

## Summary

### Test Identification

<b>Name</b>	2020 MAT SW 1.4
<b>Date Created</b>	29 Jan 2020
<b>Date Modified</b>	10 Mar 2020
<b>Subject</b>	Mathematics
<b>Status</b>	SCORED
<b>Sequence Number</b>	1005046
<b>Total Test Time</b>	57 minutes
<b>Delivery Method</b>	Onscreen

### Curriculum Strand

<b>Number Sense &amp; Operations</b>	14	<b>Number Knowledge</b>	11
<b>Statistics</b>	9	<b>Algebra</b>	12

### Curriculum Level

<b>3B</b>	1	<b>3P</b>	2	<b>3A</b>	3
<b>4B</b>	10	<b>4P</b>	13	<b>4A</b>	8
<b>5B</b>	1	<b>5P</b>	4	<b>5A</b>	3

### Cognitive Processing

<b>Surface</b>	22	<b>Deep</b>	23
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### Slider Settings

<b>Strands</b>		<b>Level</b>	
<b>Number Knowledge</b>	Most	<b>Level 3</b>	Few
<b>Number Sense &amp; Operations</b>	Most	<b>Level 4</b>	Most
<b>Algebra</b>	Most	<b>Level 5</b>	Few
<b>Statistics</b>	Most		

## Marking Guide : 2020 MAT SW 1.4

Q.No	Marking Key
<u>1</u>	2/5 or 3/5 'either answer acceptable for 1 mark'
<u>2</u>	c
<u>3</u>	a
<u>4</u>	b
<u>5</u>	Double previous number (or equivalent)
<u>6</u>	Top row: J=0, K=1
<u>7</u>	Middle row: L=2, M=18
<u>8</u>	Bottom row: N=0, P=81
<u>9</u>	c
<u>10</u>	a
<u>11</u>	d
<u>12</u>	b
<u>13</u>	d
<u>14</u>	c
<u>15</u>	d
<u>16</u>	c
<u>17</u>	a
<u>18</u>	b
<u>19</u>	d
<u>20</u>	d
<u>21</u>	c
<u>22</u>	a
<u>23</u>	b
<u>24</u>	b
<u>25</u>	c
<u>26</u>	a
<u>27</u>	a
<u>28</u>	c
<u>29</u>	a
<u>30</u>	a
<u>31</u>	b
<u>32</u>	d

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### 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
<b>33</b>	a
<b>34</b>	c
<b>35</b>	c
<b>36</b>	b
<b>37</b>	b
<b>38</b>	c
<b>39</b>	any of: 153,156,159,162,165,168,171,174,177,180,183,186,189,192,195,198 'any of the above for 1 mark'
<b>40</b>	Any of these: 160, 170, 180, 190 'Need only one of these for 1 mark'
<b>41</b>	180 '150 is not acceptable'
<b>42</b>	Not possible. A prime number cannot be divisible by 3 (or similar) 'need equivalent explanation to get 1 mark'
<b>43</b>	false, true, true, false 'All correct for 1 mark (not possible, possible, possible, not possible)'
<b>44</b>	3
<b>45</b>	c

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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.

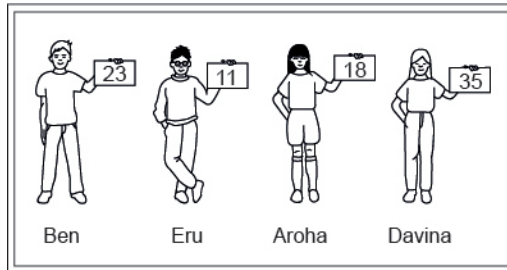
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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ADMINISTER ON SCREEN ONLY

## 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?

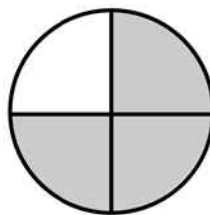


- Ben
- Eru
- Aroha
- Davina

**P02.** Complete this number pattern.

2, 4, \_\_\_\_\_, \_\_\_\_\_, 10

**P03.** What fraction of this circle is shaded?



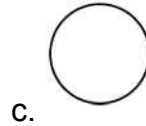
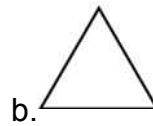
\_\_\_\_\_



**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.

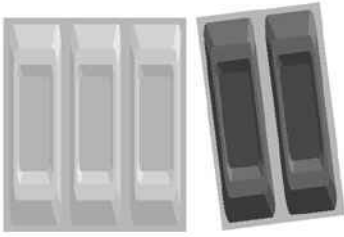
**TRUE**

**FALSE**

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

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ONLY

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



What fraction of the block has been removed?

\_\_\_\_\_

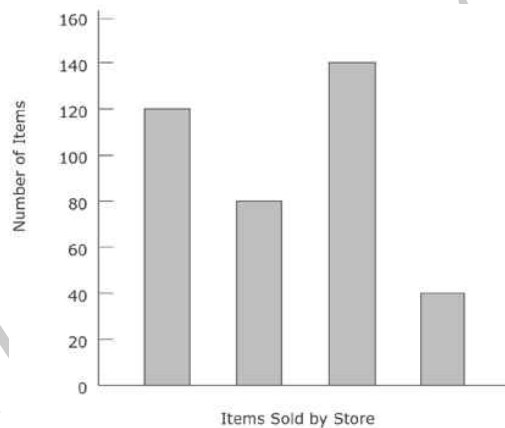
02. The graph shows the number of pens, pencils, rulers, and erasers sold by a store in one week.

The names of the items are missing from the graph.

Pens were the items most often sold, and fewer erasers than any other item were sold.

More pencils than rulers were sold.

How many pencils were sold?



- 40
- 80
- 120
- 140



03. The points scored by a school football team this season are:

6, 7, 11, 12, 22, 28, 28, 30, 33, 35

Which of the following stem-and-leaf plots correctly displays the data?



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



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



Stem	Leaf
0	3
1	1
2	1, 2
3	3
5	3
7	0
8	2, 2



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

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**04.** The stem-and-leaf plot below shows how a class of Year 6 students scored on a maths test.

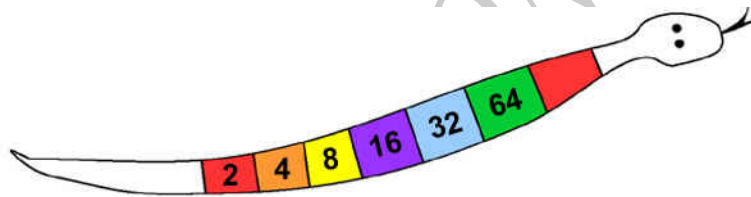
A score of 63 or higher is passing.

How many Year 6 students passed this maths test?



- 7
- 13
- 11
- 17

**05.** What is the rule for this number pattern?



Rule: \_\_\_\_\_

**Use the following information to answer questions 06 to 08.**

Fill in the missing gaps on this multiplication table below.

	J	K	5	9
x2	0	L	10	M
x9	N	9	45	P

**06.**

J: \_\_\_\_\_

K: \_\_\_\_\_

**07.**

L: \_\_\_\_\_

M: \_\_\_\_\_

**08.**

N: \_\_\_\_\_

P: \_\_\_\_\_

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End of Section

**09.** Alba needed to know about how much the sum of 19.6, 23.8, and 38.4 is. She correctly rounded each of these numbers to the nearest whole number. What three numbers did she use?

- 19, 23, 38
- 19, 24, 38
- 20, 24, 38
- 20, 24, 39

**10.** 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

**11.** A butcher wrote these weights on four packages of meat.

Which was the lightest package?

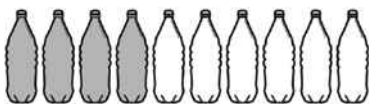
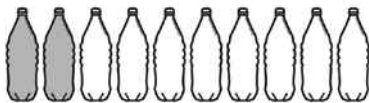
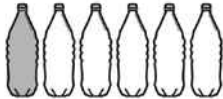
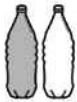
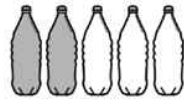
- 4.102 kg
- 4.2 kg
- 4.12 kg
- 4.012 kg

**12.** A taxi charges \$2.00 for up to and including the first kilometre, and \$1.60 for each kilometre thereafter.

What would the taxi charge for a trip of 4 kilometres?

- \$6.40
- \$6.80
- \$8.00
- \$8.40

13. A fraction of the group of bottles below is shaded.  
Which of the following groups is shaded to show a fraction with the same value?



14. How many factors does a prime number have?

0

1

2

3

15. Maria had a collection of bracelets. Next week she will give her sister 18 of her bracelets, which is approximately  $\frac{1}{3}$  of her collection.

Which of the following could be the number of bracelets in Maria's collection?

41

46

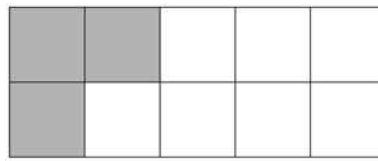
50

53

16. Which is **TRUE**?

- 1.3749 < 1.0399
- 1.526 < 1.2605
- 1.7908 < 1.879
- 1.463 < 1.3902

17. In the figure, how many **more** small squares need to be shaded so that  $\frac{4}{5}$  of the small squares are shaded?



- 5
- 4
- 3
- 2
- 1

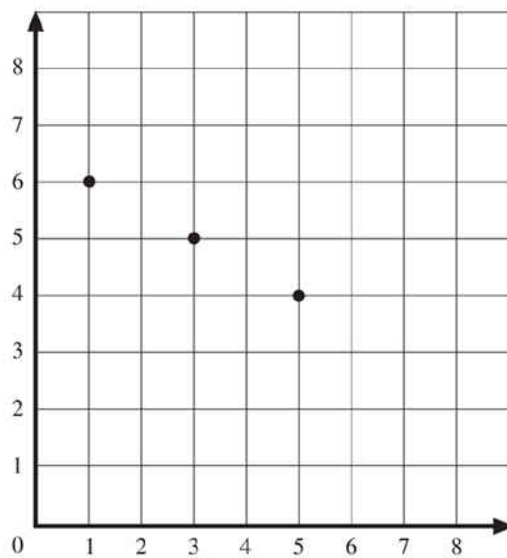
18. Barry's daily grades for one grading period are shown below.  
94, 88, 87, 92, 78, 88, 93, 100, 92, 90, 92, 85  
What was the mode of his daily grades?

- 93
- 92
- 91
- 90

19. Which of the following is **NOT** a perfect square?

- 49
- 64
- 81
- 99

20. Chu plotted 3 points on a grid. The 3 points were all on the same straight line. If she plots another point on the line, what could be its coordinates?



- (2, 5)
- (4, 4)
- (6, 3)
- (7, 3)

**21.** The rule for the pattern below is to multiply the preceding term by 3.

2, 6, 18, ...

Continuing with the pattern, what number would be the 5th term?

- 1458
- 486
- 162
- 54

**22.** Which word problem could be solved by using the equation  $x + 6 = 15$ ?

- Moana has 6 more homework problems to solve. If she had a total of 15 problems to solve, how many has she already completed?
- Moana has completed 15 homework problems. She has 6 more to solve. How many problems did she have for homework?
- Moana needs to complete 15 more problems for her maths homework. She has completed a total of 6. How many problems will she complete for homework?
- Moana has 6 more problems to solve for homework than she had last night. If she had 15 problems to solve last night, how many problems does she have to solve tonight?

**23.** Solve

$$y + 2 = -8$$

- $y = -16$
- $y = -10$
- $y = -6$
- $y = -4$



24. A school band charges a \$160 flat fee plus \$40 an hour to play. If the band charges \$320, for how long did they play?

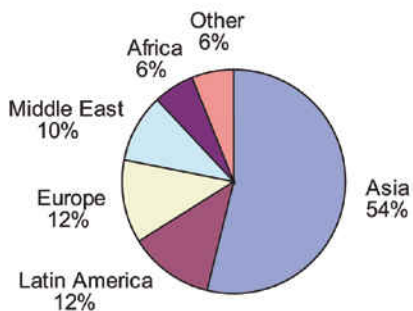
- 2 hours
- 4 hours
- 5 hours
- 8 hours

25. In which list of fractions are all of the fractions equivalent?

- $\frac{3}{4}, \frac{6}{8}, \frac{12}{14}$
- $\frac{3}{5}, \frac{5}{7}, \frac{9}{15}$
- $\frac{3}{8}, \frac{6}{16}, \frac{12}{32}$
- $\frac{5}{10}, \frac{10}{15}, \frac{1}{2}$

26. Of the 50 000 overseas students who attended school in New Zealand in 2000, how many were from either Europe OR Asia?

Origin of Overseas Students in New Zealand Schools.



- 33 000
- 27 000
- 21 000
- 6000

27. Shannon read that fourteen thousand, nine hundred and eighty-seven people live in Dukes County.

Which of the following is another way to write this number?

- 10 000 + 4000 + 900 + 80 + 7
- 14 000 987
- $14 \times 100 + 9 \times 10 + 87$
- $1 + 4 + 9 + 8 + 7$

28. A flight engineer for an airline flies an average of 2 923 kilometres per week.

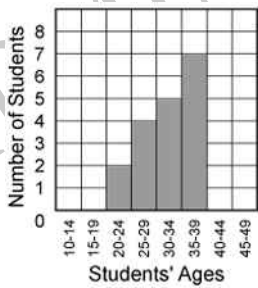
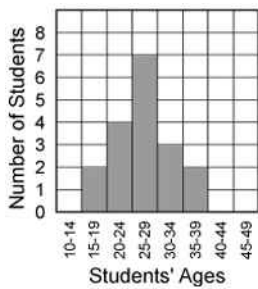
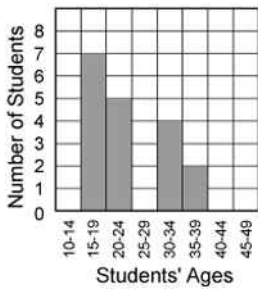
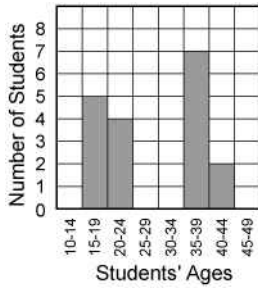
Which is the **BEST** estimate of the number of kilometres she flies in 3 years?

- 150 000
- 300 000
- 450 000
- 600 000

ADMINISTER ON SCREEN  
ONLY

29. The chart below shows a random sample of students' ages at a community college. Administrators at the college constructed a histogram of the students' ages. Which of the following histograms **BEST** represents the distribution of students' ages?

22	18	35	43	44	19
18	38	36	20	19	37
37	20	19	38	38	21



30. What is the value of  $n^2(m + s)$  if  $m = 3$ ,  $n = 2$ , and  $s = 4$ ?

- 28
- 16
- 14
- 9

31. Which of these numbers has the three in the tenths place?

- 3.475
- 4.375
- 27.435
- 32.75

32. Assuming this pattern continues, what will be the seventh term in the sequence?

-3, 6, -12, 24, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

- 192
- 96
- 96
- 192

33. If  $x = 4$  and  $y = 3$ , then  $xy - 2x =$

- 4
- 6
- 19
- 40

34. Which expression is equivalent to  $(x^3y^4)^2$ ?

- $x^5y^6$
- $xy^2$
- $x^6y^8$
- $x^6y^6$

35. Gary had a very heavy school bag. He wanted to investigate if his bag was a lot heavier than others at his school.

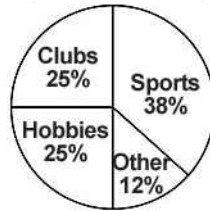


His best way to collect a sample of suitable data would be:

- Weigh all the heavy school bags from the class.
- Weigh all the heavy school bags from the school.
- Weigh a random sample of school bags from the school.
- Weigh a random sample of school bags from the class.

**36.** There are 1200 students enrolled in Adams Intermediate School. According to the graph below, how many of these students participate in sports?

STUDENT PARTICIPATION IN ACTIVITIES  
AT ADAMS INTERMEDIATE SCHOOL

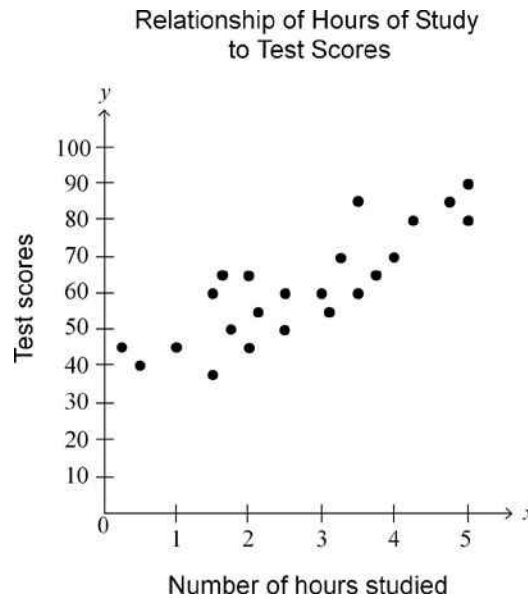


- 380
- 456
- 760
- 820
- 1162

**37.** If a trip takes 4 hours at an average speed of 55 kilometres per hour, which of the following is closest to the time the same trip would take at an average speed of 65 kilometres per hour?

- 3.0 hours
- 3.4 hours
- 3.8 hours
- 4.1 hours

38. Which of the following equations approximates the line of best fit?



- $y = -10x + 30$
- $y = -10x + 60$
- $y = 10x + 30$
- $y = 10x + 60$

Use the following information to answer questions 39 to 42

Terri and Nicholas invented a new game called Mix and Match Clues. These are the clues:

**Clue A:** The number is greater than 150 and less than 200.

**Clue B:** The number is evenly divisible by 3.

**Clue C:** The number is evenly divisible by 5.

**Clue D:** The number is evenly divisible by 2.

**Clue E:** The number is a prime number.

39. If possible, write a number that fits Clues A and B. If not possible, tell why.

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40. If possible, write a number that fits Clues A, C, and D. If it is not possible, tell why.

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41. If possible, write a number that fits Clues, A, B, C, and D. If it is not possible, tell why.

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42. If possible, write a number that fits Clues, A, B, and E. If it is not possible, tell why.

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End of Section

43. Akira read from a book on Monday, Tuesday, and Wednesday. He read an average of 10 pages per day.

Indicate whether each of the following is **possible** or **not possible**.

Pages Read			Possible	Not possible
Monday	Tuesday	Wednesday		
4 pages	4 pages	2 pages	<input type="radio"/>	<input type="radio"/>
9 pages	10 pages	11 pages	<input type="radio"/>	<input type="radio"/>
5 pages	10 pages	15 pages	<input type="radio"/>	<input type="radio"/>
10 pages	15 pages	20 pages	<input type="radio"/>	<input type="radio"/>

44. Put **one** number in the space to make this number sentence **TRUE**.

$$15 + 7 = 2 \times (14 - \underline{\hspace{2cm}})$$

Use the following information to answer question 45.



Last year, John sold 15 chocolate bars. He wrote down the prices of the three kinds of chocolate bars as he sold them.

50c	75c	50c	50c	\$1.00
50c	75c	75c	\$1.00	\$1.00
50c	75c	50c	75c	50c

45. Which measure should he use to find his best-selling chocolate bar?

- Mean
- Median
- Mode
- Range

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

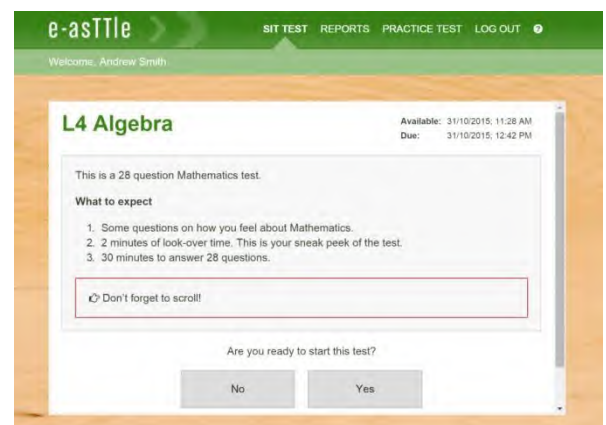
### 1. Check equipment

- 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.