RICH MATHEMATICAL TASK BOOKLET

ALGEBRA

YEAR 0

Teacher Booklet

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Task 1

Marise likes to eat her jellybeans like this:

Use the jellybeans to copy how Marise eats them.

Draw the jellybeans and colour them in. What is the unit of repeat?

How many jellybeans did she eat? How many red jellybeans? How many blue jellybeans?

What colours would the missing jellybeans be?

Teacher Notes

Have plastic jellybeans, counters, shapes, and teddy-bears, available.

If students have difficulty making the pattern, support them to notice by putting their pattern next to a picture of the correct pattern and ask them to identify what is the same and what is different.

Facilitate the students to notice the pattern is made of chunks (unit of repeat). This could be linked to multiplication when identifying the number of elements in the pattern. Introduce the term unit of repeat to the students.

Support the students to use the unit of repeat and grouping to work out the number of jellybeans rather than counting individually.

After students have drawn the jellybean pattern, ask them to circle the unit of repeat or chunks of the pattern. Support students to notice that each unit of repeat should be the same and all jellybeans should be included.

For the independent task, provide students with material to make repeating patterns.

Big Ideas

Patterns are sequences (repeating or growing) made of numeric or spatial elements governed by a rule.

Patterns exist both in the world and in mathematics. The same pattern structure can be found in many different forms (e.g., numbers, shapes, colours, and rhythm).

A pattern can be described using a rule or you can create a pattern from a rule. To find the rule for a pattern, you need to identify the unit of the pattern (what is repeated or what grows).

Identifying the rule of a pattern brings predictability and allows generalisations to be developed.

Shareback

Select students to share who can recognise and explain the ABABAB structure of the unit of repeat. Facilitate students to notice this pattern structure and use this to solve the questions.

Connect

Ask students to make the same pattern sequence using different materials. Give them concrete material (e.g., counters, shapes, teddy-bears, etc) and ask them to build two different versions. Then ask them to create the same pattern using either sound or actions.

Suggested Learning Outcomes

Reproduce a pattern using objects, drawings, or symbols.

Continue patterns.

Explain and justify the pattern in relation to ordinal aspects of counting.

Explain that a pattern has consistency.

Independent Tasks

Copy the pattern.

What is the unit of repeat? Circle this.

How many blocks are there altogether?
How many yellow blocks?
How many green blocks?

Draw the missing blocks.

Curriculum Links

Copy, continue, create and describe a repeating pattern with two elements.

Mathematical Language

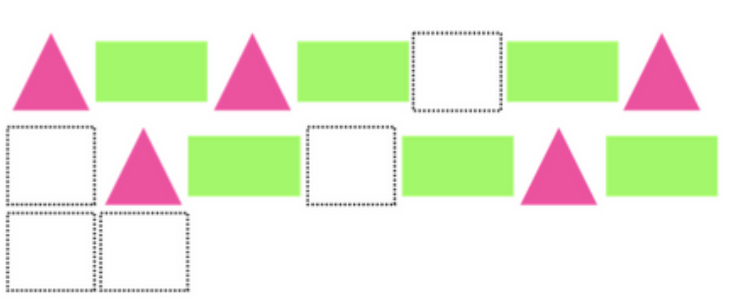
Unit of repeat, pattern, sequence.

Independent Tasks

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?

Anticipations

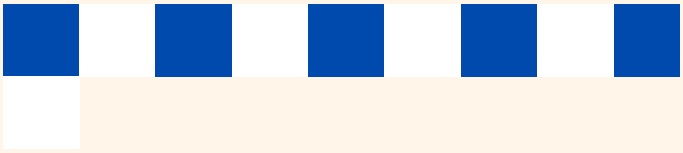
Solutions, Misconceptions

Task 2

Kaiser likes making trains with cubes. This is his first train:

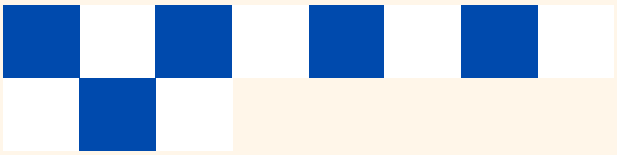
Copy the pattern.
Represent the train using letters and circle the unit of repeat.
How many cubes in his first train?

This is his second train:



How many cubes in his second train?

This is his third train:



Copy the pattern.
Represent the train using letters and circle the unit of repeat.

How many cubes in his third train?

Teacher Notes

Have cubes or multi-link cubes, and a hundred board.

If students have difficulty making the pattern, support them to notice by putting their pattern next to a picture of the correct pattern and ask them to identify what is the same and what is different.

Facilitate the students to use the term unit of repeat or chunks. Support students to notice that each unit of repeat should be the same and all cubes should be included.

Expect students to represent using numbers and words and help them make links to multiplication.

For the independent task, have cubes or multi-link cubes available.

Big Ideas

Patterns are sequences (repeating or growing) made of numeric or spatial elements governed by a rule.

Patterns exist both in the world and in mathematics. The same pattern structure can be found in many different forms (e.g., numbers, shapes, colours, and rhythm).

A pattern can be described using a rule or you can create a pattern from a rule. To find the rule for a pattern, you need to identify the unit of the pattern (what is repeated or what grows).

Identifying the rule of a pattern brings predictability and allows generalisations to be developed.

Generalisations can be expressed with both words and symbols.

Shareback

Select students to share who use the unit of repeat to group the cubes to work out the total and use numbers to record this (e.g., 4 chunks/unit of repeats makes 8 cubes). Otherwise, model this to the students. Ask students how they could use the unit of repeat to find the total number of items, support them to generalise that the total number of cubes is double the number of units of repeat.

Connect

Use a hundred board and ask the student to say which numbers to turn to cover the number that the white cubes match (up to 20). Ask the students: what do you notice about these numbers?

Support students to see the relationship between the colours and the numbers, e.g., white cubes will fall on even numbers or multiples of two and blue cubes on odd numbers.

Ask students to predict what colour cubes would be for numbers: 28, 31, 35, 40.

Suggested Learning Outcomes

Reproduce a pattern using objects, drawings, or symbols.

Continue patterns.

Explain and justify the pattern in relation to ordinal aspects of counting.

Predict a point in a sequential pattern.

Explain that a pattern has consistency.

Curriculum Links

Copy, continue, create and describe a repeating pattern with two elements

Mathematical Language

Unit of repeat, pattern, sequence.

Independent Tasks

Kaiser likes making trains with cubes. This is his first train:

Copy the train.
Represent the train using letters and circle the unit of repeat.
How many cubes in his first train?

This is his second train:

Copy the train.
Represent the train using letters and circle the unit of repeat.
How many cubes in his second train?

Make your own train.
What is your unit of repeat?

Ask a friend to copy your train.

Anticipations

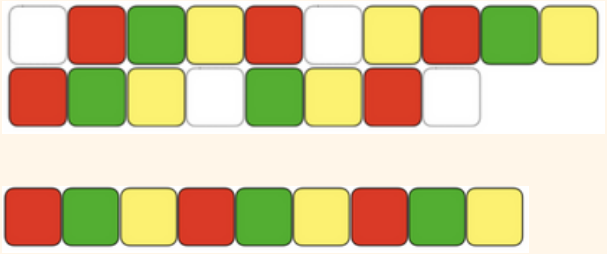
Solutions, Misconceptions

Task 3

Lilianne is making a snake with cubes. This is her 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?



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.

Teacher Notes

Have cubes or multi-link cubes, and a hundred board.

If students have difficulty making the pattern, support them to notice by putting their pattern next to a picture of the correct pattern and ask them to identify what is the same and what is different.

Facilitate the students to notice the pattern is made of chunks (unit of repeat). This could be linked to multiplication when identifying the number of elements in the pattern. Use the term unit of repeat with the students. Expect the students to connect to multiplication or highlight this to them when working out the total number of cubes in the snake.

After students have drawn the snake pattern, ask them to circle the unit of repeat or chunks of the pattern. Support students to notice that each unit of repeat should be the same and all cubes should be included.

For the independent task, provide students with material to make repeating patterns.

Big Ideas

Patterns are sequences (repeating or growing) made of numeric or spatial elements governed by a rule.

Patterns exist both in the world and in mathematics. The same pattern structure can be found in many different forms (e.g., numbers, shapes, colours, and rhythm).

A pattern can be described using a rule or you can create a pattern from a rule. To find the rule for a pattern, you need to identify the unit of the pattern (what is repeated or what grows).

Identifying the rule of a pattern brings predictability and allows generalisations to be developed.

Generalisations can be expressed with both words and symbols.

Shareback

Select students to share who can recognise and explain the ABCABCABC structure of the unit of repeat. Facilitate students to notice this pattern structure and use this to solve the questions

Connect

Ask students to look at all the snakes and patterns that have been made and discuss what is the same about all of them.
Ask students to make their own pattern structure with three units of repeat and describe the unit of repeat so that someone could make the pattern without seeing it.

Suggested Learning Outcomes

Reproduce a pattern using objects, drawings, or symbols.

Continue a repeating pattern.

Explain and justify the pattern in relation to ordinal aspects of counting.

Communicate, explain, and justify their pattern.

Predict a point in a sequential pattern.

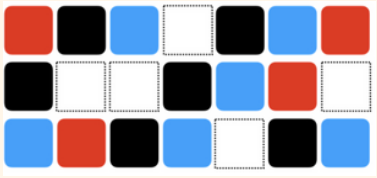
Explain that a pattern has consistency.

Independent Tasks

Copy the pattern.

What is the unit of repeat? Circle this.

How many blocks are there altogether?
How many red blocks?
How many black blocks?
How many blue blocks?



Draw the missing blocks.

Curriculum Links

Copy, continue, create and describe a repeating pattern with three elements and identify missing elements in a pattern.

Mathematical Language

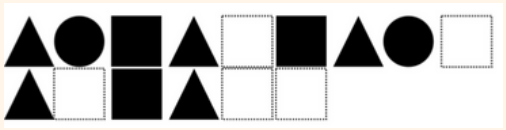
Unit of repeat, pattern, sequence.

Independent Tasks

Copy the pattern.

What is the unit of repeat? Circle this.

How many shapes are there altogether?
How many triangles?
How many circles?
How many squares?



Draw the missing shapes.

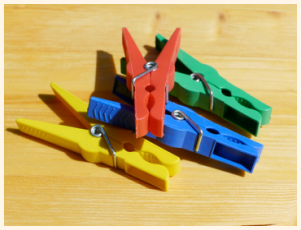
Make your own pattern.

What is the unit of repeat for your pattern?

Anticipations

Solutions, Misconceptions

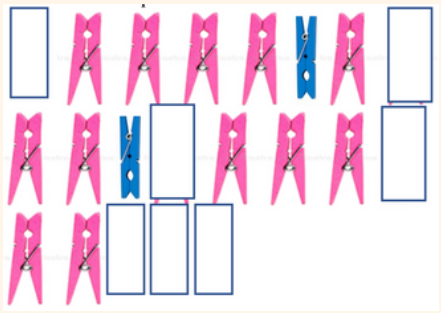
Task 4



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 30th peg be?

What colour would the 34th peg be?

Big Ideas

Patterns are sequences (repeating or growing) made of numeric or spatial elements governed by a rule.

Patterns exist both in the world and in mathematics. The same pattern structure can be found in many different forms (e.g., numbers, shapes, colours, and rhythm).

A pattern can be described using a rule or you can create a pattern from a rule. To find the rule for a pattern, you need to identify the unit of the pattern (what is repeated or what grows).

Identifying the rule of a pattern brings predictability and allows generalisations to be developed.

Generalisations can be expressed with both words and symbols.

Teacher Notes

During the launch, ask students to share where they see patterns in their lives. Reinforce discussion that patterns have repeating elements.

Have pegs, and a hundred board available.

If students have difficulty making the pattern, support them to notice by putting their pattern next to a picture of the correct pattern and ask them to identify what is the same and what is different.

Facilitate the students to notice the pattern is made of chunks (unit of repeat). Use the term unit of repeat with the students.

Facilitate the students to notice that elements in the pattern can be found without creating the whole pattern, but by instead noticing and using relationships and patterns.

For the independent task, have pegs or concrete material for the students to use.

Shareback

Select students to share who use patterns and multiplication to work out the far elements. If students do not use patterns and multiplication, then model this to them

Connect

Use a hundred board and ask students to colour the blue pegs and pink pegs in relation to the numbers (two different colours).
What patterns do you notice?
What rule could you use to predict which number the blue peg would be?

Suggested Learning Outcomes

Reproduce a pattern using objects, drawings, or symbols.

Continue a repeating pattern and identify missing elements in the sequence.

Explain and justify the pattern in relation to ordinal aspects of counting.

Predict far elements in a sequential pattern.

Explain that a pattern has consistency.

Curriculum Links

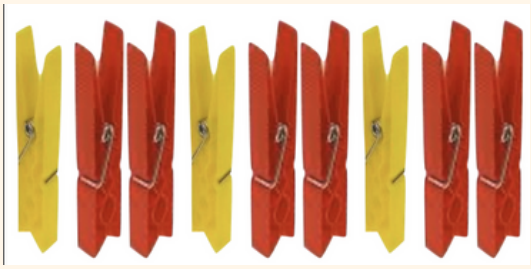
Copy, continue, create and describe a repeating pattern with two elements.

Mathematical Language

Unit of repeat, pattern, sequence, element, rule.

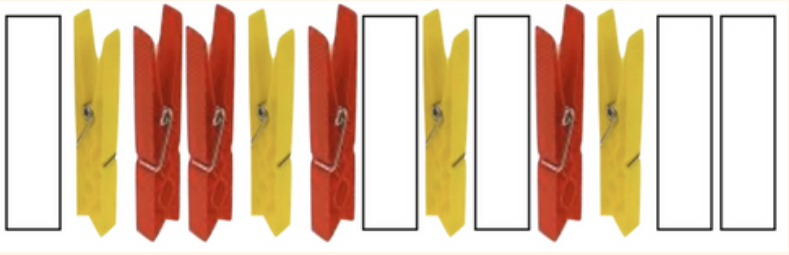
Independent Tasks

Talia 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.

Talia continues the pattern using the pegs.

What colour would the 15th peg be?

What colour would the 19th peg be?

What colour would the 30th peg be?

Anticipations

Solutions, Misconceptions

Task 5

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 10th flower be?

What colour would the 12th flower be?

What colour would the 19th flower be?

Teacher Notes

Have flower pictures available.

If students have difficulty making the pattern, support them to notice by putting their pattern next to a picture of the correct pattern and ask them to identify what is the same and what is different.

Facilitate the students to notice the pattern is made of chunks (unit of repeat). Use the term unit of repeat with the students.

Facilitate the students to notice that elements in the pattern can be found without creating the whole pattern, but by instead noticing and using relationships and patterns.

For the independent task, have flowers and other concrete material (e.g., counters, cubes, teddies) for the students to use.

Big Ideas

Patterns are sequences (repeating or growing) made of numeric or spatial elements governed by a rule.

Patterns exist both in the world and in mathematics. The same pattern structure can be found in many different forms (e.g., numbers, shapes, colours, and rhythm).

A pattern can be described using a rule or you can create a pattern from a rule. To find the rule for a pattern, you need to identify the unit of the pattern (what is repeated or what grows).

Identifying the rule of a pattern brings predictability and allows generalisations to be developed.

Shareback

Select students to share who use patterns and multiplication to work out the far elements. If students do not use patterns and multiplication, then model this to them.

Connect

Use the flower cards to show each garland vertically and write the corresponding numbers.

Etc up to 20

What patterns do you notice?
What colour would the 20th flower be?
What colour would the 25th flower be?
What colour would the 30th flower be?

Suggested Learning Outcomes

Reproduce a pattern using objects, drawings, or symbols.

Continue a repeating pattern and identify missing elements in the sequence.

Explain and justify the pattern in relation to ordinal aspects of counting.

Predict far elements in a sequential pattern.

Explain that a pattern has consistency.

Curriculum Links

Copy, continue, create and describe a repeating pattern with two elements.

Mathematical Language

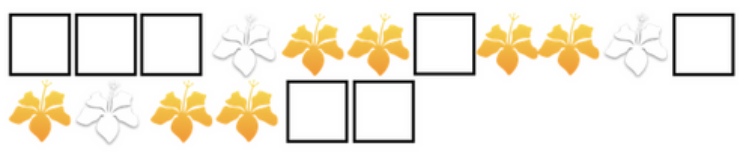
Unit of repeat, pattern, sequence, element, rule.

Independent Tasks

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.

Anticipations

Solutions, Misconceptions

Task 6

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 were two piwakawaka?
If there were 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 were piwakawaka?
If there was were 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 were two piwakawaka?
If there were four piwakawaka?

Complete the table:

Number of piwakawaka	Tails	Eyes	Tails and eyes
1			
2			
3			
4			
5			

Big Ideas

Patterns are sequences (repeating or growing) made of numeric or spatial elements governed by a rule.

Patterns exist both in the world and in mathematics. The same pattern structure can be found in many different forms (e.g., numbers, shapes, colours, and rhythm).

A pattern can be described using a rule or you can create a pattern from a rule. To find the rule for a pattern, you need to identify the unit of the pattern (what is repeated or what grows).

Identifying the rule of a pattern brings predictability and allows generalisations to be developed.

Teacher Notes

Have the pictures of piwakawaka printed onto individual cards for students to use if necessary.

To complete the table, show the corresponding number of piwakawaka cards, continue to use this process for the five piwakawaka.

Facilitate the students to notice the relationship between the number of piwakawaka and total number of eyes and also total number of eyes and tails. This can be connected back to the relationship to multiplication as illustrated in Task 2.

Notice students who use grouping or multiplication to work out the number of eyes and tails (e.g., 4 piwakawaka and 3 elements so 12 in total) OR relational reasoning (e.g., the number of tails matches the number of the unit of piwakawaka).

For the connect, patterns in the table vertically may include sequential or single variational thinking (e.g., the number of tails increase by one, the total increases by 3 each time) or horizontally co-variational or relational thinking (e.g., the eyes are double the number of tails).

Shareback

Select students to share who use grouping/multiplication or patterns and relationships to work out the number of eyes or tails and eyes together.

Connect

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

If Kiriwai saw 10 piwakawaka, how many tails would she see?

If Kiriwai saw 30 tails, how many eyes would she see?

If Kiriwai saw 40 eyes, how many tails would she see?

Curriculum Links

Copy, continue, create and describe a repeating pattern with two elements.

Mathematical Language

Unit of repeat, pattern, sequence..

Suggested Learning Outcomes

Reproduce a pattern using objects, drawings, or symbols.

Continue repeating patterns.

Explain and justify the pattern in relation to ordinal aspects of counting.

Generalise the number of elements in a repeating pattern for certain points.

Explain that a pattern has consistency.

Independent Tasks

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.

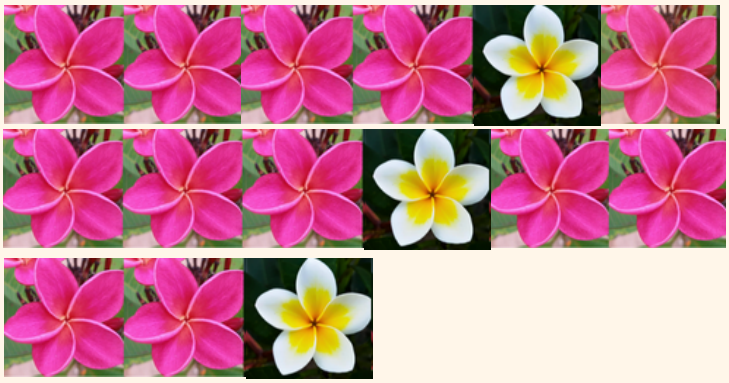
How many wheels and children would there be for 10 tricycles?

Anticipations

Solutions, Misconceptions

Task 7

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?

Complete the table below:

Number of units of repeat	Yellow flowers	Pink flowers	Total number of flowers
1			
2			
3			

Big Ideas

Patterns are sequences (repeating or growing) made of numeric or spatial elements governed by a rule.

Patterns exist both in the world and in mathematics. The same pattern structure can be found in many different forms (e.g., numbers, shapes, colours, and rhythm).

A pattern can be described using a rule or you can create a pattern from a rule. To find the rule for a pattern, you need to identify the unit of the pattern (what is repeated or what grows).

Identifying the rule of a pattern brings predictability and allows generalisations to be developed.

Generalisations can be expressed with both words and symbols.

Teacher Notes

During the launch, ask students to share where they see patterns in their lives. Reinforce discussion that patterns have repeating elements.

To complete the table, use a piece of card and cover up the flowers so only one unit of repeat is visible, for the second set, use the card to show only two units of repeat, continue to use this process for the three units of repeat.

Facilitate the students to notice the relationship between the number of the unit of repeat and total number of flowers. This can be connected back to the relationship to multiplication as illustrated in Task 2.

Notice students who use grouping or multiplication to work out the number of flowers (e.g., 3 units of repeat and 5 elements so 15 flowers in total) OR relational reasoning (e.g., the number of yellow flowers matches the number of the unit of repeats).

For the connect, patterns in the table vertically may include sequential or single variational thinking (e.g., the yellow flowers increase by one, the total flowers increases by 5 each time) or horizontally co-variational or relational thinking (e.g., the pink flowers are four times the number of yellow flowers).

Shareback

Select students to share who use grouping/multiplication or patterns and relationships to work out the number of flowers.

Connect

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

If Mereana had 4 yellow flowers, how many pink flowers would there be?

If Mereana had 5 yellow flowers, how many flowers would there be altogether?

Curriculum Links

During first 6 months
Copy, continue, create and describe a repeating pattern with two elements.

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Mathematical Language

Unit of repeat, pattern, sequence, element, rule.

Suggested Learning Outcomes

Reproduce a pattern using objects, drawings, or symbols.

Continue repeating patterns.

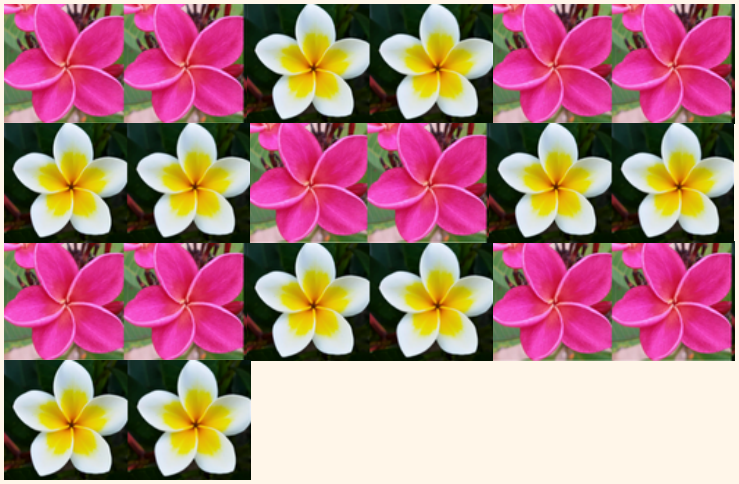
Explain and justify the pattern in relation to ordinal aspects of counting.

Generalise the number of elements in a repeating pattern for certain points.

Explain that a pattern has consistency.

Independent Tasks

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?

Complete the table below:

Number of units of repeat	Yellow flowers	Pink flowers	Total number of flowers
1			
2			
3			

Anticipations

Solutions, Misconceptions

Task 8

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

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?

Complete the table below:

Number of movement sequence	Tap	Arm	Clap
1			
2			
3			
4			
5			

How many taps, arms, and claps would there be for 10 movement sequences?

How many taps, arms, and claps would there be for 20 movement sequences?

Teacher Notes

Have pictures of movements printed onto individual cards for students to use if necessary. (See Copy Master Task 8)

To complete the table, support the students to work with a buddy to complete the movement sequence and count if needed.
Facilitate the students to notice the relationship between the number of movement sequences and the total number of the different types of movements. This can be connected back to the relationship to multiplication.

For the connect, patterns in the table vertically may include sequential or single variational thinking (e.g., the number of claps increase by one, the number of arms increases by 3 each time) or horizontally co-variational or relational thinking.

For the independent task have different types of concrete materials available to make patterns.

Big Ideas

Patterns are sequences (repeating or growing) made of numeric or spatial elements governed by a rule.

Patterns exist both in the world and in mathematics. The same pattern structure can be found in many different forms (e.g., numbers, shapes, colours, and rhythm).

A pattern can be described using a rule or you can create a pattern from a rule. To find the rule for a pattern, you need to identify the unit of the pattern (what is repeated or what grows).

Identifying the rule of a pattern brings predictability and allows generalisations to be developed.

Generalisations can be expressed with both words and symbols.

Shareback

Select students to share who use grouping/multiplication or patterns and relationships to work out the number of different types of movements.

Connect

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

If the movement sequence was used 10 times in the ma'uluulu, how many claps would there be?

If the movement sequence was used 10 times in the ma'uluulu, how many taps would there be?

If the movement sequence was used 10 times in the ma'uluulu, how many arms would there be?

Suggested Learning Outcomes

Reproduce a pattern using objects, drawings, or symbols.

Continue repeating patterns.

Explain and justify the pattern in relation to ordinal aspects of counting.

Generalise the number of elements in a repeating pattern for certain points.

Explain that a pattern has consistency.

Independent Tasks

Use the shapes to make a pattern. Draw the pattern and circle the unit of repeat.

Choose a different material and make the same pattern.

Use letters to make your pattern.

Use actions to make your pattern.

Show your pattern to a friend and ask them to copy it.

Curriculum Links

Copy, continue, create and describe a repeating pattern with three elements and identify missing elements in a pattern.

Mathematical Language

Unit of repeat, pattern, sequence, element, rule.

Anticipations

Solutions, Misconceptions

Task 9

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?

Teacher Notes

If necessary, to complete the table, use a piece of card and cover up the M&Ms so only one unit of repeat is visible, for the second set, use the card to show only two units of repeat, continue to use this process.

Facilitate the students to notice the relationship between the number of the unit of repeat and total number of M & Ms.

Notice students who use grouping or multiplication to work out the number of M & Ms OR relational reasoning.

For the connect, patterns in the table vertically may include sequential or single variational thinking or horizontally co-variational or relational thinking.

Shareback

Select students to share who use grouping/multiplication or patterns and relationships to work out the number of M & Ms.

Big Ideas

Patterns are sequences (repeating or growing) made of numeric or spatial elements governed by a rule.

Patterns exist both in the world and in mathematics. The same pattern structure can be found in many different forms (e.g., numbers, shapes, colours, and rhythm).

A pattern can be described using a rule or you can create a pattern from a rule. To find the rule for a pattern, you need to identify the unit of the pattern (what is repeated or what grows).

Identifying the rule of a pattern brings predictability and allows generalisations to be developed.

Generalisations can be expressed with both words and symbols.

Connect

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

How can Karlos work out the number of red M & Ms if he knows the number of blue M & Ms?

Suggested Learning Outcomes

Explain and justify the pattern in relation to ordinal aspects of counting.

Predict a point in a sequential pattern.

Explain that a pattern has consistency.

Independent Tasks

Complete the patterns.

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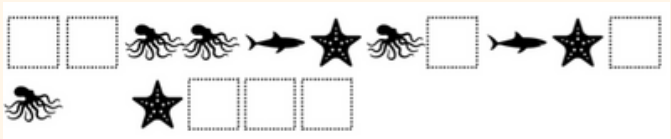

Curriculum Links

During first 6 months
Copy, continue, create and describe a repeating pattern with two elements.

Mathematical Language

Unit of repeat, pattern, sequence.

Anticipations

Solutions, Misconceptions

Task 10

Leilani is building a Lego tower:

What is the unit of repeat?

What colour would the 20th brick be?

What colour would the 31st 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					

Teacher Notes

If necessary, to complete the table, use a piece of card and cover up the Lego bricks so only one unit of repeat is visible, for the second set, use the card to show only two units of repeat, continue to use this process.

Facilitate the students to notice the relationship between the number of the unit of repeat and total number of bricks.

Notice students who use grouping or multiplication to work out the number of bricks OR relational reasoning.

For the connect, patterns in the table vertically may include sequential or single variational thinking or horizontally co-variational or relational thinking.

Big Ideas

Patterns are sequences (repeating or growing) made of numeric or spatial elements governed by a rule.

Patterns exist both in the world and in mathematics. The same pattern structure can be found in many different forms (e.g., numbers, shapes, colours, and rhythm).

A pattern can be described using a rule or you can create a pattern from a rule. To find the rule for a pattern, you need to identify the unit of the pattern (what is repeated or what grows).

Identifying the rule of a pattern brings predictability and allows generalisations to be developed.

Generalisations can be expressed with both words and symbols.

Shareback

Select students to share who use grouping/multiplication or patterns and relationships to work out the number of bricks.

Connect

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

How can Leilani work out the total number of bricks if she knows the number of blue bricks?

Suggested Learning Outcomes

Reproduce a pattern using objects, drawings, or symbols.

Continue patterns.

Explain and justify the pattern in relation to ordinal aspects of counting.

Predict a point in a sequential pattern.

Explain that a pattern has consistency.

Independent Tasks

Complete the following assessment tasks (attached at the end of the document) as the independent activity:

Task 1: Shell patterns

Task 2: Jellybean patterns

Curriculum Links

Copy, continue, create and describe a repeating pattern with three elements and identify missing elements in a pattern.

Mathematical Language

Unit of repeat, pattern, sequence.

Anticipations

Solutions, Misconceptions

Assessment Task 1 - Algebra - Year 0

Nevaeh made a pattern with shells she collected from the beach. Her pattern looked like this:

What shape would the 15th shell be?

What about the 19th?

What about the 29th?

Complete the table below:

Number of units of repeat	Pipi shell	Fan shell	Total number of shells
1			
2			
3			
4			

What patterns do you notice?

Assessment Task 2 - Algebra - Year 0

Nevaeh is eating jellybeans and she likes to eat them in this order:

What colour would the 8th jellybean be?

What about the 15th?

What about the 31st?

Complete the table below:

Number of units of repeat	Purple jellybean	Green jellybean	Total number of jellybeans
1			
2			
3			
4			
5			

What patterns do you notice?