TESSELLATION ART mini-project

MC Escher, born in Leeuwarden, Holland in 1898, created unique and fascinating works of art that explore and exhibit an array of mathematical ideas. Among his greatest admirers were mathematicians, who recognized in Escher's work an extraordinary visualization of mathematical principles. This was quite remarkable, as Escher had no formal mathematics training beyond secondary school. Students will create a tessellation that demonstrates their knowledge of the properties of geometric transformations, such as translations, rotations, and reflections.

The following items must be included in your mini-project:

A. <u>TEMPLATE</u>: You will apply transformations to a regular polygon (triangle, square, or hexagon) to create an Escher-esque tessellation template. The construction of your template is very important. Please cut, align and tape with care. The quality of your template will affect your tessellation. You will be tracing this template to create your art project.

B. <u>TESSELLATION</u>: Your tessellation must cover the sheet of paper completely without any gaps or overlaps. All projects will be in portrait layout (tall/skinny). All work is neat and constructed using your template. You will create a 3-inch "Info Zone" at the bottom of the paper. In this zone, you will attach your template and answer the Summary questions (see below in part D).

C. <u>PATTERN OR ARTWORK</u>: Once you have completed the outline of a full-page tessellation, you must add artwork. You may choose to use unique designs and patterns, or you can "distort" your shape to form animals, birds, or other figures. All work must be neat and high quality. Color is required.

D. <u>SUMMARY</u>: Answer the following prompts: 1) What type of transformation was used? 2) What is the underlying shape? and 3) How many figures appear around each vertex?

E. <u>SELF-ASSESSMENT</u>: Using the rubric/checklist on the back of this sheet, assess your own project. Put a checkmark for each task in the "student" column if you feel that you have completed that task. Give yourself a "total score" at the bottom of the sheet based on the scoring rubric. (Hint: if you find an incomplete or inadequate task, feel free to make changes or edit your work before you submit.)

DUE DATE: _____

Name _____

Date   _____   Period _____

TESSELLATION ART Checklist & Rubric

Write a *check mark* for each task in the "student" column if you feel that you have completed that task. Give yourself a "total score" at the bottom based on the scoring rubric.

Student Column	Teacher Column	Points possible	**Checklist**
		5	1. I have created a precise template constructed using a regular polygon (triangle, square or hexagon).
		5	2. I have traced my template to create a full-page tessellation. My tessellation contains no gaps and no overlaps. My tessellation has clearly been created using my template… no freehand drawing of lines. All work is neat and organized.
		5	3. I have added color, patterns, and/or pictures to form a complex and interesting design. My work is neat and of high quality.
		1	4. I have attached my template in the "Informational Zone."
		3	5. I have answered all questions listed in part D in the "Informational Zone."
		1	6. I have carefully completed this evaluation checklist, using the student column to record my initials or a checkmark. I have awarded myself a total score based on the rubric below.

Rubric

20   WELL DONE: All work is high quality, neat, complete and well presented. Ideas are clearly expressed. All information is accurate.

15   ACCEPTABLE: Work is mostly complete, and presentation is still neat. Some information may be inaccurate but overall most work supports conclusions. Ideas may not be fully explained, but the basic requirements for a section have been met.

10   INCOMPLETE: Less than two-thirds of a requirement for a section has been done. Work is sloppy. Data is not accurate. Explanations lack depth or are unclear.

0   NOT DONE

TOTAL SCORE: student: _____   teacher: _____
(Note: your score can be any value between 0 and 20)