Tessellations

Session guide for presenter – Wednesday Session 4

Materials: *Introduction to Tessellations*, by Dale Seymour and Jill Britton. ("The book" refers to this book.) 2 file cards and 2 sheets of blank paper for each participant (Exercises 3 and 4 below). Rulers and scissors for everyone. Pattern blocks. Plastic pentominoes for the extension (Exercise 6). Two sheets of light colored cardstock and 2 sheets of blank paper for participants to take home for their artistic tessellation (Exercise 9).

**Part I: 45 minutes**

1. Show page 6 of the book. In table groups, generate a definition of *tessellation*.
2. Show page 3. Focus is first two paragraphs and first sentence of the third.
3. We have already shown in Session 2 that all triangles tessellate. What about quadrilaterals? Everyone in each table group should make a different quadrilateral from a file card and try it by tracing. Include a concave quadrilateral in your group. **Justify your conclusions!**
4. Make a polygon that doesn’t tessellate and explain why it doesn’t.
5. Which regular polygons tessellate? Explain.
6. In table groups, find two irregular polygons with at least 5 sides that tessellate and two that don’t.
7. Extension: Which pentominoes tessellate and which don’t?

**Part II: 30 minutes**

**Put on a handout and color copy:**

1. Translation: Figures 7-7 and 7-8 on page 188
2. Rotation about midpoints of sides: Figures 7-15, 7-14 and 7-16 on pages 193-4
3. Rotation about vertices: Figure 7-33 on page 204
4. Drawing an artistic tessellation: pages 235-6
5. Show three tessellation methods that start with a square:
   1. Translation: pages 186-188. Figures 7-11 and 7-12 on page 191
   2. Rotation about midpoints of sides: Figures 7-15, 7-14 and 7-16 on pages 193-4
   3. Rotation about vertices: Figure 7-33 on page 204
6. Use one or more of these techniques to make an artistic tessellation.