Unit 6 Patterns in Shape Lesson 1
Math Toolkit Entries

1.
- State the Triangle Inequality Theorem in your own words.
- Give **2** specific examples of sets of lengths of triangle sides – one set that satisfies the Triangle Inequality Thm. and one set that does *not* satisfy the Triangle Inequality Thm.
- Include sketches.

2.
- What constraints are needed on the lengths of the sides of a quadrilateral for it to be a parallelogram?
- What additional constraints are needed for it to be a rectangle?
- Include sketches of each.

3.
- Summarize the four sets of Triangle Congruence Conditions.
- Include sketches of pairs of triangles to illustrate each condition.
- Name two other sets of conditions that do not guarantee triangle congruence?
- Include sketches to illustrate.

4.
- Describe three properties of an isosceles triangle.
- In your description, include the vocabulary words ***legs, base, base angles***, ***altitude***, and ***median***.
- Include a sketch to illustrate.

5.
- Summarize the properties of each of the shapes listed below:
  - parallelogram
  - rectangle
  - square
  - rhombus
  - kite
- Include the vocabulary words/phrases: ***Opposite sides, consecutive sides, opposite angles***, ***consecutive angles, bisect***, ***diagonal***, ***paralle*** and ***perpendicular*** in your descriptions
- Include sketches to illustrate.

6.
- Explain why constructions using a compass and a straightedge produ accurate drawings.
- Include one construction as an example and justify why the steps in t construction produce the desired figure.

7.
- Explain the meaning of the Pythagorean Theorem and its converse.
- What is the converse of a conditional statement?
- Give two examples, one mathematical and one not involving mathematics, to illustrate that if a statement is true, its converse may not be true.

8.
- What is the Hypotenuse-Leg Theorem?
- Explain why this theorem is true.
- Include a sketch to illustrate.