

APSMO

WEDNESDAY 6 MAY 2026

MATHS EXPLORER 1

3 Problems for Everyone

Suggested Time: 15 Minutes

1A. School Camp

25 school children are on a bus on the way to camp.
The children will either sleep in a tent or in a cabin.
At camp, 7 more students will sleep in cabins than in tents.
How many children will sleep in tents?



*Write your
answers in the
boxes on the
back.*



*Keep your
answers hidden
by folding
backwards on
this line.*

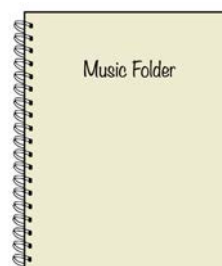
1B. Playing Soccer

Noah invited 6 friends to play soccer.
Each friend invited 2 more players.
Half of those extra players each invited 1 more person.
How many people came to play soccer with Noah?



1C. Decorating with Stickers

Elenor decorated her music folder with stickers.
Her folder is rectangular.
There are 8 stickers on each long side of the folder.
There are 5 stickers on each short side.
Elenor put one sticker in the middle of the folder.
How many stickers did she use?





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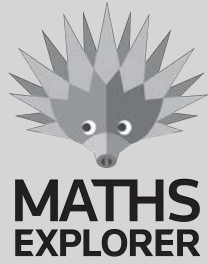
1A.

Student Name:

1B.

1C.

Fold Here. Keep your answers hidden.



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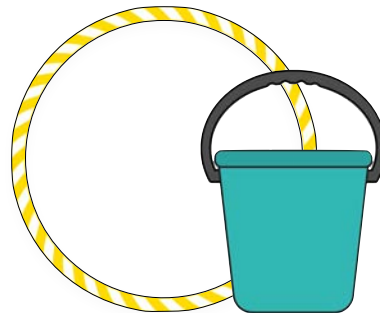
MATHS EXPLORER 1

2 Extension Problems

Suggested Time: 10 Minutes

1D. Hoops and Buckets

Kieran is setting up a game for his class.
He arranges 4 hoops and 2 buckets as targets.
Each bucket is 30cm wide and each hoop is 50cm wide.
He places the hoops and buckets in a row with 10cm between each.
How many centimetres long is the row of hoops and buckets?



*Write your
answers in the
boxes on the
back.*



*Keep your
answers hidden
by folding
backwards on
this line.*

1E. Box of Chocolates

A Strawberry Cream costs \$1.50.
A Caramel Swirl costs half as much as Strawberry Cream.
A Toffee Crunch costs twice as much as a Strawberry Cream.
How much did I pay for the chocolates in this box?



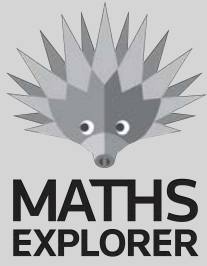
Caramel Swirl



Strawberry Cream



Toffee Crunch



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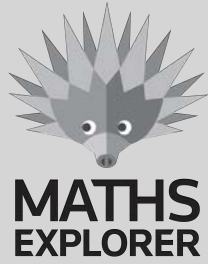
MATHS
EXPLORER
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Student Name:

1D.

Fold Here. Keep your answers hidden.

1E.



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Maths Challenge #1

For distribution **if** a group has **completed** Paper 1 and there is remaining time.
These questions are **not recorded** in the Members' Portal.

Money

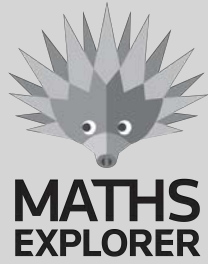
Michael has \$5 less than Samantha.

Samantha has \$10 more than Rob.

Rob has \$15 less than Hailey.

How many more dollars does Hailey have than Michael?

Write your answer in this box.



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MATHS
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Maths Challenge #2

For distribution **if** a group has **completed** Paper 1 and there is remaining time.
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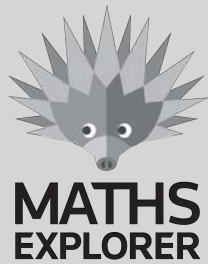
Painting a Classroom

It takes 3 painters 4 hours to paint 1 classroom.

How many hours does it take 1 painter to paint 2 classrooms that are the same size as the first one?

(The painters all paint at the same rate. None of them are faster or slower than the other painters.)

Write your answer in this box.



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MATHS EXPLORER 1

1A: 9

1B: 24

1C: 23

1D: 310 cm

1E: \$12.75

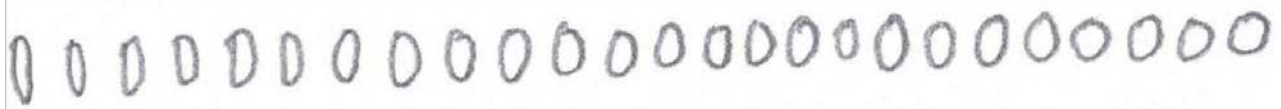
1A. School Camp

25 school children are on a bus on the way to camp.
The children will either sleep in a tent or in a cabin.
At camp, 7 more students will sleep in cabins than in tents.
How many children will sleep in tents?



Strategy: Draw a diagram.

We can draw a diagram and do a 'Greedy Grab' to find how many children sleep in tents.
Start by drawing the 25 children.



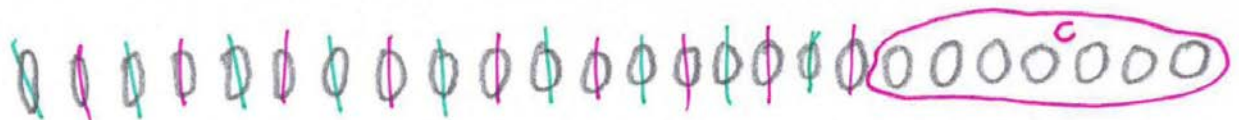
7 more students will be sleeping in cabins than in tents. Do a 'Greedy Grab' of 7 children and mark that they will be sleeping in cabins.



Now the cabins have 7 more children than the tents do. Let's do a fair share of what is left between cabins and tents.



Let's add up how many children in our diagram are sleeping in tents and how many are sleeping in cabins.



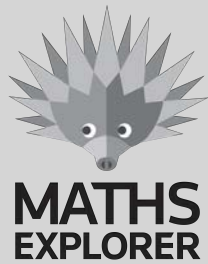
$9 = 9$	$16 = 16$	$16 + 9 = 25$
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Our diagram shows that 16 children will sleep in cabins and 9 children will sleep in tents.

Let's check that these numbers add up to 25 and that 16 is 7 more than 9.

$16 + 9 = 25$ and $16 - 9 = 7$.

We have proved that 9 children will sleep in tents.



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1B. Playing Soccer

Noah invited 6 friends to play soccer.
Each friend invited 2 more players.
Half of those extra players each invited 1 more person.
How many people came to play soccer with Noah?



Strategy: Draw a diagram.

We can solve this problem by drawing a branching diagram.

We can track who invited who to play soccer, and identify how many people came to play with Noah.

Noah is in the middle of the diagram. He invited 6 friends to play soccer.

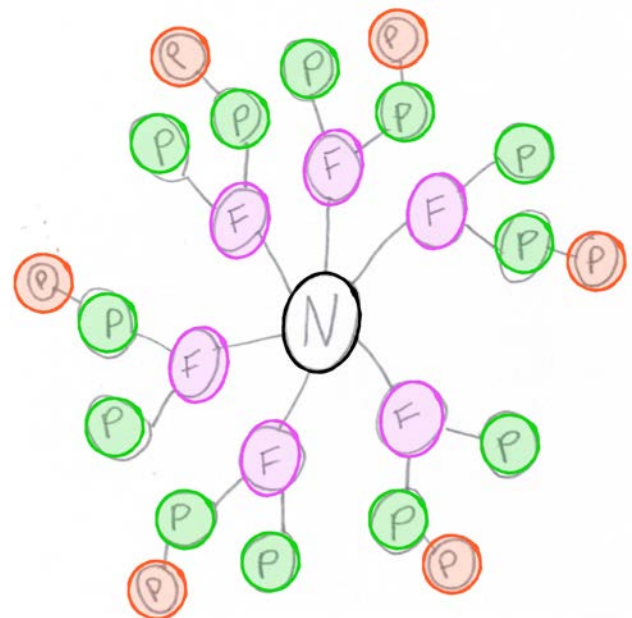
Show this step by linking Noah to 6 friends.

Each friend invited 2 more players. Link 2 players to each friend. 12 new people are now included in the diagram.

Half of these 12 players each invited one more person. This means there are 6 more players to include in the diagram, linked to the 12 players.

No more people are invited. We can add the groups to see how many come to play soccer with Noah:

6 friends + 12 more players + 6 more people
= 24 people came to play soccer with Noah.

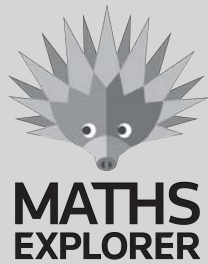


Strategy: Build a table.

We can build a table to list and count the number of people invited to the netball game.

Step 1: Noah invited:												Tally
Friend	Friend	Friend	Friend	Friend	Friend	Friend	Friend	Friend	Friend	Friend	Friend	6
Step 2: Each friend invited 2 more players:												
Player	Player	Player	Player	Player	Player	Player	Player	Player	Player	Player	Player	12
Step 3: Half of these extra players invited 1 more person.												
Person		Person		Person		Person		Person		Person		6
Total:												24

Altogether, 24 came to play soccer with Noah.



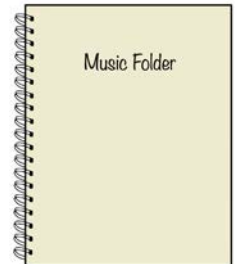
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MATHS EXPLORER 1

1C. Decorating with Stickers

Elenor decorated her music folder with stickers.
 Her folder is rectangular.
 There are 8 stickers on each long side of the folder.
 There are 5 stickers on each short side.
 Elenor put one sticker in the middle of the folder.
 How many stickers did she use?



Strategy: Draw a diagram.

Draw a rectangle and put 8 stickers (spots) down each long side.

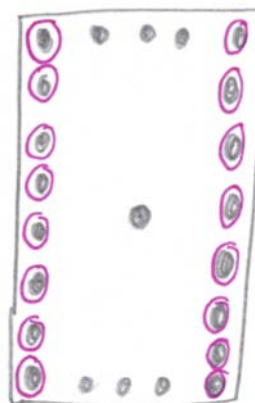


Add 3 stickers to the short sides so they each have a total of 5, and 1 in the middle.



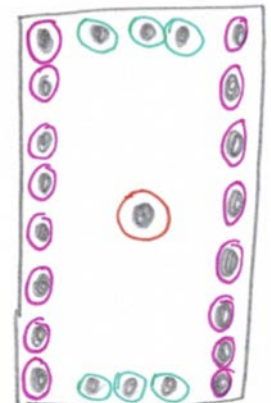
Count the stickers that are on the long sides:

$$8 + 8$$



Count the stickers that were added to the short sides and the middle:

$$3 + 3 + 1$$



Add together all the stickers to find how many Elenor used: $8 + 8 + 3 + 3 + 1 = 23$ stickers.

Strategy: Build a table.

We can build a table to track how many stickers there are on the folder.

In corners:	4
2 long sides:	16
2 short sides:	10
In the middle:	1
Total:	31

We need to take care not to count stickers **twice**. Corner stickers are a part of each side.

In corners:	4
2 long sides:	16 - 4
2 short sides:	10 - 4
In the middle:	1
Total:	

We can now correctly count the number of stickers on the music folder.

$$4 + 12 + 6 + 1 = 23 \text{ stickers.}$$

Corner stickers:	4
Stickers not yet counted on long sides:	12
Stickers not yet counted on short sides:	6
Stickers not yet counted in the middle:	1
Total:	23



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MATHS EXPLORER 1

1D. Hoops and Buckets

Kieran is setting up a game for his class. He arranges 4 hoops and 2 buckets as targets. Each bucket is 30 cm wide and each hoop is 50 cm wide. He places the hoops and buckets in a row with 10 cm between each. How many centimetres long is the row of hoops and buckets?

Strategy: Draw a diagram.

Draw a diagram that includes 4 hoops and 2 buckets. It doesn't matter what order they are in. The order won't change the length of the row.

Annotate the diagram, noting down how wide each hoop and bucket is, and recording the space between each target in the row.

Draw lines to connect all the hoops and find out how wide they are:

$$50\text{ cm} + 50\text{ cm} + 50\text{ cm} + 50\text{ cm} = 200\text{ cm}$$

Do the same for the buckets:

$$30\text{ cm} + 30\text{ cm} = 60\text{ cm}$$

Finally, draw lines to connect all the spaces and find out how wide they are:

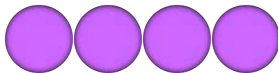
$$10\text{ cm} + 10\text{ cm} + 10\text{ cm} + 10\text{ cm} + 10\text{ cm} = 50\text{ cm}$$

The row is $200\text{ cm} + 60\text{ cm} + 50\text{ cm} = 310\text{ cm}$ long.

Strategy: Use concrete materials.

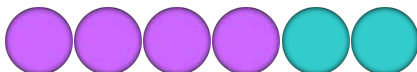
We can use counters to model the problem. 50 cm hoops can be purple, 30 cm buckets can be green and 10 cm spaces can be orange.

Start with 4 purple counters (hoops) in a row.



$$50\text{ cm} + 50\text{ cm} + 50\text{ cm} + 50\text{ cm} = 200\text{ cm}$$

Add 2 green counters (buckets) to the row.



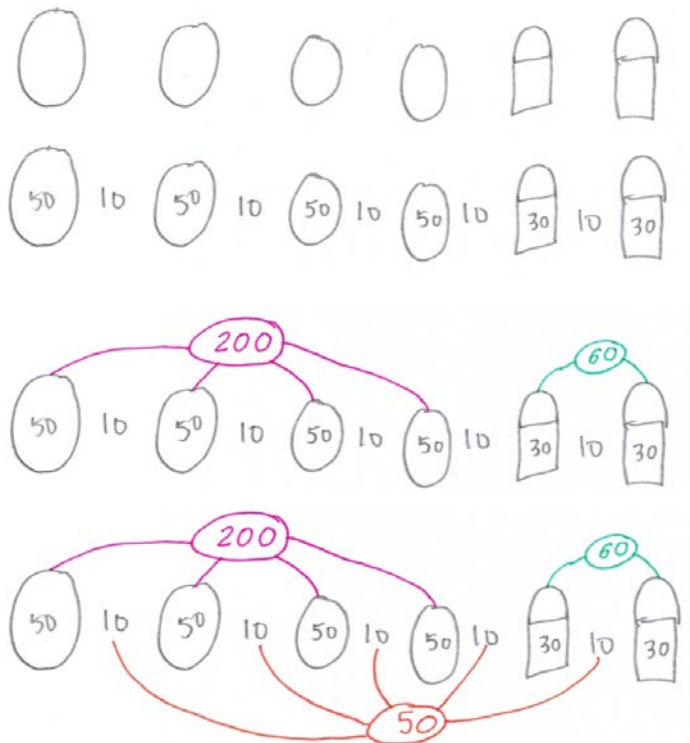
$$200\text{ cm} + 30\text{ cm} + 30\text{ cm} = 260\text{ cm}$$

Next, put an orange counter (a space) between each counter to complete the row.



$$260\text{ cm} + 10\text{ cm} + 10\text{ cm} + 10\text{ cm} + 10\text{ cm} = 310\text{ cm}$$

The row is **310 cm** long.





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MATHS EXPLORER 1

1E. Box of Chocolates

A Strawberry Cream costs \$1.50. A Caramel Swirl costs half as much as Strawberry Cream. A Toffee Crunch costs twice as much as a Strawberry Cream.

How much did I pay for the chocolates in this box?



Strategy: Draw a diagram.

Refer to the diagram in the problem and draw each of the chocolates included in the box.

Group the Caramel Swirls and record that they are half the cost of a Strawberry Cream. Do the same for the Toffee Crunch, recording that they cost twice as much as a Strawberry Cream.

Strawberry Creams cost \$1.50 each. Show this on the diagram. As Caramel Swirls are half this price, each must cost \$0.75.

Toffee Crunch chocolates are twice the price of a Strawberry Cream, \$3.

Finally, draw lines to connect each type of chocolate and find out how much they cost:

$$\$1.50 + \$1.50 + \$1.50 = \$4.50$$

$$75c + 75c + 75c = \$2.25$$

$$\$3 + \$3 = \$6$$

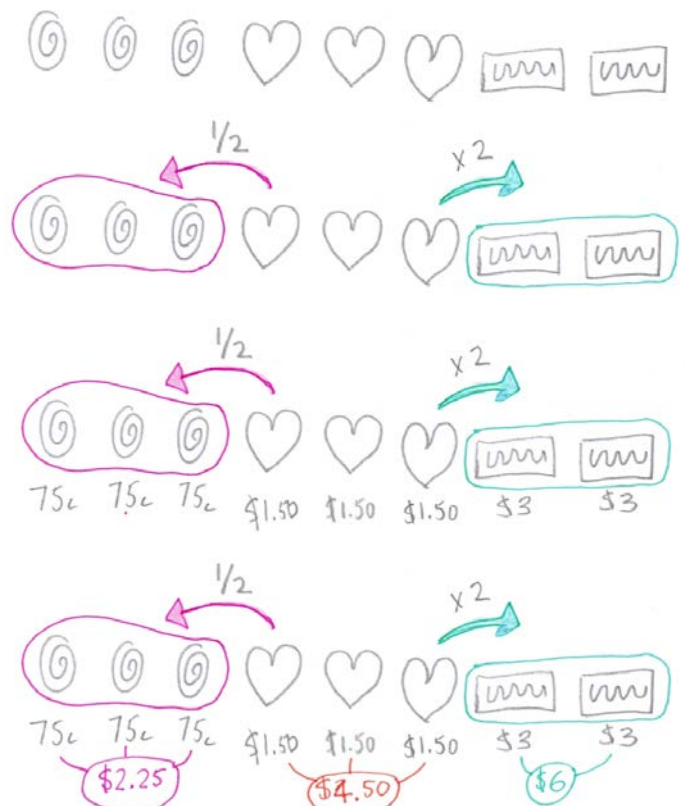
Altogether, the chocolates in the box cost $\$4.50 + \$2.25 + \$6 = \12.75

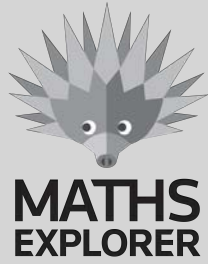
Strategy: Build a table.

We can build a table to record the cost of each chocolate.

	Price:	Quantity:	Sub Total:
Strawberry Cream	\$1.50	3	\$4.50
Caramel Swirl	\$0.75	3	\$2.25
Toffee Crunch	\$3	2	\$6
Total:			\$12.75

Altogether, the chocolates in the box cost $\$4.50 + \$2.25 + \$6 = \12.75





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MATHS EXPLORER 1

Maths Challenge #1

For distribution **if** a group has **completed** Paper 4 and there is remaining time.
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Solution: Hailey has \$10 more than Michael

Draw a diagram:

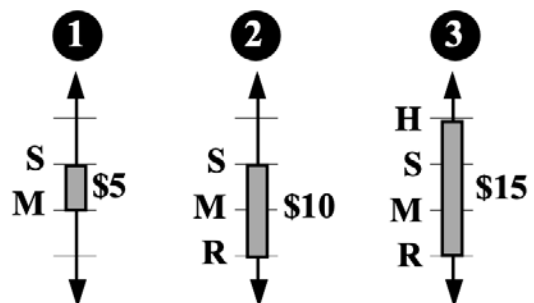
We can draw a diagram to compare the different amounts of money each person has.

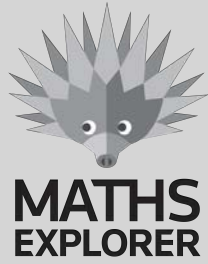
In this diagram, it is helpful to represent each person by using their initial, making it easier to keep track of everyone involved.

Next, arrange the initials in your diagram by ranking them in order, placing the person with the most money at the very top and the person with the least amount of money at the bottom, so the order is clear and easy to follow.

As you compare how much money people have, record the difference on your diagram until you can compare Hailey and Michael.

- 1 Michael has \$5 less than Samantha.
- 2 Samantha has \$10 more than Rob.
- 3 Rob has \$15 less than Hailey.





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Maths Challenge #2

For distribution **if** a group has **completed** Paper 4 and there is remaining time.
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Solution: 1 painter needs 24 hours to paint the 2 classrooms.

Draw a diagram:

In each picture, a small square represents 1 painter working for 1 hour.

The first picture shows 3 painters (rows) needing 4 hours (columns) to paint 1 classroom.

The next picture shows 3 painters painting 2 classrooms, with twice as many squares (double the columns) to represent the increased time needed.

The third picture rearranges the squares into 1 column (1 painter), showing that 1 painter needs 24 hours to paint 2 classrooms.

1 classroom

