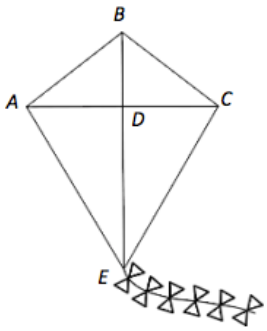
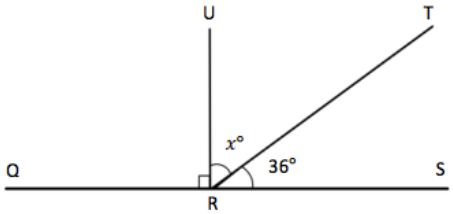
Angle Measure and Plane Figures

This 20-day module introduces points, lines, line segments, rays, and angles, as well as the relationships between them. Students will construct, recognize, and define these geometric objects before using their new knowledge and understanding to classify figures and solve problems. Students will construct and measure angles, as well as create equations to find an unknown angle.



Students will be asked to identify points, line segments, lines, rays, and angles.

Given a geometrical drawing like the one below, students will learn to use what they know to solve for an unknown angle measure.



Solve for ∠TRU.
∠QRS is a straight angle.

What Came Before this Module: We applied multiplication and division to contexts such as area and perimeter, and worked up to multiplication and division of multi-digit whole numbers.

What Comes After this Module: Students will explore fraction equivalence, working for the first time with mixed numbers. They will compare and represent fractions and mixed numbers using a variety of models to build their understanding.

Key Words to Know

Angle - union of two different rays sharing a common vertex

Acute Angle – angle with a measure of less than 90 degrees

Adjacent angle – angles that share a common side

Complementary angles - two angles with a sum of 90 degrees

Line of symmetry - line through a figure such that when the figure is folded along the line two halves are created that match up exactly

Obtuse angle - angle with a measure greater than 90 degrees but less than 180 degrees

Right angle - angle formed by perpendicular lines, measuring 90 degrees

Straight angle - angle that measures 180 degrees

Supplementary angles - two angles with a sum of 180 degrees

Vertex - a point, often used to refer to the point where two lines meet, such as in an angle or the corner of a triangle

+ How you can help at home:

- Review vocabulary! This module introduces many new terms and ideas. Use your student's homework to find key terms to review.
- Practice adding to make 90, 180, and 360, as well as subtracting from those numbers. This will be useful when students are solving problems like the missing angle one above.

Key Common Core Standards:

- Geometric measurement: understand concepts of angle and measure angles.
  - Recognize angles as geometric shapes that are formed whenever two rays share a common endpoint, and understand concepts of angle measurement.
- Draw and identify lines and angles, and classify shapes by properties of their lines and angles.
  - Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.

Some sample Total Physical Response questions from this module:

What teacher says:	*What students do:*
Model a point	Clench one hand in a fist and extend arm forward.
Model a ray	Extend arms straight so that they are parallel with the floor. Clench one hand in a fist and leave the point with a finger on the other hand.
Model a right angle	Stretch one arm up, directly at the ceiling. Stretch another arm directly towards a wall, parallel to the floor.
Make an angle that measures approximately 60°	Open arms apart to approximately 60°

Spotlight on Math Strategies:

Total Physical Response

Borrowed from language instruction, this is a powerful tool for learning new math vocabulary.

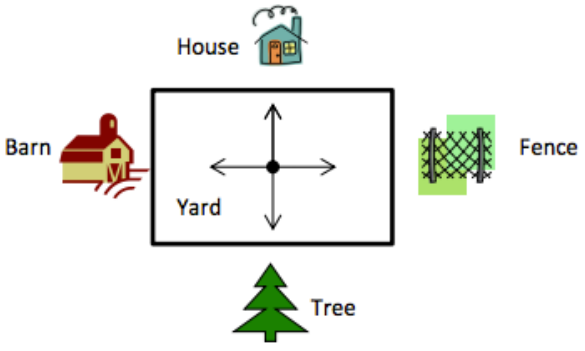
A Story of Units has several key mathematical strategies that will be used throughout a student's elementary years.

In the world of language learning, "total physical response" refers to the coordination of language and physical movement. In this module, there are many new geometry terms and ideas that students must remember. Using their bodies in connection with new vocabulary helps students to cement these new words and their meanings in lasting ways. Throughout the module, students engage in fluency activities called "Physiometry" (a single-word combination of "physical" and "geometry") in which they use body movements and positioning to indicate terms such as point, line segment, ray, acute, obtuse, and right angles, as well as many others.

Sample from the curriculum:

Joe, Steve, and Bob stood in the middle of the yard and faced the house. Joe turned 90° to the right. Steve turned 180° to the right. Bob turned 270° to the right. What was each boy now facing?

(Example taken from Lesson 8, Module 4)



Tips for parents

COMMON CORE consider the Source