

Answer Key/Possible Solutions

Drawing Plane Figures

- Although a variety of drawings will occur, some closed figures should emerge from the intersection of angles with other building blocks (lines, line segments, and rays). The closed figures (polygons) will be the springboard for the week's lessons.
- The written paragraph is used as a diagnostic assessment. See Day 1, Step 1 for details.

Classifying Plane Figures

- Check to make sure that closed figures are in one circle and open figures in the other.

Sample Notes/Sample Paragraph

- See Day 1, Steps I-K for details

Classifying Polygons

- Groupings will vary, but the polygons in each group should contain the same common property. For example, Group 1 may contain polygons with four sides (B,D) while Group 2 contains polygons with more than 4 sides (A,C,E,F). Or, Group 1 may contain polygons with at least 1 right angle (B,D,F) while Group 2 contains polygons without right angles (A,C,E). The classification activity gives students an opportunity to organize the polygons based on the characteristics they can identify and understand.

Building Polygons

- The polygons created will vary, but should be closed figures and have the appropriate number of sides, angles, and vertices.

Venn Diagram of Irregular and Regular Polygons

- Check to make sure that the regular polygons have congruent sides and angles. (The regular polygons should represent the figures constructed with the toothpicks.)

Notes and Paragraph Page

- Students' notes should contain characteristics of irregular and regular polygons. Their paragraphs should follow the guidelines outlined in the Short-Answer Question Rubric and contain an introduction, supporting details, and a conclusion.

Sorting All Sorts of Polygons

1. Identification—Students may not have *all* of the following labels, but they should at least be able to identify the polygon by its number of sides.

- A. hexagon, irregular
- B. quadrilateral, rectangle
- C. pentagon, regular
- D. quadrilateral, trapezoid
- E. hexagon, regular
- F. dodecagon
- G. pentagon, irregular
- H. triangle, right
- I. quadrilateral, rhombi
- J. triangle, equilateral, regular
- K. quadrilateral, parallelogram
- L. quadrilateral, square, regular
- M. quadrilateral, trapezoid
- N. octagon, regular

2. Regular Polygons: C, E, J, L, N

3. Irregular Polygons: A, B, D, F, G, H, I, K, M

4. Measurement of Regular Polygons

Polygon	Side	Angle
C	1 $\frac{1}{4}$ "	108°
E	1 $\frac{1}{8}$ "	120°
J	1 $\frac{3}{4}$ "	60°
L	1 $\frac{1}{2}$ "	90°
N	$\frac{7}{8}$ "	135°

Building Code Check-Up #3

- Part A: Hopefully the classifications are a little more sophisticated based on the past week's study (i.e., classifying according to number of lines of symmetry; regular vs. irregular polygons; characteristics of sides, angles, vertices) but any classification scheme that is followed and correctly explained should be accepted.
- Part B: At least 1 of the 3 shapes must be a regular polygon (congruent sides and angles). The easiest regular polygon to construct would be an equilateral triangle, but a square, hexagon, and octagon are also possible.
- Part C: The congruent shape **MUST** be the exact size and shape. The similar shape could be either smaller (1/2 the normal size) or larger (2x the normal size) than the original.