



# The Accelerated STEM Selection Test Saturday 6 April 2019

## Information for students

The Selection Test for students applying for the Accelerated STEM Program and/or Accelerated Italian Program will be held at the

**Middle Campus, Norwood Morialta High School  
from 9:00am on Saturday 6 April 2019.**

**Norwood Morialta High School  
Middle Campus  
Morialta Road West  
Rostrevor**

Students and Parents/Caregivers should enter the school from Morialta Road West and will need to register before 8:50am at the Resource Centre. Students may be collected from the Resource Centre after 11:45am.

## Students are required to bring:

- two **HB** or **B** pencils
- a good quality eraser
- a pencil sharpener
- two black or blue pens
- something to eat and drink between assessments.

## The Program for the Selection Test will be:

Time	Activity	Length
9:00am	Assessment Instructions and Overview	15 mins
9:15am	Mathematical Reasoning	40 mins
9:55am	<i>Break</i>	
10:00am	Reading Comprehension	45 mins
10:45am	<i>Break</i>	15 mins
11:00am	Abstract Reasoning <i>Test concludes at approximately 11:40am</i>	40 mins

The Selection tests will finish at approximately 11:45am and we request that arrangements are made for parents or caregivers to collect students from the Resource Centre.

If you arrive late you will be admitted but will not be allowed additional time, unless there are exceptional circumstances.

No other materials or equipment will be needed for this assessment.

## Contact Persons:

- Accelerated STEM Program: Chris Felstead or Jacqui van Ruiten  
T 8365 0455 (Middle Campus) or  
T 8364 2299 (Senior Campus)
- Accelerated Italian Program: Helen Tooulou or Karen Andrews  
T 8365 0455

## Writing your answers

You will be given Optical Mark Read (OMR) answer sheets for the multiple-choice questions in READING COMPREHENSION, MATHEMATICAL REASONING and ABSTRACT REASONING.

For each question, the OMR answer sheet has a number of circles ('bubbles'), each of which represents a possible answer. One of them represents the correct answer.

Mark your answer by colouring in the 'bubble' containing the letter of your chosen answer with your **pencil**.

Example (Answer '**B**' chosen)



If you wish to change an answer, carefully erase your first choice and mark your new answer.

Never choose more than one answer. You will not lose marks for a question where your choice is an incorrect answer.

Also, please do not

- fold or tear the OMR answer sheet.
- make marks anywhere other than in the designated areas on the OMR answer sheet.
- Use ink, ball-point pen or felt pen on any part of your OMR answer sheet.

Most items in MATHEMATICAL REASONING and READING COMPREHENSION are in the multiple-choice format, however a small number allow for a written response, and a space is provided for this in the test booklet.

## Written Expression

Lined paper will be provided. Use a black or blue pen for your writing.

## Practice Questions

### READING COMPREHENSION

This assessment requires you to read text and to answer questions about it. The topics for the test are drawn from many areas of study but no special knowledge is needed. All the information you need to answer the questions is printed in the booklet you will be given.

There will be approximately 30 multiple-choice questions in READING COMPREHENSION. Each question has four alternative answers marked **A**, **B**, **C** and **D**. Choose the answer that you think is correct and colour in the corresponding 'bubble' on your answer sheet. There is only one right answer to each question.

Another 5 questions in READING COMPREHENSION will ask you to read the text and respond to the questions by writing your answers rather than choosing your answers from the four alternatives. Your written answers will be entered in the space provided in the test booklet rather than the OMR Answer Sheet. In the first question you will be asked to colour the circle next to the answer you think is correct.

Here are some practice examples.

## PASSAGE

This animal, being a stranger, appears to merit a particular description. The Wom-bat (or, as it is called by the natives of Port Jackson the Womback) is a squat, thick, short-legged, and rather inactive quadruped, with great appearance of stumpy strength. Its figure and movements, if they do not exactly resemble those of the bear, at least strongly remind one of that animal. Its length, from the tip of the tail to the tip of the nose, is thirty-one inches. Its weight, by hand, is somewhat between twenty-five and thirty pounds . . . The neck is thick and short, and greatly restrains the motions of the head, which according to a common expression, looks as if it were stuck upon the shoulders . . . .

The animal has not any claim to swiftness of foot, as most men could run it down. Its pace is hobbling, or shuffling, something like the awkward gait of a bear. In disposition it is mild and gentle; but it bites hard, and is furious, when provoked. Mr Bass chased one, and with his hands under the belly suddenly lifted him off the ground and laid him upon his back, along his arm, like a child. It made no noise, nor any effort to escape, not even a struggle. Its countenance was placid, and it seemed as contented as if it had been nursed by Mr Bass from its infancy.

### Questions 1 – 4 refer to the passage.

- 1 The wombat described in this passage (line 2) is
  - A heavy and lame.
  - B ill-tempered and swift.
  - C shy but alert.
  - D slow but strong.
- 2 The fact that the writer likens the wombat to a bear (line 7) most probably suggests that he
  - A expected his readers to be familiar with a bear's appearance.
  - B though the wombat belonged to the bear family.
  - C wanted his readers to know that the wombat was a large, vicious animal.
  - D believed the wombat's habits to be the same as a bear's.
- 3 The wombat offered no resistance when it was caught. Which one of the following is the best explanation of this?

- A It was helpless to move, as it was on its back.
- B It was a nervous, cowardly creature.
- C It was exhausted after the long chase.
- D It was a calm, passive creature.

- 4 The passage can best be described as
  - A a witty discussion.
  - B an informative account.
  - C a carefully planned argument.
  - D a dramatic narrative.

### Now read the verse and answer Questions 5 and 6

The peaceful and submissive wombat  
Abhors the very thought of combat.  
Shaped like a shaggy little pig,  
His joy is but to dig and dig,  
A ten foot tunnel is to him  
The product of a moment's whim.  
But when this impulse, urge or spasm  
Is fanned into enthusiasm,  
He'll burrow on for miles and miles  
And miles of subterranean aisles.

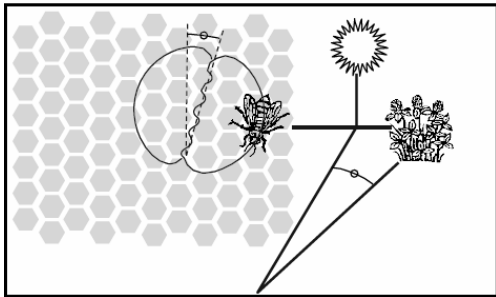
Leon Gellert: from *The Wombat*

- 5 Which one of the following habits of the wombat is most strongly emphasised by the verse?
  - A It digs tunnels in which to hide.
  - B It burrows with astonishing energy.
  - C It moves quickly but without purpose.
  - D It retreats underground the moment someone approaches.
- 6 The verse suggests that the wombat digs
  - A eagerly and extensively.
  - B anxiously and senselessly.
  - C intelligently and carefully.
  - D impulsively and angrily.

### Passage

Bees make honey to survive. It is their only essential food. If there are 60,000 bees in a hive about one third of them will be involved in gathering nectar which is then made into honey by the house bees. A small number of bees work as foragers or searchers. They find a source of nectar, then return to the hive to tell the other bees where it is.

Foragers let the other bees know where the source of the nectar is by performing a dance which gives information about the direction and the distance the bees will need to fly. During this dance the bee shakes her abdomen from side to side while running in circles in the shape of a figure 8. The dance follows the pattern shown on the following diagram.



The diagram shows a bee dancing inside the hive on the vertical face of the honeycomb. If the middle part of the figure 8 points straight up it means that bees can find the food if they fly straight towards the sun. If the middle part of the figure 8 points to the right, the food is to the right of the sun.

The distance of the food from the hive is indicated by the length of time that the bee shakes her abdomen. If the food is quite near the bee shakes her abdomen for a short time. If it is a long way away she shakes her abdomen for a long time.

**Translation note:** the "8" in "figure 8" should be produced as an Arabic numeral, because the shape of the number is important.

**Questions 7 and 8 refer to the passage. Write your answers in the test booklet where space is provided. For question 7 colour the circle next to the answer you think is correct.**

- 7 What is the purpose of the bees' dance?
- To celebrate the successful production of honey.
  - To indicate the location of the plant the foragers have found
  - To celebrate the birth of a new Queen Bee.
- 8 In the dance, what does the bee do to show how far the food is from the hive?

---



---

**Answers to the Reading Comprehension practice examples**

1D    2A    3D    4B    5B    6A

- 7 To indicate the location of the plant the foragers have found
- 8 (Written response) The bee shakes her abdomen for a short time if the food is near, and if the food is a long way away she shakes her abdomen for a long time.

**MATHEMATICAL REASONING**

This assessment requires you to answer a number of problems using mathematical reasoning. Any calculations that are required can be done on the piece of working paper which will be supplied to you.

As for READING COMPREHENSION, approximately 30 questions in MATHEMATICAL REASONING has four alternative answers marked **A, B, C** and **D**. Choose the answer you think is correct and colour in the corresponding 'bubble' on your answer sheet.

There is only one right answer to each question.

Another 5 questions will require that you write your answers in the space provided in the test booklet rather than the OMR Answer Sheet.

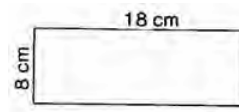
Here are some practice examples.

- 1 When full, four tanks, W, X, Y and Z, each hold the same volume of water.
- Tank W empties faster than tank X.
  - Tank Y empties faster than tank Z.
  - Tank Y empties faster than tank W.
  - Tank Z empties faster than tank X.

If all four tanks were emptied starting at the same time, which tank would be empty first?

- A** tank W                      **C** tank Y
- B** tank X                      **D** tank Z

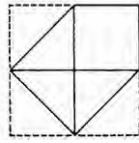
- 2 The diagram represents a rectangle 18 cm by 8 cm. How long is the side of a square the same area as this rectangle?



- A** 9 cm                          **C** 13 cm
- B** 12 cm                      **D** 16 cm

- 3 How many odd numbers less than 50 are exactly divisible by 3?
- A** 7                              **C** 6
  - B** 8                              **D** 25

- 4 A square piece of paper is folded as shown in the figure so three of its corners are folded into the centre.



What fraction of the square can be seen in the figure?

- A  $\frac{3}{8}$                       C  $\frac{5}{8}$   
 B  $\frac{1}{2}$                         D  $\frac{3}{4}$

- 5 A pattern is to be formed from four square pieces of cardboard, each with perimeter of 4 cm. Each piece of cardboard **must touch** at least one other piece of cardboard. What is the longest perimeter of a pattern which can be formed from the four pieces of cardboard?

- A 8 cm                      C 12 cm  
 B 10 cm                    D 16 cm

from left to right

### Answers to the Mathematical Reasoning

practice examples

1C    2B    3B    4C    5D

### ABSTRACT REASONING

#### (INCLUDING SPATIAL-VISUAL REASONING)

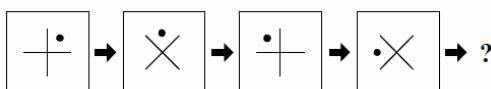
This is a non-verbal test that measures abstract reasoning skills including the capacity to recognise relationships, to make sense of complex situations and to perceive and think clearly. The test will ask you to identify and complete various picture sequences and patterns. The diagram comprising the pattern may have a number of elements (size, shape, shading, orientation) that need to be considered when deciphering the pattern.





There are also a number of spatial-visual reasoning questions which test your ability to visualise objects in space using pictures or diagrams.

Here are some practice examples.

#### Example 1

In the following item, there are four shapes forming a sequence going from left to right. You are to choose from the alternatives (A, B, C and D), the one which would most logically and simply come next in the sequence.



- A       C   
 B       D 

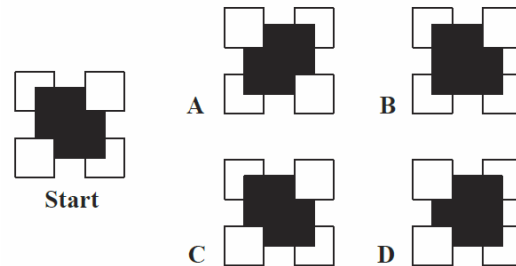
#### Answer

In the sequence shown, the dot rotates anticlockwise, and the cross alternates between two positions. So **D** is the answer. Alternatively, the whole pattern can be seen rotating 45° anticlockwise, again giving **D**.

#### Example 2

For this type of question a set of overlapping tiles is presented. The tiles are not transparent so you need to imagine what the set of tiles will look like when they are flipped over from left to right.

Choose one of the four alternatives (labelled **A**, **B**, **C** and **D**) which shows how the figure would look after turning it over from left to right.



The **answer** to this example is **C**.

### HOW TO DO YOUR BEST

The practice materials in this form are provided to help you prepare for the assessments.

Points to remember on assessment day include:

- listen carefully to spoken instructions.
- take time to read written instructions carefully before you start answering.
- if a question is too difficult, then move on to the next question and come back to it if you have time.
- if you cannot make up your mind between two answers, then choose the one that you think is the best.
- do not worry if you have left questions out or do not finish.
- if you finish early, then check over your work.
- do not hesitate to ask a supervisor if you have any queries or problems.