RICH MATHEMATICAL TASK BOOKLET

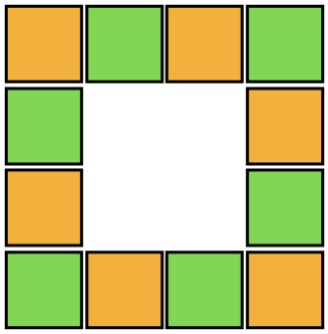
# ALGEBRA

## YEAR 2

## Copy Masters

## Task 1

Tatiana is making a border for her picture frame with squares. This is her first frame:



Copy the pattern using the cubes.

Draw the pattern.

What is the unit of repeat?

Tatiana makes another pattern using squares:

Copy the pattern using the cubes.

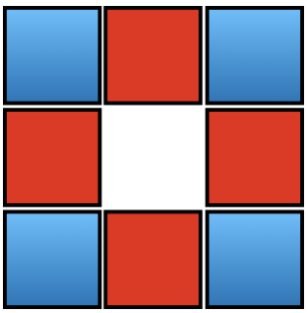
Draw the pattern.

What is the unit of repeat?

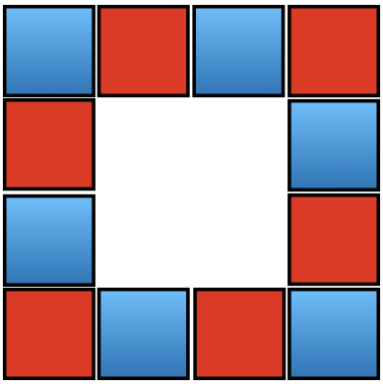
What do you notice?

## Task 1 (continued)

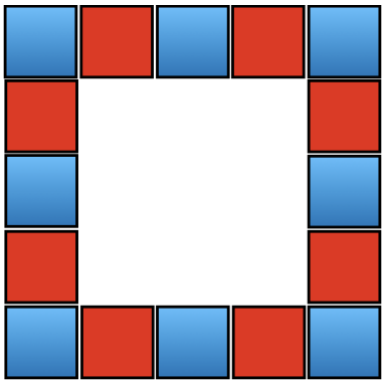
Help Tatiana by using the same pattern for the picture borders below:



Copy the pattern using the cubes.

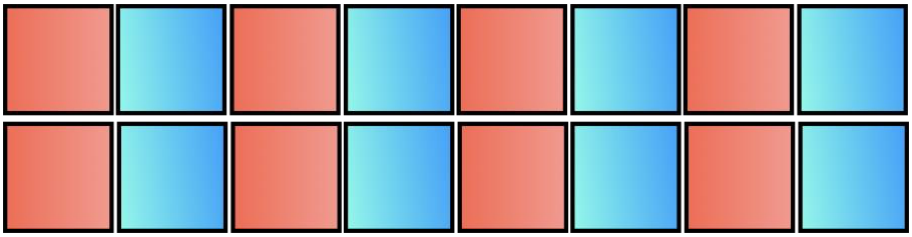


Copy the pattern using the cubes.



Copy the pattern using the cubes.

## Task 1 (independent)



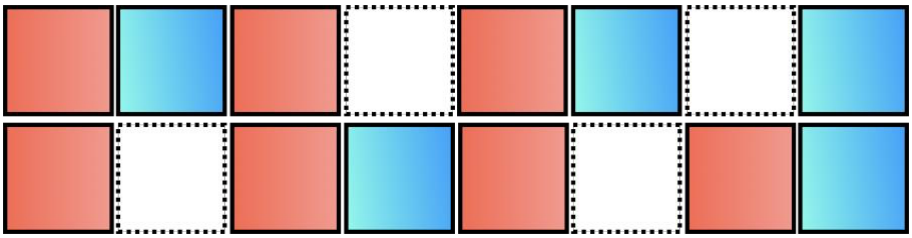
Copy the pattern.

What is the unit of repeat? Circle this.

How many blocks are there altogether?

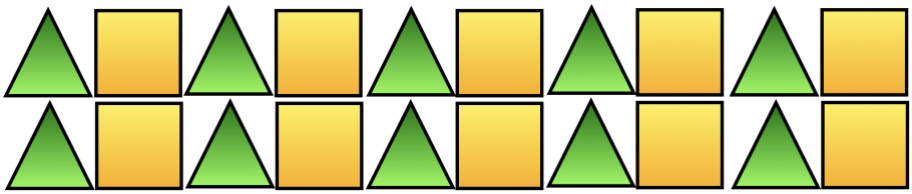
How many pink blocks?

How many blue blocks?



Draw the missing blocks.

## Task 1 (independent – continued)



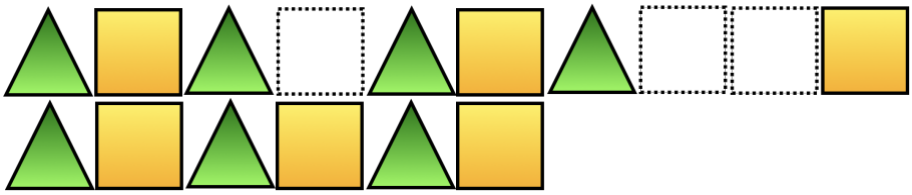
Copy the pattern.

What is the unit of repeat? Circle this.

How many shapes are there altogether?

How many triangles?

How many squares?



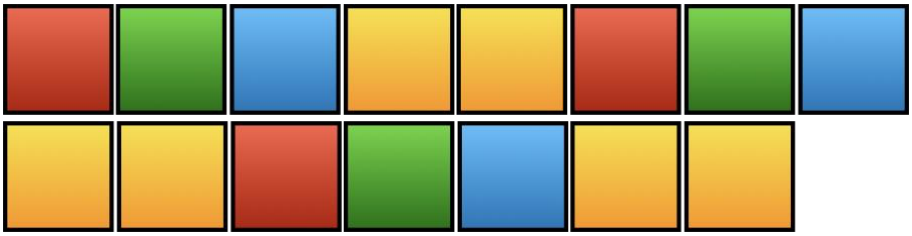
Draw the missing shapes.

Make your own pattern.

What is the unit of repeat for your pattern?

## Task 2

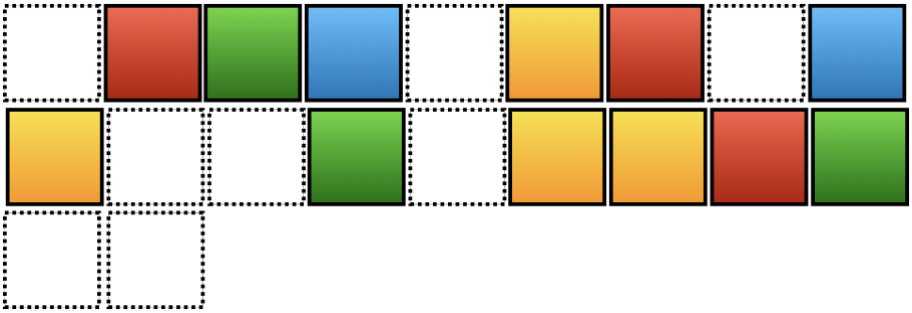
Tane is making a snake with cubes. This is his first snake:



Copy the pattern.

What is the unit of repeat? How many cubes in the unit of repeat? How many cubes are there altogether?

Draw a picture of the snake and colour it.



What colours would the missing cubes be?

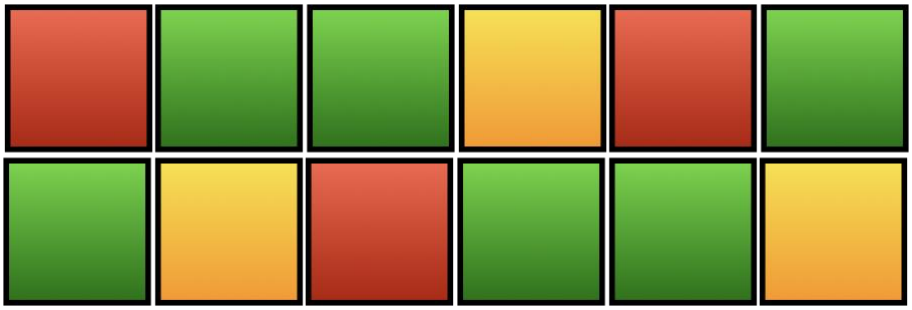
Tane continues making his pattern.

What colour would the 24th block be?

What colour would the 30th block be?

What colour would the 101st block be?

## Task 2 (independent)



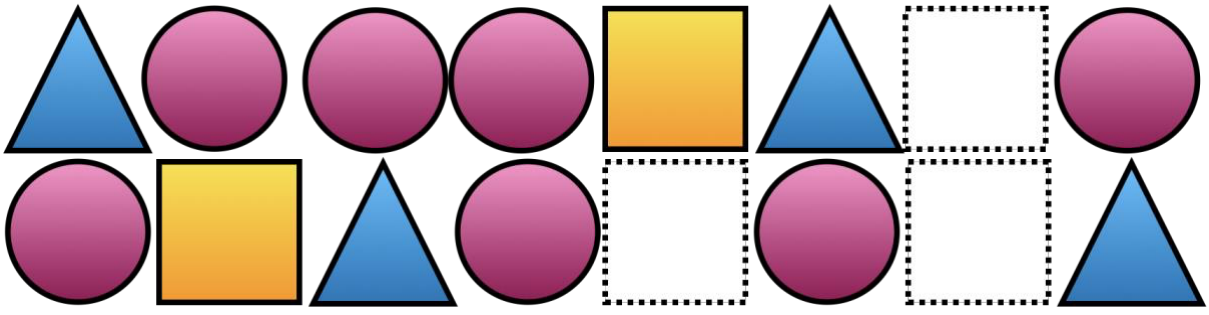
Copy the pattern.

What is the unit of repeat? Circle this.

Use the equipment to make a second snake that matches but uses different colours. Extend this by one unit of repeat.

Use the equipment to make another pattern that matches and extend this by one unit of repeat.

Make another pattern that matches using sounds or actions and extend this by one unit of repeat.



Draw the missing shapes.

Make your own pattern.

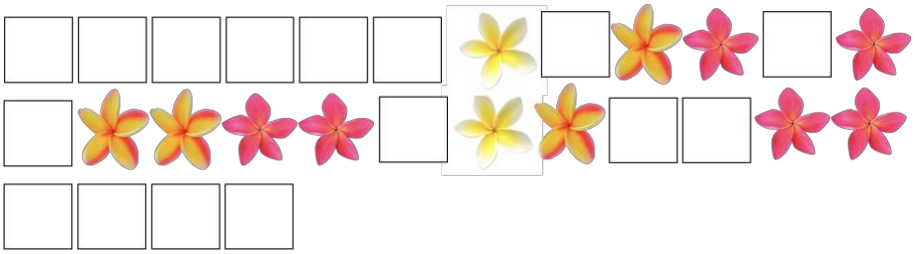
What is the unit of repeat for your pattern?

## Task 3

Anshuma is helping to make mala for her cousin's wedding. Each garland uses the following pattern:

Use the picture cards to copy the pattern.

What is the unit of repeat?



Draw the missing flowers.

What colour would the 20th flower be?

What colour would the 24th flower be?

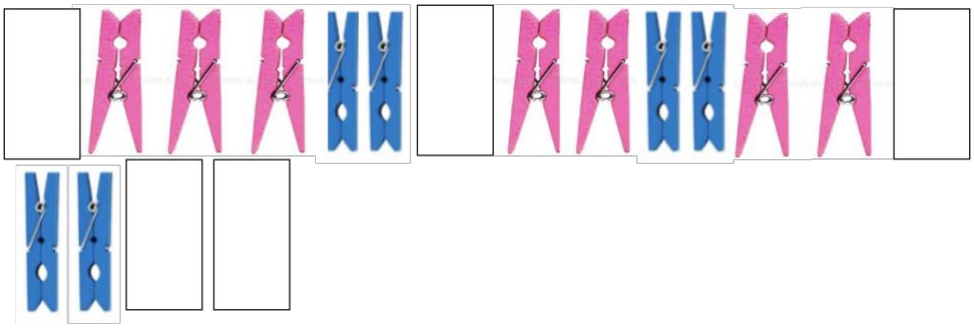
What colour would the 30th flower be?

## Task 3 (independent)

Hamuera is playing with the washing pegs and makes this pattern:

Use the picture cards to copy the pattern.

What is the unit of repeat?



Draw the missing pegs.

Hamuera continues the pattern using the pegs.

What colour would the 21st peg be?

What colour would the 40th peg be?

What colour would the 45th peg be?

Use different material and make the same pattern.

## Task 4

Kiriwai is looking at the piwakawaka in her garden.

She decides to count all the tails for the piwakawaka that she sees.

If there was one piwakawaka, how many tails would there be?

If there was two piwakawaka?

If there was four piwakawaka?

She decides to count all the eyes for the piwakawaka that she sees.

If there was one piwakawaka, how many eyes would there be?

If there was two piwakawaka?

If there was four piwakawaka?

Now she decides to count all the eyes and tails for the piwakawaka that she sees.

If there was one piwakawaka, how many eyes and tails would there be?

If there was two piwakawaka?

If there was four piwakawaka?

## Task 4 (continued)

Complete the table:

| Number of piwakawaka | Tails | Eyes | Tails and eyes |
|---|---|---|---|
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| 6 | | | |
| 7 | | | |
| 8 | | | |

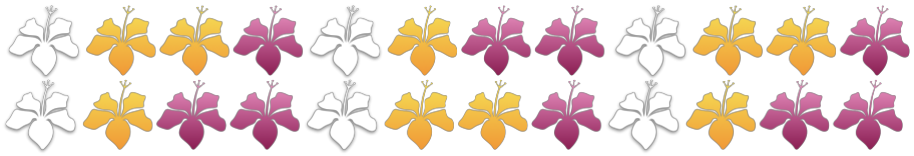
What if there was 20 piwakawaka, how many eyes and tails would there be? How many eyes and tails would there be altogether?

What if there was 50 piwakawaka, how many eyes and tails would there be? How many eyes and tails would there be altogether?

Find three patterns across the table and three patterns down the table.

## Task 4 (independent)

Anshuma is helping to make mala for her cousin's wedding. Each garland uses the following pattern:



Use the picture cards to copy the pattern.

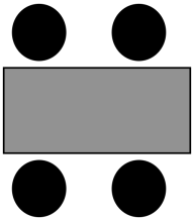
What is the unit of repeat?

Draw the missing flowers.

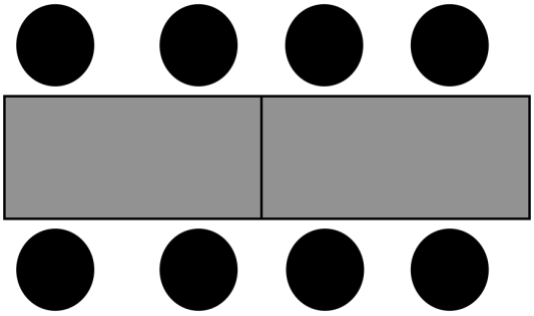
Use different material and make the same pattern.

## Task 5

Abraham is arranging tables for his birthday lunch. He can fit 4 friends around one table:



When he has two tables, he can fit 8 friends:



How many friends could fit if he has 3 tables?

How many friends could fit if he has 5 tables?

Complete the table:

| Number of tables | Number of friends |
|---|---|
| 1 | |
| 2 | |
| 3 | |
| 4 | |
| 5 | |
| 8 | |
| | 40 |
| 20 | |
| | 100 |

## Task 5 (independent)

Roman sees some children riding tricycles at the park.

He decides to count the number of wheels and children that he sees.

Complete the table:

| Number of tricycles | Wheels | Children | Wheels and children |
|---|---|---|---|
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |

Write three patterns that you notice going down.

Write three patterns that you notice going across.

How many wheels and children would there be for 10 tricycles?

*Year 2: Number and Algebra: Patterns and Relationships*

## Task 6

Mereana is making an ‘ei katu with leaves and flowers

She is making this pattern:

Complete the table below:

| Number of units of repeat | Yellow flowers | Pink flowers | Total number of flowers | Grass |
|---|---|---|---|---|
| 1 | | | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| | | 10 | | |
| | | | | 6 |
| | | | 14 | |
| 8 | | | | |

## Task 6 (continued)

If there is 20 pink flowers, how many yellow flowers will there be? How many flowers in total? How many pieces of grass?

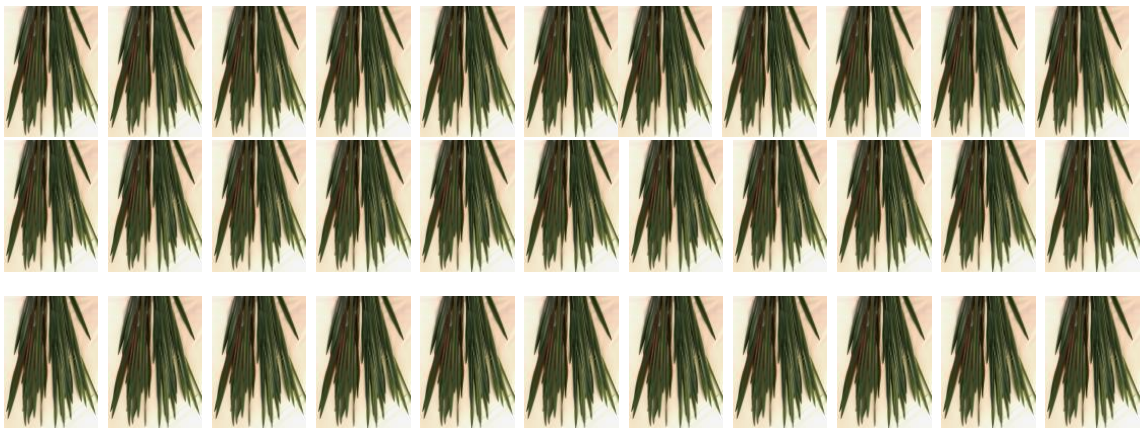
If there is 12 pieces of grass, how many pink flowers will there be? How many yellow flowers will there be? How many flowers in total?

If there is 80 flowers in total, how many pink flowers will there be? How many yellow flowers will there be? How many pieces of grass?

What patterns do you notice in the table?

*Year 2: Number and Algebra: Patterns and Relationships*

# Task 6 (resources)



## Task 6 (independent)

Mereana is making an ‘ei katu with leaves and flowers

She is making this pattern:

Use the picture cards to copy the pattern.

What is the unit of repeat?

Represent the pattern using letters or shapes.

Complete the table below:

| Number of units of repeat | Yellow flowers | Pink flowers | Total number of flowers |
|---|---|---|---|
| 1 | | | |
| 2 | | | |
| 3 | | | |
| | | 8 | |
| | 15 | | |
| 6 | | | |
| 7 | | | |
| 8 | | | |

## Task 6 (independent – continued)

How many units of repeat would there be if there were 50 flowers in total?

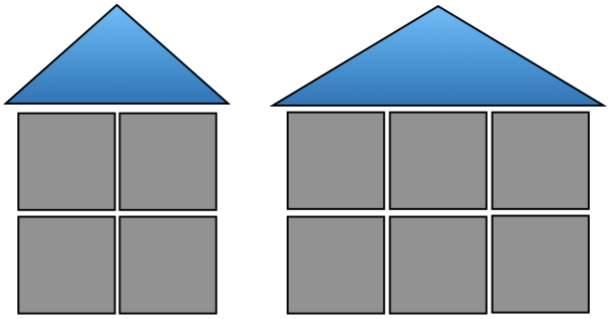
If there are 12 units of repeat, how many yellow flowers will there be? How many pink flowers will there be? How many flowers altogether?

If there are 20 units of repeat, how many yellow flowers will there be? How many pink flowers will there be? How many flowers altogether?

What patterns do you notice in the table?

## Task 7

Jonah is using the shape blocks to build houses.




Use the picture cards and draw to show House 1.

What might House 4 look like? What about House 5?

Can you draw these patterns?

Can you draw what House 10 would look like?

Can you describe in words what House 20 would look like?

## Task 7 (independent)

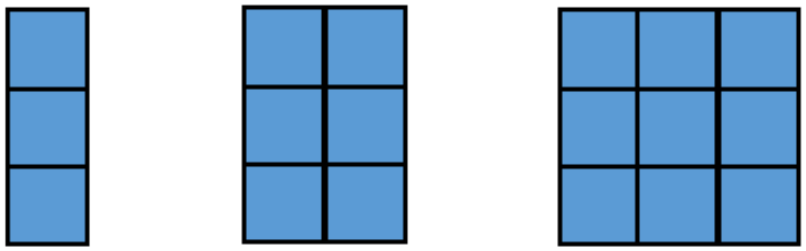
Copy the pattern using the shapes cards.

Draw the pattern.

Draw what the pattern would look like for pattern 6.

Draw what the pattern would look like for pattern 9.

Describe what the pattern would look like for pattern 20.



Copy the pattern using the shapes cards.

Draw the pattern.

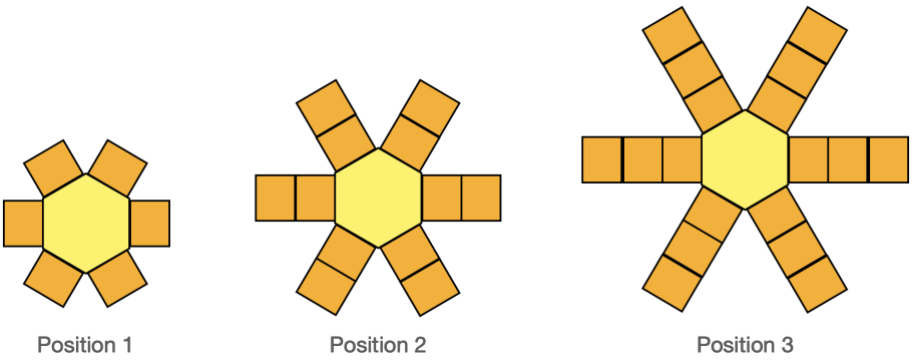
Draw what the pattern would look like for pattern 5.

Draw what the pattern would look like for pattern 10.

Describe what the pattern would look like for pattern 20.

## Task 8

This is my flower pattern:




Copy the pattern using the shape cards.

What might Position 4 look like?

Complete the table:

| Position number | Hexagon | Squares | Total number of shapes |
|---|---|---|---|
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| 6 | | | |
| 10 | | | |
| 20 | | | |

## Task 8 (independent)

Leilani is building a Lego tower:

What is the unit of repeat?

What colour would the 30th brick be?

What colour would the 52nd brick be?

Complete the table.

| Number of units of repeat | Red bricks | Blue bricks | Yellow bricks | Green bricks | Total number of bricks |
|---|---|---|---|---|---|
| 1 | | | | | |
| 2 | | | | | |
| 3 | | | | | |
| 4 | | | | | |
| 5 | | | | | |
| | | | | | 30 |
| | | 7 | | | |
| 8 | | | | | |

What patterns do you notice in the table?

## Task 9

At Te Oro the Siva Samoa group is learning a maulu'ulu. As part of the dance, they used these movements:

tap, tap, tap, tap, arm, arm, arm, clap

They repeat these moves lots of times throughout the dance.

If they repeat the moves two times, how many taps would there be? How many arms would there be? How many claps would there be?

## Task 9 (continued)

Complete the table below:

| Number of movement sequence | Tap | Arm | Clap |
|---|---|---|---|
| 1 | | | |
| | | | 2 |
| | | 9 | |
| | 16 | | |
| 5 | | | |
| | | | 6 |
| 7 | | | |
| | | 24 | |

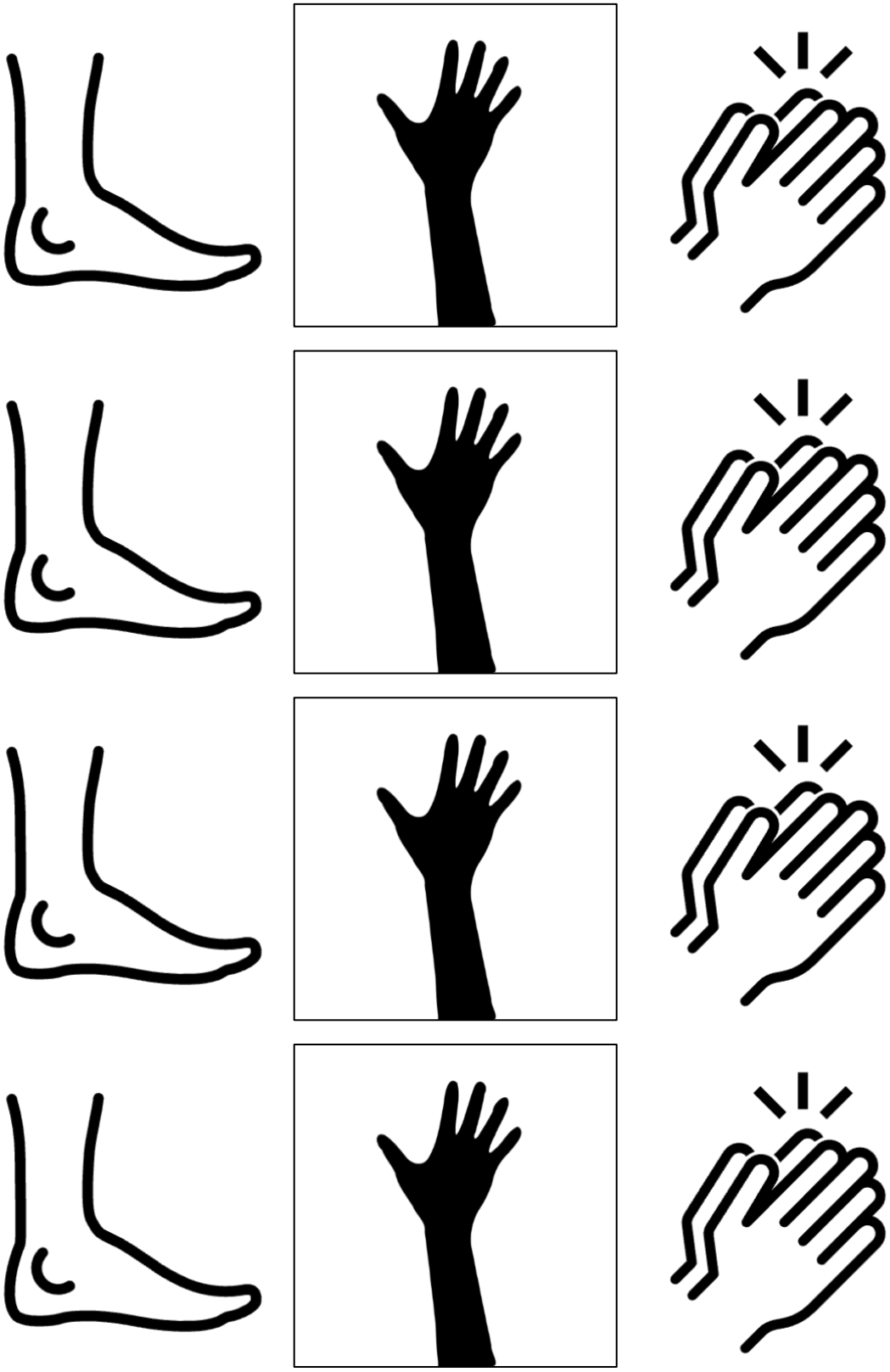
If there is 40 taps, how many arms will there be? How many claps will there be?

If there is 12 movement sequences, how many taps will there be? How many arms will there be? How many claps will there be?

If there is 20 taps, how many arms will there be? How many claps will there be? What movement sequence will this be?

*Year 2: Number and Algebra: Patterns and Relationships*

# Task 9 (action cards)



## Task 9 (independent)

Karlos is eating M & Ms. He like to eat his two favourite colours in a pattern:

Complete the table below:

| Number of units of repeat | Blue M & Ms | Red M & Ms | Total number of M & Ms |
|---|---|---|---|
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |

What patterns do you notice in the table?

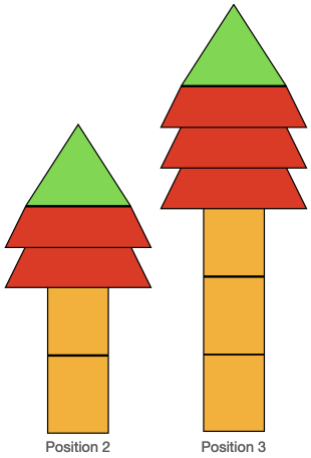
What rule could you use to find the number of blue M & Ms?

What rule could you use to find the number of red M & Ms?

What rule could you use to find the total number of M & Ms?

## Task 10

This is my tree pattern:




Copy the pattern using the shape cards.

Build and draw Position 1.

Build and draw Position 5.

Build and draw Position 8.

Describe what Position 10 would look like.

How many shapes would you need for Position 10?