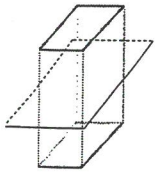
Name: _____ Math 8

CROSS SECTIONS

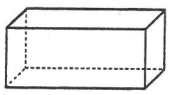
7.G.3

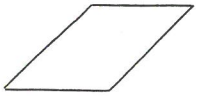
If you were to slice a cereal box with a geometric plane as shown, what shape would result?



LEARNZILLION

Right rectangular prism Plane



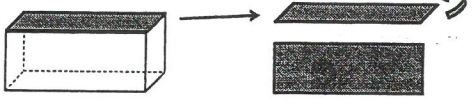


LEARNZILLION

In this lesson you will learn how to describe the cross sections of a right rectangular prism by slicing at different angles.

LEARNZILLION

Interpreting a perspective drawing as though you were looking at it straight on:



Rectangle

LEARNZILLION

Core Lesson

Vocabulary: Cross section

The two-dimensional shape that results from cutting a three-dimensional shape with a plane

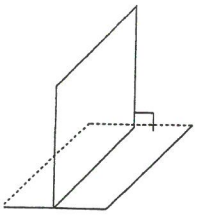
Circle

LEARN ZILLION

Core Lesson

Perpendicular Planes:

Two planes that intersect at a right angle (90 degree angle)

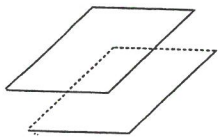


LEARN ZILLION

Core Lesson

Parallel Planes:

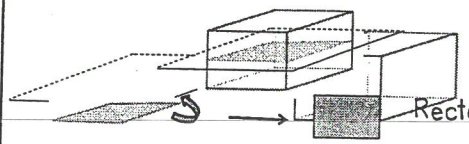
Two planes that never intersect



LEARN ZILLION

Core Lesson

Cutting a right rectangular prism with a plane parallel to its base

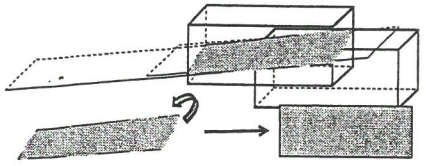


Rectangle

LEARN ZILLION

Core Lesson

Cutting a right rectangular prism with a plane <u>not</u> parallel to its base



Rectangle

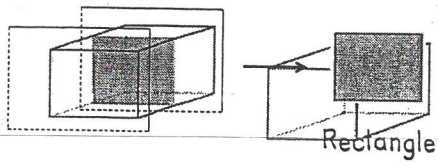
LEARN ZILLION

In this lesson you have learned how to describe the cross sections of a right rectangular prism by slicing at different angles.

LEARN ZILLION

Core Lesson

Cutting a right rectangular prism with a plane perpendicular to its base

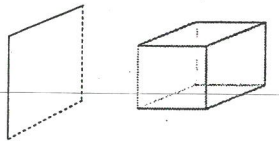


Rectangle

LEARN ZILLION

Guided Practice

Describe the shape of the cross section formed by the intersection of this plane and right rectangular prism.



LEARN ZILLION

Extension Activities

Explain why any plane parallel to one face of a right rectangular prism will intersect the prism to form a rectangular cross section.

LEARNZILLION

Quick Quiz

Review

1. Describe the shape of the cross section formed by the intersection of this plane and prism:

LEARNZILLION

Extension Activities

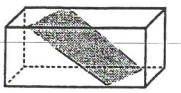
Describe the shape of the cross section formed by the intersection of a right rectangular prism and a plane that cuts off one corner of the prism.

LEARNZILLION

Quick Quiz

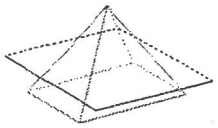
Review

2. Describe in words the plane that would form the cross section shown in this right rectangular prism:



LEARNZILLION

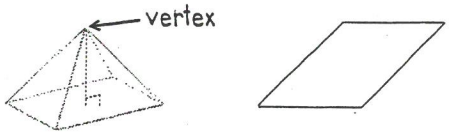
If you were to slice the Great Pyramid of Giza with a geometric plane as shown, what shape would result?



LEARN ZILLION

Let's Review

Right rectangular pyramid Plane



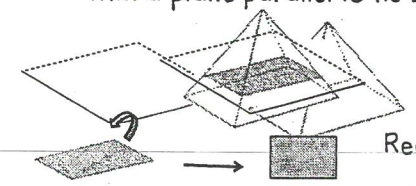
LEARN ZILLION

In this lesson you will learn how to describe the cross sections of a right rectangular pyramid by slicing at different angles.

LEARN ZILLION

Core Lesson

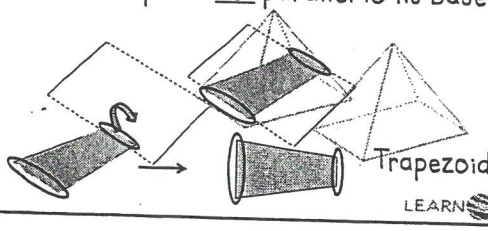
Cutting a right rectangular pyramid with a plane parallel to its base



LEARN ZILLION

Core Lesson

Cutting a right rectangular pyramid with a plane not parallel to its base



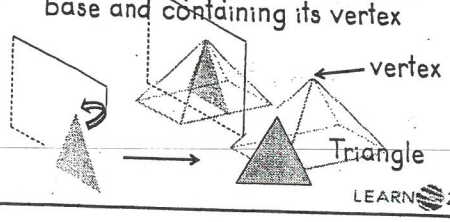
LEARNZILLION

In this lesson you have learned how to describe the cross sections of a right rectangular pyramid by slicing at different angles.

LEARNZILLION

Core Lesson

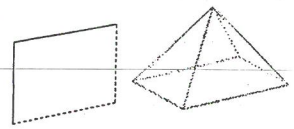
Cutting a right rectangular pyramid with a plane perpendicular to its base and containing its vertex



LEARNZILLION

Guided Practice

Describe the shape of the cross section formed by the intersection of this plane and pyramid, if the plane does not contain the vertex of the pyramid.



LEARNZILLION

Extension Activities

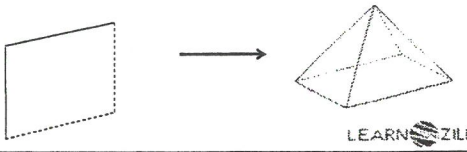
Explain why any plane through the vertex of a pyramid will intersect the pyramid to form a triangular cross section.

LEARNZILLION

Quick Quiz

Review

1. Describe the shape of the cross section formed by the intersection of this plane and pyramid if the plane contains the vertex of the pyramid:



LEARNZILLION

Extension Activities

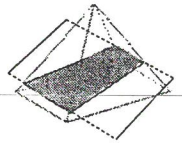
Describe the shape of the cross section formed by the intersection of a right rectangular pyramid and a plane that intersects the base and only two of the triangular faces of the pyramid.

LEARNZILLION

Quick Quiz

Review

2. Describe in words the plane that would form the cross section shown in this right rectangular pyramid:



LEARNZILLION

Lesson 12

Main Idea

Identify and draw three-dimensional figures.

New Vocabulary

coplanar
parallel
solid
polyhedron
edge
face
vertex
diagonal
prism
base
pyramid
cylinder
cone
cross section

Math Online

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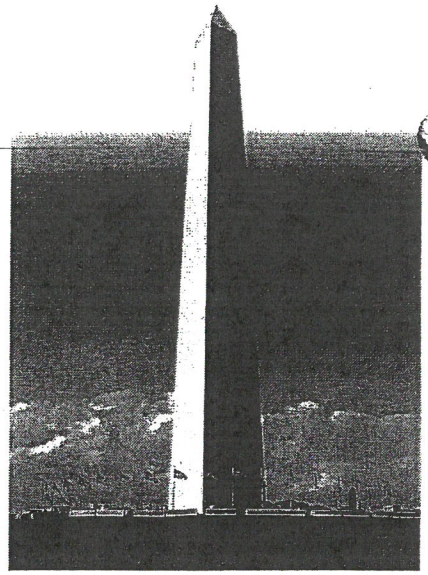
CCSS 7.G.3

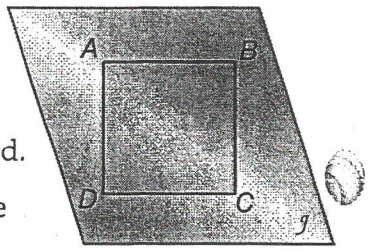
Cross Sections



MONUMENTS A two-dimensional figure, like a rectangle, has two dimensions: length and width. A three-dimensional figure, like a building, has three dimensions: length, width, and height.

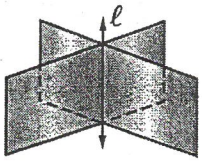
1. Name the two-dimensional shapes that make up the sides of the Washington Monument.
2. If you observed the building from directly above, what two-dimensional figure would you see?
3. How are two- and three-dimensional figures related?

The figure at the right shows rectangle *ABCD*. Lines *AB* and *DC* are **coplanar** because they lie in the same plane. They are also **parallel** because they will never intersect, no matter how far they are extended.

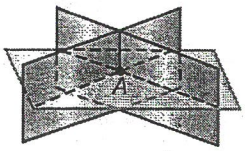


Just as two lines in a plane can intersect or be parallel, there are different ways that planes may be related in space.

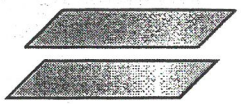
Intersect in a Line



Intersect at a Point

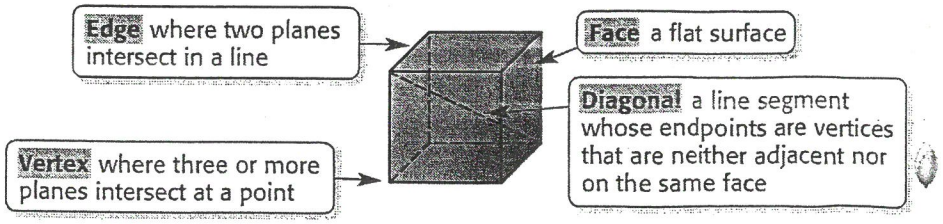


No Intersection



These are called *parallel planes.*

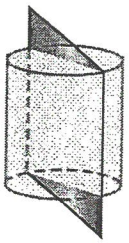
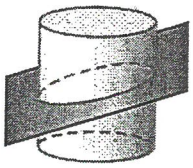
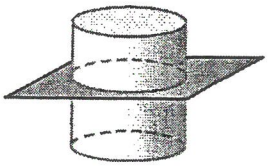
Intersecting planes can also form three-dimensional figures or **solids**. A **polyhedron** is a solid with flat surfaces that are polygons. Some terms associated with three-dimensional figures are *edge*, *face*, *vertex*, and *diagonal*.



The intersection of a solid and a plane is called a **cross section** of the solid.

EXAMPLE Identify Cross Sections

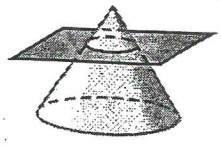
Describe the shape resulting from a vertical, angled, and horizontal cross section of a cylinder.

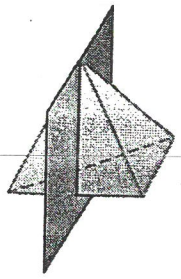
Vertical Slice	Angled Slice	Horizontal Slice
		
The cross section is a rectangle.	The cross section is an oval.	The cross section is a circle.

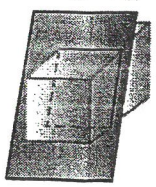
CHECK Your Progress

4. Describe the shape resulting from a vertical, angled, and horizontal cross section of a square pyramid.

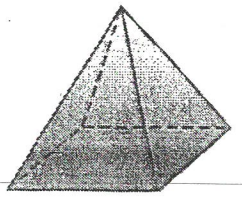
Describe the shape resulting from each cross section.

5. 

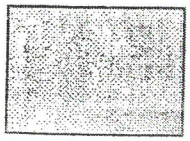
6. 

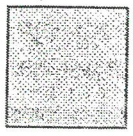
7. 

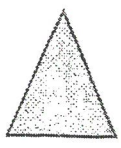
8. The figure below is a square pyramid.



Which of the following is NOT a cross section from the square pyramid?

F. 

H. 

G. 

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