

# Patterns Here, Patterns There!

A book about 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 *Patterns Here, Patterns There!*

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

- listen to a story about patterns
- identify the repeating element of a pattern
- act out the story using materials
- act out the story using the *Teaching Tool*
- use materials to make patterns
- use the *Teaching Tool* to make patterns

## Activities

1. Listening to the story
2. Identifying the repeating element
3. Using materials to translate a pattern
4. Using the teaching tool to translate a pattern 
5. Using materials to make repeating patterns
6. Using the teaching tool to make a repeating pattern 
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 translate a growing pattern 
10. Using the teaching tool to extend increasing and decreasing patterns 

# 1. Listening to the story

## Resources

- *Patterns Here, Patterns There!*

## Activity

Show the cover of *Patterns Here, Patterns There!* to the students and read the title aloud. Encourage volunteers to predict what they think the story might be about. Ask, **What is a pattern? Have you seen or made a pattern before? What did it look like?** Show the front cover of the book and ask students to identify and describe any patterns they see. Next, read the story in its entirety. Do not stop to discuss the pictures. Ask, **What happened in the story? Did you see any patterns? What type of patterns?** Read the book again. At the conclusion of each double-page spread invite students to identify and describe all the patterns they can see.

# 2. Identifying the repeating element

## Resources

- *Patterns Here, Patterns There!*
- Toothpicks
- Blu-Tack

## Activity

Display pages 4–5 of the *Patterns Here, Patterns There!* Use Blu-Tack to attach toothpicks between the first three repeating elements in the seashell pattern. Ask, **What do you see? How did I decide where to place the toothpicks? What shells are in each part? Where do you think the next toothpick will go?** Invite students to describe their thinking and place the next toothpicks. Repeat this activity for the toys on page 5 and then for the patterns on pages 6–7 and 8–9.



### 3. Using materials to translate a pattern

#### Resources

- *Patterns Here, Patterns There!*
- Connecting cubes

#### Preparation

Each student will need some connecting cubes in two colours.

#### Activity

Read page 4 of *Patterns Here, Patterns There!* and select a volunteer to identify and describe the repeating pattern. Next, show the students a simple repeating pattern made with the cubes, such as green, blue, green, blue. Compare the pattern in the illustration and the pattern with the cubes. Ask, **What is the same? What is different?** Encourage students to explain that the repeating part in the cube pattern has two objects the same as the repeating part in the pattern in the book. Ask the students to copy the pattern with their own cubes and to keep the pattern going. Repeat for the repeating patterns on pages 5–9 of the story.

### 4. Using the teaching tool to translate a pattern



#### Resources

- *Teaching Tool*
- *Patterns Here, Patterns There!*

#### Activity

Ensure that all the students can see the *Teaching Tool*. Read pages 4–5 of *Patterns Here, Patterns There!* again. Select a confident volunteer to describe the AB repeating pattern. Ask, **How can we use the Teaching Tool to make this pattern?** Encourage students to explain that each colour shell could be represented by a different type of object. For example, an orange triangle can be used to represent each purple shell and a green circle can be used to represent each yellow shell. Next, invite a student to use the *Teaching Tool* to copy and extend the AB repeating pattern that is depicted in the picture spread. Repeat for the repeating patterns on pages 5, 6–7, and 8–9 of the story.



## 5. Using materials to make repeating patterns

### Resources

- Counters
- Large container

### Preparation

Place the counters in the large container. Each group of students will need access to the large container of counters.

### Activity

Ask each group to use counters to make a repeating pattern that has three parts. When each group has completed their pattern have them move to the pattern work of another group. Have the students describe how the pattern is repeating before extending the pattern by adding the next part. Repeat until the students return to their own pattern.

## 6. Using the teaching tool to make a repeating pattern

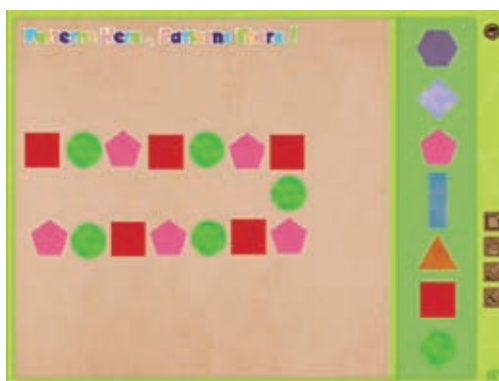


### Resources

- *Teaching Tool*

### Activity

Ensure that all the students can see the *Teaching Tool*. Invite a volunteer to drag three objects onto the work area, for example square, circle, pentagon. Then have another student move the same three objects to make a repeating pattern. Repeat to show up to five repeating elements. Extend the activity by increasing the number of objects in the repeating element.



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



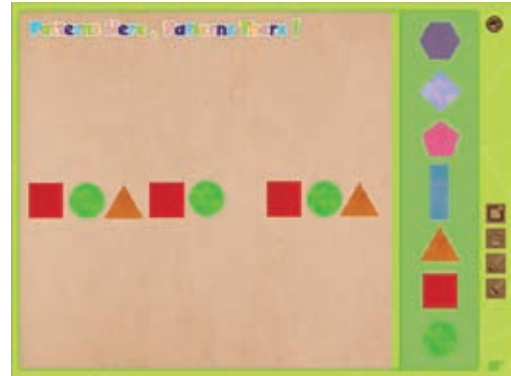
### Resources

- *Teaching Tool*

### Activity

Ensure that all the students can see the *Teaching Tool*. Click and drag shapes from the tray onto the work area to create a repeating pattern that has a missing part. Make sure that there is enough space for the missing part to be returned. See the example shown right.

Next, invite a volunteer to identify the missing part and move the shape into that position. Extend the activity by increasing the number of parts that are missing from the pattern.



## 8. Using materials to act out the story

### Resources

- *Patterns Here, Patterns There!*
- Bucket of counters

### Preparation

Each student will need access to the counters.

### Activity

Read pages 2–11 of *Patterns Here, Pattern There!* again. Have the students use counters to copy the pattern on page 11. Guide the students to start from the top, the first element being two red stars, the second element is two red stars and two green circles, and so on. When they have finished, discuss the pattern. Ask, **What makes this a pattern? How is it different to the patterns earlier in the story?** Encourage students to explain that the pattern is changing, not just repeating. Ask, **How is the pattern changing?** Select a confident volunteer to explain that in this example the pattern is increasing two new shapes in each part. Next, ask the students to show a decreasing pattern. Have them start their pattern by copying the element at the bottom of the picture. Afterward, ask, **How is the pattern changing?** Select a confident volunteer to explain that for this example the pattern is now decreasing two shapes in each part. Ask, **Can a pattern increase and decrease at the same time? What other patterns can you see in this picture?** Some students may say for example, 'I see a pattern that starts with two purple hands. Then there is four hearts, six squares that are turned a little bit, eight circles, then ten red stars.' Discuss all the different patterns that the students see. Then have the students use their counters to copy and extend the patterns on pages 12–13.



## 9. Using the teaching tool to translate a growing pattern

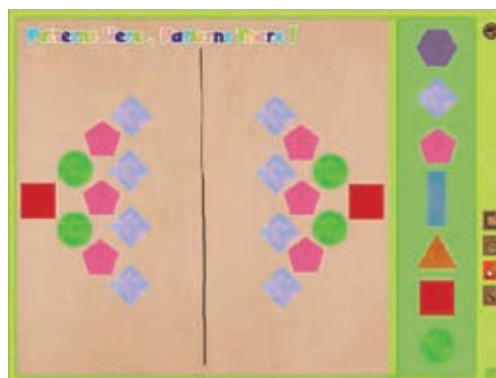


### Resources

- *Teaching Tool*
- *Patterns Here, Patterns There!*

### Activity

Ensure that all the students can see the *Teaching Tool*. Read page 10 of *Patterns Here, Patterns There!* again. Point to the pattern and ask, **Can anybody see a pattern that is growing? How can we use the Teaching Tool to show this pattern another way?** Invite a student to use the *Teaching Tool* to make a pattern that increases by one shape on either side of a dividing line (seen as the pink balloons) as shown right.



Next, ask, **Can anybody see a pattern that is getting smaller?** Again, invite a student to use the *Teaching Tool* to make a pattern that is decreasing by one shape on either side of a dividing line. Repeat this process for the patterns on pages 11–14.

## 10. Using the teaching tool to extend increasing and decreasing patterns



### Resources

- *Teaching Tool*

### Activity

Ensure that all the students can see the *Teaching Tool*. Click and drag shapes onto the work area to create the first two elements of an increasing pattern. See the example shown right.

Ask, **What is the first part in this pattern? How is the pattern changing? Is it getting bigger or smaller? What shape is being added to the pattern? What will the next part of the pattern look like?** Invite students to show the third and fourth elements of the pattern. Repeat for other increasing and decreasing patterns.

