

Summary

Test Identification

Name	2023 MAT SW 1.5
Date Created	30 Jan 2023
Date Modified	28 Feb 2023
Subject	Mathematics
Status	SCORED
Sequence Number	1301141
Total Test Time	57 minutes
Delivery Method	Onscreen

Curriculum Strand

Number Sense & Operations	10	Number Knowledge	11
Statistics	12	Algebra	15

Curriculum Level

4B	3	4P	3	4A	2
5B	7	5P	9	5A	17
6B	4	6P	2	6A	1

Cognitive Processing

Surface	26	Deep	22
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Slider Settings

Strands		Level	
Number Knowledge	Most	Level 4	Few
Number Sense & Operations	Most	Level 5	Most
Algebra	Most	Level 6	Few
Statistics	Most		

Marking Guide : 2023 MAT SW 1.5

Q.No	Marking Key
1	d
2	b
3	c
4	c
5	4
6	c
7	b
8	3
9	a
10	a
11	b
12	b
13	c
14	c
15	c
16	c
17	d
18	b
19	c
20	a
21	b
22	a
23	b
24	b
25	d
26	b
27	18
28	23
29	22
30	a
31	d
32	b
33	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
34	d
35	d
36	b
37	c
38	b
39	b
40	Mean Geltz = 22. Mean Luna = 20 'Need both correct for 1 mark'
41	Median Geltz = 19, Median Luna = 22 'Need both correct answers for 1 mark'
42	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'
43	d
44	a
45	a
46	a
47	b
48	\$42.09 or \$42 or \$42.10

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. It is very important to me to be good at maths.

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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02. I try to get more maths answers right than my friends.

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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03. I like hard, challenging maths.

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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04. I do as much school work as possible in maths.

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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05. I like to help my friends with their maths school work.

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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06. I like it when the maths examples are hard.

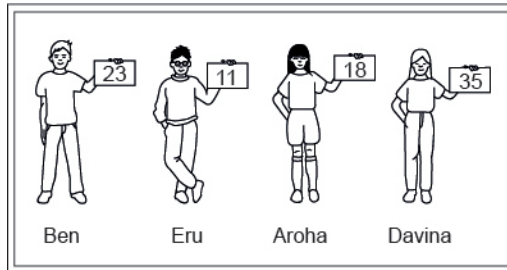
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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ADMINISTER ON SCREEN ONLY

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?

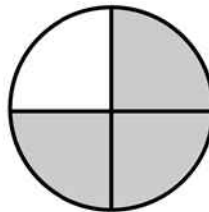


- Ben
- Eru
- Aroha
- Davina

P02. Complete this number pattern.

2, 4, _____, _____, 10

P03. What fraction of this circle is shaded?

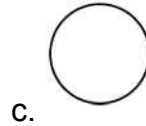
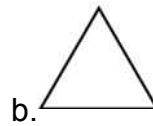




P04. Match the sentence with the correct shape.

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.

ADMINISTER ON SCREEN
ONLY

01. What digit goes in the space to make the number sentence below **TRUE**?

$$1.6238 < 1.\underline{\quad}017$$

- 4
- 5
- 6
- 7

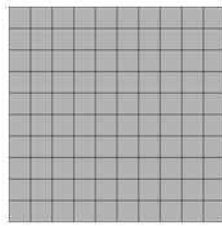
02. $A = \{2, 3, 5, 7, 11, 19, 23, 29\}$

Which of the following is a **TRUE** statement concerning A ?

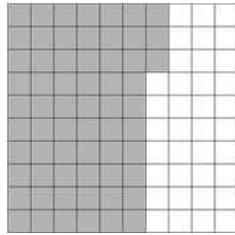
- All numbers in A are odd.
- All numbers in A are prime.
- All numbers in A are even.
- All numbers in A are composites.

ADMINISTER ON SCREEN
ONLY

03. This figure is shaded to represent the number 1.



Which of the following numbers is represented by the shaded part of the figure below?

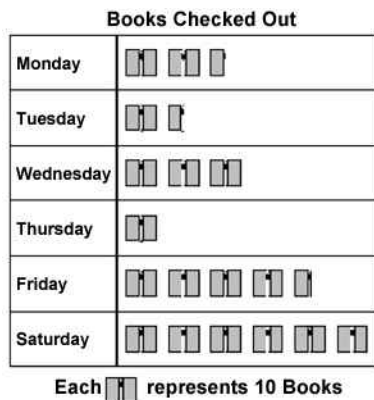


- 63
- 6.3
- 0.63
- 0.063

ADMINISTER ONSCREEN ONLY

04. The graph shows the number of books checked out at the public library each day last week.

On which day were there 3 times as many books checked out as on Tuesday?



- Wednesday
- Thursday
- Friday
- Saturday

05. Kirstie went skiing on the weekend.

When Kirstie started skiing at 7:00 am the temperature was -5°C . By midday the temperature had risen 9°C .



What was the temperature at midday?

_____ $^{\circ}\text{C}$

06. If 50% of a number is 20, what is 75% of the number?

- 8
- 15
- 30
- 45

07. The place value of the one in 9.103 is

- ones
- tenths
- hundredths
- thousandths

08. Fill in the box to make this number sentence **TRUE**.

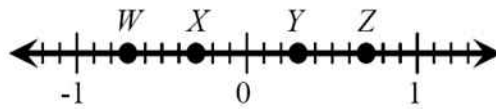
$$8 \times \square + 4 = 28$$

09. Josh rounded the number 36 796 to the nearest ten, to the nearest hundred, to the nearest thousand, and to the nearest ten-thousand.

Which two roundings should have produced the same number?

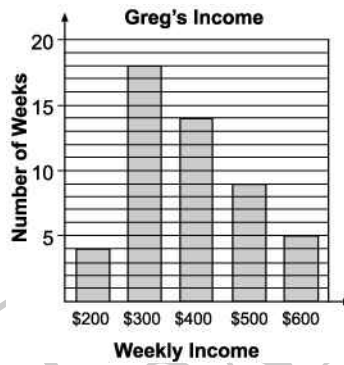
- nearest ten and nearest hundred
- nearest hundred and nearest thousand
- nearest ten and nearest thousand
- nearest hundred and nearest ten-thousand

10. Which point is located **closest** to $-\frac{7}{10}$ on the number line below?



- W
- X
- Y
- Z

11. Greg is self-employed, and his weekly income varies. The bar graph below displays the number of weeks in which he earned each of the amounts shown. Based on the bar graph, what is Greg's median weekly income?

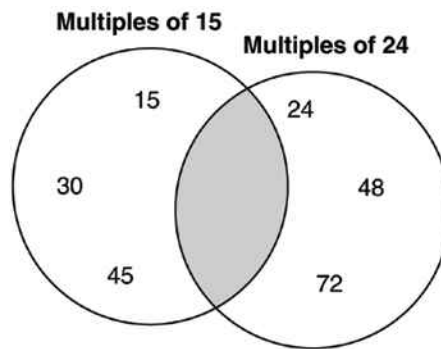


- \$300
- \$400
- \$500
- \$600

12. 125% is the same as

- 0.125
- 1.25
- 12.5
- 125.0

13. Sarah is filling numbers in the Venn diagram. No number is to be entered more than once.
 What is the **least** number that can be appropriately placed in the shaded area of the diagram?



- 360
- 240
- 120
- 60

14. Eleitino is playing with counters, making the letter "L" as shown in the diagram below. She records this information on a table.
 Which rule describes the relationship between the height of the letter "L" and the number of counters that Eleitino uses?

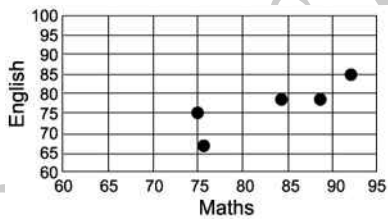
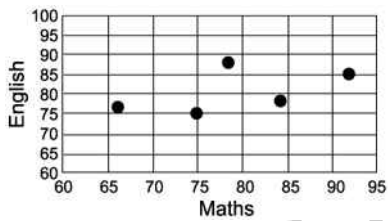
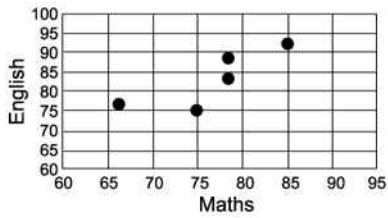
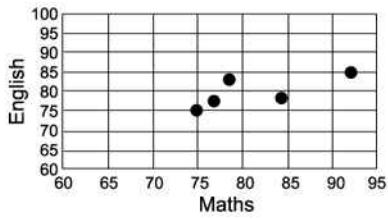


Height of letter "L" (h)	3	4	5	6	7	8
Number of counters (n)	4	6	8	10	12	14

- $n = h + 1$
- $n = h + 2$
- $n = 2h - 2$
- $n = 3h + 1$

15. The table shows the Maths and English scores of Art and 4 of his friends. Which scattergram correctly shows the relationship between Maths and English scores for the group of friends?

Student	Maths	English
Art	84	78
Bonnie	67	76
Cathy	92	85
Don	75	75
Ellie	78	88



16. Soccer is the world's most popular sport. The table lists the records of five World Cup winners.

What was the mean number of total points scored by these teams?

Country	Games Won	Games Lost	Ties	Total Points
Argentina	24	15	9	57
Brazil	44	11	11	99
England	18	11	12	48
Italy	31	11	12	74
West Germany	39	14	15	93

- 51
- 74
- 74.2
- 99

17. Which of the following equations is **TRUE** for the three pairs of x and y values in the table below?

x	y
0	-3
1	-1
2	1

- $y = 3x + 2$
- $y = 3x - 2$
- $y = 2x + 3$
- $y = 2x - 3$
- $y = x - 3$

Use the following information to answer question 18..

Sales staff at a home appliance store are paid by their employer in different ways. Kiri is paid \$200 a week and \$50 for each appliance sold. Ngaire is paid \$60 for each appliance sold.

Kiri's pay can be calculated by the equation

$$y = 50x + 200 \text{ and}$$

Ngaire's pay by the equation $y = 60x$
where y represents the pay and x represents the number of appliances sold.

18. Use the information below to answer the question.

If both of these equations are graphed, the point of intersection of the 2 lines shows the value where:

- i They have sold the same number of appliances.
- ii They have earned the same amount of money.
- iii They have finished for the day.
- iv Some of the appliances will break down and need repair.

What is the **BEST** conclusion about the point of intersection?

- ii and iii
- i and ii
- i and iii
- i and iv

End of Section

19. The chart below shows how the cost (c) of a wedding depends on the number of people (n) attending the reception.

Which equation **BEST** represents this relationship?

n	10	25	50	100
c	\$900.00	\$1500.00	\$2500.00	\$4500.00

- $c = 20n + 700$
- $c = 30n + 600$
- $c = 40n + 500$
- $c = 50n + 400$

20. Which expression is equivalent to $7^5 \times 7^{10}$?

- 7^{15}
- 7^{50}
- 49^{15}
- 49^{50}

21. The **BEST** approximation to $\frac{12.4 \times 37.85}{3.95 \times 4.78}$ is:

- 10
- 20
- 30
- 40

22. Which one of the following represents 72 written as a product of powers of its prime factors?

- $2^3 \times 3^2$
- $2^1 \times 6^2$
- $2^2 \times 3^3$
- 9×2^3

23. A taxi company based its fares on the following chart.
If the pattern continues, what would be the fare for a trip of 6 miles?

Miles	0.1	0.2	0.3	⋮	1.0	3.0
Fare	\$2.05	\$2.10	\$2.15	⋮	\$2.50	\$3.50

- \$3.00
- \$5.00
- \$11.00
- \$15.00

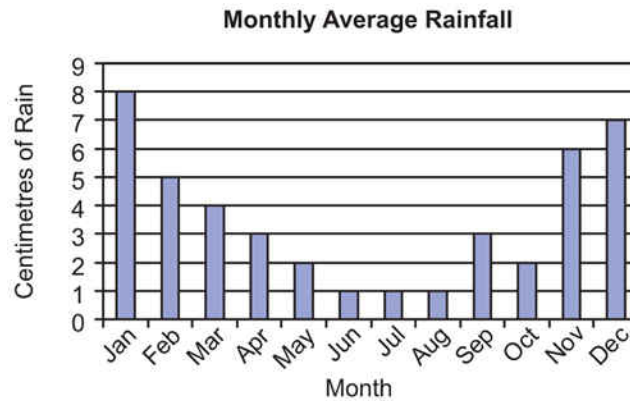
24. What is the next term of the quadratic pattern shown below?
-4, -4, -2, 2, 8, 16, . . .

- 20
- 26
- 38
- 46

25. 0.4^3 is equal to

- 1.2
- 0.16
- 0.64
- 0.064

26. According to the graph, what is the median of the monthly average rainfall?



- 1 cm
- 3 cm
- 4 cm
- 7 cm

Use the following information to answer questions 27 to 29.

Suzanne was checking the weather conditions in the Australia Pacific region and found this chart in the newspaper.

Temperature (°C)		
Australia Pacific	Low	High
Adelaide	5°	13°
Apia.....	23°	31°
Brisbane.....	6°	20°
Darwin	20°	30°
Honolulu.....	23°	32°
Melbourne	6°	14°
Perth	9°	20°
Rarotonga.....	21°	24°
Suva	18°	29°
Sydney.....	9°	17°

27. What is the range of the low temperatures?

_____ °C

28. What is the mean of the high temperatures?

_____ °C

29. What is the median of the high temperatures?

_____ °C

End of Section

30. In a coordinate plane, the points (2, 4) and (3, -1) are on a line. Which of the following must be **TRUE**?

- The line crosses the x -axis.
- The line passes through (0, 0).
- The line stays above the x -axis at all times.
- The line rises from the lower left to the upper right.
- The line is parallel to the y -axis.

31. Ms Thierry and 3 friends ate dinner at a restaurant. The bill was \$67. In addition, they left a \$13 tip.

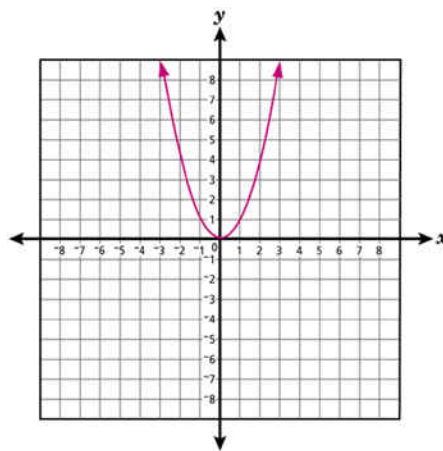
Approximately what percent of the total bill did they leave as a tip?

- 10%
- 13%
- 15%
- 20%
- 25%

32. Which means "the sum of 8 and 4 times a number is 36"?

- $8x + 4 = 36$
- $4x + 8 = 36$
- $4(x + 8) = 36$
- $4x = 36 + 8$

33. Study the graph of $y = x^2$, shown below.
If the graph is moved up 3 units, what equation will it represent?



- $y = x^2 + 3$
- $y = (x + 3)^2$
- $y = (x - 3)^2$
- $y = x^2 - 3$

34. A bag contains 80 marbles that are either white, orange, or green. If 25% are green and there are four times as many white marbles as orange marbles, what percent are white?

- 12%
- 15%
- 48%
- 60%

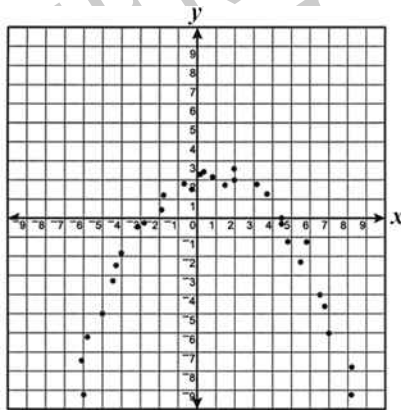
35. George is going to sing 4 songs in the school programme.
In how many different orders can George sing each song once?

- 4
- 9
- 12
- 24

36. What happens to the value of $\frac{1}{2x}$ as x gets smaller?

- Nothing
- It gets larger
- It gets smaller
- It changes to zero

37. Which equation **MOST** closely fits the data in this scatter plot?



- $y = -(x + 2)^2 - 3$
- $y = (x - 2)^2 + 3$
- $y = -(x - 2)^2 + 3$
- $y = (x - 2)^2 - 3$

38. The table below shows the annual salaries of the 17 employees of a small software company.

What is the median salary of this group of employees?

Employee Salaries

Employee Title	Number of Employees	Annual Salary Per Employee
President	1	\$70 000
Vice President	1	\$62 000
Sales Manager	1	\$56 000
Programmer	6	\$40 000
Technician	7	\$30 000
Part-Time Trainee	1	\$16 000

- \$30 000
- \$40 000
- \$43 000
- \$48 000

39. What is one of the factors of

$$x^2 - 2x - 15?$$

- $(x - 3)$
- $(x - 5)$
- $(x + 1)$
- $(x + 15)$

Use the following information to answer questions 40 to 42.

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

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

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

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

End of Section

43. 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?

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

44. 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

45. A **linear** relationship between x and y is shown in the table below. What is the value of a ?

x	-5	0	1	2	3
y	a		5	2	-1	-4

- $a = 20$
- $a = 3$
- $a = 8$
- $a = -10$

46. The perimeter of a child's rectangular playground is 64 metres. The length and width of the playground are consecutive odd integers. If the length (x) is the longer of the two dimensions, what is the width of the playground?

- 15 metres
- 17 metres
- 31 meters
- 33 metres

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

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

48. 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.

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	Tablet (9"+)
<ul style="list-style-type: none"> Windows, Mac or Chromebook Minimum window width: 1280 pixels Windows devices need up-to-date Chrome, Edge or Firefox Windows tablets/hybrids e.g., Surface Pro must have a keyboard attached Mac devices need up-to-date Safari or Chrome 	<ul style="list-style-type: none"> iPads: The 2 most recent major iOS versions are supported. Students must use Safari. Androids: The 2 most recent major Android versions are supported. Students must use up-to-date Chrome. Minimum window width: 768 pixels <p>iPad Minis and small Androids must not be used.</p>

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

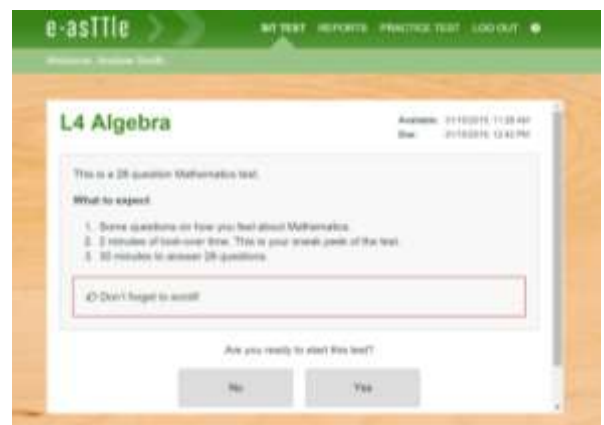
- Make sure students' devices are charged.
- Make sure students have scrap paper and a pen/pencil for working, calculators (if needed) and a quiet activity they can continue with if they finish early.

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.



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.