ORCHIDS The International School

Grade 4 Math Worksheet: Understanding Shapes (Difficulty Level: Advanced)

Name: _____
Date: _____

Section 1: Classifying and Naming Shapes

1. **Fill in the Blanks:**
   - A shape with four equal sides and four right angles is called a _____.
   - A 3D shape with two circular faces and one curved surface is a _____.
   - A shape with six identical square faces is a _____.
   - A 3D shape that has only one vertex and one circular base is a _____.
   - A shape with three sides and three vertices is a _____.

2. **Classify the Shapes:**

Identify each shape below as "Polygon" or "Non-Polygon" (for 2D shapes) or "Prism" or "Non-Prism" (for 3D shapes):

Shape	Classification
Octagon	
Sphere	
Hexagonal Prism	
Trapezoid	
Cylinder	
Cube	
Square	
Pyramid	

Section 2: Shape Properties

1. **Complete the table with the correct number of faces, edges, and vertices for each 3D shape:**

Shape	Faces	Edges	Vertices
Rectangular Prism			
Square Pyramid			
Cylinder			
Triangular Prism			
Sphere			

2. **Answer the Following Questions:**

- Which shape has only one curved surface and no vertices?
- _____
- Which shape has 5 faces, including a square base?
- _____
- What do all prisms have in common? Describe at least two characteristics.
  _____

Section 3: Understanding Shape Relationships

1. **Shape Similarities and Differences:**
   Write one similarity and one difference between the following pairs of shapes:
   - **Cone and Cylinder:**
     - Similarity: _____
     - Difference: _____
   - **Cube and Rectangular Prism:**
     - Similarity: _____
     - Difference: _____
   - **Sphere and Cylinder:**
     - Similarity: _____
     - Difference: _____

2. **Fill in the Blanks:**
    - A _____ and a _____ both have circular bases, but only the _____ comes to a point.
    - A _____ and a _____ have six faces, but the _____ has square faces while the other may have rectangular faces.

Section 4: Real-Life Shape Applications

1. **Matching Shapes to Real-Life Objects:**

Match each shape with an everyday object that resembles it:

Shape	Real-Life Example
Cylinder	a) Ice cream cone
Sphere	b) Building block
Cube	c) Basketball
Rectangular Prism	d) Soup can
Cone	e) Shoebox
Pyramid	f) Egyptian monument

2. **Describe the Shapes:**

    - Describe the shape of a **traffic cone** and explain why this shape is used for traffic cones.
    - Explain why **cylindrical cans** are often used for holding food or drinks.

Section 5: Drawing and Visualizing Shapes

1. **Draw and Label the Following Shapes:**
    - **Cube:** Draw a cube and label its edges, faces, and vertices.
    - **Triangular Pyramid:** Draw a triangular pyramid, labeling its base, faces, and vertices.
    - **Cylinder:** Draw a cylinder and show its circular faces and curved surface.

2. **Sketch and Describe:**
    - **Draw a 3D Shape** that has a rectangular base and four triangular faces (Hint: it's a type of pyramid). Label its faces, edges, and vertices.
    - Draw a **Net for a Cube** (a pattern that, when folded, would form a cube). Label each square as a face of the cube.

Section 6: Challenge Questions

1. **Analyzing Rolling and Stacking:**
    a. Which shapes can roll easily? (Circle all that apply):
        i. Cube
        ii. Sphere
        iii. Cylinder
        iv. Cone
    b. Which shapes can stack easily? (Circle all that apply):
        i. Pyramid
        ii. Sphere
        iii. Cube
        iv. Rectangular Prism

--BE THE CHAMPION!--