Tessellations Project → Planning Worksheet

Use one or more tessellations to create a Tessellation on 8.5" x 11" paper. You must create a template based on one of the methods below.

Consider the following when planning your tessellation:

- Do you want to use one polygon or more than one?

- How complex do you want to make your original figure?

- Do you want to use one transformation or a combination to tessellate your figure?

- How are you going to use color to alter your tessellation and create more patterns?

- What is the idea or theme that you want to express in your piece?

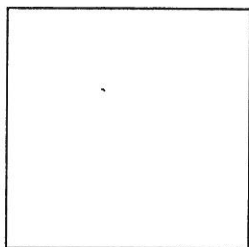- What is the title of your piece?
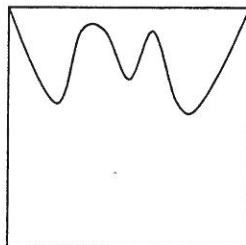

Translation Tessellation (Easy) Template

For simple translation tessellations, the starting polygon should have opposite sides that are parallel and congruent. Squares, hexagons, and parallelograms work best here.
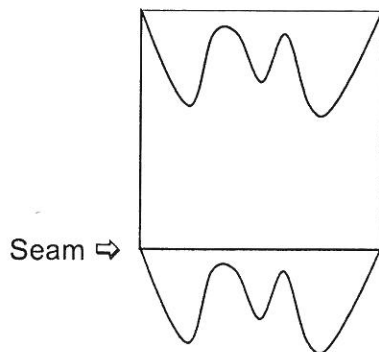
Example:
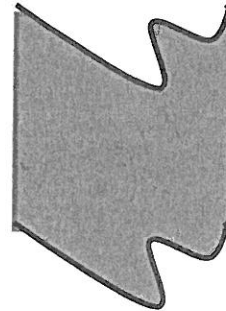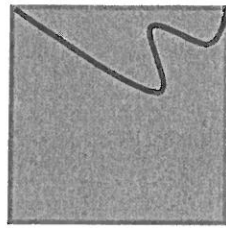1. Start with a square.   2. Draw a design on one side of the square.

3. Cut the design piece out and translate (slide) it across to the opposite side of the square. Secure it there with tape—be careful not to overlap the piece or make a gap. It should fit perfectly at the seam.
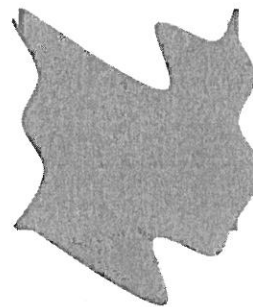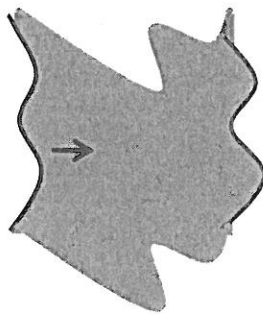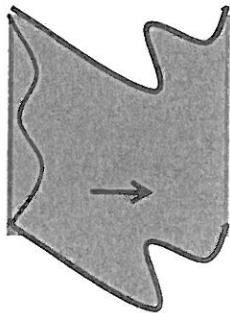
Seam ⇨

Translation Tessellation (Hard) Template (2 translations)

Example:

1. Start with a square.

2. Draw a design on one side of the square, translate (slide) it to the opposite side, and secure it with tape.
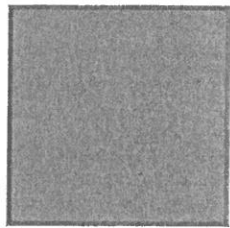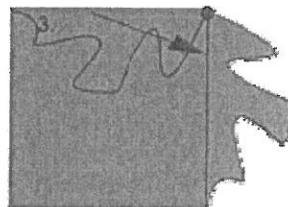
3. Draw another design on the adjacent side of the square and translate (slide) it to the opposite side. Secure it with tape.

Rotation Tessellation Template

For rotation tessellations, the adjacent sides of the polygon must be congruent. Squares, equilateral triangles, regular hexagons, and rhombi work best here.
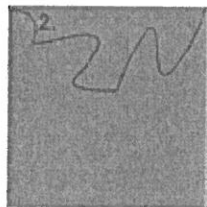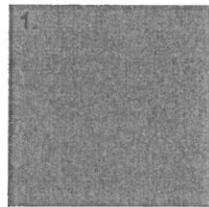
1. Start with a square.

2. Draw a design on one side of the square.

3. Cut the design piece out and rotate (turn) it on an end point until it lies evenly with an adjacent side of the square.

4. Secure the cutout piece to the adjacent side of the square to complete the pattern. This pattern (template) needs to be rotated as it is traced.

TESSELLATION RUBRIC

CATEGORY	5	4	3	2
Organization	Tessellations are presented in an organized manner. Their construction is complete and accurate.	Tessellations are presented in a somewhat organized manner. Their construction is fairly complete.	Tessellations are organized, but not well constructed.	There is no organization to the tessellation.
Complexity of Design	Tessellation was created with non-polygon shapes that connect to create an intricate and complex pattern.	Tessellation was created with complex polygon shapes that connect to create an intricate and complex pattern.	Tessellation was created with simple shapes that connect to create a pattern	Tessellation is simple and pattern is not complex or interesting.
Completeness of Tessellation	All areas of the tessellation are covered by the complex pattern to completely fit together.	All areas of the tessellation are covered by the simple pattern with few or small holes in the pattern.	Most areas of the tessellation are covered by the simple pattern with some holes in the pattern.	There are major holes in the tessellation and it does not fit together.
Creativity	Tessellation uses unique design and patterns of unusual shapes to form a complex and interesting design.	Tessellation uses a mixture of polygons and interesting shapes to create a nice design.	Tessellation uses some shapes that fit together to form a simple pattern	There is no creativity to the design.
Follows Directions	Tessellation covers an 8.5"x11" sheet of paper completely with interesting display and presentation.	Tessellation covers an 8.5"x11" sheet of paper and has a complete presentation.	Tessellation mostly covers an 8.5"x11" sheet of paper and has no presentation	Tessellation does not cover the 8.5"x11" paper completely.

Maximum of 20 pts. earned here

WRITING GUIDELINES

- Each answer in your written response should be numbered to correspond with each question.

- Questions need to be clearly answered and they must be supported by sufficient detail.

- Response must contain use of mathematical terms, such as reflection, translation, rotation, etc.

- Response is neatly typed with few distracting errors, such as spelling and grammar.