

Topic: Patterns and algebra

Observing growing patterns

Lesson concepts

-  **Patterns** — Pattern/non pattern
-  **Patterns** — Describing patterns
-  **Patterns** — Spatial (nonlinear)
-  **Patterns** — Growing

Today students will:

- identify and copy growing patterns.

Resources

Suggested text

Hutchins, P 1993, *The wind blew*, Simon & Schuster, New York.

OR

Fox, M 1989, *Shoes from Grandpa*, Gosford, Scholastic Australia.

(Or use an internet search engine to find a read-aloud version of the story online.)

Digital

Slideshow — Patterns all around

Learning object — Eye video: Over in the meadow: Number & counting song

Find and prepare

Digital camera

Key terms

growing pattern,
repeating pattern

For definitions and explanations of terms, please see the [Glossary](#)

Lesson

Introduce the lesson

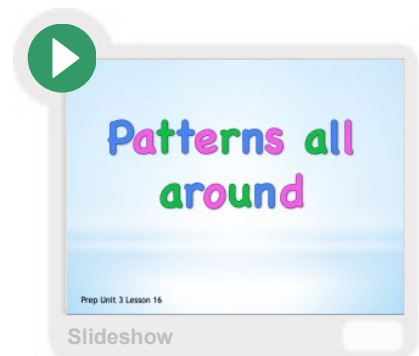
Note

It is important to highlight and develop the following vocabulary throughout this lesson.

growing pattern, same, non-pattern, growing, repeating pattern, colour, shape, size, direction, increasing, change

Identify pattern and non-pattern

- Ask students what they know about patterns.
- Have students view the **Slideshow — Patterns all around**.
- As students look at the slides, ask questions about the patterns.



Focus questions

Q: *Is this a pattern? Why do you say that?*

A: For example: yes; a part is repeated over and over

Q: *How would you describe this pattern?*

A: For example: yellow stripe, blue stripe, yellow stripe, blue stripe

Q: *What might come next in the pattern?*

A: For example: a yellow stripe

Q: *Can you find a picture that is not a pattern?*

A: For example: the spotted fish picture is not a pattern

- Explain to students that patterns:
 - are all around
 - help you to make sense of what you see, hear or do
 - can be pictures, objects, movements or sounds
 - can be repeating
 - can also be growing
 - don't need to be in a straight line.

Focus questions

Q: *What is a pattern?*

Q: *Where do you find patterns?*

A: For example, everywhere

Q: *Can you see, hear or feel a pattern right now?*

A: For example, I can see a pattern on my shirt

Q: *What makes it a pattern?*

A: For example, the red and blue stripes are repeated over and over

Q: *Does the pattern that you can see/hear/feel have the same part repeated over and over?*

A: For example, yes

Q: *Do all patterns have repeating parts?*

A: No

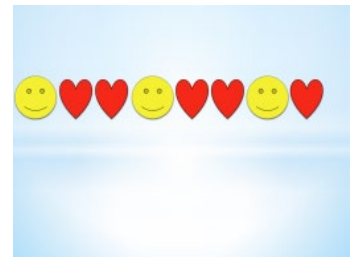
In this lesson, we are going to look at growing patterns.

Q: *What do you think a growing pattern will look like?*

A: For example, the parts might get bigger and bigger

- Once again, open the **Slideshow — Patterns all around**.
Pause on this slide:

- Ask students to describe the pattern (for example, face, heart, heart, face, heart, heart) and say what will come next.



Identify growing patterns

- Explain to students that a growing pattern is a pattern where each part grows in size or number.
- Revisit the picture story *The wind blew* or the alternative text *Shoes from Grandpa* and ask students to look for a growing pattern in the story.
- Ask students to think about the objects that the wind collected as it blew.

Focus questions

Q: *How many objects did the wind collect each time? Was it the same number each time?*

A: For example: yes, the wind picked up one object at a time

Q: *How did the cloud of objects change as the wind collected the objects?*

A: For example: it got bigger; there were more things in it

- Explain to students that the collection of objects picked up by the wind is a growing pattern, because the number of objects is getting larger each time and the size of the cloud is getting bigger.
- Ask students to look again at the **Slideshow — Patterns all around** and identify the growing patterns.

Focus questions

Q: *Which slide shows a growing pattern?*

A: For example: the stars; the blocks in the tower

Q: *What is growing in this pattern?*

A: For example: the size of the stars; the number of blocks in the tower

Copy growing patterns

- Demonstrate some simple sound-and-movement growing patterns and ask students to copy them.
- Create a word growing pattern.
- Say the following word pattern, then help students to repeat it after you.

cat–dog

cat–dog–dog

cat–dog–dog–dog

Focus question

Q: *What part of that pattern is growing?*

A: The word 'dog'

- Create a sound growing pattern.
- Make the following sound pattern, then help students to repeat it after you.

clap–click

clap–click–click

clap–click–click–click

Focus question

Q: *What part of that pattern is growing?*

A: The clicks

- Create a movement growing pattern.
- Do the following movement pattern, then help students to repeat it after you.

Hop, jump, turn

Hop, jump, jump, turn

Hop, jump, jump, jump, turn

Focus question

Q: *What part of that pattern is growing?*

A: The jumps

- Open the **Learning object — Eye video: Over in the meadow: Number & counting song.**
- Show students how they can find growing patterns in sounds and pictures, such as when they sing along with a song or view a picture.
- Discuss the growing pattern.



Focus questions

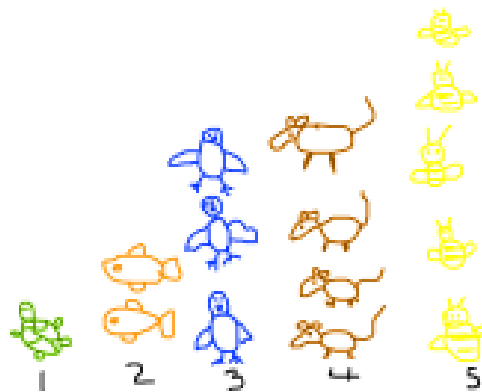
Q: *What is the growing pattern in this song?*

A: The number of animals in each verse is one more than the last verse

Q: *How could you continue the growing pattern?*

A: For example: sing about six animals, then seven animals

- Ask students to record the pattern. For example:



Observing growing patterns

- Explain to students that there are many examples of visual growing patterns in real life.
- Reinforce with students that growing patterns:
 - increase or grow in size and number
 - often grow in all directions and not just in a straight line.
- Assist students to explore the backyard environment to:
 - locate examples of growing patterns
 - photograph or draw these
 - describe and explain why they are growing patterns.

Focus questions

Q: *Why do you think that this is a growing pattern?*

Q: *How could you describe the growing pattern?*

Q: *What would be next in the pattern?*