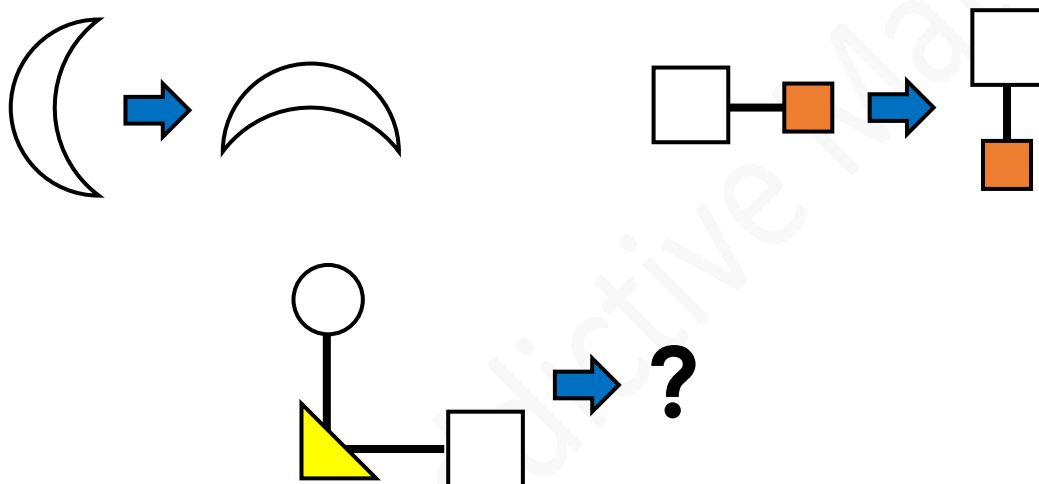# Junior Maths Mastery Challenge Sample

Paper K

Section A

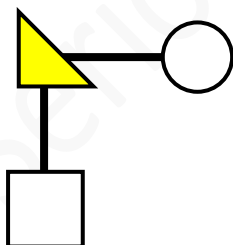*Questions 1 to 5 carry 3 marks each.*

1. Study the figures below.

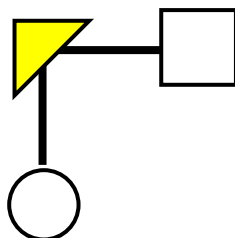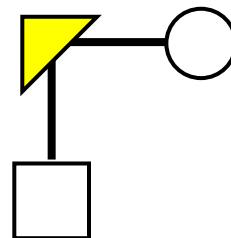What is the missing figure?   [Spatial visualisation]

(A)   (B)   (C)

2. Study the pattern below.

B D F H J L N P ...

What letter comes next?

[Patterns and sequences]

If we number A to Z using 1 to 26, the letters in the pattern are even numbers.
2, 4, 6, 8, 10, 12, 14, …

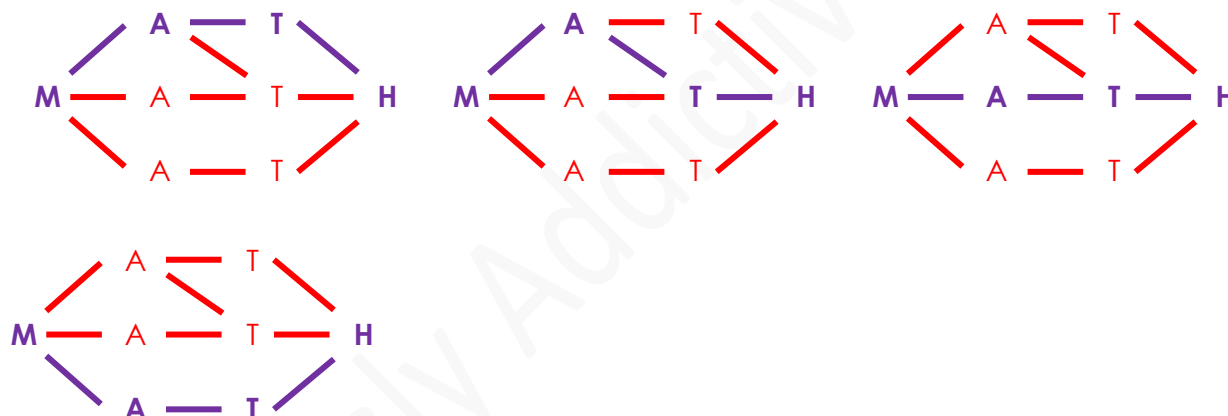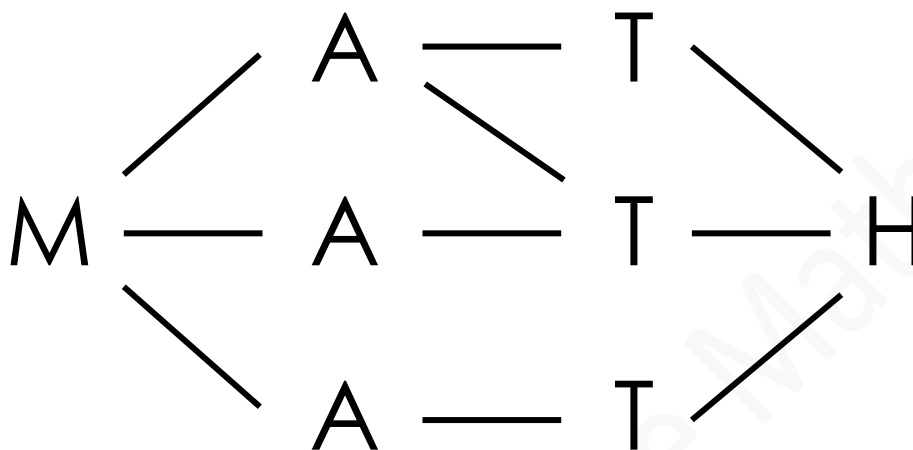The letter Q is skipped. So, the letter that comes next is R.

(A) Q   (B) R   (C) S

3. How many different ways can you form M–A–T–H in the diagram below?

[Combinatorics]

(A) 3   (B) 4   (C) 5

4. Ken's birthday is on 25 May.
   It falls on a Friday in a certain year.
   Which day is it on 1 May?

   [Problem solving]

   Since 25 May is a Friday, then 18 May, 11 May and 4 May are also Fridays.
   3 May is a Thursday.
   2 May is a Wednesday.
   1 May is a Tuesday.

   (A) Monday   (B) Tuesday   (C) Wednesday

5. Study the number pattern below.

   1 2 3 1 2 3 1 2 3 1 ...
   1st

   [Patterns and sequences]

   Add up the first 15 numbers.
   What answer do you get?

   1 + 2 + 3 = 6
   Every 3 numbers we add, we get 6.

   3, 6, 9, 12, 15
   There are 5 groups of 3 numbers.

   6, 12, 18, 24, 30
   I get 30.

   (A) 5   (B) 30   (C) 50

Section B

Questions 6 and 7 carry 4 marks each.

6. There are 25 children in a room.
   Mrs Tay wants to put the children into two groups.
   She lines up the children in a straight line.
   After she picks the 1st child, she continues picking every 3rd child for the first group.
   The rest are in the second group.
   How many children are in the second group?

   [Problem solving]

   If we number the children from 1 to 25, Mrs Tay picks the 1st child and then counts by 3s.
   1, 4, 7, 10, 13, 16, 19, 22, 25 are the numbers Mrs Tay picks for the first group.

   There are 9 children in the first group.
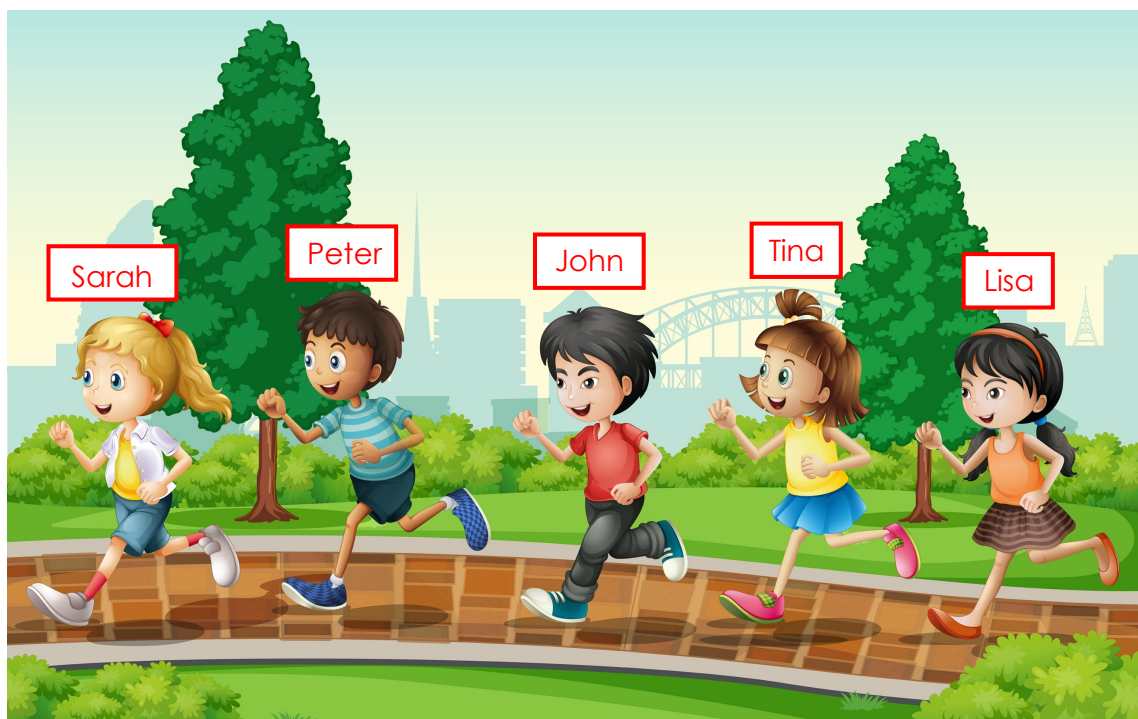
   25 – 9 = 16
   16 children are in the second group.

   (A) 12   (B) 13   (C) 16

7. The picture shows 2 boys, John and Peter, and 3 girls, Lisa, Sarah and Tina, running in a park.

Scene Vectors by Vecteezy

John is behind Sarah.
Peter is in front of John.
Tina is not the last.
Which statement below is **not** correct?

[Logical reasoning]

There is only 1 girl in front of the boys. So, Sarah is in the 1st position.
There are only 2 boys. Peter is in the 2nd position and John is in the 3rd position.
Tina is not the last, so she is in the 4th position.
Lisa is in the last position.

(A) Sarah is in the 1st position.

(B) John is in the 2nd position.

(C) Lisa is in the last position.