Task

Tangrams

See attached handouts for specifics on some of the activities listed below

- Tangram activities: Students experiment with colored tangrams and learn how to calculate the area of each individual piece. Then they create larger shapes by combining the pieces and calculate the area of those by adding up the individual pieces. This leads to the development of formulas for areas of a square, rectangle, parallelogram, triangle and trapezoid.
- Generate discussion from the class about using seven pieces to form different polygons, then six pieces, then 5 pieces, etc.
- Once a lively discussion has happened, have students start mixing and matching their tangrams with a partner who has a different color. How do the tangrams make other tangrams or different shapes?
- Using tangrams, students investigate the concept of measurement of height and base as it relates to area of polygons. The first polygons to be studied are parallelograms: squares, rectangles, parallelograms can be seen as base times height. Homework assigned from text.
- Using tangrams, students investigate the concept of triangles: a triangle can be seen as half of a parallelogram, which leads to its formula. Homework assigned from text.
- Continuing to use tangrams, students investigate how trapezoids are related to parallelograms and triangles. A trapezoid can be divided into a rectangle and one or two triangles that lead to the development of the area formula. A worksheet for in class discussion is given. Homework continued on worksheet.
- Area of a kite: a kite can be divided into two congruent horizontal triangles, two congruent vertical triangles, or four triangles that lead to the development of the area formula. Students are drawn into discussion of how to figure the area of a kite from previous experiences with triangles. Homework is from worksheet.

Rubric:

	0	1	2	3	4
Work Habits					
Teamwork					
Knowledge					
Equipment & materials					

Criteria

Work Habits	**Knowledge**
*is self-starting	*Interprets directions correctly
*is organized	*Plans a sequence of steps
*follows directions	*Uses calculator & materials properly
*uses time effectively	*Recognizes problems as they arise & suggest solutions
*practices safe work habits	*Uses mathematical language to communicate ideas
*meets deadlines	*Demonstrates knowledge of the properties and calculations
Teamwork	**Technology & Materials**
*cooperates with team members	*keeps work area orderly
*shares group work	*maintains materials
*helps negotiate consensus	*uses right materials/technology
*respects differing ideas/conjectures	*puts materials away