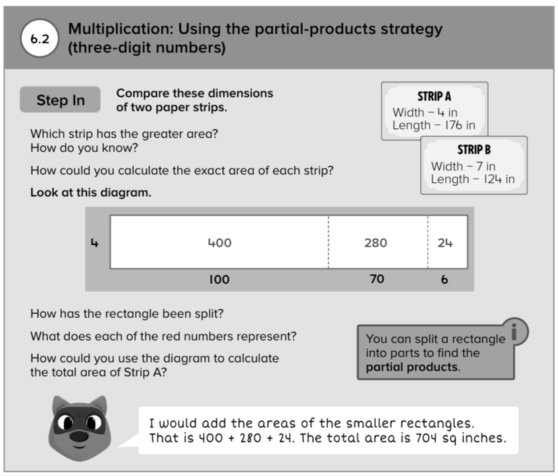
ORIGO STEPPING STONES 2.0

Core Focus

- Multiplication: Using the partial-products strategy and solving word problems
- Length: Exploring the relationship between miles, yards, feet, and inches
- Angles: Using a protractor and identifying acute, right, and obtuse

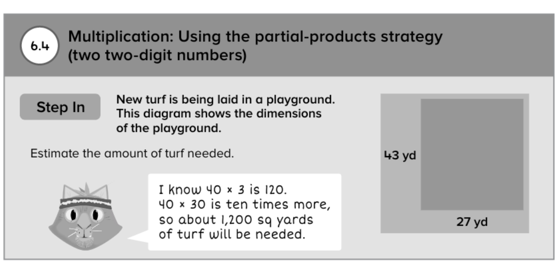
Multiplication

- Students work with multiplying a single-digit by multi-digit numbers using the **partial-products strategy**. Multi-digit numbers are decomposed into place-value parts so the multiplication is easy to do using an array model. Each part is multiplied (as in **area**) and then added together, resulting in the total product. Illustrated below is the partial-products strategy for 176 × 4.



In this lesson, students use the partial-product strategy using a three-digit number and a single-digit number.

- This visual approach to multiplying multi-digit numbers prepares students for later lessons on the standard multiplication algorithm. Students master the multiplication algorithm more easily if they first encounter multiplication using their understanding of place value and area found in the **partial-products strategy**.
- The area model is also used to represent multiplication. In the example below, the factors are broken up by place value. The **partial products** of each smaller rectangle are then added together to figure out the total. This strategy prepares students for later lessons on the standard multiplication algorithm.



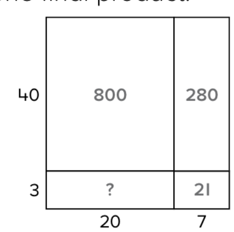
In this lesson, students use the partial-product strategy using two two-digit numbers.

Ideas for Home

- To help your child with partial-product multiplication, practice facts involving multiples of ten. E.g. 4 × 40 (4 × 4 × 10 = 160), 4 × 400 (4× 4 × 100 = 1600), 40 × 40 (4 × 4 × 10 × 10 = 1600), etc.
- Use the array model when multiplying multi-digit numbers and discuss how it works.

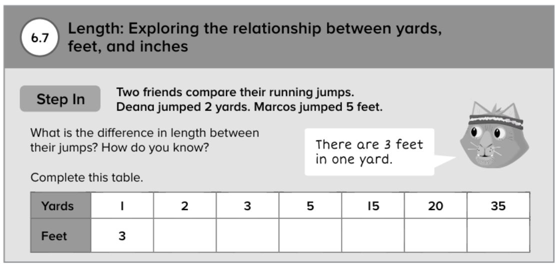
Glossary

- The **partial-products strategy** uses the distributive property, multiplying each place value separately to get a partial product and then adding the products together, resulting in one final product.



Length

- Working with customary measures of length (inches, feet, yards, and miles) involves reviewing the magnitude of each unit is, as well as knowing the formal relationships between them.
- Students convert measurements and decide which unit of measure would be most appropriate for different uses, like measuring a piece of paper, a length of cloth, the length and width of a room, or the distance from home to school.



6.7 Length: Exploring the relationship between yards, feet, and inches

Step In Two friends compare their running jumps. Deana jumped 2 yards. Marcos jumped 5 feet.

What is the difference in length between their jumps? How do you know?

There are 3 feet in one yard.

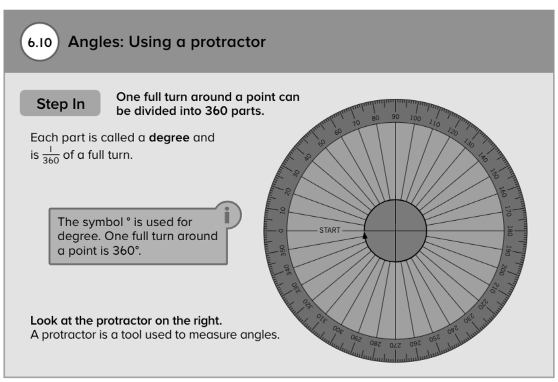
Complete this table.

Yards	1	2	3	5	15	20	35
Feet	3						

In this lesson, students look at the important relationships between customary measures.

Angles

- Students use different types of angles to describe the amount of turn from one arm of the angle to the other. The *amount of turn* is described as a fraction of a full turn around a circle.



6.10 Angles: Using a protractor

Step In One full turn around a point can be divided into 360 parts.

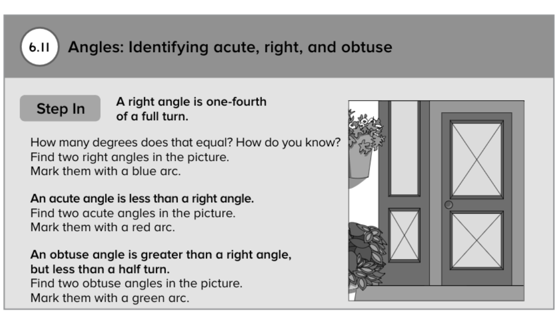
Each part is called a **degree** and is $\frac{1}{360}$ of a full turn.

The symbol ° is used for degree. One full turn around a point is 360°.

Look at the protractor on the right.
A protractor is a tool used to measure angles.

In this lesson, students use a 360-degree protractor to measure and draw angles.

- Students name and measure angles by their amount of turn using a protractor: right (90 degrees), obtuse (greater than 90 degrees but less than 180 degrees) or acute (less than 90 degrees).



6.11 Angles: Identifying acute, right, and obtuse

Step In A right angle is one-fourth of a full turn.

How many degrees does that equal? How do you know?
Find two right angles in the picture.
Mark them with a blue arc.

An acute angle is less than a right angle.
Find two acute angles in the picture.
Mark them with a red arc.

An obtuse angle is greater than a right angle, but less than a half turn.
Find two obtuse angles in the picture.
Mark them with a green arc.

In this lesson, students identify angles as acute, right, or obtuse, and measure them with a protractor.

Ideas for Home

- Estimate distances in various units. *How long is the sidewalk? How long is a car? How many miles to school?* Check the estimates using a variety of measurement tools (rulers, tape measure, and odometer) to help make measurement more concrete and easier to understand.
- Use an old clock with moveable hands to name the various angles formed.
  - When the minute hand on a clock goes all the way around from 12 and back to 12, this is one complete revolution (or 360 degrees).
  - When the minute hand goes from 12 to the 3, it has gone $\frac{1}{4}$ of a revolution (90 degrees). Connect this to the expression “quarter after” when telling time.
- On a walk, take turns to point out right, acute, and obtuse angles in your environment (buildings, billboards, etc.).