

# Primary Mathematics Challenge materials at transition

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# Why use the PMC materials?

Fluency

Problem  
Solving

Reasoning

# What is the PMC?

- The Primary Mathematics Challenge is a fun and exciting mathematical Challenge aimed at pupils in ***years 5 and 6 England and Wales***
- The PMC is not designed to be just another test in the school year, we believe that the PMC encourages enthusiasm, boosts confidence in mathematics and shows the different way questions can be asked.

<http://www.primarymathschallenge.org.uk/>

# The benefits.....

## Pupils get...

- 45 minutes to answer the questions
- the chance to take part in a national challenge
- 10 easy questions to start with
- all pupils should achieve a reasonable score
- certificates presented by the school
- high-scoring pupils will be invited to take the PMC Bonus Round in February 2017

## Teachers get...

The Primary Mathematics Challenge papers come in **packs of ten**, so there is enough for ten pupils. With each pack of ten papers you will receive;

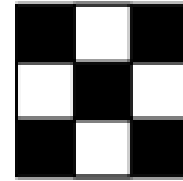
- 1 gold, 2 silver and 3 bronze certificates
- 1 photocopiable 'Took the Challenge' certificate
- Mark scheme/Answers and Notes

Also provided are full instructions, solutions and follow-up ideas for the classroom, feedback sheet, and an opportunity to raise the profile of maths in your school.

# Try some questions

What fraction of this square is shaded black?

- A  $\frac{1}{5}$       B  $\frac{1}{4}$       C  $\frac{4}{9}$       D  $\frac{5}{9}$       E  $\frac{4}{5}$

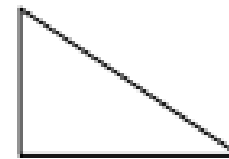


The dates below are for the reigns of five English kings.  
Which of these five kings was king for the longest time?

- A Henry I      B Henry II      C Henry III      D Henry IV      E Henry V  
1100 – 1136      1154 – 1189      1216 – 1272      1399 – 1413      1413 – 1422

Two identical triangles shown here can be picked up, turned and fitted together edge to edge to make new shapes. Which of these shapes **cannot** be made?

- A a rhombus      B a rectangle  
C a triangle      D a kite      E a parallelogram



# How might you use the questions?

- Starters
- Extensions
- Questions related to a topic you are studying
- .....or not
- Produce as a box of colour coded questions
- Puzzle of the week
- Puzzle for your parents on a newsletter

- Quizzes
- Team problem solving
- Treasure Hunts
- .....and many more ways

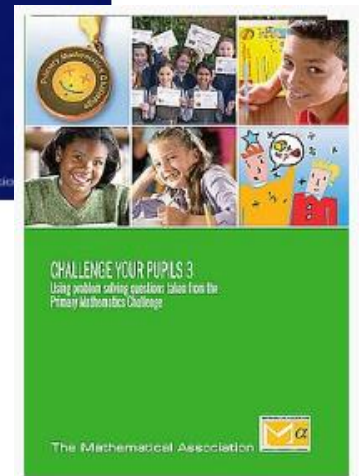
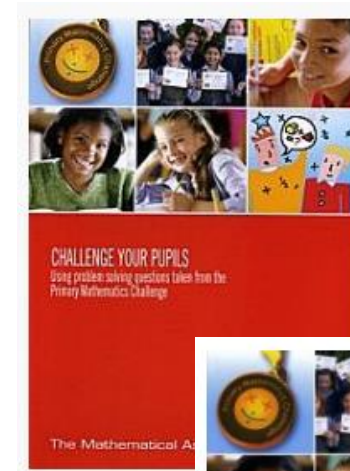
# Exploring the questions

## Activity

The questions can be grouped as

- Easy
- Harder
- Puzzling
- Very puzzling problems

Have a look at the problems you have, how would you classify these?





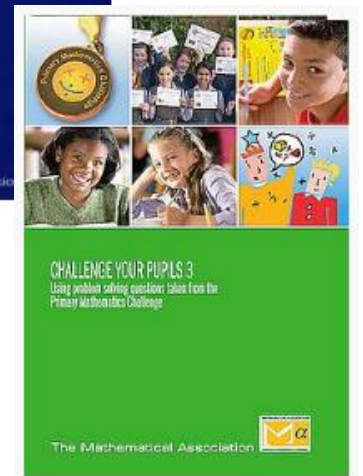
# Exploring the questions

## Activity

The questions can be grouped as

- Easy **C, H**
- Harder **E, J, K, L**
- Puzzling **B, D, F, I**
- Very puzzling problems **A, G**

Have a look at the problems you have, how would you classify these?



# Exploring the questions

## **Activity**

Re-classify your questions into topics/themes

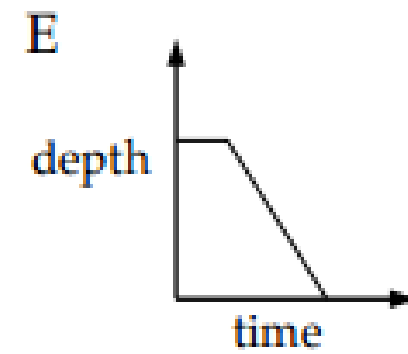
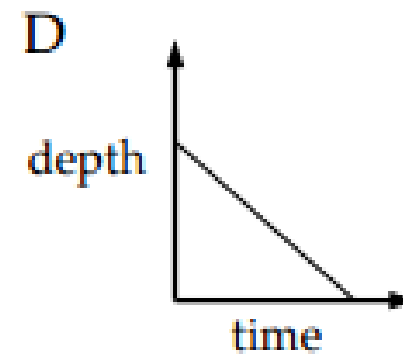
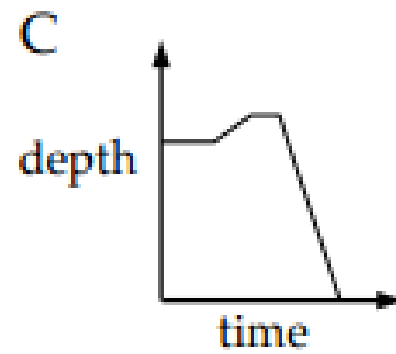
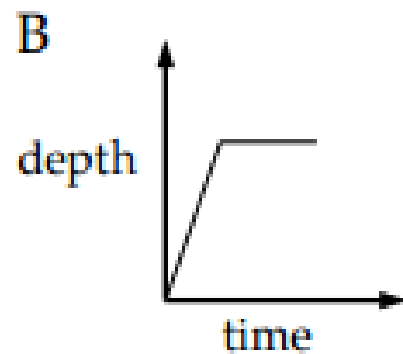
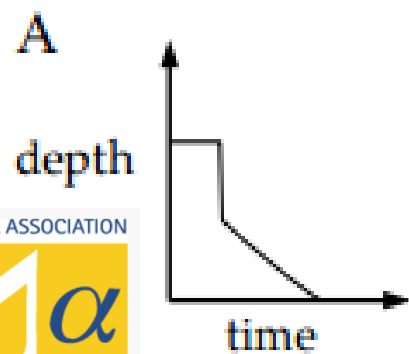
What topics and themes can you identify in your sample questions?

# What do you need to know before you can.....

The time on the clock is 11 o'clock. What is the size of the smaller angle (in degrees) between the hour and the minute hand on the clock?

Given that the 1<sup>st</sup> November 2010 was a Monday, on what day did the 1<sup>st</sup> December fall that year?

I am having a bath. I wait for a minute, and then get out. I pull out the plug, letting the water drain away. Which of the following graphs best shows the depth of the water in the bath during this time?



# What strategies might you use to.....

Two positive numbers have a product of 90 and a difference of 9. what is their sum?

- A 19                  B 21                  C 23                  D 25                  E 33

Jack is three years older than Jill. The sum of their ages is 25. What is the product of their ages?

- A 25                  B 144                  C 150                  D 154                  E impossible to say

Isobel is taller than Sarah. Emily is shorter than Isobel, but taller than Sarah. Alice is shorter than Rachel, but taller than both Emily and Isobel. Whose height is the middle for the group?

- A Alice                  B Emily                  C Isobel                  D Rachel                  E Sarah

# Adapt the question, increase the challenge

Think of a number  $\longrightarrow$  add 3  $\longrightarrow$  multiply by 2  $\longrightarrow$  take away twice the number you first thought of  $\longrightarrow$  subtract 4  $\longrightarrow$  answer

A 1

B 2

C 3

D 4

E 5

Why does this happen?

# Logical approaches and careful reading!

Four football teams play each of the other three teams once. A win scores 3 points, a draw scores 1 point and a loss scores nothing. Some figures in the following table are missing, so how many points did the Quads get?

	Play	Win	Draw	Lose	Points
Parallelas	3	3			9
Quads	3		0	1	
Wrekkies	3	0	1		
Kites	3	0		2	1

A 1

B 4

C 6

D 7

E 10

# Look for an easy approach.....

Yesterday Peggy Greg bought 3 cakes and 3 doughnuts for £1.17.

Today she bought 6 cakes and 4 doughnuts for £2.06.

How much will 3 cakes and one doughnut cost her tomorrow?

A 39p

B 89p

C £1.08

D £1.17

E £2.06

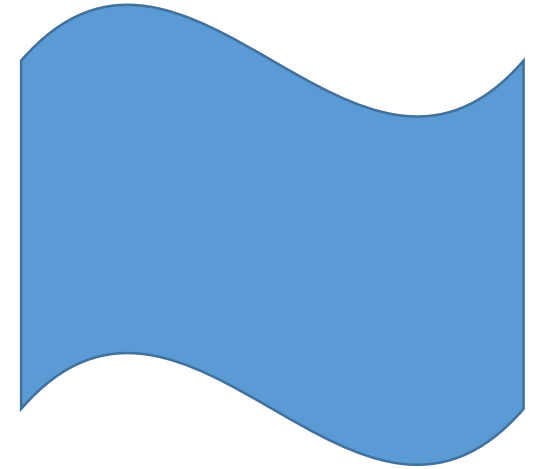
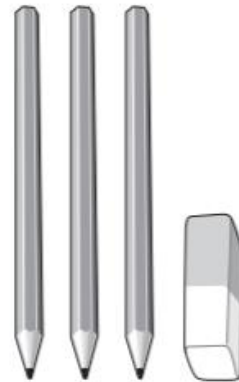
# Last year's KS2 SATS Paper 2.....

9

6 pencils cost **£1.68**



3 pencils and 1 rubber cost **£1.09**



What is the cost of **1 rubber**?