MATHS GAMES

Preparation Task 2

A) Natalie and Polly are working on the following problem.

Natalie solves the problem correctly by drawing all of the people in the line.
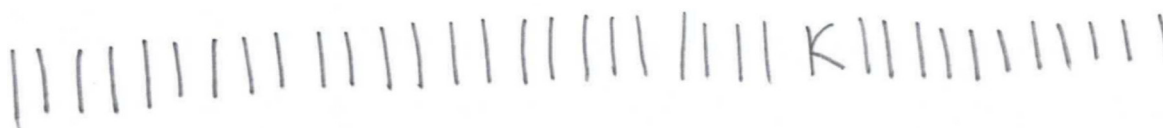
There are **36 people** in the line.

> **Kim stands in a line of people.**
>
> **She is the 25th person counting from the front of the line.**
>
> **She is the 12th person counting from the rear.**
>
> **How many people are in the line?**

B) Polly and two other students in their class also created diagrams to solve the problem.

In their diagrams, they didn't include a mark for every person in the line.

| Polly's diagram | Chloe's diagram | Yinchen's diagram |
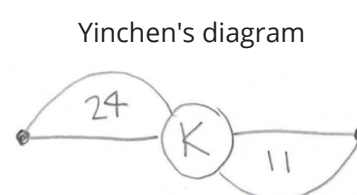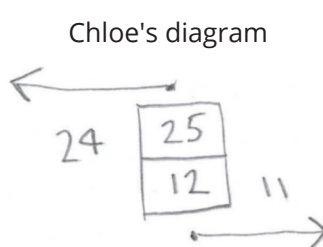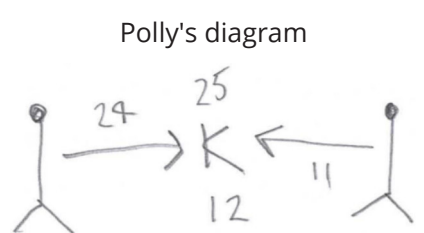
Discuss and **compare** the diagrams.

Select the one that you think does the best job of showing the information.

Describe how it helps to solve the problem.

Polly thinks collecting different results in a table might help her to find a pattern, so she builds this table.

People in front of Kim	1	2	2		
People behind Kim	2	2	4		
Total People in line	4	5	7		

"I can see a **pattern**," says Polly.

"If there were **55** people in front of Kim and **6000** behind, I could calculate how many people were in the line without using a diagram."

Look carefully at the information in the table. Consider how the total number of people in line relates to the number in front of Kim and behind Kim. Can you write this pattern as a rule?

If you can, **use this pattern** to answer the problem Polly says she could solve.

Set Green

P.1)   Holly had some pencils.

She gave two of her pencils to her little sister.

Holly's little sister then had twice as many pencils as Holly.

How many pencils did Holly have to begin with?

P.2)   Gina is taller than Henry.

Gina is shorter than Jennie.

Ivan is shorter than Gina.

Ivan is taller than Katie.

Who is the tallest of these five people?

P.3)   My book is open. I see two pages.

The sum of the page numbers is 45.

What is the next page number?

P.4)   To send a package overseas, I affixed seven stamps, to give a total of $11 postage.

I only used $1 and $2 stamps.

How many $2 stamps did I use?

Preparation Task 3

A) Tom and Patrick are working together to solve this problem.

Tom says, "The Reds must have scored more than **22**."

Discuss Tom's claim with your partner and see if you can **uncover** what Tom has realised.

Write an **explanation** of Tom's reasoning.

> The Reds beat the Blues in a football game.
>
> The sum of their scores was 44.
>
> The difference of their scores was 20.
>
> How many points did the Blues score?

B) Tom says, "If the Reds scored **23**, then the Blues would have scored **21**."

Patrick says, "If the Reds scored **23**, then the Blues would have scored **3**."

Identify the clue from the problem that each child is using to support their claim.

Tom is using clue _____

Patrick is using clue _____

The Blues **can't** have scored **21** at the same time they scored **3**.

The boys need to find scores that fit both **criteria**.

C) Patrick says, "I'm going to build a table to keep track of what the scores might be. We have to make sure that the difference is always correct - that the Reds always score **20** more than the Blues."

R			25	26	27					
B (20 less)			5	6	7					
Total			30	32	34					

Patrick soon stopped adding scores.

"I can see that the Reds score will be more than **30**, so I'm jumping over some numbers, starting again at **31**," he said.

Complete the table for Patrick, starting at **31**.

Record how many points the Blues scored. _____

Tom replied, "Actually, I can see a pattern in the table. We can follow it to work out what Blues scored."

Look for the pattern that Tom can see.

Describe how to apply the rule to **44** to find out what the Blues scored.

Set Orange

P.1) If 16 is added to one-third of a number, the result is three times the number.

What is the number?

P.2) Points *A*, *B*, *C* and *D* are on a line.

They are not necessarily in that order.

Point *A* is between *B* and *C*.

Point *B* is between *A* and *D*.

Point *D* is to the left of point *C*.

List the points in order from left to right.

P.3) I have 45 bricks in six stacks, all in a row.

Going from left to right, each stack is one brick taller than the previous stack.
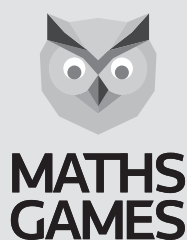
How many bricks are in the smallest stack?

P.4) After returning from a holiday to the USA, Megan has some American coins:

- 25c coins (quarters) and
- 10c coins (dimes),

with a total value of $1.95.

How many different combinations of 25c coins and 10c coins are there, that would have a total value of $1.95?

*Suggested Time: **30 Minutes***

A. What is the value of the following?

$$(7 \times 6) + (3 \times 6) + (7 \times 4) + (3 \times 4)$$

B. Barry is 8 years older than Harry.

The sum of their ages is 34.

How old is Harry?

C. Tim's wallet has four cards in a stack.

His ID card is above his library card.

He has his library card between his bank card and his travel pass.

His travel pass is between his ID card and his bank card.

Which card is at the bottom of the stack?

D. Jemima, Beatrix and Kahlee all brought muesli bars for a camping trip.

Jemima brought half as many as Beatrix.

Kahlee brought three more than Beatrix.

All together, they brought 23 muesli bars.

How many muesli bars did Jemima bring?

E. It takes three strokes to write a letter H.

It takes two strokes to write a letter T.

Gwen tossed a coin 20 times.

She wrote H every time the coin landed with Heads up, and T every time the coin landed with Tails up.

She ended up with 47 strokes on the paper.

How many times did the coin land with Heads showing?

Answers

Set Green		Preparation Tasks		Set Orange	
P.1	3	**1**	14	**P.1**	6
P.2	Jennifer	**2**	36	**P.2**	*D, B, A, C*
P.3	24	**3**	12	**P.3**	5
P.4	4	**4**	80	**P.4**	4

A: 100	**B:** 13	**C:** Bank Card	**D:** 4	**E:** 7