**Summary**

| Test Identification | |
|---|---|
| **Name** | 2021 MAT SW 1.4 |
| **Date Created** | 19 Jan 2021 |
| **Date Modified** | 10 Mar 2021 |
| **Subject** | Mathematics |
| **Status** | SCORED |
| **Sequence Number** | 1098013 |
| **Total Test Time** | 59 minutes |
| **Delivery Method** | Onscreen |

| Curriculum Strand | | | |
|---|---|---|---|
| **Number Sense & Operations** | 12 | **Number Knowledge** | 10 |
| **Statistics** | 11 | **Algebra** | 13 |

| Curriculum Level | | | | | |
|---|---|---|---|---|---|
| **3B** | 1 | **3P** | 6 | **3A** | 1 |
| **4B** | 11 | **4P** | 5 | **4A** | 12 |
| **5B** | 4 | **5P** | 4 | **5A** | 2 |

| Cognitive Processing | | | |
|---|---|---|---|
| **Surface** | 23 | **Deep** | 23 |

| 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 : 2021 MAT SW 1.4**

| Q.No | Marking Key |
|------|-------------|
| **1** | d |
| **2** | B |
| **3** | Shape N because N received the largest number of votes over the 3 classes<br>'Shape N and explanation required for 1 mark' |
| **4** | 700 |
| **5** | d |
| **6** | -2 |
| **7** | 600 000 or six hundred thousand |
| **8** | 24 |
| **9** | 2036 |
| **10** | c |
| **11** | 12 |
| **12** | 20 |
| **13** | d |
| **14** | b |
| **15** | c |
| **16** | c |
| **17** | Great/Nice, OK/Alright, Bad/Unpleasant, Nasty/Horrible, or similar.<br>'Must have similar progression through the categories, even if words not exactly same.' |
| **18** | a |
| **19** | a |
| **20** | b |
| **21** | b |
| **22** | b |
| **23** | There will be too many possible answers to easily graph or there will be too many different ways of naming the similar colours to be able to compare responses (e.g., light blue, dark blue, navy blue, acqua blue, robin''s egg blue, royal blue,<br>'Any equivalent answer for 1 mark.' |
| **24** | 3, 2, 4, 1<br>'all in order for one mark' |
| **25** | d |
| **26** | 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 |
| --- | --- |
| **27** | b |
| **28** | c |
| **29** | b |
| **30** | d |
| **31** | c |
| **32** | a |
| **33** | b |
| **34** | a |
| **35** | a |
| **36** | b |
| **37** | d |
| **38** | b |
| **39** | d |
| **40** | c |
| **41** | b |
| **42** | c |
| **43** | b |
| **<u>44</u>** | 11:00 am |
| **<u>45</u>** | 1:00 pm |
| **46** | a |

Instructions
**Underlined Questions**  e.g.   <u>**10**</u>  :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 | Unlike Me | Like Me | Very Like Me |
| --- | --- | --- | --- | --- |
| | 1 | 2 | 3 | 4 |
| **01.** I like maths at school. | ◯ | ◯ | ◯ | ◯ |
| **02.** I am good at maths. | ◯ | ◯ | ◯ | ◯ |
| **03.** My teacher thinks I am good at maths. | ◯ | ◯ | ◯ | ◯ |
| **04.** My family/whānau think I am good at maths. | ◯ | ◯ | ◯ | ◯ |
| **05.** I enjoy doing maths in my own time (not at school). | ◯ | ◯ | ◯ | ◯ |
| **06.** I enjoy doing things in maths that I haven't tried before. | ◯ | ◯ | ◯ | ◯ |

## Practice Questions

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

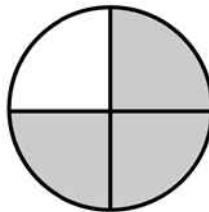**P01.** Who is holding a card with an even number on it?



Ben     Eru     Aroha     Davina
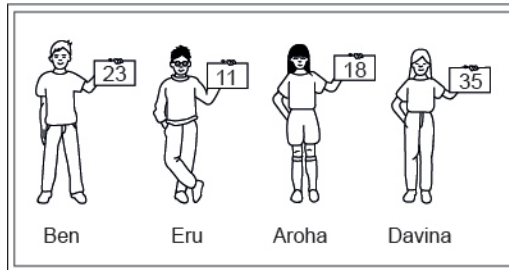
$\bigcirc$     Ben

$\bigcirc$     Eru

$\bigcirc$     Aroha

$\bigcirc$     Davina

**P02.** Complete this number pattern.

2, 4, _____, _____, 10

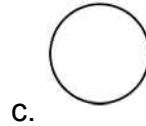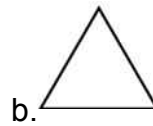**P03.** What fraction of this circle is shaded?

**P04.** Match the sentence with the correct shape.

1. I have three sides

2. I have 4 sides

a. □

b. △

c. ○

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

$$2 + ⭐ > 5$$

☐ 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.

|  | TRUE | FALSE |
|---|:---:|:---:|
| In the number 213, the value of 1 is ten. | ⬭ | ⬭ |
| In the number 504, the value of 5 is fifty. | ⬭ | ⬭ |

**01.** Which number is 20 thousand more than 582 375?

&#9675;    582 395

&#9675;    582 575

&#9675;    584 375

&#9675;    602 375

**Use the three abacuses shown to answer the question02..**
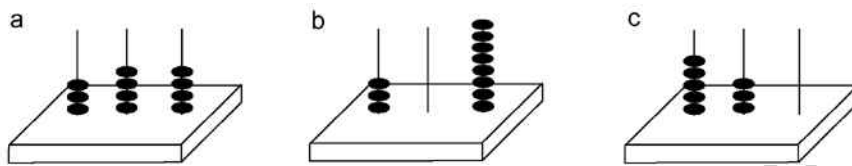


**02.** Which abacus shows the smallest number?

_____

End of Section

**03.** In Mr Bell's classes, the students voted for their favourite shape for a symbol. The results are shown below.

Using the information in the chart, Mr Bell must select one of the shapes to be the symbol. Which one should he select and why?

|  | Class 1 | Class 2 | Class 3 |
|---|---|---|---|
| Shape *N* | 9 | 14 | 11 |
| Shape *P* | 1 | 9 | 17 |
| Shape *Q* | 22 | 7 | 2 |

The shape Mr Bell should select: _____
Explain:

_____

_____

_____

**04.** Write the total value of the 7 in this number.

6 7 3 4_____

**05.** There are 368 buttons in a jar.
What is that number rounded to the nearest hundred buttons?

⬭    300

⬭    360

⬭    370

⬭    400

**06.** At 4:00pm the temperature was 12ºC.
By 10:00pm, the temperature had dropped by 14ºC.

What was the temperature at 10:00pm?

_____ ºC

**07.** What is the value of the 6 in the following number?

3 642 801_____

**Use the following information to answer questions 08 to 09.**
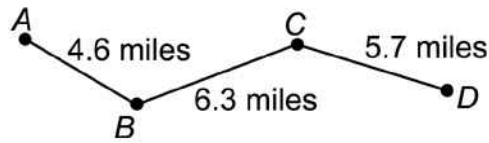
James was born in 1986.

**08.** How old will he be on his birthday in 2010?

_____

**09.** In which year will James celebrate his fiftieth birthday?

_____

End of Section

**10.** Carol wanted to estimate the distance from *A* to *D* along the path shown on the map below. She correctly rounded each of the given distances to the nearest mile and then added them.
Which of the following sums could be hers?



- ○ 4 + 6 + 5 = 15
- ○ 5 + 6 + 5 = 16
- ○ 5 + 6 + 6 = 17
- ○ 5 + 7 + 6 = 18

**Use the following information to answer questions 11 to 12.**

Find $\frac{2}{3}$ of each number.

**11.**

18_____

**12.**

30_____

End of Section

**13.** What digit goes in the space to make the number sentence below **TRUE**?
1.6238 < 1.___017

- ○ 4
- ○ 5
- ○ 6
- ○ 7

**14.** The numbers in this table follow a linear pattern.
What is the missing value?

| p | w |
|---|---|
| -3 | 14 |
| -2 | 11 |
| -1 | ? |
| 0 | 5 |
| 1 | 2 |
| 2 | -1 |

○ 7

○ 8

○ 9

○ 10

**15.** Paige was asked to round 325 672 to the thousands place.
Which number below shows the correct value?

○ 325 000

○ 325 700

○ 326 000

○ 326 670

**16.** Emma shared 22 pens equally among herself and three friends.
Emma also kept the leftover pens.
How many did she then have altogether?

○ 4

○ 5

○ 7

○ 8

**17.** A tuckshop wanted to investigate the popularity of a new energy drink. They asked a student to conduct a survey.

Complete the values below with key words that could be used if 5 different categories are required for the questionnaire.

**Awesome**

_____

_____

_____

_____

**18.** The table shows the relationship between $j$, Jerry's age and $t$, Tara's age. Which of the following describes the relationship?

| $j$ (Jerry's Age) | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| $t$ (Tara's Age) | 7 | 8 | 9 | 10 | 11 |

⬭   $t = j + 6$

⬭   $t = 2j + 1$

⬭   $t = 2j + 2$

⬭   $t = 6j$

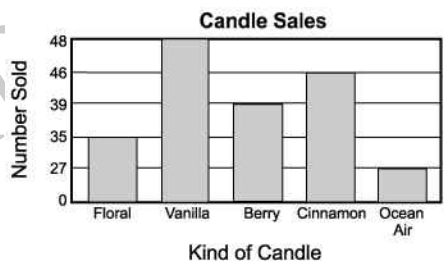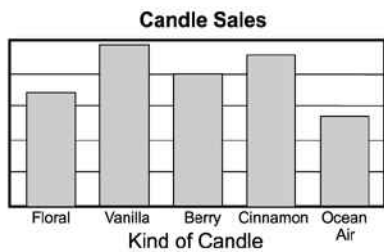**19.** What is the mode of this set of numbers?
(2, 2, 2, 3, 4, 4, 6)

⬭   2

⬭   3

⬭   4

⬭   6

**20.** 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 |
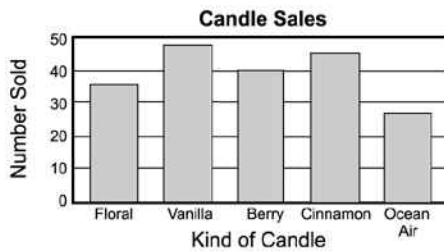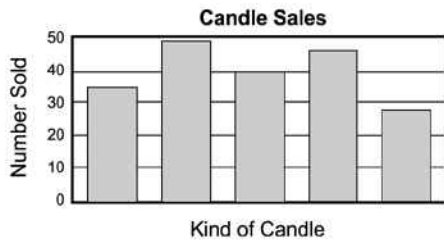
**21.** Year 7 is going to the zoo.
Zoo entry is $10.00 for each student.
The bus costs $75.00 for all students.



If *p* represents the number of students, which one of the following shows the total cost of the trip?

    ◯       (*p* + $10.00) + $75.00

    ◯       (*p* x $10.00) + $75.00

    ◯       (*p* x $75.00) x $10.00

    ◯       *p* + ($75.00 + $10.00)

**22.** Square numbers are numbers that can be represented by a square array of blocks. Which of the following is a square number?



First four square numbers
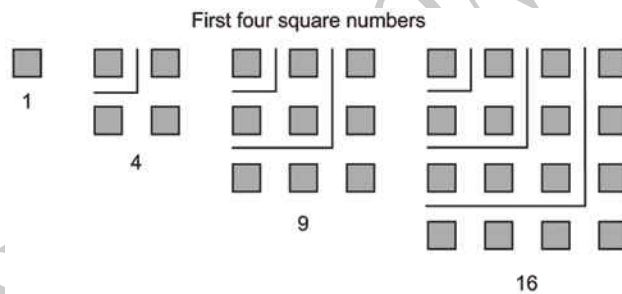
    ◯       50

    ◯       36

    ◯       27

    ◯       18

**23.** Stan wrote his survey question: "What is your favourite colour?"

Write one problem that this question could cause Stan if he wanted to draw a graph of this data.

_____

_____

_____

_____

**24.** Put the numbers 1, 2, 3, and 4 in the boxes to order these numbers from smallest (1) to largest (4).

☐    2.107

☐    2.077

☐    2.7

☐    2.017

**25.** 42, 51, 49, 58, 56, . . .
If the pattern in the list above continues, what will be the next number after 56?

◯   54

◯   63

◯   64

◯   65

◯   67

**26.** 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

**27.** Where does the quadratic graph cut the $x$ axis?
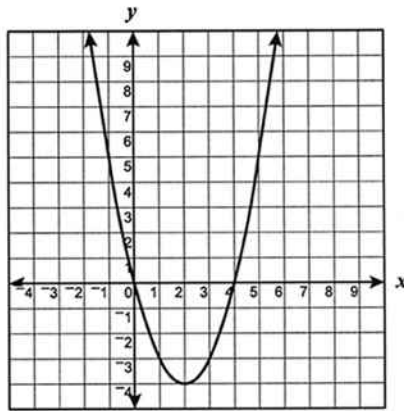


- ◯ (0 and -4)
- ◯ (0 and 4)
- ◯ (2 and 4)
- ◯ (-2 and 4)

**28.** The percent scores for 5 tests are listed below.

45, 62, 76, 78, 99

Which statement about the data is **MOST** reasonable?

○        The mean is close to 50

○        The mean is close to 54

○        The mean is close to 70

○        The mean is close to 80

**29.** Tamika works in a shoe store and is paid 12% commission on her sales. In January her sales total was $3740.

To the nearest dollar, how much did Tamika earn in commission for January?

○        $312

○        $449

○        $3291

○        $4189

**30.** A journalist is interested in estimating the percentage of Northland residents who support the use of tax dollars to pay for a new civic centre in Whangarei.

Which of the following would result in the **MOST** reliable estimate?

○        Survey 100 randomly selected civic centre board members.

○        Survey 100 randomly selected Auckland residents.

○        Survey 100 randomly selected Whangarei residents.

○        Survey 100 randomly selected Northland residents.

**31.** Fifteen boxes each containing 8 radios can be repacked in 10 larger boxes each containing how many radios?

- ⬭ 8
- ⬭ 10
- ⬭ 12
- ⬭ 80
- ⬭ 120

**32.** A sweater originally cost $37.50. Last week, Moesha bought it at 20% off. How much was deducted from the original price?



- ⬭ $7.50
- ⬭ $17.50
- ⬭ $20.00
- ⬭ $30.00

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

- ⬭ 3.475
- ⬭ 4.375
- ⬭ 27.435
- ⬭ 32.75

**34.** How would you conduct a statistical investigation to measure the effect of a drug on reaction times?

◯ Give 20 people the same amount of the drug and measure their reaction times.

◯ Give one person the same amount of the drug each day for 20 days and measure their reaction times.

◯ Give 10 people 2 doses of the drug and measure their reaction times.

◯ Give one person the drug doubling the dose each day.

**35.** The chart below shows 10 states and the average length of patient stay in days in each of their hospitals.
Based on the information in the chart, which of the following statements is **TRUE**?

| STATE | No. of Hospitals | Average Length of Stay |
|-------|------------------|------------------------|
| AL | 119 | 7.0 |
| AK | 16 | 5.7 |
| AZ | 61 | 5.5 |
| AR | 88 | 7.0 |
| CA | 440 | 6.0 |
| CO | 71 | 6.8 |
| CT | 35 | 7.4 |
| DE | 8 | 6.8 |
| FL | 227 | 7.0 |
| GA | 162 | 7.2 |

◯ Five of the states had an average length of stay of at least 7 days.

◯ Five of the states had an average length of stay of less than 6 days.

◯ The state with the fewest hospitals had the shortest average length of stay.

◯ The state with the most hospitals had the largest average length of stay.

**36.** What is the solution to $10x + 13 = 17$?

◯ $x = 0.3$

◯ $x = 0.4$

◯ $x = 3.0$

◯ $x = 4.0$

**37.** Mr Cooper is ordering some books from a catalogue. The total cost includes the cost of the book plus an additional charge for shipping. The table below shows how the total cost changes as the number of books ordered increases.

Based on the pattern shown in the table, which of the following rules could Mr Cooper use to determine the total cost for any number of books?

**Book Costs**

| Number Ordered | Total Cost |
|:---:|:---:|
| 1 | $10.50 |
| 2 | $18.50 |
| 3 | $26.50 |
| 4 | $34.50 |
| 5 | $42.50 |

○  Multiply the number of books by $9.25

○  Multiply the number of books by $10.50

○  Multiply the number of books by $10 and add 50c for shipping

○  Multiply the number of books by $8 and add $2.50 for shipping

**38.** Which expression is equivalent to $x^6x^2$?

○  $x^4x^3$

○  $x^5x^3$

○  $x^7x^3$

○  $x^9x^3$

**39.** Peggy is stocking boxes of cereal on a shelf in the supermarket. She has 48 boxes of corn flakes and 72 boxes of bran flakes. The boxes are to be arranged so each row has the same number of boxes and only one kind of cereal.
What is the **greatest** number of boxes that can be in each row?

○     8

○     9

○     12

○     24

**40.** Which number comes next in this sequence?
3, 5, 9, 17, 33, 65,...

○     97

○     98

○     129

○     132

**41.** According to the pattern suggested by the four examples below, how many consecutive odd integers are required to give a sum of 144?

$$1 + 3 = 4$$
$$1 + 3 + 5 = 9$$
$$1 + 3 + 5 + 7 = 16$$
$$1 + 3 + 5 + 7 + 9 = 25$$

○     9

○     12

○     15

○     36

○     72

**42.** $3 + 15 \div 3 - 4 \times 2 =$

- ⬭   -9
- ⬭   -2
- ⬭   0
- ⬭   4
- ⬭   5

**Use the following information to answer question43..**

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 $y = 50x + 200$ and
Ngaire's pay by the equation $y = 60x$
where $y$ represents the pay and $x$ represents the number of appliances sold.

**43.** 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

**Use the following information to answer questions 44 to 45.**

Jane leaves home at 9.00 am and travels by car to visit Matthew. On the way, she stops for a break before continuing her trip to Matthew's home.

The graph below shows Jane's trip.
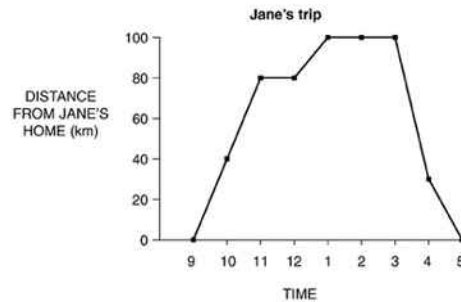


**44.** What time did Jane stop for a break?

_____

**45.** What time did Jane arrive at Matthew's place?

_____

**46.** Darrell had biology test scores of
76, 78, 76, 82, 62, and 100.
For this data, which measure is greatest?

⬭　　Mean

⬭　　Median

⬭　　Mode

⬭　　Range

*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 | Large Tablets (9"+) |
|---|---|
| • Windows, Mac or Chromebook<br>• Minimum window width: 1280 pixels<br>• Windows devices need up-to-date Edge, Chrome, Firefox or IE11<br>• Windows tablets/hybrids e.g., Surface Pro must have a keyboard attached<br>• Mac devices need recent Chrome or Safari | • iPads: iOS 10+ with Safari<br>• Androids: Large tablet e.g., Samsung Galaxy Tab 4. Must have Android 5+ and latest Chrome<br>• Minimum window width: 768 pixels<br><br>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.
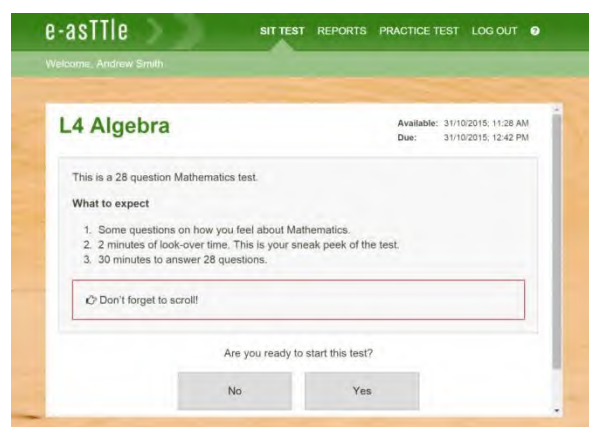
Other reminders to discuss with students:

- 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.

| 3 answers still saving...You can keep going. |  |
|---|---|
| 34:50 test time left | Question 4 of 30 |

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.