

Subject: Mathematics - Geometry

Grade: Eleventh

Standard: #1 Basic Shapes; #2 Points, Lines, Angles, and Planes
#3 Polygons; #4 Quadrilaterals; #5 Triangles; #6 Right Triangles
#7 Circles; #8 Polyhedra and Other Solids

Key Concept: Students organize and consolidate mathematical ideas.

Generalization: Students communicate their interpretation of a geometric topic to others.

Background:

This lesson would be a end-of-year culminating activity and might be used to replace a final exam.

Students choose a tier according to interest in a topic from their geometry text. The number of tiers will depend on the material which is covered. The teacher may decide to specify the tiers as I have done below or let students select any chapter or topic from their text. It may be necessary and desirable to show students several children's books which illustrate geometric topics. Some good choices are The Greedy Triangle, ISBN#0-590-48991-7, Shape Up!, ISBN#0-8234-1346-2, Shape and Pattern Puzzles, ISBN#1-929245-00-9, and Grandfather Tang's Story, ISBN#0-517-88558-1.

Directions for all the tiers are the same. Students select a topic and prepare a children's book to illustrate the concepts from the chapter or associated with a topic from their text. Students could work in pairs or individually to complete the assignment. It may be necessary to prepare specific directions and rubrics for pairs versus individuals. That is, you may decide if students work in pairs they must illustrate two related topics, e.g. triangles and right triangles. Topics or chapters should be pre-approved by the teacher. You might have students prepare an outline of their ideas first.

This lesson will take a number of days to complete as students will need time to review the material, prepare an outline, be creative, and prepare the final product. You may want to also allow 1-2 days for students to share their books with the rest of the class.

This lesson is tiered in *content* according to *interest*.

Possible tiers based on the State Standards are listed below.

- Tier I: *Basic Shapes*
- Tier II: *Points, Lines, Angles, and Planes*
- Tier III: *Polygons*
- Tier IV: *Quadrilaterals*
- Tier V: *Triangles*
- Tier VI: *Right Triangles*
- Tier VII: *Circles*
- Tier VIII: *Polyhedra and Other Solids*

Assessment:

A rubric for the books should be based primarily on neatness, organization, accuracy of the information, and creativity. You might also decide to make the presentation to the class part of the assessment. The rubric should be given to the students at the beginning the lesson.