

Plane Geometry Sort

Reporting Category Geometry

Topic Understanding plane and solid geometric figures

Primary SOL 3.14 The student will identify, describe, compare, and contrast characteristics of plane and solid geometric figures (circle, square, rectangle, triangle, cube, rectangular prism, square pyramid, sphere, cone, and cylinder) by identifying relevant characteristics, including the number of angles, vertices, and edges, and the number and shapes of faces, using concrete models.

Related SOL 3.15, 3.16

Materials

- Plane Geometric Figures Sorting Chart (attached)
- Plane Geometric Figures (attached)
- Properties of Plane Geometric Figures (attached)
- Paper bags

Vocabulary

square, rectangle, triangle, circle, right angle, opposite, plane, properties

Student/Teacher Actions (what students and teachers should be doing to facilitate learning)

Note: Before undertaking this activity, copy, cut out, and place a set of the attached plane geometric figures in each of several paper bags.

1. Display plane geometric figures in the classroom, and ask students to name and describe them. Choose two of the figures, and have students compare and contrast them.
2. Distribute copies of the Plane Geometric Figures Sorting Chart. Put students into small groups of two or three, and give each group a bag containing a set of plane geometric figures. Have each group complete the sorting chart, using the figures in their bag.
3. Have students verify their work by completing a large class sorting chart for the same figures. Ask questions such as, “What did your group notice about figures H and E?” “What are figures G, C, and K called?” “What do you notice about figures J and D?”

Assessment

- **Questions**
 - Can triangles have right angles? Why, or why not?
 - How are a square and a rectangle similar? How are they different?
- **Journal/Writing Prompts**
 - Explain why a triangle can or cannot have two right angles. Draw a picture that justifies your thinking.
 - You are teaching a young child how to draw a square. Write the step-by-step directions you would use to teach him/her how to draw this plane figure.

Extensions and Connections (for all students)

- Have students record identified characteristics of each plane figure on the attached Properties of Plane Geometric Figures sheet.

Strategies for Differentiation

- **Technology**
 - Have students use a drawing software program to create plane geometric figures. Direct students to print them, cut them out, and label them.
- **Multisensory**
 - Once figures are cut out and labeled, have students trace them on paper. Some students find that tracing a shape is helpful for remembering it. Have students label each traced figure.
 - Create poster-size geometric figures, and display them in the classroom. Use various fabrics and other materials to create a variety of tactile edges and vertices.
- **Vocabulary**
 - Have students create a notebook of geometry terms. Direct them to divide each page into two sections and to draw a geometric shape (or paste a cut-out shape) in one section and label the shape in the other. Use of color to distinguish the terms may be helpful for some students.
- **Student Organization of Content**
 - Have students use a Venn diagram to compare the different geometric shapes according to their properties.

Plane Geometric Figures Sorting Chart

Name: _____ Date: _____

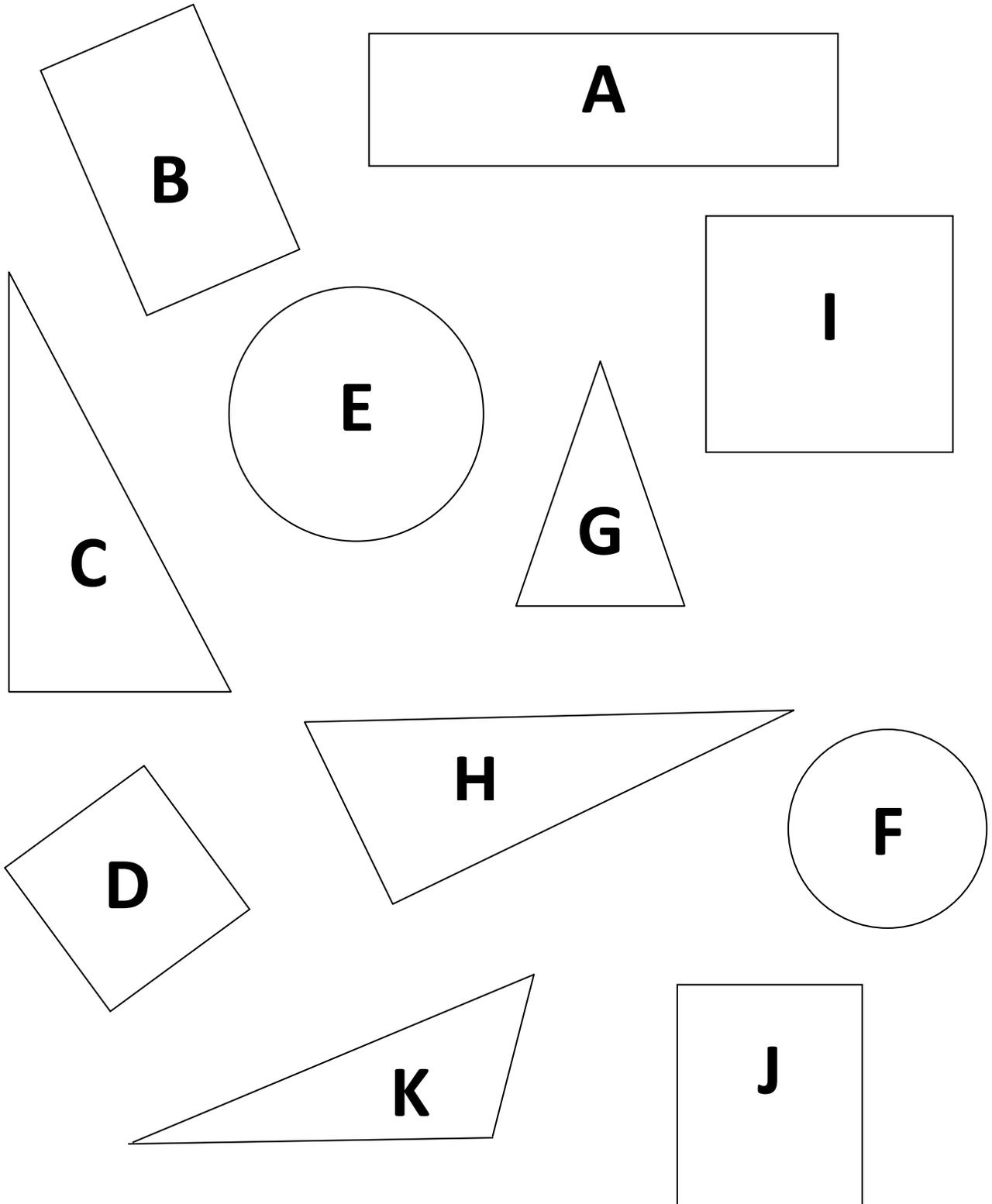
Directions: Look carefully at each figure from the bag. Mark with an X all the boxes that apply to each figure. Based on the completed chart, answer the questions that follow.

FIGURE	No sides	Three sides	Four sides	At least one right angle	All sides equal	Opposite sides equal
A						
B						
C						
D						
E						
F						
G						
H						
I						
J						
K						

1. A figure with no sides or line segments is called a/an _____.
2. A figure with three sides is called a/an _____.
3. Can a figure with three sides have a right angle? _____
4. A figure with four equal sides and four right angles is called a/an _____.
5. A figure with four right angles and opposite sides equal is called a/an _____.
6. How are figures A and I similar? _____
7. How are figures A and I different? _____

Plane Geometric Figures

To be copied on card stock, cut out, and placed into paper bags for group sorting



Properties of Plane Geometric Figures

Name: _____ Date: _____

Directions: Look carefully at each figure. Name each figure, and list at least three properties that describe that figure.

Figure	Name of the figure	Three properties that describe the figure
		
