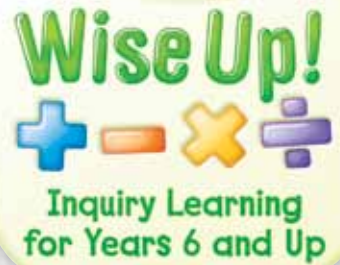


# Tiles and Tessellations

Literacy Level 30+, Year 8 • Maths Level 4 • Geometry and Measurement



## Inquire to Learn!

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There are many ways in which *Tiles and Tessellations* can be used as a base for Inquiry Learning. This is just one suggestion.

### Literacy Achievement Objectives:

- Use an increasing vocabulary to make meaning.
- Evaluate the usefulness of a text.
- Identify text forms and recognize and describe their characteristics and conventions.

### Specific Literacy Learning Outcomes:

- Make sense of and use technical multisyllabic vocabulary.
- Recognize that *Tiles and Tessellations* is an expository text that also contains a procedural text.
- Judge whether the text does what it sets out to do.

### Numeracy Achievement Objectives:

- Identify and use transformations (reflection, rotation, translation)
- Identify regular polygons and the sum of their interior angles

### Specific Numeracy Learning Outcomes:

- Describe the translation, reflection, or rotational symmetry of a tessellation.
- Alter polygons to create unique shapes that tessellate.
- Use a formula to find the sum of the interior angles of polygons.
- Identify lines of symmetry.

### Cross-Curricular and Topic Links:

patterns, art, graphic design

### Additional Social Studies Outcome:

Understand how people pass on and sustain culture and heritage.

### Additional Visual Art Outcome:

Explore and use art-making conventions. (Session 4, Inquiry Learning Extension 1. and 2.)

**Session 1:** Using the Big Book, share-read *Tiles and Tessellations*, stopping at natural points for discussion. Draw on the students' prior knowledge of symmetry and the work of M.C. Escher.

**Session 2:** Using the Big Book, work through the Literacy Focus questions. Guide the students towards achieving the literacy learning outcomes.

### Literacy Focus:

1. *Author's Purpose:* Ask: Why do you think the author wrote this book? [Answers will vary, but should include reference to explaining what tessellations are and how to make them.]

Ask: What kind of text is it? [Answers will vary but should include reference to expository text.]

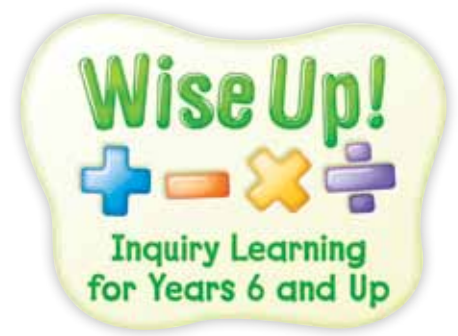
Turn to pages 20–21 and discuss the characteristics that make this spread a procedural text.

Ask: Do you think the author has achieved her purpose? Why/why not?

2. *Recall and Understanding:* Ask: Are all patterns tessellations? [No, for a pattern to be a tessellation, it must be a repeating pattern of distinct, closed shapes that meet around a common point.]

# Tiles and Tessellations

## Teacher's Notes continued



### Literacy Focus cont.:

3. **Vocabulary:** There are many multisyllabic words in *Tiles and Tessellations*. Challenge the students to find as many words as they can that have four or more syllables. [Examples from the book include: *tessellation, decoration, decorative, decorated, Sumerians, interior, quadrilateral, parallelogram, hendecagon, undecagon, dodecagon, dodecahedron, rotational, symmetrical, equilateral, translational, centimetres, repetitions, interesting, secondary, interlocking, semi-regular, transformations, representations, represented*]

**Session 3:** Using the Small Books, have the students reread *Tiles and Tessellations*. Model answering the Wise Up! on page 5. In their maths groups, have the students answer the Wise Up! questions on pages 7, 8, 11, 14, and 16. Help individual groups as necessary.

**Session 4:** Have the students work on their own to complete the activity on pages 20–21.

### Inquiry Learning Extension:

1. Have the students work on their own to complete the challenge on page 24.
2. Have the students research to find out more about artists such as M.C. Escher who use tessellations to make art.
3. Discuss the following statement:  
“Mathematicians go to the garden gate but they never venture through to appreciate the delights within.” – M.C. Escher

