Maths Explorer - Year 3 & 4 Sample Practice Paper



Name: _____

Exploring

1A. Find My Shape



My shape has more than three corners.

My shape only has right angles.

Some sides of my shape are longer than other sides.

What is my shape?

1B. Secret Number

Cohan, Ivy and Brett have selected a secret number each. The three numbers, not in order, are 15, 9 and 19. Ivy's number comes right before 16. Brett's number is smaller than Cohan's number. What is Cohan's number?

Maths Explorer - Year 3 & 4 Sample Practice Paper



Name: _____

Extension

1C. Pocket Change

Aliya has 8 coins in her pocket. Each coin is either a 5c coin or a 10c coin. Altogether, they add up to 50 cents. How many 10c coins does Aliya have?

1D. Balloons

Libby, Otto and Hassan each have a bunch of balloons.

1) Libby gave Otto a black ballon and gave Hassan a spotty balloon.

2) Hassan gave Libby a striped balloon.

3) Otto gave each child a black balloon.

Who has $\frac{2}{3}$ of the black balloons?



1E. Photo Wall

Mrs Russel has hung four framed photos of her children in a line on the wall. They were hung 20cm apart.

Two of the frames are 30cm wide. The other two are 50cm wide.

How long is the row of photos on the wall?



Maths Explorer Example Solution 1A: Find My Shape



My shape has more than three corners. My shape only has right angles. Some sides of my shape are longer than other sides.

What is my shape?

Strategy: Eliminate all but one Possibility

Read each clue in the problem and eliminate any shapes that it excludes.



Therefore my shape is the **rectangle**.



Maths Explorer Example Solution 1B: Secret Number

Cohan, Ivy and Brett have selected a secret number each. The three numbers, not in order, are 15, 9 and 19. Ivy's number comes right before 16. Brett's number is smaller than Cohan's number. What is Cohan's number?

Strategy: Eliminate all but one Possibility

Read each clue in the problem and eliminate any number that can't be Cohan's.

Ivy's number comes right before 16. That's 15. Cohan's number can't be 15.9Next we read that Brett's number is smaller than Cohan's number.9Brett's number must be 9 as it is a smaller number than 19. We can eliminate 9.9

All numbers have been eliminated apart from 19. Therefore Cohan's number is **19.**



Strategy: Build a Table - Draw an Array





Cohan's number is **19.**



Maths Extension Example Solution 1C: Pocket Change

Aliya has 8 coins in her pocket. Each coin is either a 5c coin or a 10c coin. Altogether, they add up to 50 cents. How many 10c coins does Aliya have?

Strategy: Use Concrete Materials

Let's use 5c and 10c coins to model 50c and solve the problem.

We can make 50c with five 10c coins. But we need more coins in our solution. Let's exchange two 10c coins for four 5c coins.



We now have 50c made with seven coins. We need eight coins. Exchange one more 10c coin for two 5c coins.



We now have 50c made up of two 10c coins and six 5c coins. Aliya has **two 10c coins**.

Strategy: Build a Table

We can build a table to show the different totals possible with eight 5c or 10c coins.

No. 10c coins	1	2	3	4	5	6	7	8
No. of 5c coins	7	6	5	4	3	2	1	0
Total Value	45c	50c	65c	60c	65c	70c	75c	80c

The total comes to 50c when there are two 10c coins and six 5c coins.

Aliya has **two 10c coins.**



Maths Extension Example Solution 1D: Balloons

Libby, Otto and Hassan each have a bunch of balloons. Libby gave Otto a black ballon and gave Hassan a spotty balloon. Hassan gave Libby a striped balloon.

Otto gave each child a black balloon. $\frac{2}{2}$

Who has $\frac{2}{3}$ of the black balloons?

Strategy: Build a Table

Libby Otto Hassan

Build a table that includes each child's name and record next to their name the number of black balloons they start with. Include a column for each of the three moves.

- 1) Do any black balloons change hands in the first move? Yes show that Libby gave one to Otto.
- 2) Do any black balloons change hands in the second move? No nothing changes.
- 3) Do any black balloons change hands in the third move? Yes show that Otto gave one to Libby and one to Hassan.

N	Move:		2	2
Libby	1	0	0	1
Otto	1	2	2	0
Hassan	1	1	1	2

There are three black balloons. Libby has one of the three black balloons.

She has $\frac{1}{3}$ of the balloons.

Hassan has two of the three black balloons. **Hassan** has $\frac{2}{3}$ of the black balloons.



Maths Extension Example Solution 1D: Balloons

Libby, Otto and Hassan each have a bunch of balloons. Libby gave Otto a black ballon and gave Hassan a spotty balloon.

Hassan gave Libby a striped balloon. Otto gave each child a black balloon.

Who has $\frac{2}{3}$ of the black balloons?

Strategy: Use Concrete Materials

Let's use sticky notes this time as our tool. Make a sticky note for each balloon.

Check the questions and give each balloon to the correct child.

First, Libby gave Otto a black ballon and gave Hassan a spotty balloon.

Move those sticky notes.

Next, Hassan gave Libby a striped balloon.

Move that sticky note.

Then, Otto gave each child a black balloon.

Move those stick notes.



Otto

There are three black balloons. Libby has one of the three black balloons. She has $\frac{1}{3}$ of the balloons. Hassan has two of the three black balloons. **Hassan** has $\frac{2}{3}$ of the black balloons.

Libby

Hassan



Maths Extension Example Solution 1E: Photo Wall

Mrs Russel has hung four framed photos of her children in a line on the wall. They are hung 20cm apart. The first two frames are 30cm wide. The other two are 50cm wide. How long is the row of photos on the wall?

Strategy: Use Concrete Materials

Let's use coloured counters to model the problem. We can use green counters for the 30cm wide frames, blue for the 50cm wide frames and purple to mark the 20cm space between them.

Start by placing the counters for the frames in a row - two green and two blue.

Now put a purple counter between each frame counter. The purple counters model the distance between each frame.



There are seven counters in our completed row.

We can add them as shown: 30cm + 20cm + 30cm + 20cm + 50cm + 20cm + 50cm = **220cm** Also accept 2m 20cm.

Strategy: Reason Logically

Mrs Russel starts with two 30cm wide frames. Together they are **60cm**.

She also has two 50cm frames. Together they are **100cm**.

Each frame will have a 20cm space following it, expect for the last frame in the row.

This means there will be three 20cm spaces. Together they are 60cm.

We add these to find the total length of the row of picture frames on the wall:

60cm + **100cm** + **60cm** = **220cm**. Also accept 2m 20cm.

Strategy: Draw a Diagram

We can draw a diagram of the photo frames and the spaces between them:



30cm + 20cm + 30cm + 20cm + 50cm + 20cm + 50cm = **220cm.** Also accepts 2m 20cm.