MATHS

Lesson 34

Prep

Topic: Patterns and algebra

Exploring patterns in the environment 4

Lesson concepts

- **Patterns** — Pattern/non pattern
- **Patterns** — Continuing patterns
- **Patterns** — Describing patterns

Today students will:

- identify patterns in the environment
- create sensory patterns.

Resources

Find and prepare

Sheet — Guided Inquiry poster

Sheet — What I learned about patterns

two glasses of milk, two scoops of ice-cream and two bananas (or other food items that have qualities that can be described using the senses)

cardboard

shells

items to smell (lavender, lemon)

sandpaper

aluminium foil

range of materials to represent growing patterns

Key terms

pattern, same, describe, copy, non-pattern, same, different, arrangement, inquiry, question, continue, create

For definitions and explanations of terms, please see the Glossary.

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Lesson

Introduce the lesson

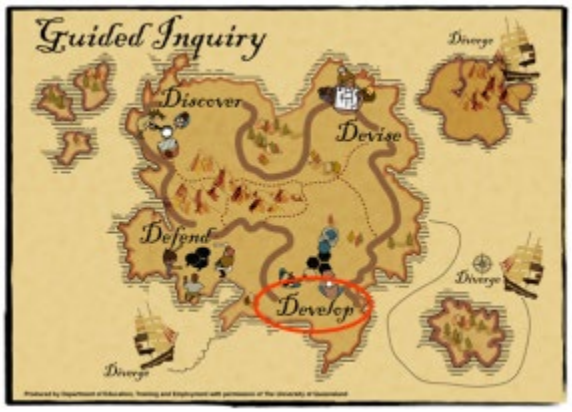
Say to students

Let's talk about what you have learned about patterns so far in the Mathematical Guided Inquiry (MGI). The MGI question that you will answer is **'How can you show a pattern?'** Today, you will decide how youcan show a pattern and explain your thinking.

Describe the patterns using different senses

Implement a plan to gather evidence and develop a response to the question (Develop)

Display the **Sheet —** Guided Inquiry poster and remind students that a Mathematical Guided Inquiry is a journey (trace the journey so far on the poster) and that students will now enter the 'Develop' phase (point to the word 'Develop' on the poster).



Explain that students will:

- recall and share their experiences
- reflect on their findings by referring to the inquiry question
- refine their understanding of patterns
- reflect on the mathematics that they have learned.

Display two glasses of milk, two scoops of ice-cream and two bananas (or other food items that have qualities that be described using the senses).

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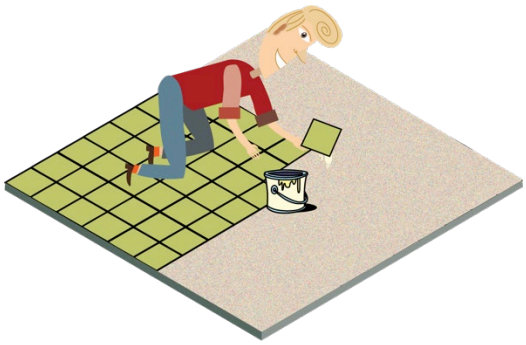
Ask students how they might explain the pattern using:

- look (for example: ‘milk, milk, ice-cream, ice-cream, banana, banana’ or ‘white, white, round, round, long, long’)
- touch (for example: ‘wet, wet, cold, cold, squishy, squishy’).

Provide materials for students to represent a pattern with different senses. For example:

- creating a pattern with cardboard tiles and tracing the pattern with their fingers or stamping in each square



- displaying groups of three (shells, bead counters, or the like) and representing the pattern with sounds such as (three stamps, three claps, three whistles, three beats on the drum, three yawns, three triangle beats)

- clap loud, soft, loud, soft
- sing high, low, high, low
- spray or smell lemon then lavender, lemon then lavender
- glue a piece of sand paper, then foil, sand paper, foil on paper
- start with a ball of playdough and spread out in all directions to make a ‘flower’ pattern

- make fruity kebab patterns using (banana, grapes, melon, banana, grape, melon).

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Focus questions

Q: *What have you noticed about patterns?*

Q: *How do you know that this is a pattern?*

Q: *Are these patterns the same?*

Q: *How are they the same/different?*

Q: *Is there something repeated to make this pattern?*

Q: *How could you record or remember the pattern that you found?*

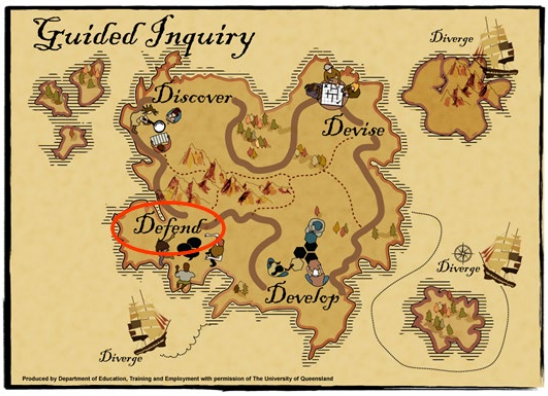
Share evidence about feeling patterns and explain how you can or cannot feel a pattern (Defend)

Note

This is the 'Defend' phase of the MGI in which students:

- reflect on the evidence or experiences
- decide on their answer to the question
- represent their response
- defend or justify their response
- reflect on the inquiry and the mathematics they have learned both orally and in written form.

- Display the **Sheet — Guided Inquiry poster** and remind students that a Mathematical Guided Inquiry is a journey (trace the journey so far on the poster) and that students will now enter the 'Defend' phase (point to the word 'Defend' on the poster).



Say to students

"Now you need to decide how patterns can be shown and explain, or defend, why you have made that decision. Then you will write or draw what you have found."

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Focus questions

Q: *How can you show a pattern?*
Q: *How do you know that?*
Q: *How could you describe that pattern?*
Q: *How else could you show a pattern?*
Q: *What do you now know about patterns?*
Q: *What mathematics have you learned?*

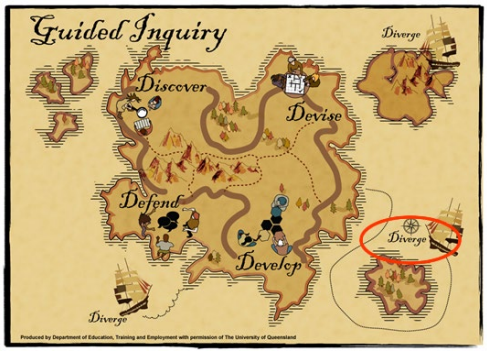
Ask students to write or draw what they learned about patterns using the **Sheet —** What I learned about patterns.

Explore questions arising during the MGI (Diverge)

Note

This is the 'Diverge' phase of the MGI in which students explore other questions arising during the MGI and after reflection.

Display the **Sheet — Guided Inquiry poster** and remind students that they have almost completed the Mathematical Guided Inquiry journey (trace the journey so far on the poster) and that students will now enter the final, 'Diverge' phase (point to the word 'Diverge' on the poster).



Explain to students that at this phase of the MGI they may explore patterns in other contexts.

Focus questions

Q: *What other questions would you like to explore about patterns?*
Q: *How could you answer those questions?*
Q: *Do you think patterns are useful? Why?*
A: For example: so we know what comes next, so people know how to make brick house, patterns make things look pretty, so that creatures are camouflaged.

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