2.4 TRANSFORMING **TEXTBOOK PROBLEMS** INTO **CURIOUS CHALLENGES** KIDS WANT TO SOLVE

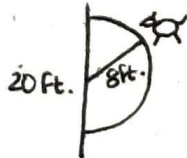making **MATH MOMENTS** that **MATTER**
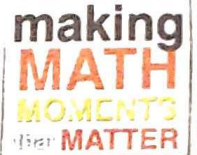
Use the **Curiosity Path** to transform the following textbook problem into a curious challenge your students will want to solve.

ORIGINAL PROBLEM:

Carl's dog, Buddy, is on an 8-foot leash that is attached to the center of a 20-foot fence. How much space does Buddy have to roam around?
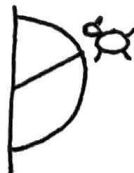
The problem includes a picture:

20 ft. | 8 ft.

✴ **CURIOSITY** PATH

- ( ) WITHHOLDING INFORMATION
- ( ) ANTICIPATION
- ( ) NOTICE & WONDER
- ( ) ESTIMATION

CURIOSITY PATH PLAN:

What changes could be made to spark student curiosity?
How might you gradually share the information in this problem to engage your students?

① Share just the picture, with no labels. Better yet, show 2 pictures. I don't think solving a problem with the answer of ~100 ft² is very satisfying, but figuring out which dog has more room to roam might be more satisfying. Here are the 2 pictures:

(I may not even include the partial circumferences)

building

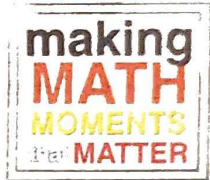② Notice & Wonder. Here are some comments and questions I would expect:

Notice	Wonder
- There are 2 dogs	- Why are they tied up?
- The dogs are on leashes	- How long is the fence?
- one is tied to a fence,	- How long is the leash?
one is tied to a building	- Who has more space?

CURIOSITY PATH TEMPLATE

$2\frac{1}{2}$ select "which dog has more space?" as the question we want to answer

CURIOSITYPATH PLAN:

How might you gradually share the information in this problem to engage your students?

CURIOSITYPATH

- ☐ WITHHOLDING INFORMATION
- ☐ ANTICIPATION
- ☐ NOTICE & WONDER
- ☐ ESTIMATION

③ Allow students to estimate.

- Students may say the second dog has more space because he has $\frac{3}{4}$ of a circle, which is more than $\frac{1}{2}$ of a circle.

- Students might have ideas about how long the leashes are, based on personal experience.

- Students may try to guess the length of the fence and the building walls. They may also realize this doesn't actually matter.

④ Gradually reveal more information, possibly only if they ask for that specific piece of information. The essential info is that Dog #1's leash is 8 ft. long and dog #2's leash is 6 ft. long.

⑤ Allow them to struggle through the math and provide support as needed.