Circle Graphs

Three tiles, about 7 minutes each with its Let me try a few, then the exit ticket. Students read a circle graph as percents and degrees, build one from counts, and read one backward from a slice to a count. The study guide reviews the whole unit.

TIME	25 minutes: three tiles at about 7 minutes each, then the exit ticket
WHO	7th grade, about age 12. Follows Lesson 6, More Than One Change. Closes Unit 2.
MATERIALS	The Deep Dive 5 lesson hub and its three tiles (circle graph that redraws, fill-in tables), the Unit 2 study guide, the worksheet (PDF), pencil.
PRIOR KNOWLEDGE	Angles and degrees (4th grade); the three pieces (Lesson 2).
STANDARDS	NC.7.RP.3.
KEEP OUT	Drawing circle graphs with a protractor. Students read and fill them in.

Learning goals

1. Say that the whole circle is 100 percent and 360 degrees.
2. Convert between percent and degrees.
3. Build a circle graph table from counts.
4. Read a slice backward to a count.

Vocabulary: say both, every time

The rule for the whole lesson: whenever the adult or the student says a math word, they follow it with the plain-English version. Proper term first, plain English second, until the student does it without being asked.

TERM	LOOKS LIKE	PLAIN ENGLISH
Circle graph	the pizza	Parts of a whole.
Sector	one slice	A percent and an angle.
Degree	1/360 of a turn	Percent of 360.

> THE ONE SENTENCE TO SAY OUT LOUD
>
> The whole circle is 100 percent and 360 degrees.

Lesson timeline (25 minutes)

0:00 to 0:07	**Tile 1, 100 Percent and 360 Degrees.** Finn's hook, the four slices, percent to degrees both ways. The fill-in table. Let me try a few.
0:07 to 0:14	**Tile 2, Build a Circle Graph.** Favorite sports, the graph that redraws. The pets table. Let me try a few.
0:14 to 0:21	**Tile 3, Read One Backward.** 2,400 phones and the 54 degree slice. Elle's one sentence about Unit 3. Let me try a few.
0:21 to 0:25	**Exit ticket and review.** Back on the hub, with the Unit 2 study guide open. Success looks like 10 students with both steps shown.

Misconceptions to listen for

- **Degrees are the percent.** 54 degrees is 15 percent; divide by 360.
- **Slices can add to anything.** Percents add to 100, degrees to 360.
- **Reading backward skips a step.** Degrees to percent, then percent of the group.
- **A bigger-looking slice is a bigger count.** Only within the same graph.

Support and stretch

Support

Keep the four benchmark slices on screen: half, a fourth, a tenth, and 1 degree. Every other slice is built from them.

Stretch

Ask what one student is worth in degrees when there are 30 students (12 degrees), and when there are 2,400 phones (0.15 degrees).

Where this goes next

Unit 3, Lesson 1: a decrease gets a sign. Negative numbers, and the rules for adding and multiplying them.

> THE HABIT TO BUILD
>
> Percent of 360, or degrees out of 360. Say which way you are going.