

Summary

Test Identification

Name	2020 MAT SW 3.4
Date Created	15 Oct 2020
Date Modified	22 Oct 2020
Subject	Mathematics
Status	ACCEPTED
Sequence Number	1073491
Total Test Time	57 minutes
Delivery Method	Onscreen

Curriculum Strand

Number Sense & Operations	17	Number Knowledge	9
Statistics	10	Algebra	9

Curriculum Level

3B	1	3P	4	3A	2
4B	8	4P	13	4A	10
5B	0	5P	2	5A	4

Cognitive Processing

Surface	26	Deep	18
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Slider Settings

Strands		Level	
Number Knowledge	Most	Level 3	Few
Number Sense & Operations	Most	Level 4	Most
Algebra	Most	Level 5	Few
Statistics	Most		

Marking Guide : 2020 MAT SW 3.4

Q.No	Marking Key
<u>1</u>	2/5 or 3/5 'either answer acceptable for 1 mark'
<u>2</u>	28
<u>3</u>	752.
<u>4</u>	The multiplication (or times) key.
<u>5</u>	c
<u>6</u>	3.06, 3.6, 6.03, 6.3, 6.7
<u>7</u>	-2
<u>8</u>	a
<u>9</u>	c
<u>10</u>	c
<u>11</u>	a
<u>12</u>	b
<u>13</u>	c
<u>14</u>	b
<u>15</u>	b
<u>16</u>	c
<u>17</u>	b
<u>18</u>	b
<u>19</u>	12 'Accept $17 \times 12 = 204$ '
<u>20</u>	c
<u>21</u>	a
<u>22</u>	a
<u>23</u>	c
<u>24</u>	a
<u>25</u>	d
<u>26</u>	d
<u>27</u>	c
<u>28</u>	a
<u>29</u>	b
<u>30</u>	b
<u>31</u>	e
<u>32</u>	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 (-).

Q.No	Marking Key
33	b
34	c
35	c
36	c
37	a
38	16
39	Position in sequence squared or square numbers 'Any equivalent answer for 1 mark.'
40	d
41	d
42	Students are given a timesheet to fill in so it could be more accurate and include all activities, OR, record time in smaller units, OR survey more students OR survey sample of students not just friends OR use a longer period.
43	8.46
44	Temperatures getting warmer; OR increasing electricity/gas price; OR has saturated the market; OR similar

ADMINISTER ONLY SCREEN

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 think maths is exciting and interesting.

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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02. I never get tired of doing maths.

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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03. I like to do and think about maths outside of school.

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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04. I think maths helps me to understand life.

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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05. I think that maths helps people make important decisions.

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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06. Maths is NOT boring.

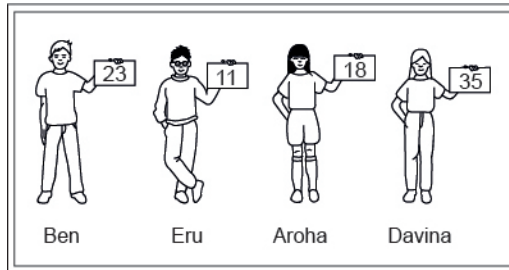
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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ADMINISTER ON SCREEN ONLY

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?

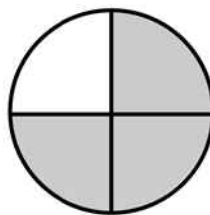


- Ben
- Eru
- Aroha
- Davina

P02. Complete this number pattern.

2, 4, _____, _____, 10

P03. What fraction of this circle is shaded?

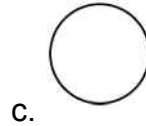
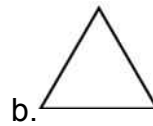




P04. Match the sentence with the correct shape.

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.

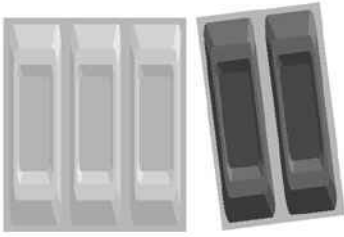
TRUE

FALSE

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

ADMINISTER ON SCREEN
ONLY

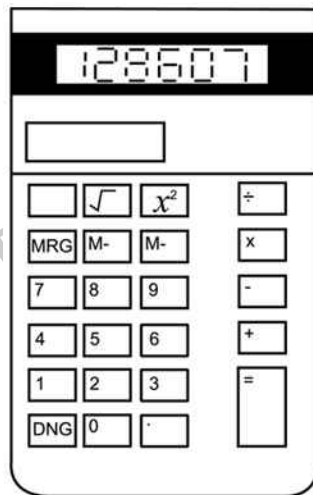
01. This block of chocolate is made up of five smaller pieces.



What fraction of the block has been removed?

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

- 8 = 20



03. Mark tried to add the numbers 489 and 263 on his calculator.

What is the sum of these numbers?

04. The display on Mark's calculator showed his answer to be 128607. Mark had pressed the wrong key when trying to add.

Which wrong key did he press?

End of Section

05. A school library has 985 720 books.
Which of the following is that number written in words?

- Nine hundred eighty-five, seven hundred and twenty
- Nine hundred thousand, seven hundred and twenty
- Nine hundred and eighty-five thousand, seven hundred and twenty
- Nine thousand eighty-five, seven hundred and twenty

06. Write these numbers in the correct order from lowest to highest.

6.7, 6.3, 3.6, 3.06, 6.03

Lowest _____ Highest

07. Stewart went skiing.
At midday, the temperature reached a high of 5°C.
By midnight the temperature had dropped 7°C.



What was the temperature at midnight?

_____ °C

08. How much change will John get back from \$5.00 if he buys 2 notebooks that cost \$1.80 each?

- \$1.40
- \$2.40
- \$3.20
- \$3.60

Use the following information to answer question 09.

A group is planning to go to an amusement park.

There will be 237 people going on the trip.

Only 46 people can ride the rollercoaster at one time.

No one will be allowed a second ride until everyone has had a turn.

09.

What is the **least** number of rollercoaster rides needed for everyone to have a turn?

- 10
- 8
- 6
- 3

End of Section

10. $4\frac{3}{4} - 2\frac{1}{2} =$

- $1\frac{1}{4}$
- $1\frac{3}{4}$
- $2\frac{1}{4}$
- $2\frac{3}{4}$

11. The All Blacks Rugby Team is having its photo taken. Four of the players line up from **shortest** to **tallest**.

Which is the correct order of their heights?

- 1.695 m, 1.78 m, 1.8 m, 1.94 m
- 1.8 m, 1.78 m, 1.94 m, 1.695 m
- 1.695 m, 1.8 m, 1.78 m, 1.94 m
- 1.8 m, 1.94 m, 1.78 m, 1.695 m

12. The Breakfast Barn bought 135 dozen eggs at \$0.89 per dozen.

What was the total cost of the eggs?

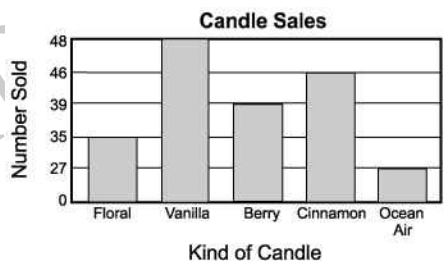
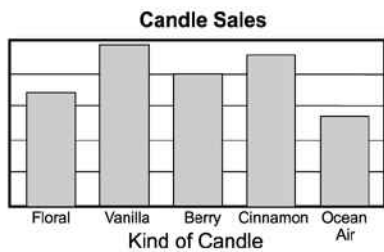
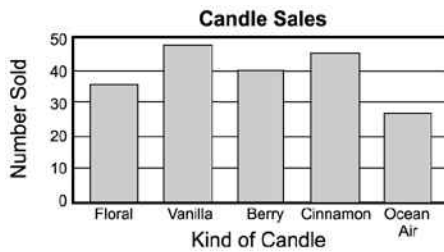
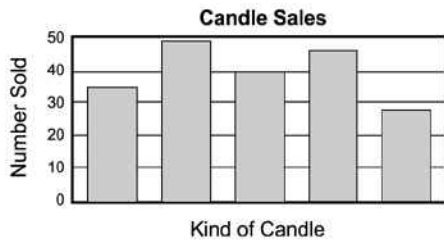
- \$116.75
- \$120.15
- \$135.89
- \$151.69

13. If each of the counting numbers from 1 through 10 is multiplied by 13, how many of the resulting numbers will be even?

- One
- Four
- Five
- Six
- Ten

14. The table below shows the number of each kind of candle a shop sold on Saturday. Which of the following shows this information correctly graphed?

Candle Sales	
Kind of Candle	Number Sold
Floral	35
Vanilla	48
Berry	39
Cinnamon	46
Ocean Air	27

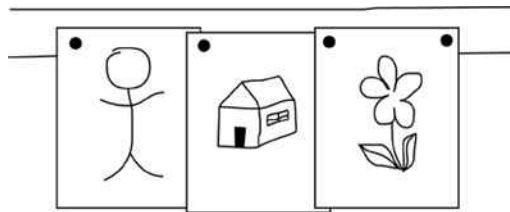


ANSWER ONLY

15. A tree farm charges \$75.00 for a 2-metre orange tree and \$50.00 for delivery regardless of the number of trees purchased.
Which equation expresses the total cost, C , in terms of the number of 2-metre trees, t , purchased?

- $C = 75 + 50t$
- $C = 75t + 50$
- $C = 75t + 5$
- $C = 75 + 5t$

16. Children's pictures are to be hung in a line as shown in the figure below. Pictures that are hung next to each other share a tack.
How many tacks are needed to hang 28 pictures in this way?



- 27
- 28
- 29
- 56

17. The total land area for the United States is 3 537 438 square miles.
What is the value rounded to the nearest thousand square miles?

- 3 500 000
- 3 537 000
- 3 538 000
- 3 540 000

18. What is the prime factorisation of 45?

- $2^3 \times 5$
- $3^2 \times 5$
- $5^2 \times 3$
- $5^2 \times 9$

19. In the number sentence below, what number belongs in the box?

$$17 \times \boxed{} = 204$$

20. Joe had three test scores of 78, 76, and 74, while Mary had scores of 72, 82, and 74. How did Joe's average (mean) score compare with Mary's average (mean) score?

- Joe's was 1 point higher.
- Joe's was 1 point lower.
- Both averages were the same.
- Joe's was 2 points higher.
- Joe's was 2 points lower.

21. This lists the number of points Cassie's team scored in each of their games. Which of the following stem-and-leaf plots shows this same information?

17 22 39 26 25
 33 37 43 18 39
 29 50 41 24 48

Stem	Leaf
1	7, 8
2	2, 4, 5, 6, 9
3	3, 7, 9, 9
4	1, 3, 8
5	0

Stem	Leaf
1	4, 7, 8
2	2, 4, 5, 6, 9
3	3, 7, 9, 9
4	1, 3, 8
5	

Stem	Leaf
1	7, 8
2	2, 4, 5, 6, 9
3	3, 7, 9
4	1, 3, 8
5	0

Stem	Leaf
1	7, 8
2	2, 4, 5, 6, 9
3	3, 7, 9
4	1, 3, 8
5	0

ATER ONSCREEN ONLY

22. $9000 - 3782 =$

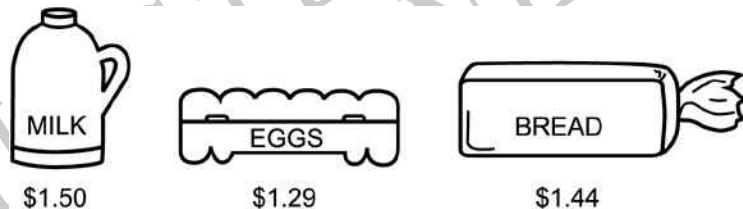
- 5218
- 5328
- 6782
- 12,782

23. Chad has a mean time for running the under 200-metre dash of 36.2 seconds. Which of the following statements **MUST** be **TRUE**?

- Chad runs the 200-metre dash in 0 to 36.2 seconds.
- Chad's best time in the 200-metre dash is 36.2 seconds.
- Chad runs the 200-metre dash, on average, in 36.2 seconds.
- Chad runs the 200-metre dash faster than 36.2 seconds most of the time.

24. Prabhu had \$5 to buy milk, bread and eggs. When he got to the shop he found that the prices were those shown below.

At which of these times would it make sense to use estimates rather than exact numbers?



- When Prabhu tried to decide whether \$5 was enough money.
- When the shopkeeper entered each amount in the cash register.
- When Prabhu was told how much he owed.
- When he received his change.

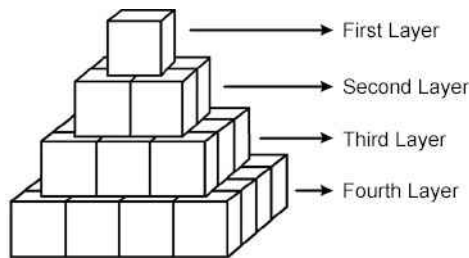
25. Mr Rampell gave 9 students a makeup exam. The scores were 79, 68, 100, 79, 84, 92, 68, 100, and 68.

What was the mode of these scores?

- 84
- 82
- 79
- 68

26. Shane is using wooden cubes to make the pyramid-shaped structure shown in the picture below.

How many cubes will be needed to make the **sixth** layer if the pattern is continued?



- 16
- 20
- 25
- 36

27. The distance a spring stretches varies directly with the force applied to it. A 7-kilogram weight stretches a spring a distance of 24.5 centimetres.

How far will the spring stretch if a 12-kilogram weight is applied?

- 3.4 centimetres
- 19.5 centimetres
- 42 centimetres
- 294 centimetres

28. What kind of answer results when a rational number is multiplied by zero?

- The answer is zero.
- The answer is the original number.
- The answer depends on the original number.
- The answer is the opposite sign of the original number.

29. A poll is being taken at Baker Junior High School to determine whether to change the school mascot.

Which of the following would be the **BEST** place to find a sample of students to interview that would be **MOST** representative of the students in the school?

- An algebra class
- The cafeteria
- The guidance office
- A French class
- The faculty room

30. The place value of the one in 9.103 is

- ones
- tenths
- hundredths
- thousandths

31. Of the following, which is **closest** in value to 0.52?

- $\frac{1}{50}$
- $\frac{1}{5}$
- $\frac{1}{4}$
- $\frac{1}{3}$
- $\frac{1}{2}$

32. The square root of 31 is between which two whole numbers?

- 4 and 5
- 5 and 6
- 6 and 7
- 7 and 8

33. The temperatures for 5 days in London are in the table below.
The day with the biggest difference between the **max** and **min** temperatures is

	Mon	Tues	Wed	Thurs	Fri
Max	12°	15°	12°	13°	16°
Min	-3°	-1°	-0°	-2°	1°

- Monday
- Tuesday
- Wednesday
- Friday

34. The four digits below are to be arranged from largest to smallest to form a four-digit number. The same four digits are then to be arranged from smallest to largest to form a four-digit number.

What is the difference between the two resulting four-digit numbers?

9	1	4	5
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- 3726
- 4726
- 8082
- 8182
- 8192

35. Pencils sell individually for \$0.07 each or in packs of 12 for \$0.79 per pack. How much is saved when 24 pencils are purchased by the pack instead of individually?

- \$0.01
- \$0.05
- \$0.10
- \$0.72
- \$1.44

36. For a wedding, Shereda bought several dozen roses and several dozen carnations. The roses cost \$15 per dozen, and the carnations cost \$8 per dozen. Shereda bought a total of 17 dozen flowers and paid a total of \$192. How many roses did she buy?

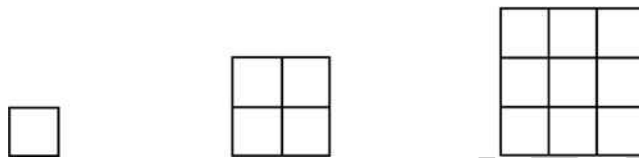
- 6 dozen
- 7 dozen
- 8 dozen
- 9 dozen

37. Which one of the following numbers has a 6 in the tenths place?

- 42.655
- 51.264
- 37.596
- 69.106

Read about Heather and answer questions 38 to 39.

Heather is making a pattern of shapes using square tiles. The first three shapes in her pattern are shown below.



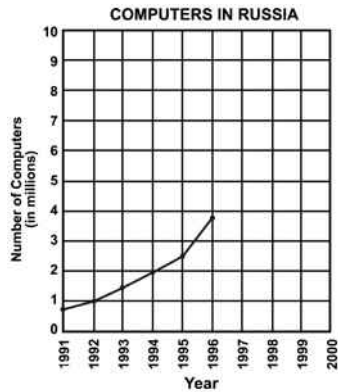
38. How many squares like the one below are there in the next shape in Heather's pattern?



39. Describe the rule.

End of Section

40. The graph shows the estimated number of computers in Russia from 1991 to 1996. If the rate of increase in the number of computers continues, which of the following gives the **BEST** estimate of the number of computers in Russia in the year 2000?



- 3 to 5 million
- 5 to 6.5 million
- 6.5 to 7.5 million
- Over 7.5 million

41. Kim observed that the price, in dollars, of a certain stock changed as follows.
 First, the price increased by 4 dollars.
 Second, the price decreased by 7 dollars.
 Third, the price increased by 2 dollars.
 Finally, the price tripled.

If x represents the original price, in dollars, of this stock, which of the following represents its final price?

- $x - 1$
- $x + 13$
- $3(x + 13)$
- $3(x - 1)$

42. Rachel is investigating the different after school activities of students. To carry out the investigation the following process was followed:
 12 volunteers were found from among Rachel's friends.
 Responses were recorded for the previous day.
 Any part hour was recorded as a full hour.
 The results are shown below.

Student	A	B	C	D	E	F	G	H	I	J	K	L
Hours playing sport	2	0	1	2	0	0	4	1	2	2	1	0
Hours watching TV	3	3	5	6	1	4	2	4	4	1	5	3
Hours on homework	0	4	1	0	3	2	1	2	0	0	1	3

Suggest one improvement that could have been made to the investigation.

Use the following information to answer question 43..

There are 7 judges watching competitors at a diving competition.

Here are their scores for one competitor.

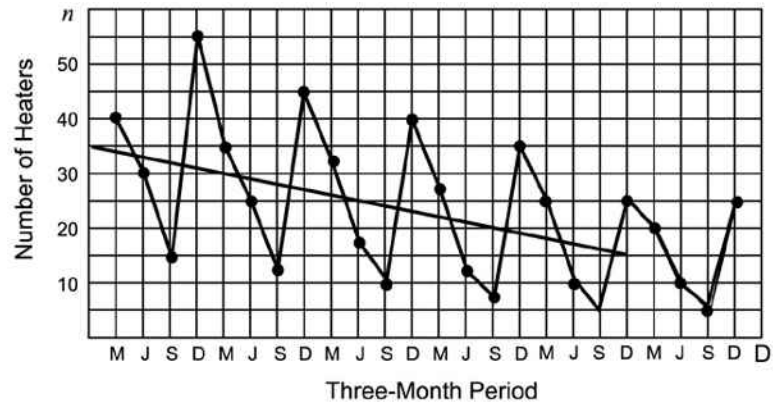
8.4 8.5 8.7 8.1 8.5 8.6 8.3

43. Calculate the mean if the highest and lowest scores are **NOT** counted.

ADMINISTRATOR ONLY SCREEN

44. Trish kept a record of the number of heaters sold each three-month period for six years.

Give one sensible reason for the decline in heater sales over the six-year period.



ADMINISTER ON SCREEN ONLY

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

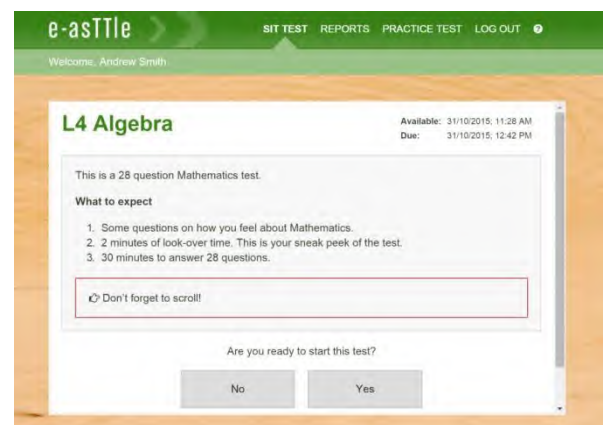
1. Check equipment

- 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.