# Family Support Materials

## Measuring Circles

Here are the video lesson summaries for Grade 7, Unit 3: Measuring Circles. Each video highlights key concepts and vocabulary that students learn across one or more lessons in the unit. The content of these video lesson summaries is based on the written Lesson Summaries found at the end of lessons in the curriculum. The goal of these videos is to support students in reviewing and checking their understanding of important concepts and vocabulary. Here are some possible ways families can use these videos:

- Keep informed on concepts and vocabulary students are learning about in class.
- Watch with their student and pause at key points to predict what comes next or think up other examples of vocabulary terms (the bolded words).
- Consider following the Connecting to Other Units links to review the math concepts that led up to this unit or to preview where the concepts in this unit lead to in future units.

| Grade 7, Unit 3: Measuring Circles | Vimeo | YouTube |
|---|---|---|
| Video 1: Measuring Relationships (Lesson 1) | Link | Link |
| Video 2: Circumference of a Circle (Lessons 2–5) | Link | Link |
| Video 3: Area of a Circle (Lessons 7–9) | Link | Link |
| Video 4: Distinguishing Circumference and Area (Lesson 10) | Link | Link |

### Video 1

Video 'VLS G7U3V1 Measuring Relationships (Lesson 1)' available here: https://player.vimeo.com/video/469037534.

### Video 2

Video 'VLS G7U3V2 Circumference of a Circle (Lessons 2–5)' available here: https://player.vimeo.com/video/471194480.

**Video 3**

Video 'VLS G7U3V3 Area of a Circle (Lessons 7–9)' available here: https://player.vimeo.com/video/471419816.

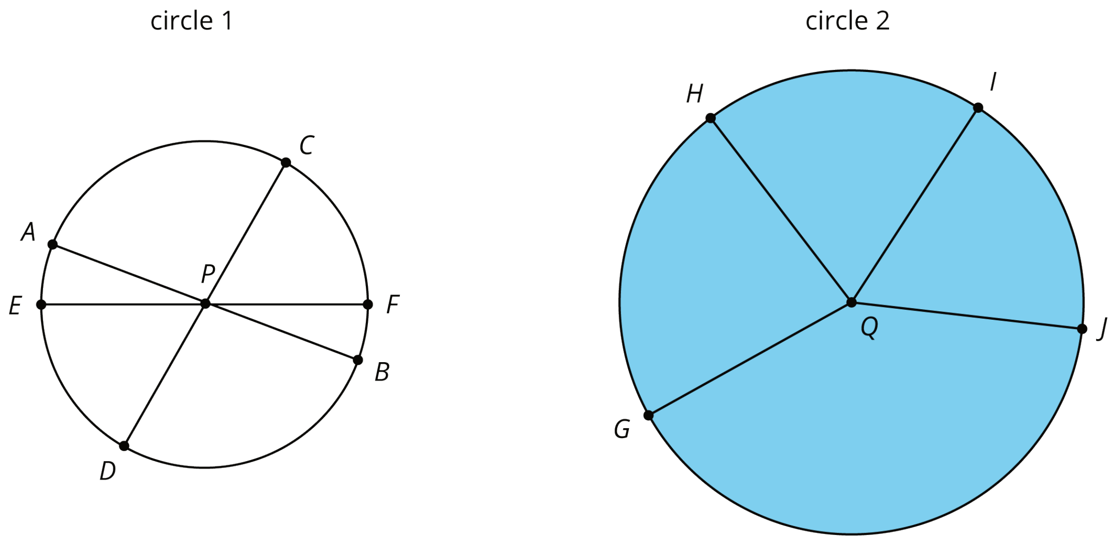
**Video 4**

Video 'VLS G7U3V4 Distinguishing Circumference and Area (Lesson 10)' available here: https://player.vimeo.com/video/469897330.

# Circumference of a Circle

## Family Support Materials 1

This week your student will learn why circles are different from other shapes, such as triangles and squares. Circles are perfectly round because they are made up of all the points that are the same distance away from a center.




- This line segment from the center to a point on the circle is called the **radius**. For example, the segment from P to F is a radius of circle 1.
- The line segment between two points on the circle and through the center is called the **diameter.** It is twice the length of the radius. For example, the segment from E to F is a diameter of circle 1. Notice how segment EF is twice as long as segment PF.
- The distance around a circle is called the **circumference**. It is a little more than 3 times the length of the diameter. The exact relationship is $C = \pi d$, where $\pi$ is a constant with infinitely many digits after the decimal point. One common approximation for $\pi$ is 3.14.

We can use the proportional relationships between radius, diameter, and circumference to solve problems.

Here is a task to try with your student:

A cereal bowl has a diameter of 16 centimeters.

1. What is the *radius* of the cereal bowl?
    a. 5 centimeters

b. 8 centimeters

c. 32 centimeters

d. 50 centimeters

2. What is the *circumference* of the cereal bowl?
   a. 5 centimeters

   b. 8 centimeters

   c. 32 centimeters

   d. 50 centimeters

Solution:

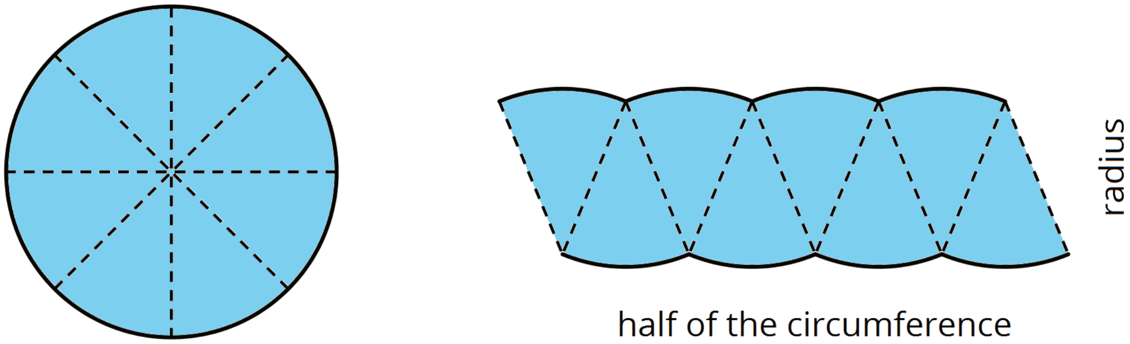
1. B, 8 centimeters. The diameter of a circle is twice the length of the radius, so the radius is half the length of the diameter. We can divide the diameter by 2 to find the radius. $16 \div 2 = 8$.

2. D, 50 centimeters. The circumference of a circle is $\pi$ times the diameter. $16 \boldsymbol{\cdot} 3.14 \approx 50$.

# Area of a Circle

## Family Support Materials 2

This week your student will solve problems about the area inside circles. We can cut a circle into wedges and rearrange the pieces without changing the area of the shape. The smaller we cut the wedges, the more the rearranged shape looks like a parallelogram.




The area of a circle can be found by multiplying half of the circumference times the radius. Using $C = 2\pi r$ we can represent this relationship with the equation:

$$A = \frac{1}{2}(2\pi r) \cdot r$$

Or

$$A = \pi r^2$$

This means that if we know the radius, we can find the area. For example, if a circle has radius 10 cm, then the area is about 314 cm$^2$, because $3.14 \cdot 10^2 = 314$. We can also say that the area is $100\pi$ cm$^2$.

Here is a task to try with your student:

A rectangular wooden board, 20 inches wide and 40 inches long, has a circular hole cut out of it.

1. The diameter of the circle is 6 inches. What is the area?
2. What is the area of the board after the circle is removed?

Solution:

1. $9\pi$ or about 28.26 in$^2$. The radius of the hole is half of the diameter, so we can divide $6 \div 2 = 3$. The area of a circle can be calculated $A = \pi r^2$. For a radius of 3, we get $3^2 = 9$. We can write $9\pi$ or use 3.14 as an approximation of pi, $3.14 \cdot 9 = 28.26$.

2. $800 - 9\pi$ or about 771.74 in$^2$. Before the hole was cut out, the entire board had an area of $20 \cdot 40$ or 800 in$^2$. We can subtract the area of the missing part to get the area of the remaining board, $800 - 28.26 = 771.74$.