most
Algebra	Most		
Statistics	Most		

Marking Guide : 2021 MY MATH 2.6

Q.No	Marking Key
1	c
2	b
3	2061
4	c
5	d
6	Mean Geltz = 22. Mean Luna = 20 'Need both correct for 1 mark'
7	Median Geltz = 19, Median Luna = 22 'Need both correct answers for 1 mark'
8	Option: Recommend Luna because according to the median, there is a 50% chance of Luna scoring 22 in a game (to Geltz's 19). 'Need to identify a player AND make a strong justification for inclusion based on data measures, for 1 mark'
9	c
10	c
11	\$1.50
12	c
13	d
14	Whether students have eaten - a record should be kept of what the students ate. OR Prior level of fitness. 'Accept any sensible problem that could occur between the 2nd and 3rd measuring that could affect the 3rd measurement. Do not accept "eating raises the metabolic rate" type of response'
15	d
16	b
17	b
18	a
19	b
20	a
21	83 or 83.3
22	b
23	c
24	a
25	b
26	a

Instructions

Underlined Questions e.g. 10 :Use teacher judgement. Give 1 if answer matches marking guide (unless otherwise instructed). For incorrect answers give 0 (zero).

All other Questions: Enter the response chosen by the student using letters. For example, 'a' for the first option; 'b' for the second option; 'c' for the third option and so on.

Questions Not Answered: Enter a dash (-).

Q.No	Marking Key
27	d
28	$-3f + 7g$ OR $7g - 3f$
29	b
30	d
31	d
32	d
33	b
34	How much extra power are we using this month compared with the same month last year? Or similar/equivalent 'Could use words like "compare" or "explore" or "relationship" to indicate a suitable investigation'
35	c
36	85.9 (actual = 85.913473..)
37	a
38	a
39	a
40	scattergraph
41	c
42	a
43	a
44	\$42.09 or \$42 or \$42.10
45	b

Instructions

Underlined Questions e.g. 10 :Use teacher judgement. Give 1 if answer matches marking guide (unless otherwise instructed). For incorrect answers give 0 (zero).

All other Questions: Enter the response chosen by the student using letters. For example, 'a' for the first option; 'b' for the second option; 'c' for the third option and so on.

Questions Not Answered: Enter a dash (-).

Choose a circle to show how much each sentence is like you

Very Unlike Me 1	Unlike Me 2	Like Me 3	Very Like Me 4
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01. I like maths at school.

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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02. I am good at maths.

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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03. My teacher thinks I am good at maths.

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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04. My family/whānau think I am good at maths.

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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05. I enjoy doing maths in my own time (not at school).

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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06. I enjoy doing things in maths that I haven't tried before.

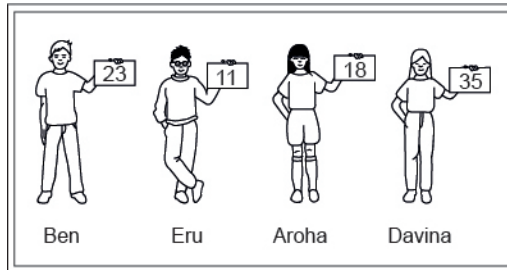
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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ADMINISTER ON SCREEN ONLY

Practice Questions

These practice questions are to help you understand how to show your answer for different types of questions.

P01. Who is holding a card with an even number on it?

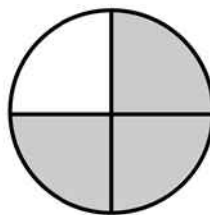


- Ben
- Eru
- Aroha
- Davina

P02. Complete this number pattern.

2, 4, _____, _____, 10

P03. What fraction of this circle is shaded?

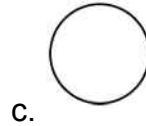
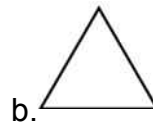




P04. Match the sentence with the correct shape.

1. I have three sides

2. I have 4 sides



P05. Which numbers make this number sentence **TRUE**?

$$2 + \star > 5$$

1

2

3

4

5

P06. Put the numbers 1, 2, 3, and 4 in the boxes to order these numbers from biggest (1) to smallest (4).

 3 7 2 0

P07. Select whether the following statements are True or False.

In the number 213, the value of 1 is ten.

TRUE

FALSE

In the number 504, the value of 5 is fifty.

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01. The number of 250 millilitre bottles that can be filled from 400 litres of water is

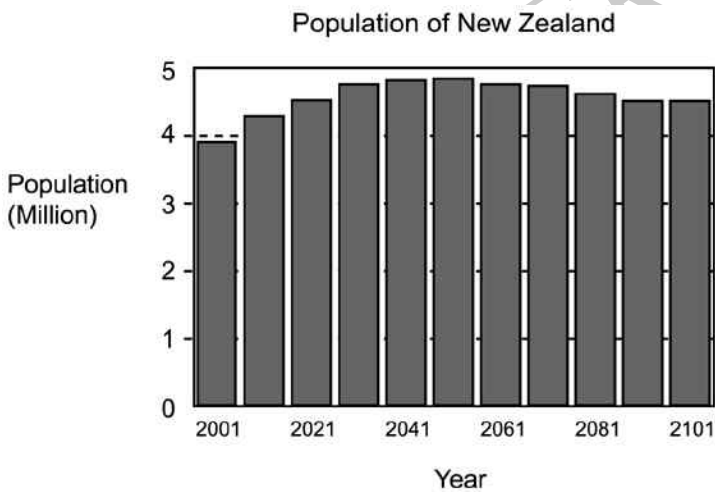
- 16
- 160
- 1600
- 16 000

02. The number of goals scored by the College First XI soccer team in their matches last season was 8, 4, 2, 6, 3, 3, 9, 3 and 7.

What was their **median** score?

- 3
- 4
- 5
- 7

03. The graph shows the predicted population of New Zealand from 2001.



In which decade is the population first predicted to decline?

04. The number of 750 mL bottles that can be filled from 600 L of water is:

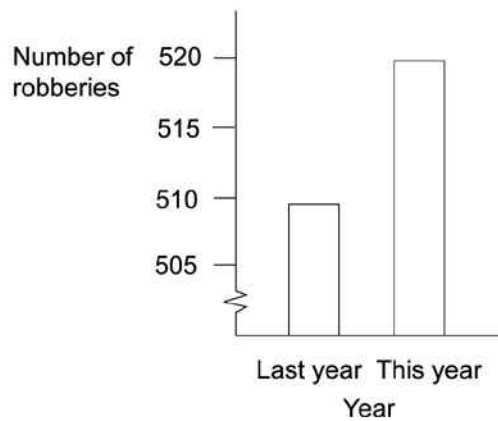
- 8
- 80
- 800
- 8000

05. A TV documentary showed this graph, and the reporter said: "There has been a huge increase in the number of robberies this year."

Was the reporter's statement a reasonable interpretation of the graph?

Choose the correct response:

Total Number of robberies reported per year



- Yes. There were 520 robberies this year.
- Yes. Robberies were double this year.
- No. Approximately 500 robberies are not very many.
- No. The graph shows a small overall increase in the number of robberies.

Use the following information to answer questions 06 to 08.

The coach for the All-Star Basketball Game needs to pick one of two players for the team. The table below shows the number of points each of the players scored in his last 10 games.

Name of player	Number of points scored in last ten games
Geltz	18, 32, 28, 18, 14, 28, 10, 16, 36, 20
Luna	22, 17, 23, 8, 24, 24, 22, 20, 18, 22

06. Find the mean (average) number of points scored by each player.

07. Find the median number of points scored by each player.

08. Based on the data, which player would you recommend for the All-Star team?

End of Section

09. Use the information below to answer the question.

Which of the following are **TRUE** statements?

- I Talk back radio response often under-represents people with strong opinions.
- II A sample of friends often leads to bias.
- III Questionnaires with non-neutral wording are likely to have response bias.

- I and II
- I and III
- II and III
- I, II and III

10. $2^4 \times 3^4$ is the same as

- 5^4
- 5^8
- 6^4
- 6^8

11. A group of 48 Year 9 students were going on an excursion to the zoo. The normal price is \$120 for a group, but the school gets 40% discount.

How much will each student pay for the discounted price?

12. Which equation is equivalent to $4(2 - 5x) = 6 - 3(1 - 3x)$?

- $8x = 5$
- $8x = 17$
- $29x = 5$
- $29x = 17$

13. Janis ate $\frac{1}{3}$ of the cake. Maija ate $\frac{1}{4}$ of the cake. Their mother ate $\frac{1}{5}$ of the cake. How much of the cake is left?

- $\frac{9}{12}$
- $\frac{3}{12}$
- $\frac{47}{60}$
- $\frac{13}{60}$

Use the following information to answer question 14..

The students in Hemi's science class were investigating the claim that exercise raises a person's metabolic rate for as long as 12 hours. This enables fat to be burnt off after exercise has finished.

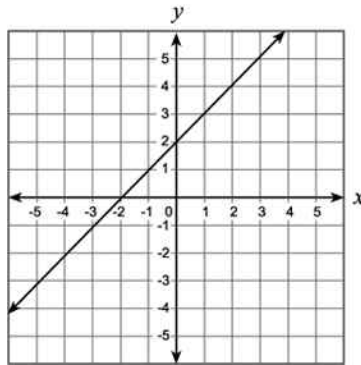
They were also told that eating raises the metabolic rate.

The students walked briskly on a treadmill for a fixed period of time and then measured their metabolic rate before, immediately after, and then 12 hours after the exercise.

14. What is one factor that could lead to an invalid conclusion in this experiment?

End of Section

15. Which equation **BEST** represents this graph?



- $y = -x$
- $y = 2x + 2$
- $y = x - 2$
- $y = x + 2$

16. What is the solution to the inequality $7x - 5 \geq x + 1$?

- $x \leq 1$
- $x \geq 1$
- $x \geq -1$
- $x \leq \frac{5}{2}$

17. What is the slope of the line defined by the equation shown below?

$$5x + 2y = 10$$

- $-\frac{2}{5}$
- $-\frac{5}{2}$
- $\frac{5}{2}$
- $\frac{2}{5}$

18. Sam wanted to find three consecutive even numbers that add up to 84.

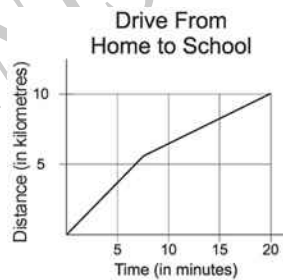
He wrote the equation $k + (k + 2) + (k + 4) = 84$.

What does the letter k represent?

- The least of the three even numbers
- The middle even number
- The greatest of the three even numbers
- The average of the three even numbers

19. The two graphs below show Carol's drive from home to school and from school to home.

What is the difference in her average speed in kilometres per hour for the two trips?



- 5 kph
- 10 kph
- 15 kph
- 20 kph

20. The least common multiple of 8, 12, and a third number is 120.
Which of the following could be the third number?

- 15
- 16
- 24
- 32
- 48

21. Five out of the 30 days in June had rain.

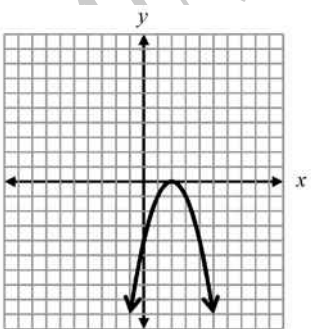
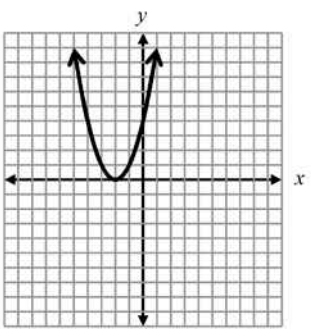
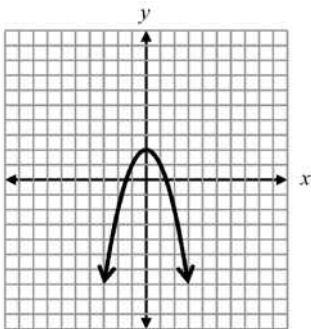
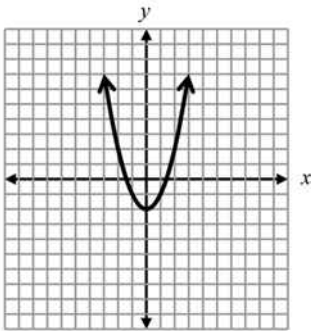
What percentage of the days did **NOT** have rain?

_____ %

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22. Which of the following represents the graph of the equation below?

$$y = -x^2 + 2$$



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23. For a linear graph of the form $y = mx + c$ the effect of increasing the value of m is to

- translate the graph.
- increase the rate of change of y with c .
- increase the rate of change of y with x .
- increase the intercept with the y axis.

24. A pharmacist mixed some 10%-saline solution with some 15%-saline solution to obtain 100 mL of a 12%-saline solution.

How much of the 10%-saline solution did the pharmacist use in the mixture?

- 60 mL
- 45 mL
- 40 mL
- 25 mL

25. There are two numbers with the following properties.

1) The second number is 3 more than the first number.

2) The product of the two numbers is 9 more than their sum.

Which of the following represents possible values of these two numbers?

- 6, -3
- 4, -1
- 1, 4
- 3, 6

26. A laboratory has a 75 gram sample of radioactive material. The half-life of the material is 10 days. (This means that it takes 10 days for half of the initial mass to decay). The formula below can be used to find m , the remaining mass in grams, in terms of t , the number of **10-day intervals** that mass has been decaying.

$$m = 75(0.5)^t$$

Based on the formula, what is the mass of the laboratory's sample remaining after 30 days?

- 9.375 grams
- 11.25 grams
- 12.5 grams
- 22.5 grams

27. A certain company keeps a list of 50 employees and their annual salaries. When the salary of the very highly paid president is added to the list, which of the following statistics is **MOST** likely to be approximately the same or nearly the same for the original list and the new list?

- The highest salary
- The range
- The mean
- The median
- The interquartile range

28. Simplify

$$3f - 2g - 6f + 9g$$

29. Tina solved a quadratic equation and found the solutions to be $-\frac{3}{2}$ and 6. Which of the following is equivalent to the quadratic equation that Tina solved?

- $(x - 6)(3x + 2) = 0$
- $(x - 6)(2x + 3) = 0$
- $(x + 6)(2x - 3) = 0$
- $(x + 6)(3x - 2) = 0$

30. A set contains the numbers

$\frac{8}{2}$, -2.3 , 0 , $\frac{2}{7}$, $\sqrt{9}$, $0.\dot{3}1$, $\sqrt{15}$, -12 , 2π

Which of the following statements is **TRUE**?

- The set contains 8 irrational numbers
- The set contains 7 irrational numbers
- The set contains 3 irrational numbers
- The set contains 2 irrational numbers

31. Which pair of equations shares a solution?

- $5x + 2 = 32$
 $2x + 3 = 8 + x$
- $5x + 2 = 32$
 $-3x + 4 = 2(x - 5)$
- $5x + 2 = 32$
 $x + 2(x - 4) = 34 - 3x$
- $5x + 2 = 32$
 $4x + 9 = 5(14 - x) - 7$

32. Simplify: $-10 + 2(4 + w)$

- $-32 - 8w$
- $-18 + 2w$
- $-2 + w$
- $-2 + 2w$

33. Which of the following numbers is an irrational number?

- $\frac{22}{7}$
- π
- $\sqrt{9}$
- 3.1416

34. The electricity company posts the monthly bill to each household.

The bill shows the amount of power used that month, and the cost.

It also shows the amount of power used in the same month the previous year.

Write a suitable question to investigate the effect of an electricity saving campaign this year.

35. What is the factored form of

$$3a^2 - 24ab + 48b^2?$$

- $(3a - 8b)(a - 6b)$
- $(3a - 16b)(a - 3b)$
- $3(a - 4b)(a - 4b)$
- $3(a - 8b)(a - 8b)$

36. $\sqrt[8]{N} = 3^5$

In the equation above, what is the value of N , rounded to the nearest tenth?

37. Which of the following values of x makes the proportion below true?

$$\frac{7}{4} = \frac{x-3}{x+3}$$

- 11
- 2
- 2
- 11

38. Which of the following real numbers is **NOT** a rational number?

- $\sqrt{21}$
- $3\frac{5}{8}$
- 2.41414
- 13

39. The sonar system of a submarine receives an echo back from a ship 5000 metres away after 6.1 seconds. It picks up an echo from a second ship after 8.4 seconds. Which proportion **could** be used to find the distance to the second ship?

- $\frac{6.1}{5000} = \frac{8.4}{x}$
- $\frac{6.1}{8.4} = \frac{x}{5000}$
- $\frac{8.4-6.1}{8.4} = \frac{x}{5000}$
- $\frac{2.3}{5000} = \frac{6.1}{x}$

Use the following information to answer question40..

A sports scientist is interested in the importance of mass, muscle bulk and strength.

The scientist asked 12 students to conduct a fitness test.

The results were as follows.

Mass (kg)	Circumference of biceps (cm)	Lift test (kg)
52	22	48
57	24	52
62	28	51
59	26	55
62	31	54
64	30	60
73	34	58
76	28	57
84	35	63
78	33	60
80	34	61
82	36	62

40. He said. "Students with greater mass can lift more".

What would be the **BEST** graph to draw to see if the sports scientist is correct?

End of Section

41. The formula shown below can be used to convert C , the temperature in degrees Celsius, to F , the temperature in degrees Fahrenheit.

$$F = \frac{9}{5}C + 32$$

Based on this information, which of the following statements is **TRUE**?

- A 9-degree increase in C results in a 32-degree increase in F .
- A 5-degree increase in C results in a 32-degree increase in F .
- A 5-degree increase in C results in a 9-degree increase in F .
- A 9-degree increase in C results in a 5-degree increase in F .

42. Which equation is equivalent to $5x - 2(7x + 1) = 14x$?

- $-9x - 2 = 14x$
- $-9x + 1 = 14x$
- $-9x + 2 = 14x$
- $12x - 1 = 14x$

43. If x is a real number, for what value of x is the equation $\frac{3x-9}{3} = x - 3$ true?

- All values of x
- Some values of x
- No values of x
- Impossible to determine

44. The Thomas family is travelling from Takaka to Christchurch, a distance of 489 kilometres. Their car has a fuel consumption of 8.12 litres per 100 kilometres. They have to pay \$1.06 a litre for petrol.

Find the cost of petrol for this journey.

45. Daniel cleans swimming pools. For a fixed charge of \$50 per month he cleans your pool twice. Extra cleanings cost \$30 each. Which of these equations represents the cost per month, C , to a customer whose pool is cleaned x times per month?

- $C = 30 + 50x$
- $C = 30(x - 2) + 50$
- $C = 50(2) + 30x$
- $C = (30 + 50)x + 2$

Please provide these instructions to all staff involved with administering e-asTTle online.

Before the testing session

1. Make sure students have the right devices and browsers installed

Unsupported devices may result in the test not displaying correctly and affect students' scores.

Desktop/Laptop

- Windows, Mac or Chromebook
- Minimum window width: 1280 pixels
- Windows devices need up-to-date Edge, Chrome, Firefox or IE11
- Windows tablets/hybrids e.g., Surface Pro must have a keyboard attached
- Mac devices need recent Chrome or Safari

Large Tablets (9" +)

- iPads: iOS 10+ with Safari
- Androids: Large tablet e.g., Samsung Galaxy Tab 4. Must have Android 5+ and latest Chrome
- Minimum window width: 768 pixels

iPad Minis and small Androids must not be used.

More information on device requirements and the underlying rationale is available on the [help site](#).

2. Sit the Practice Test

[A practice test for each subject](#) is available. These are also available in the Student Portal (no login required). Practice tests are designed to familiarise you and your students with e-asTTle online before sitting a real test. Each practice test contains attitude questions, look-over time and 5-8 questions designed to be relatively simple to answer. [Teacher scripts](#) are available for practice tests.

3. Ensure you have student login information

More information on accessing student logins and resetting passwords is available on the [help site](#).

4. Check if calculators are required (Maths/Pāngarau)

Tests with questions at mostly Level 5 and 6 require the use of calculators. Tests with questions at mostly Levels 2 to 4 do NOT require a calculator.

During the testing session

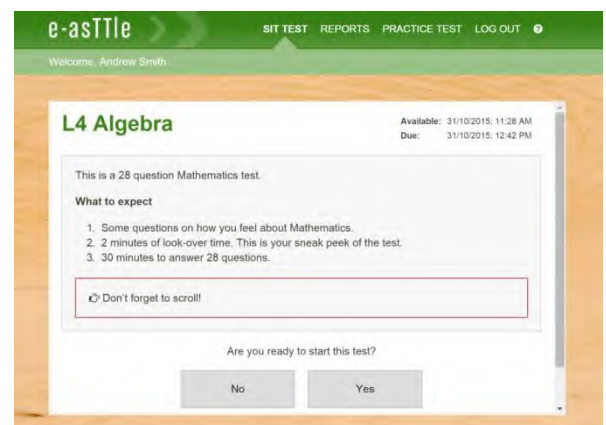
1. Check equipment

- Make sure students' devices are charged.
- Make sure students have scrap paper and a pen/pencil for working, calculators (if needed) and a quiet activity they can continue with if they finish early.

2. Read the Test Details to students

Once students select a test, they will see the test details page (example shown on right).

Read through this page aloud with your students.



Other reminders to discuss with students:

- Once they choose 'Yes', the timer starts. Once the timer is counting down, there is no way to pause the test. If students close the test accidentally, they can re-open it again, provided the timer hasn't finished.
- Ask students to raise their hand if something seems wrong.
- Fullscreen mode is recommended.

For students on iPad or Android tablet devices: remind them to lock their device in portrait mode.

For students on Windows hybrid devices (such as the Surface Pro): remind them to keep the keyboard attached during the test.

3. Supervising the test

Make sure you walk around and monitor students during the test. Students tend to continue with their test even if something has gone wrong – for example, a question does not display correctly. For this reason, check that pages are loading correctly, and students are scrolling to see all the content and options. It's a good idea to have a paper booklet of the test available during the testing session.

Students are generally expected to read the test content without assistance. Information on accommodations (e.g., reader-writers) is available on the [help site](#).

4. Know what to do if things go wrong


Internet disconnected

If student answers aren't saving, e-asTTle will show a yellow banner at the top of the page. The banner will turn red when there has been disconnection for 2 minutes or more. Students can keep answering whatever they can, and e-asTTle will try and save answers. Don't refresh or close the window if a coloured banner is showing.



If the Internet has been down, use your professional judgement to decide if students' results should be [excluded](#).

Images not loading

If an image is missing, students will see an icon they can click to try and reload the image.  **INFO MISSING**
[Click to reload](#)

A question doesn't load fully or looks strange

If something has loaded incorrectly, it can sometimes be corrected by selecting the 'Next' button then the 'Previous' button to reload the question.

Detailed troubleshooting information is available on the [help site](#). To report issues with online testing or for additional assistance, please contact the Education Service Desk: 0800 225 5428.