







#### Topic: Patterns and algebra

#### Describing patterns using numbers

##### Lesson concepts

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

Today students will:

- ▶ create and describe simple patterns.

#### Resources

##### Digital

Drawing software

##### Find and prepare

Selection of music or a familiar song/rhyme

Board games (for example: checkerboards, lotto)

Squares of coloured paper

Coloured blocks

#### Key terms

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

## Lesson

### Introduce the lesson

#### Note

The following language is important to highlight and develop throughout this lesson:

pattern, same, describe, copy, non-pattern,  
repeating, rule, continue, explain, number

Explain to students that:

- music has a beat pattern
- you can make up dances by counting and moving using the beat pattern
- when you repeat your actions or movements, you have made a repeating pattern.

Share a selection of music. As students listen to each piece, have them:

- tap or clap the beat
- try to count the beat in phrases (for example: 1, 2, 3, 4, 5, 6, 7, 8 1, 2, 3, 4, 5, 6, 7, 8)
- show movements that could be done as they count to the beat
- use the movement pattern as the music is played.

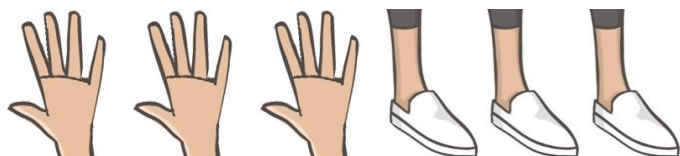
### Connect number to simple movement patterns

#### Say to students

‘ You have been making a repeating pattern as you moved to the music.  
You could remember the pattern by using pictures, words and numbers. ’

Discuss and demonstrate different ways of recording their dance patterns, for example:

3 claps, 3 stamps



2 jumps, turn around,  
2 claps, turn around



Have students:

- experiment with different movement patterns to different pieces of music
- describe their movement patterns and identify the repeated elements.

### Focus questions

Q: *What did you notice about the music pattern?*

A: Personal response required.

Q: *How did you use numbers to help you remember your dance pattern?*

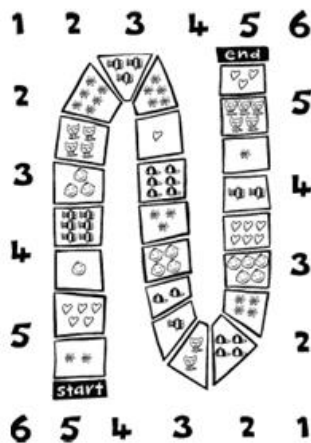
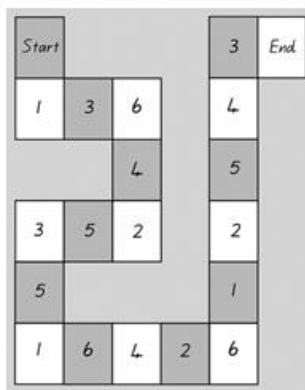
A: For example: I used numbers to tell me how many claps before I turned around.

Q: *What other dance pattern could you use for that music?*

A: Personal response required.

### Describe visual patterns using number

Have students explore games and look for patterns in the game boards.



### Focus questions

Q: *What patterns can you see?*

A: Personal response required.

Q: *What is repeated in this pattern?*

A: For example: Every second square is white.

Q: *Where do they start and finish?*

A: Personal response required.

Q: *Why do you think these game boards have these patterns?*

A: For example: So you can predict where you might land; as decoration; to plan strategies.

Q: *How are numbers used?*

A: For example: To show which square you are on or how many to go.

Consider a checkerboard with students.

Discuss the patterning by identifying:

- the shapes that are repeated are all squares
- the colours that are repeated (red and black).



Have students copy this pattern using:

- digital software
- painting
- drawing
- squares cut out of coloured paper
- coloured blocks.

### Focus questions

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

A: Red square, black square.

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

A: Personal response may vary depending which way students look at the board.

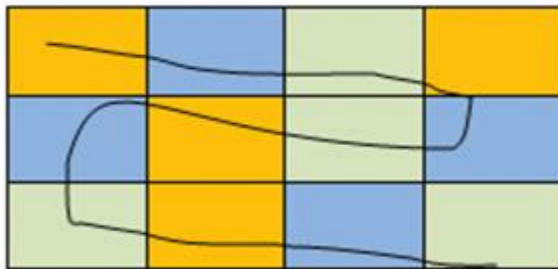
*Q: How could you make a checkerboard using three colours?*

A: Personal response required.

### Justify as pattern or non-pattern

Have students develop different patterns for their own board game:

- give students coloured squares (three or four different colours)
- assist them to plan and then construct a game board
- describe the pattern on the board
- explain how they know it is or is not a pattern.



This is a non-pattern.