**Grade Level Tasks**

**Outcome 8SS6**

Demonstrate an understanding of tessellation by: explaining the properties of shapes that make tessellating possible, creating tessellations, identifying tessellations in the environment

**Building Block:** Students can identify, in a given set of **regular polygons** and/or **irregular polygons**, those shapes and combinations of shapes that will tessellate, and use angle measurements to justify choices

1. Math Makes Sense: the textbook is a great resource to find example questions that can be used with students. Below are some examples to get you started:

	1. Math Makes Sense 8, page 462-467: explanations and examples
2. Which of the above shapes will tessellate? Choose one and prove that it tessellates using the angle measurements.

 
3. Try to tessellate a regular hexagon. Explain why it does or does not work.
4. Will a scalene triangle tessellate? Draw one and try it.

What about an isosceles triangle?

1. Raymond is designing a stained glass window. He wants to tile it with only quadrilaterals. Which of Raymond’s quadrilaterals tessellate? Explain how you know. 

**Building Block:** Students can identify a translation, reflection or rotation (or a combination of) in a given tessellation (including tessellations in the environment)

1. Math Makes Sense: the textbook is a great resource to find example questions that can be used with students. Below are some examples to get you started:

	1. Math Makes Sense 8, pages 176: 476-478
2. Describe the transformation(s) that was used to create these tessellations.

	1. b.
3. What transformation was needed to tessellate shape A to position B?


4. Bella and Nicole are trying to figure out how this tessellation was made.



Demonstrate who is correct?

1. Identify the translations, rotations and reflections for the shaded area in the following diagram that occurred to arrive at each figure (A, B, C and D). Explain how you know.


2. Tessellate the following shape to fill the entire grid. Describe the transformations you performed to accomplish this task.


3. Describe the following tessellations. What are they and how were they created?

	1. 
	2. 

1. Show at least three possible tessellation patterns that can be made with the blue rhombus block.

Record the designs and show where there are translations, reflections and/or rotations.

Can more than one tessellating pattern be made with other pattern blocks, using only one shape in each design? Record and identify where there are translations, reflections and/or rotations.

**Building Block:** Students can create a tessellation using one or more 2-D shapes or by transforming an existing tessellation, and describe the tessellation in terms of transformations and conservation of area.

1. Below are links to some websites that deal with tessalations.

	1. <http://illuminations.nctm.org/Activity.aspx?id=3533>
	2. <http://www.maths2art.co.uk/tessellation.htm>
	3. <https://www.youtube.com/watch?v=NYGIhZ_HWfg>
	4. <http://gwydir.demon.co.uk/jo/tess/index.htm>