

Subject #7: Math

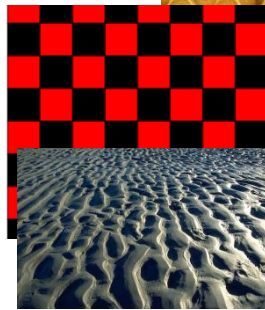
Project #75: Tessellations in Excel. Show students how to create tessellations by using the auto-shape tool.

Higher-order thinking skills	Technology-specific:	Subject Area/ Learning-specific	Standard: NETS-S
<i>Analyzing—seeing patterns, generating</i>	<i>Excel, auto-shapes, drawing</i>	<i>Math, tessellations,</i>	<i>2.a, 4.a</i>

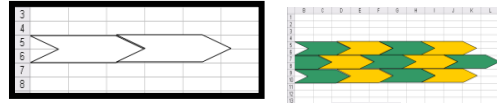
Grade level: 2-8
 Prior knowledge: Intro to Excel; Project 12: *Creating Simple Shapes in Excel*
 Time required: 30 minutes
 Software required: Excel
 Vocabulary: tessellations, fractals, autoshape, chevron, rows, columns, gridlines


Lesson Description

- A tessellation is a puzzle that repeats a particular pattern. It helps students understand geometric principles as they experiment with shapes.
- Students as young as kindergarten can do tessellations with some preparation.



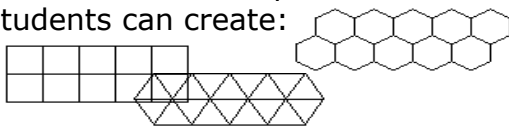
- Paint the chevron, two rows tall and three columns wide. Copy-paste it fifteen times
- Arrange the shapes nose to nose, five to a row. Use Excel gridlines to be sure they're aligned:



- Use the paint bucket  to color the shapes in a pattern.

Computer Activity

- Explain tessellations. Note their common occurrences in nature and elsewhere (see insets—mudflats, a checkerboard, a honeycomb). Discuss their mathematical pattern. When they 'grow up', they're called fractals.
- Here are some simple tessellations students can create:

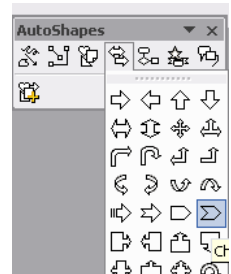


Computer Activity

- Open Excel. Select insert-picture—autoshapes-arrows-chevron

Extensions

- Try this with other autosshapes. Which ones work and which don't. Why?
- This lesson was adapted from S. Alejandro's Math Forum project: (www.mathforum.org/sum95/suzanne/tess.intro.html). Go visit—you'll find more great ideas.



And, try the following website:

http://nlvm.usu.edu/en/nav/frames_a_sid_163_g_3_t_3.html

Troubleshooting Tips

- I can't line the chevrons up. (Use Excel's gridlines to help.)*