POLYGON PERCENT PATTERNS

Teaching Guidelines

Subject: Mathematics

Topics: Geometry, percents

Grades: 4 - 7

Concepts:

- Polygon
- Percent

Knowledge and Skills:

- Can identify/describe common polygons
- Can convert between percent notation and fraction notation

Materials (for each team):

- three copies of the 60-triangle pattern handout
- five sets of polygons, cut from construction paper, using the "Cutout Patterns" handout
- one glue stick

Procedure:

This activity is best done with students working individually or in teams of two.

Distribute the handouts and polygons. (Instead of cutting out the shapes yourself, you may wish to give the students safety scissors and sheets of colored paper on which the shapes have been copied.)

Explain the assignment to the class. Show students an example that you prepare beforehand, of, say, a pattern which covers 30 of the triangles of the figure, or 50% of it.

Students will need to work out how to determine the number of triangles their patterns should cover, given the percentage. Give individual help as necessary, but let them try to work this out on their own as much as possible. One good strategy is "guess and check":

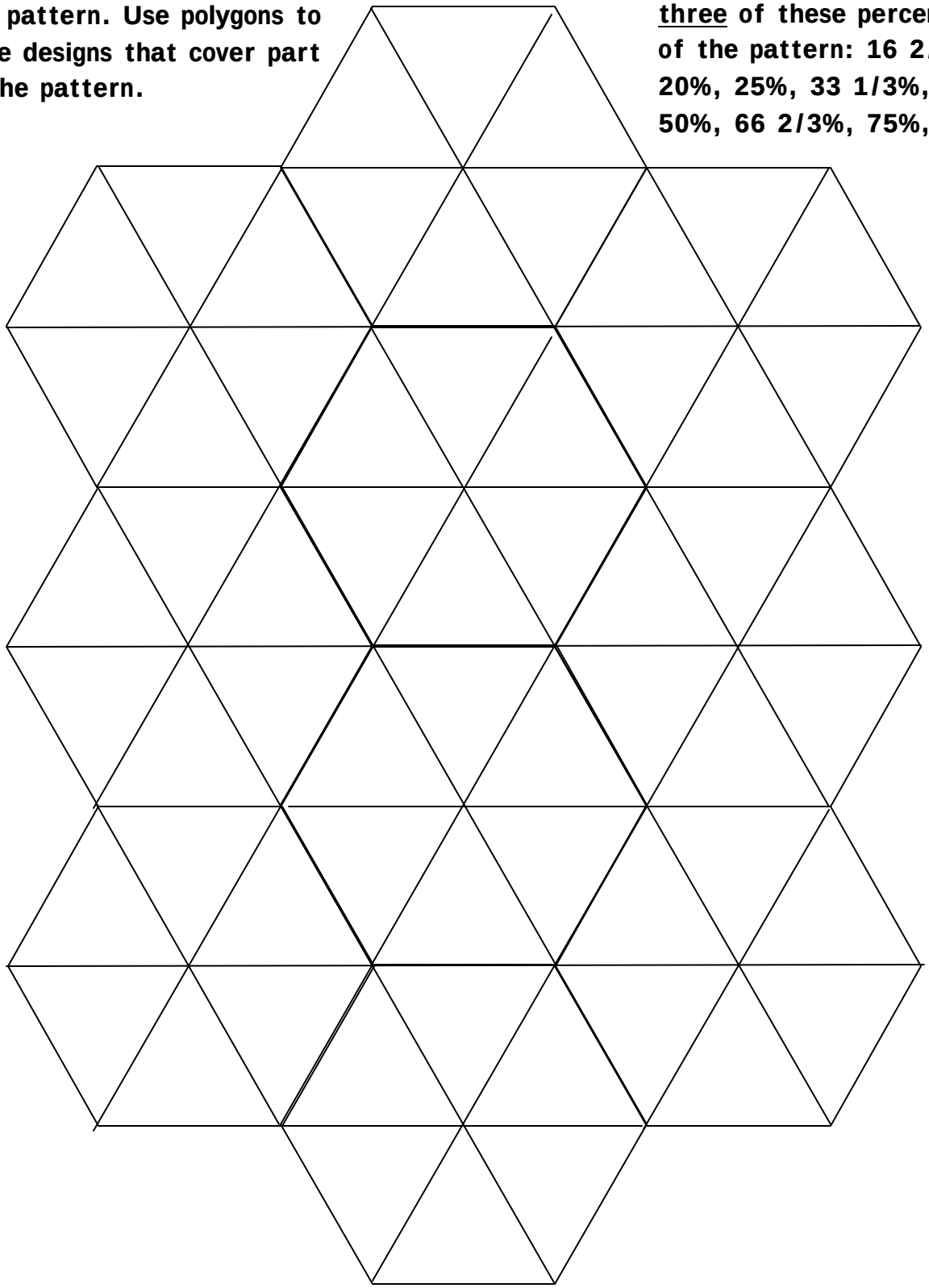
a) choose a number of triangles (say, 15),

b) write the fraction that shows the amount of the whole pattern that would be covered (15/60),

c) reduce that fraction and convert it to a percent (15/60 = ¼ = 25%). If this is not the percent you wanted, try again, adjusting your guess up or down.

There are 60 triangles in this pattern. Use polygons to make designs that cover part of the pattern.

Make designs that cover <u>three</u> of these percentages of the pattern: 16 2/3%, 20%, 25%, 33 1/3%, 40%, 50%, 66 2/3%, 75%, 80%.



Cutout Patterns

Cut out these hexagons, triangles, rhombuses, and trapezoids to make your designs.