

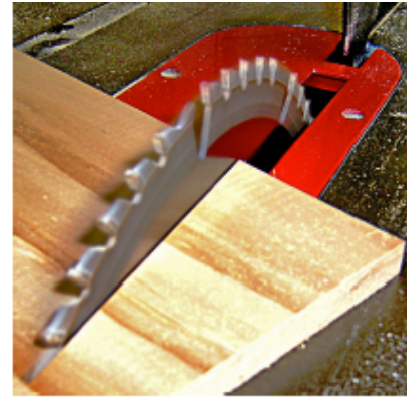
-Module 4 Homework DUE TODAY!

-Unit 5 Outline

\*Friday, January 13 is the last day Ms. Hansen will accept any late/missing/extra credit work. This includes test/quiz make ups or retakes.

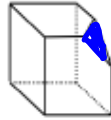
# 5.1 Any Way You Slice It

## A Develop Understanding Task

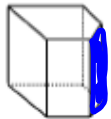


Students in Mrs. Denton's class were given cubes made of clay and asked to slice off a corner of the cube with a piece of dental floss.

Jumal sliced his cube this way.



Jabari sliced his cube like this.



1. Which student, Jumal or Jabari, interpreted Mrs. Denton's instructions correctly?

Why do you say so?

Mrs. Denton was not clear with her instructions, so either could be correct.

When describing three-dimensional objects such as cubes, prisms or pyramids we use precise language such as *vertex*, *edge* or *face* to refer to the parts of the object in order to avoid the confusion that words like "corner" or "side" might create.

<sup>2D</sup> A cross section is the face formed when a three-dimensional object is sliced by a plane. It can also be thought of as the intersection of a plane and a solid.

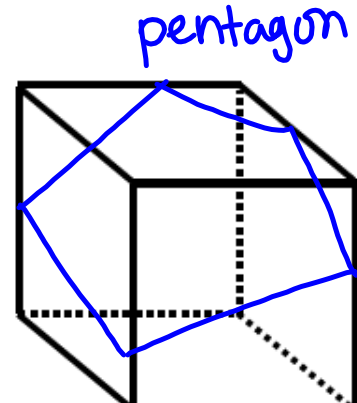
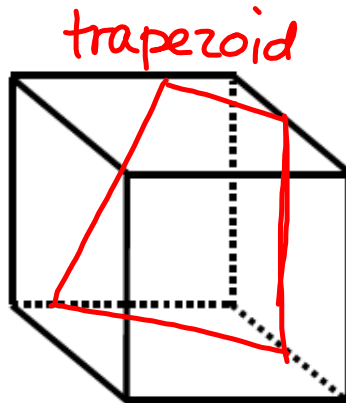
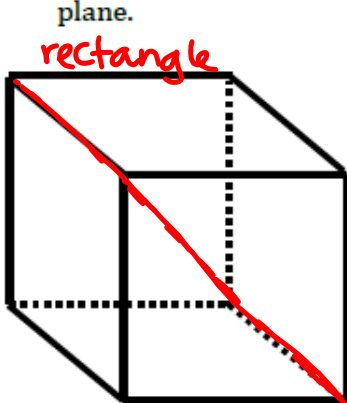
2. Draw and describe the cross section formed when Jumal sliced his cube.



3. Draw and describe the cross section formed when Jabari sliced his cube.

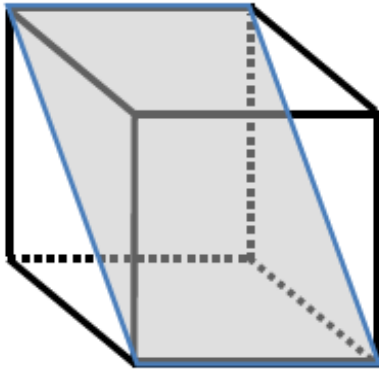


4. Draw some other possible cross-sections that can be formed when a cube is sliced by a plane.



5. What type of quadrilateral is formed by the intersection of the plane that passes through diagonally opposite edges of a cube?

Explain how you know what quadrilateral is formed by this cross section.



rectangle/parallelogram

Cross sections can be visualized in many different ways. One way is to do what Jumal and Jabari did—cut a clay model of the solid with a piece of dental floss. Another way is to partially fill a clear glass or plastic model of the three-dimensional object with colored water and tilt it in various ways to see what shapes the surface of the water can assume. A third way is to examine the two-dimensional shadow cast by the three-dimensional object as it is turned or rotated in the light.

Experiment was various ways of examining the cross sections of different three-dimensional shapes.

6. Partially fill a cylindrical jar with colored water, and tilt it in various ways. Draw the cross sections formed by the surface of the water in the jar.

semicircle      square/rectangle   
<http://www.shodor.org/interactivate/activities/CrossSectionFlyer/>  
 circle       part of ellipse       part of ellipse

7. Examine the shadow of a cube as it is positioned in various ways in front of a light source. Which of the following shadow-shapes can be formed? Which are impossible?

a square	} yes	a pentagon	yes
a rhombus		a hexagon	yes
a rectangle		an octagon	} impossible
a triangle		a circle	

# Homework/Classwork

## 5.1 Ready, Set, Go