High School Algebra Playlist: Moving Between 2D and 3D

Aligns with CCSS.Math.Content.HSG.GMD.B.4: Identify the shapes of two-dimensional cross-sections of three-dimensional objects, and identify three-dimensional objects generated by rotations of two-dimensional objects.

Related Standards

- CCSS.Math.Content.HSG.GMD.A.1: Give an informal argument for the formulas for the circumference of a circle, area of a circle, volume of a cylinder, pyramid, and cone. *Use dissection arguments, Cavalieri's principle, and informal limit arguments*.

Objectives

In this module, you will learn and practice the following skills:

- identify the shapes of two-dimensional cross-sections of three-dimensional objects

- identify three-dimensional objects generated by rotations of two-dimensional objects

Let's get started!

Key Terms

- A **cross-section** is the plane figure obtained by the intersection of a solid by a plane.

Moving Between 2D and 3D

(CCSS.Math.Content.HSG.GMD.B.4)

Identify the shapes of two-dimensional cross-sections of three-dimensional objects, and identify three-dimensional objects generated by rotations of two-dimensional objects.

A **cross-section** is the plane figure obtained by the intersection of a solid figure by a plane.

If your students…

Have trouble visualizing cross-sections:

Some students have trouble visualizing cross-sections, especially when they are looking at two-dimensional perspective drawings of three-dimensional objects. Bring them into the third dimension with modeling clay; have them form a solid and cut it with dental floss to see the cross-section.

Have trouble relating 2D figures to 3D solids:

Using nets may help some students move between two and three dimensions.

WATCH: Cross-Sections and Nets

http://www.ck12.org/geometry/Cross-Sections-and-Nets/lesson/Cross-Sections-and-Nets/?referrer=featured_content

Are curious about other cross-sections:

Introduce more-advanced students to conic sections by having them make oblique cross-sections of a cone. Can they produce an ellipse? A parabola?

For extra practice with **Moving Between 2D and 3D:**

PLAY: **Cross Sections of Three Solids**

http://demonstrations.wolfram.com/CrossSectionsOfThreeSolids/