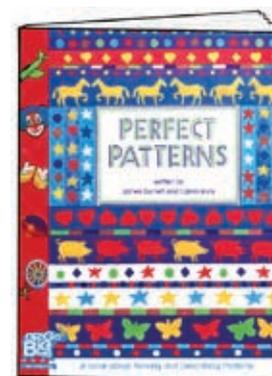


# Perfect Patterns

A book about making and describing patterns



## Aim

A repeating pattern (for example: 1, 2, 1, 2 ...) repeats without alteration. A growing pattern (for example: 2, 4, 6, 8 ...) increases or decreases in a regular manner. Both types of patterns are introduced in the book *Perfect Patterns*.

These whole-class activities provide students with the opportunity to:

- listen to a story about patterns
- use materials to make repeating patterns
- use the *Teaching Tool* to copy and extend repeating patterns
- use materials to copy and extend increasing and decreasing patterns
- use the *Teaching Tool* to copy and extend increasing and decreasing patterns

## Activities

1. Listening to the story
2. Drawing repeating patterns
3. Using potato prints to make repeating patterns
4. Painting repeating patterns
5. Using the teaching tool to translate repeating patterns 
6. Using the teaching tool to extend repeating patterns 
7. Using the teaching tool to identify missing parts of a repeating pattern 
8. Using materials to act out the story
9. Using the teaching tool to act out the story 
10. Using materials to make a growing pattern

# 1. Listening to the story

## Resources

- *Perfect Patterns*

## Activity

Show the cover of *Perfect Patterns* to students and read the title aloud. Encourage volunteers to predict what they think the story might be about. Ask questions such as, **What is a pattern? Have you ever seen a pattern? What did it look like? Can you see any patterns on the front cover of this book?** Read the story in its entirety. Do not stop to discuss the pictures. Then ask, **What patterns did you see in the story? What made it a pattern?**

Encourage students to explain the different patterns and the repeating element of each pattern. Read the story again and have the students describe the pattern on each double-page spread. For each repeating pattern, ask, **What part of the pattern is repeating? If students are unsure, ask, What part of the pattern is the same as another part?** For the growing pattern on pages 16–17, say, **This pattern is growing.** Discuss each element and how each new element is growing.

# 2. Drawing repeating patterns

## Resources

- Crayons
- Permanent markers
- Long strips of paper

## Preparation

The long strips of paper need to be approximately 5 cm wide and 40 cm long. Each student will need a strip of paper and crayons or felt markers.

## Activity

Read pages 6–7 of *Perfect Patterns*. Discuss the colours and shapes of the pattern. Ask, **Why is it a pattern? What would we see if the pattern continued?** Ask each student to draw their own repeating pattern on their strip of paper. When they are finished, invite students to present their patterns to the class. For each pattern, ask, **What is the repeating part of this pattern? What would come next if the pattern was continued?**



### 3. Using potato prints to make repeating patterns

#### Resources

- *Perfect Patterns*
- Potatoes
- Sharp knife
- Paint in shallow containers
- Paintbrushes
- Large sheets of paper

#### Preparation

Use the knife to cut the potatoes in half and then carve a different shape on each open end. Each small group of students will need 2 to 3 potato halves, access to paints in shallow containers, paintbrushes, and a large sheet of paper.

#### Activity

Read pages 8–9 of *Perfect Patterns* and discuss the pattern pictured. Ask, **Why is it a pattern?** **What part of the pattern is repeated?** Select a student to describe the repeating element of the pattern. Ask the students to make different repeating patterns. Discuss how different images can be made by rotating the potato. Once the prints have dried, discuss the patterns with the class. Have the students identify the part that is repeating in each pattern.

### 4. Painting repeating patterns

#### Resources

- *Perfect Patterns*
- Art paper
- Paints
- Paintbrushes

#### Preparation

Each student will need a sheet of art paper, a paintbrush, and access to paints.

#### Activity

Reread pages 12–13 of *Perfect Patterns*. Discuss the repeating pattern. Ask, **What part of the pattern is repeating?** Select a volunteer to describe the part of the pattern that repeats, for example, yellow, yellow, red, blue. Say, **Let's read this pattern together.** Point to each blob in the pattern as you read with the class, **Yellow, yellow, red, blue** (pause) **yellow, yellow, red, blue** (pause) and so on. Repeat several times. Challenge the students to use the paints to create a different repeating pattern of their own.



## 5. Using the teaching tool to translate repeating patterns

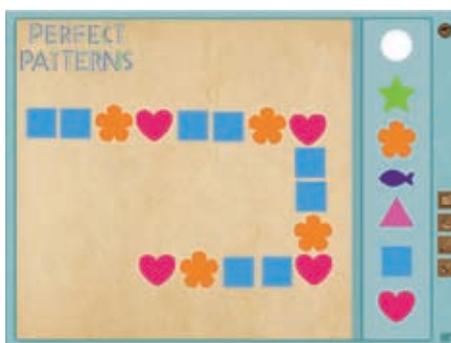


### Resources

- *Teaching Tool*
- *Perfect Patterns*

### Activity

Ensure that all the students can see the *Teaching Tool*. Read pages 12–13 of *Perfect Patterns*. Select a volunteer to describe the repeating part of the pattern (yellow, yellow, red, blue). Say, **Let's read this pattern together.** Point to each blob in the pattern as you read with the class, **Yellow, yellow, red, blue** (pause) **yellow, yellow, red, blue** (pause) and so on. Next, point to the different shapes on the *Teaching Tool* and ask, **How can we use these shapes to show the same pattern: yellow, yellow, red, blue?** Encourage a confident volunteer to explain that each colour can be represented by a different shape. For example:



Invite the volunteer to represent the pattern by dragging different shapes onto the work area. Ask, **What colour does the square represent? What colour does the flower represent? What colour does the heart represent?** Use the shapes on the *Teaching Tool* to represent the remaining repeating patterns in the storybook.

## 6. Using the teaching tool to extend repeating patterns



### Resources

- *Teaching Tool*

### Activity

Ensure that all the students can see the *Teaching Tool*. Invite a volunteer to drag two shapes onto the work area. Have the student say the shape names, for example square, circle. Next, invite another student to drag the same two shapes onto the work area to create a pattern. Ask, **What shape will come next in our pattern?** Ask a student to extend the pattern with another pair of the same shapes. Extend the activity, by increasing the number and/or variety of shapes in the repeating element in the pattern.



## 7. Using the teaching tool to identify missing parts of a repeating pattern

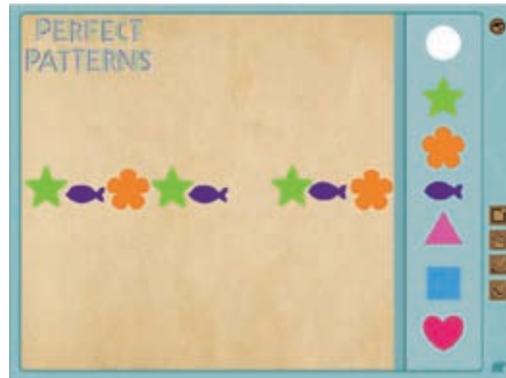


### Resources

- *Teaching Tool*

### Activity

Ensure that all the students can see the *Teaching Tool*. On the work area, create a repeating pattern that has a missing part. For example:



Read the pattern together with the class, **Square, square, triangle, circle, square, missing part, triangle, circle.** What shape is missing? Invite a volunteer to identify the missing shape and to place it correctly in the pattern. Extend the activity by increasing the number of shapes that are missing from the repeating pattern. Ensure there are sufficient repeated shapes to allow the missing shapes to be identified.

## 8. Using materials to act out the story

### Resources

- *Perfect Patterns*
- Transparent counters

### Preparation

Each pair of students will need a quantity of counters in two different colours.

### Activity

Read pages 16–17 of *Perfect Patterns* and discuss the illustration. Have pairs of students use their counters to show the same increasing pattern. Ask, **What is happening to the pattern? How is it different to the other patterns that we have made?** Guide students to explain that the pattern is increasing, not staying the same and repeating. Ask, **How is the pattern growing each time?** Challenge the students to use their counters to extend the pattern. Ask, **What would the next part look like?** Repeat as counter numbers allow. Extend the activity by having one student in each pair create an increasing pattern and then challenging their partner to extend it. They can then swap roles. Discuss some of the patterns with the class.



## 9. Using the teaching tool to act out the story



### Resources:

- *Teaching Tool*
- *Perfect Patterns*

### Activity

Ensure that all the students can see the *Teaching Tool*. Read pages 16–17 of *Perfect Patterns*. Show the illustration to the students and ask, **How can we use the Teaching Tool to show this pattern?** Encourage students to explain that each type of lid can be represented by a different shape. For example, the red lid can be represented by a square and the blue lid can be represented by a circle. Next, invite a student to copy and extend the increasing pattern on the *Teaching Tool*. Ask, **By how much is each part in this pattern growing? What will the next column look like?**

Once students have established the rule for the increasing pattern, ask, **Can anybody see a pattern that is getting smaller?** If students are having difficulty, point to the fifth element in the pattern and ask, **What if our pattern started from this side? What happens to the pattern then? How is the pattern changing?** Encourage students to explain that a pattern can be both increasing and decreasing depending upon your starting point. Repeat for other increasing and decreasing patterns.

## 10. Using materials to make a growing pattern

### Resources

- *Perfect Patterns*
- Beads or buttons
- String

### Preparation

Use the beads to create a necklace that shows a growing pattern. Each student will need a length of string and some beads or other threading resource in a variety of colours or shapes.

### Activity

Show the students the necklace and have them identify the growing pattern. Help the students identify the changing element of the pattern by pointing and reading the pattern together, for example, **Red, green, yellow, red, green, green, yellow, red, green, green, green, yellow.** Next, discuss other possible growing patterns before asking students to create their own necklace. Discuss different successful necklaces and use them to show that every growing pattern increases or decreases, depending on where you start. Revisit pages 16–17 of *Perfect Patterns* and discuss the illustration to reinforce this point.

