

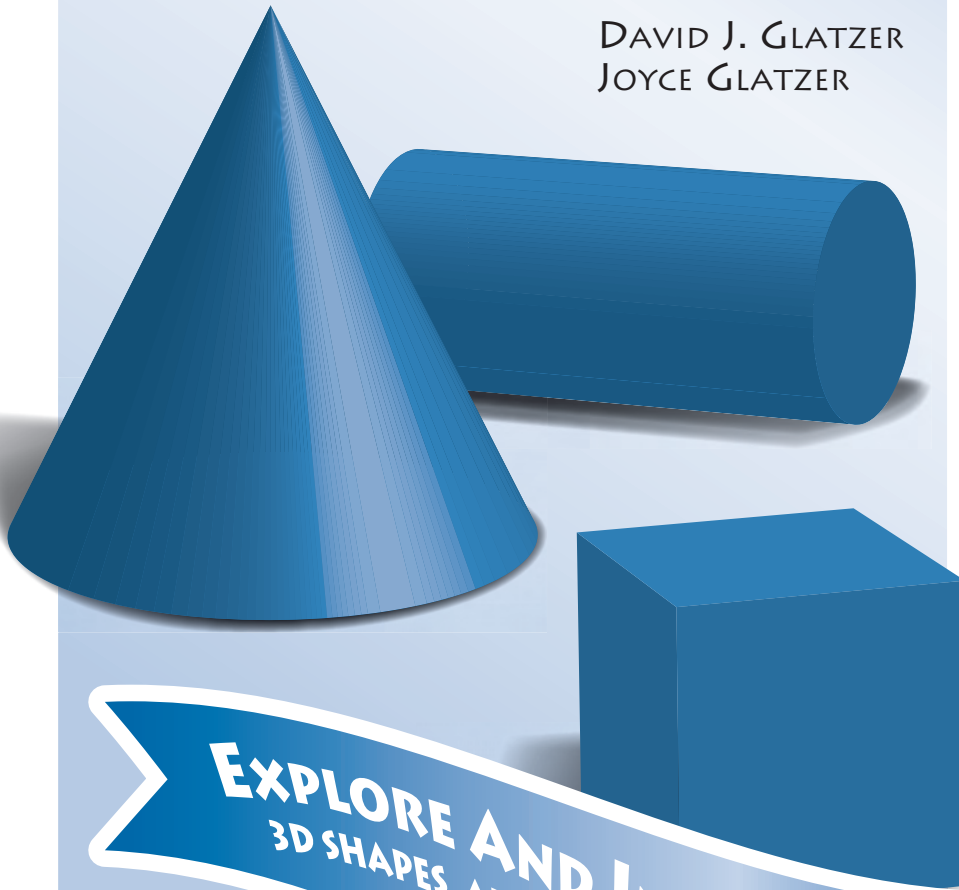


GeoModel[®]

SOLIDS

BLACKLINE MASTERS

DAVID J. GLATZER
JOYCE GLATZER



EXPLORE AND INVESTIGATE
3D SHAPES, AREA, VOLUME AND NETS!

Set of
17

Grades 2 & Up







WHO HAS?

1. Who has a solid that would roll?
2. Who has a solid that would stack?
3. Who has a solid that would slide?
4. Who has a solid with more vertices than faces?
5. Who has a solid with no vertices?
6. Who has a solid with parallel bases?
7. Who has a solid with at least one triangular face?
8. Who has a solid with at least one face that is a hexagon?
9. Who has a solid with at least one rectangular face but not all rectangular faces?
10. Who has a solid with all faces congruent?
11. Who has a solid that looks like a cereal box?
12. Who has a solid that looks like a can of soup?

NAME _____

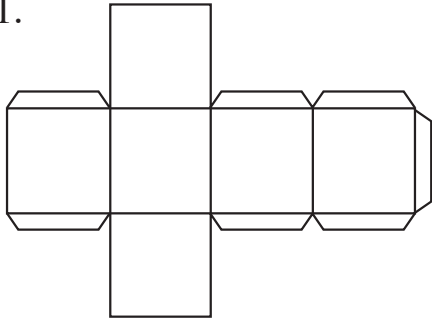
ABOUT FACE

Complete the chart

SOLIDS	NUMBER OF FACES THAT ARE					
						
Cube						
Rectangular Prism						
Triangular Prism						
Pentagonal Prism						
Hexagonal Prism						
Square Pyramid						
Triangular Pyramid						
Pentagonal Pyramid						
Hexagonal Pyramid						
Cylinder						
Cone						
Sphere						

THE MATCH GAME

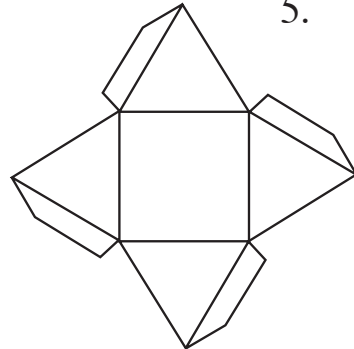
1.



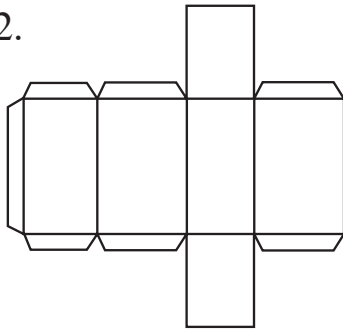
Cylinder

Pentagonal Prism

5.



2.

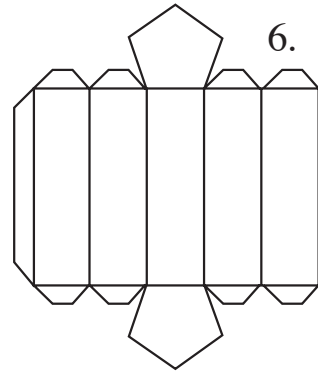


Hexagonal Prism

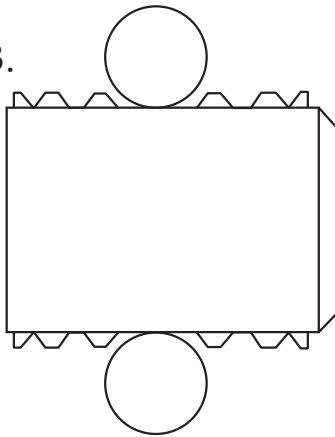
Cube

Triangular Pyramid

6.



3.

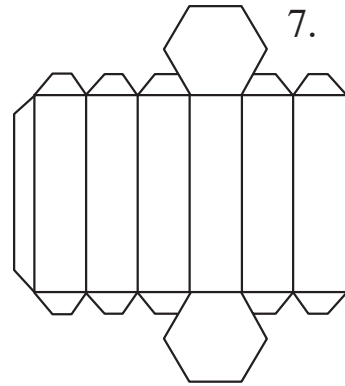


Triangular Prism

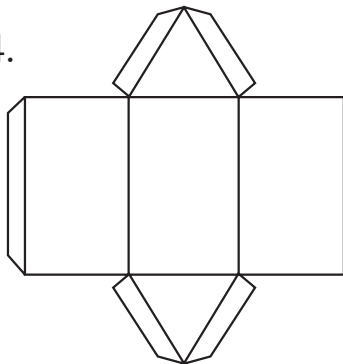
Cone

Square Pyramid

7.



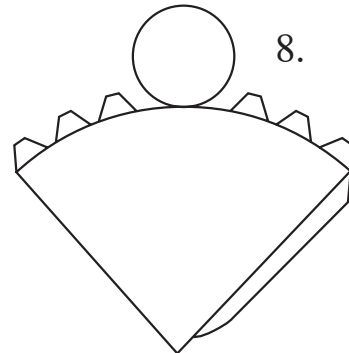
4.



Rectangular Prism

Other

8.



WHO AM I?

1. Who Am I?

- I have 5 faces.
- Three of my faces are rectangles.
- Two of my faces are parallel.
- I have six vertices.

ANSWER

2. Who Am I?

- I have a circular base.
- I have only one face.

ANSWER

3. Who Am I?

- I have parallel bases.
- I have 8 faces.
- My bases are congruent polygons.

ANSWER

4. Who Am I?

- I have an even number of vertices.
- I have an even number of faces.
- I have an even number of edges.
- I do not have parallel faces.
- I have fewer than 5 vertices.

ANSWER

5. Who Am I?

- I have parallel bases.
- I have six more edges than faces.
- Two of my faces are squares.

ANSWER

6. Who Am I?

- I have an odd number of vertices
- Four of my faces are isosceles triangles.
- I have an even number of edges.

ANSWER

EULER'S FORMULA

Complete the chart

SOLID	Number of Faces	Number of Edges	Number of Vertices
Cube			
Rectangular Prism			
Triangular Prism			
Pentagonal Prism			
Hexagonal Prism			
Square Pyramid			
Triangular Pyramid			
Pentagonal Pyramid			
Hexagonal Pyramid			

Explain the relationship that exists among the number of faces, edges and vertices of each solid in the chart.

Using f for faces, e for edges, and v for vertices write an algebraic equation that summarizes this relationship.

WHAT IF?

1. What happens to the volume of a cube if the length of each edge is doubled?

2. What happens to the volume of a cylinder if the height is doubled and the diameter of the base is not changed?

3. What happens to the volume of a cylinder if the height and diameter of the base are each doubled?

4. What happens to the volume of a rectangular prism if the length and width are each doubled and the height is cut in half?

5. What happens to the surface area of a cube if the length of each edge is doubled?

6. What happens to the surface area of a cylinder if the height is doubled and the diameter of the base is not changed?

7. What happens to the surface area of a cylinder if the diameter of the base is doubled and the height is not changed?

8. What happens to the volume of a cone if the height is tripled and the diameter of the base is doubled?

FORMULAS

Cube

Volume: $V = e^3$, where e is the edge

Surface Area: $SA = 6e^2$

Rectangular Prism

Volume: $V = lwh$, where l is the length of the base, w is the width of the base, and h is the height the prism.

Surface Area: $SA = 2lw + 2lh + 2wh$

Cylinder

Volume: $V = \pi r^2 h$, where r is the radius of the base, h is the height of the cylinder.

Surface Area: $SA = 2\pi r^2 + 2\pi rh$

Cone

Volume: $V = \frac{1}{3}\pi r^2 h$, where r is the radius of the base, h is the height of the cone.

Surface Area: $SA = \pi rl + \pi r^2$, where l is the slant height

Any Prism

Volume: $V = Bh$, where B is the area of the base, and h is the height of the prism.

Surface Area: $SA = 2B + ph$, where p is the perimeter of the base and h is the height of the prism.

Triangular Pyramid

Volume: $V = \frac{1}{3}Bh$, where B is the area of the base and h is the height

Surface Area: $SA = B + \frac{1}{2}pl$, where p is the perimeter of the base and l is the slant height.

Square Pyramid

Volume: $V = \frac{1}{3}Bh$, where B is the area of the base and h is the height

Surface Area: $SA = B + \frac{1}{2}pl$, where p is the perimeter of the base and l is the slant height



Pattern Blocks

Plastic

- #531007 1 cm
- #531009 .5 cm

Wood

- #531005 1 cm

Hollow

- #531011 1 cm

QuietShape™

- #530138 1 cm
- #531252 .5 cm



GeoMirrors

- #531014 - Shown

Mirrors

Flexible

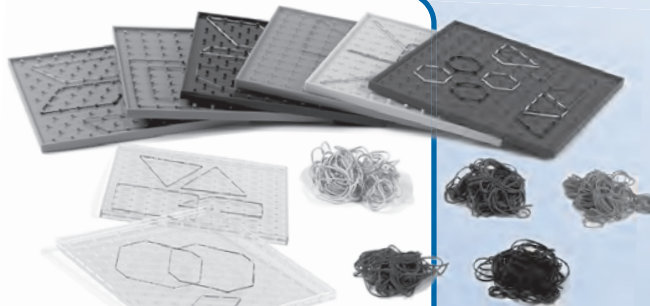
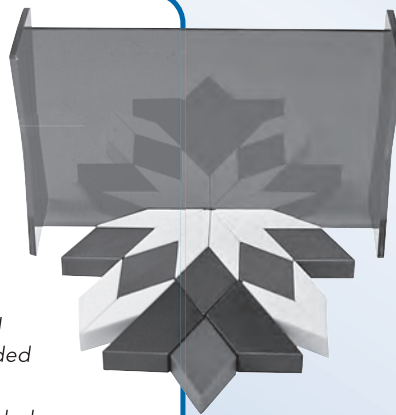
- #532313 8½" x 11"
- #530821 2¼" x 3¼"
- #530474 4" x 6"

Plastic

- #530182 3" x 5" - One-Sided
- #530474 4" x 6" - Double-Sided

Hinged

- #530302 3" x 5" - Double-Sided



Geoboards

- #530212 5" - Double-Sided
- #530824 6" - Double-Sided
- #531051 9" - Double-Sided

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