

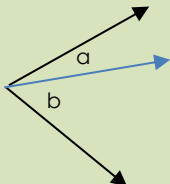
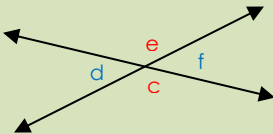
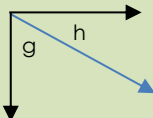
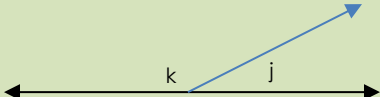
Unit 8: Plane and Solid Figures

Dear Parents/Guardians,

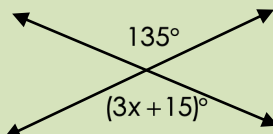
In Unit 8, students explore a variety of geometric relationships in 2- and 3-dimensions. In Lesson 1, students investigate angle relationships and use them to find missing angle measures. In Lesson 2, students draw figures with given characteristics, using tools and technology when applicable. In Lesson 3, students describe the 2-dimensional cross sections that can be created by slicing 3-dimensional figures.

Angles

Students will investigate angles and special angle relationships.

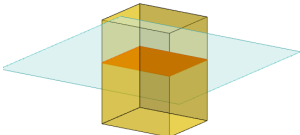
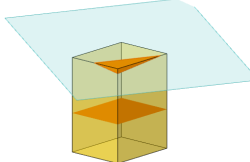
<p>adjacent angles</p>  <p>Share a common vertex and a common side.</p>	<p>vertical angles</p>  <p>$\angle e$ and $\angle c$ are vertical angles. $\angle d$ and $\angle f$ are vertical angles.</p> <p>Opposite angles formed by two lines that intersect at a point. Vertical angles have the same measure.</p>
<p>complementary angles (Do not have to be adjacent.)</p>  <p>Angles whose measures add up to 90°.</p>	<p>supplementary angles (Do not have to be adjacent.)</p>  <p>Angles whose measures add up to 180°.</p>

Students will write and solve equations for missing angle measures.

Example	Equations	Reasoning
<p>Solve for x.</p> 	$3x + 15 = 135$ $3x = 120$ $x = 40$ <p>Check: $3x + 15$ $3(40) + 15 = 135$</p>	<p>Vertical angles are congruent. Subtract 15 from both sides. Divide both sides by 3.</p> <p>Check by substituting 40 in for x. $3x + 15 = 135$ for $x = 40$.</p>

Cross-Sections

Students will explore different 2-D cross sections of 3-D figures. A cross section is created when a plane intersects a 3-D figure. This may be done using a physical model (like slicing play-doh) or with technology (like Geogebra). Below are two different cross-sections within a rectangular prism.

Horizontal Cross Section	Diagonal Cross Section
Creates a rectangle identical to the base of the prism.	Creates a triangle at the top of the prism.
	



Center For
Mathematics
And Teaching

MathLinks

GRADE 7

By the end of the unit, your student should know...

- Facts about supplementary, complimentary, vertical, straight, and adjacent angles [Lesson 8.1]
- How to use facts about angles to write and solve equations involving angle measures [Lesson 8.1]
- How to construct polygons with given side lengths and angle measures [Lesson 8.2]
- How to identify and describe two-dimensional cross sections of three-dimensional figures [Lesson 8.3]

Additional Resources

- For definitions and additional notes please refer to Student Resources at the end of this unit.
- Measuring angles with a protractor:
<https://youtu.be/LiHutbul6FM>