Students Held Accountable Through Discourse and Performance: Listen and Learn

NCSM
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Agenda

A. The Ever-Changing World (8)

B. 200 Bell-to-Bell Observations

- Process (7)
- Patterns (15)
- Examining Instructional Delivery: Simulation (20)

C. How YOU Can Do This (10)

The World is Flat
Thomas L. Friedman

1. "There is an increasing premium for pattern recognition and **complex problem solving**. Education has to be about more than cognitive skills."

The World is Flat
Thomas L. Friedman

2. "Future employment will focus not on lifetime *employment* -- guaranteed employment, but on **lifetime *employability*** -- guaranteed opportunities to remain current enough to stay employed."

The World is Flat
Thomas L. Friedman

3. "Knowing **how to 'learn how to learn'** will be one of the most important assets any worker can have, because job churn will come faster, because innovation will happen faster."

To be successful, students need to approach and solve problems in a variety of ways.

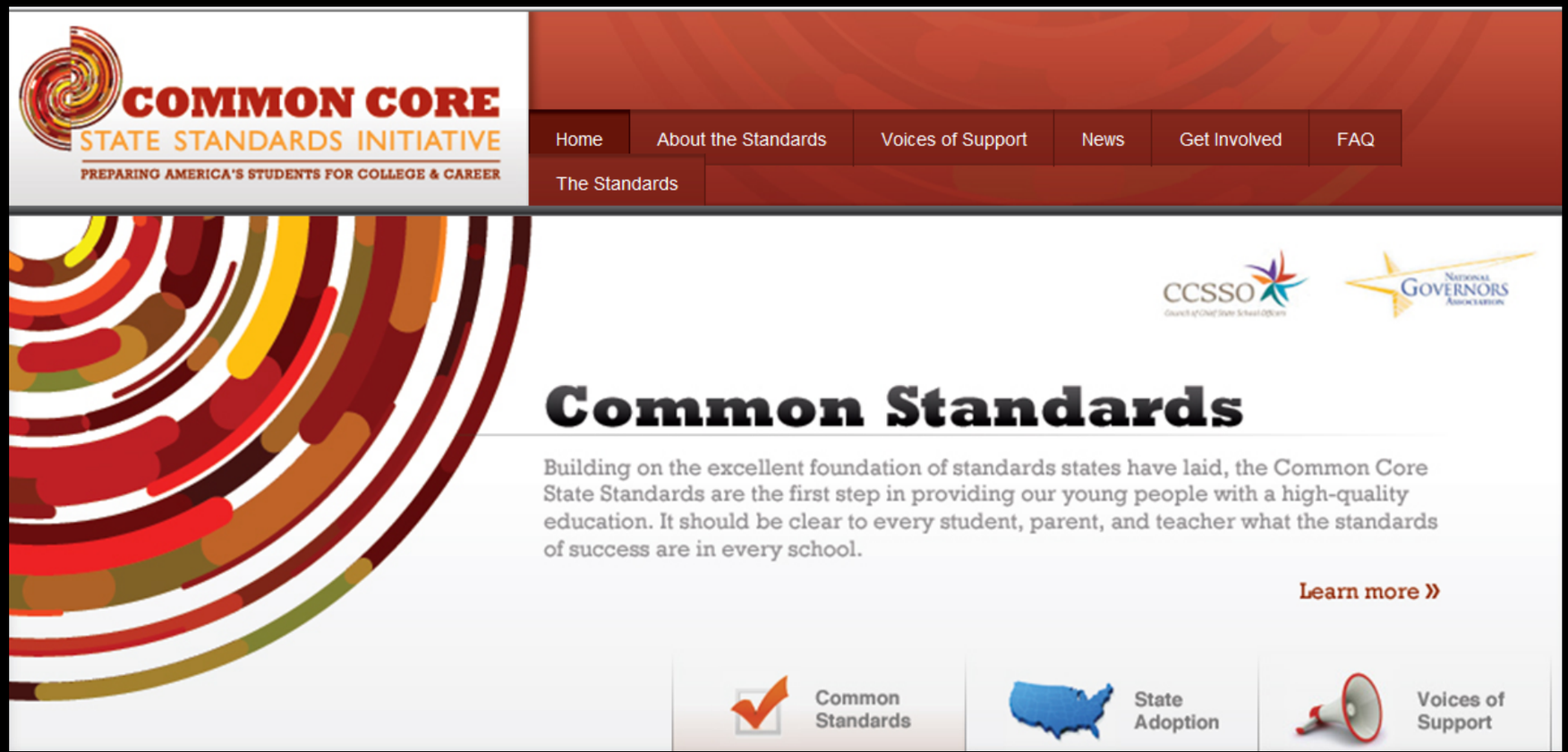
This shift in learning

can be accomplished only if we make a

corresponding shift in instruction.

The Common Core State Standards

CCSS



http://corestandards.org

COMMON CORE
STATE STANDARDS INITIATIVE
PREPARING AMERICA'S STUDENTS FOR COLLEGE & CAREER

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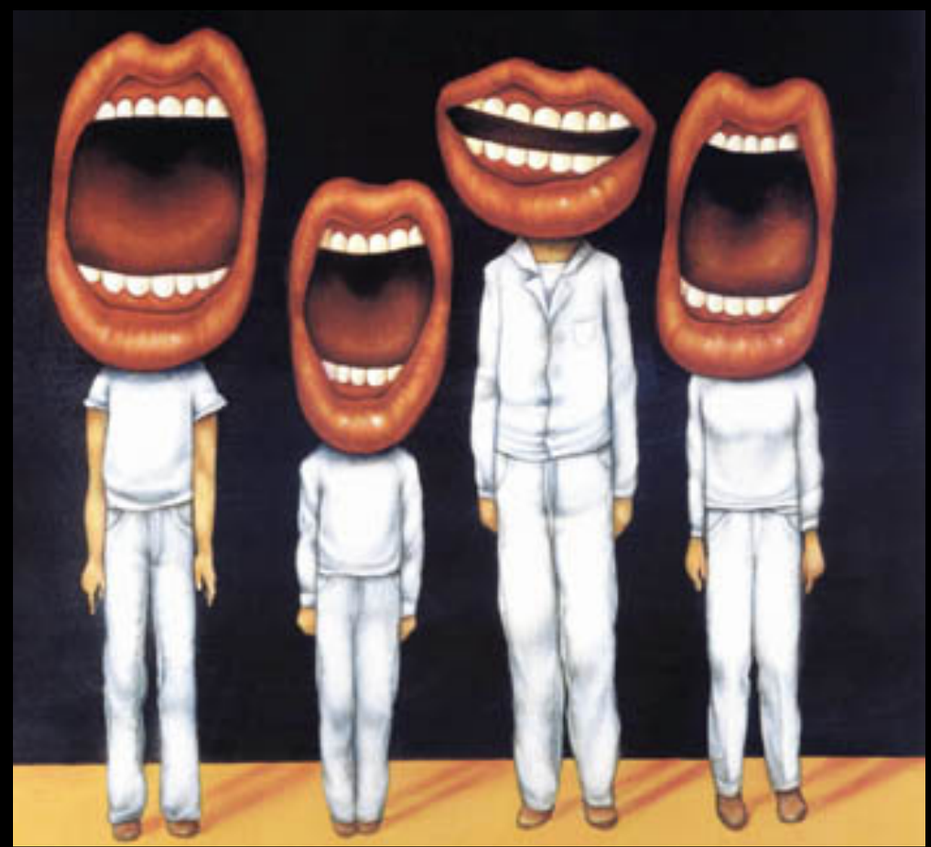
Student-Centered Classrooms

"Soundful"

- Students are engaged in rich discourse.
- Manipulatives, diagrams, and/or drawings may be used to more deeply understand "processes and proficiences."



Student-Centered Classrooms

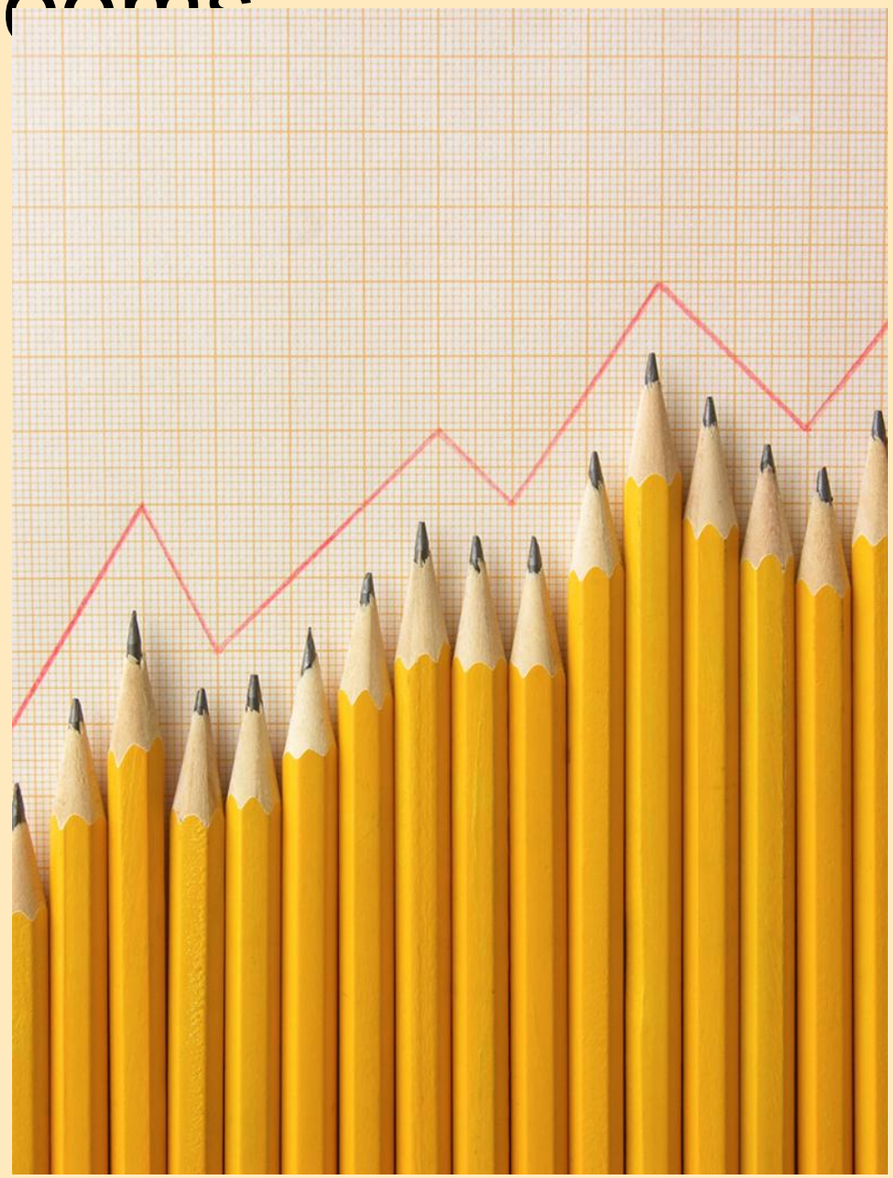
Physically fluid

- Furniture is arranged to maximize interaction and collegiality.
- Students work in a variety of groupings, strategically arranged to minimize effects of classroom “hogs” and “logs.”

Student-Centered Classrooms

Data-Driven

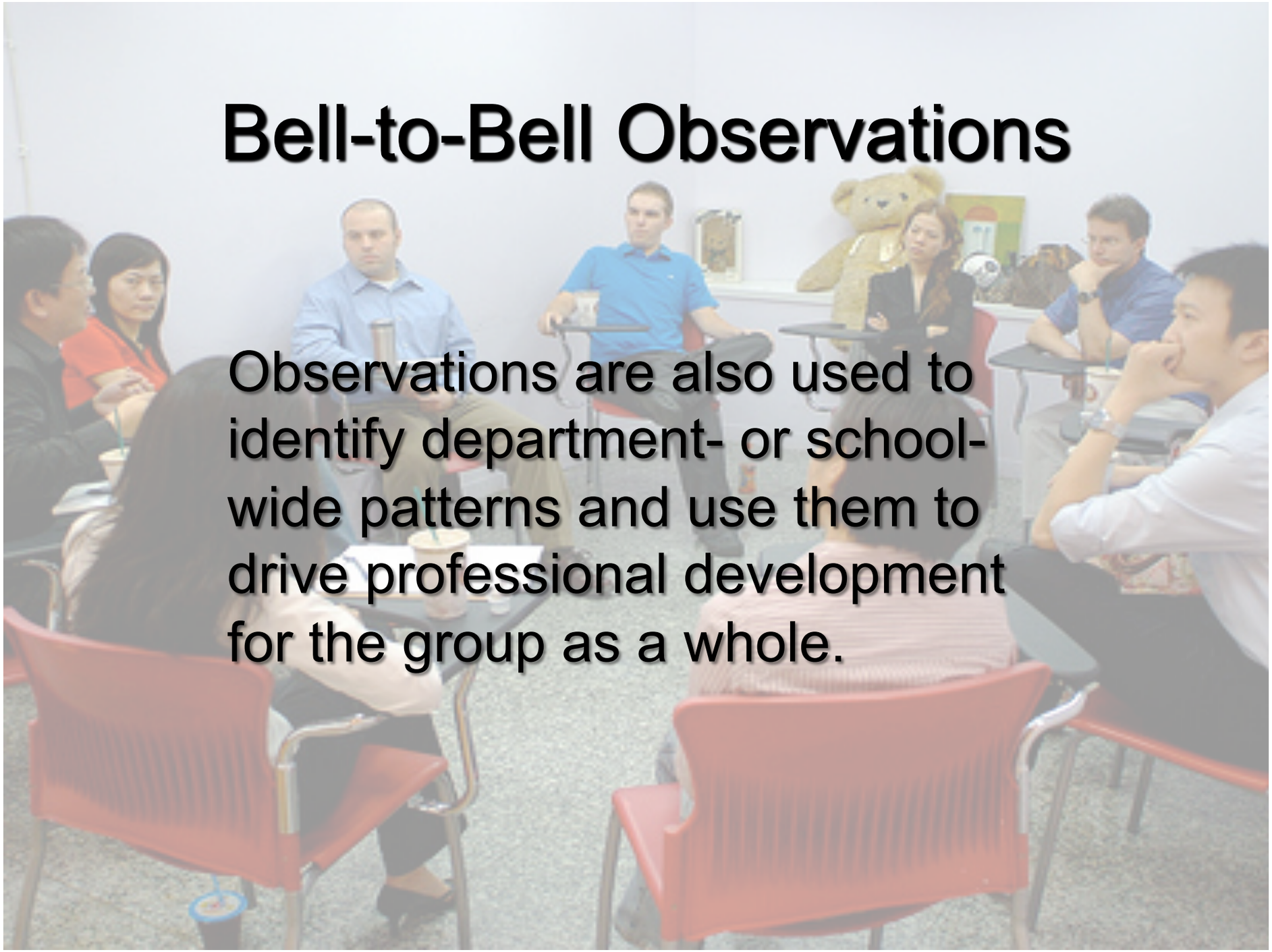
Ongoing, informal assessments are used to drive instruction and create appropriate questions.



Bell-to-Bell Observations

Observations are used to:

- identify teachers' content and pedagogical knowledge, and instructional techniques.
- analyze student conceptual understanding, engagement, and behavior.

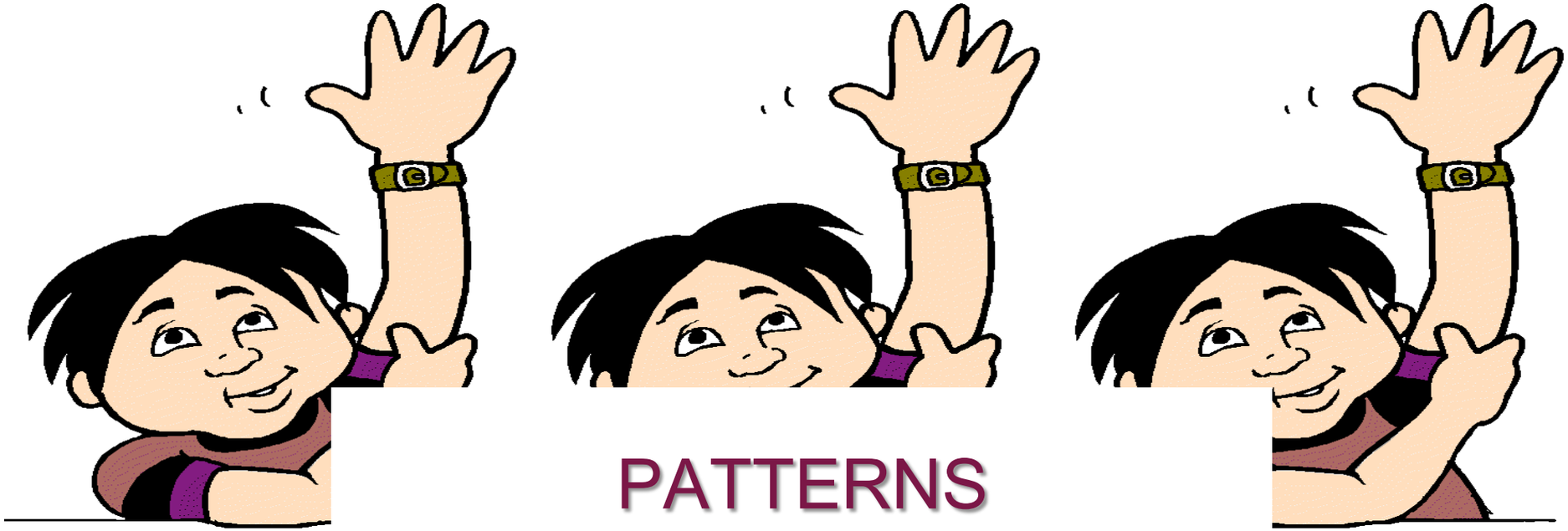


Bell-to-Bell Observations

Observations are also used to identify department- or school-wide patterns and use them to drive professional development for the group as a whole.

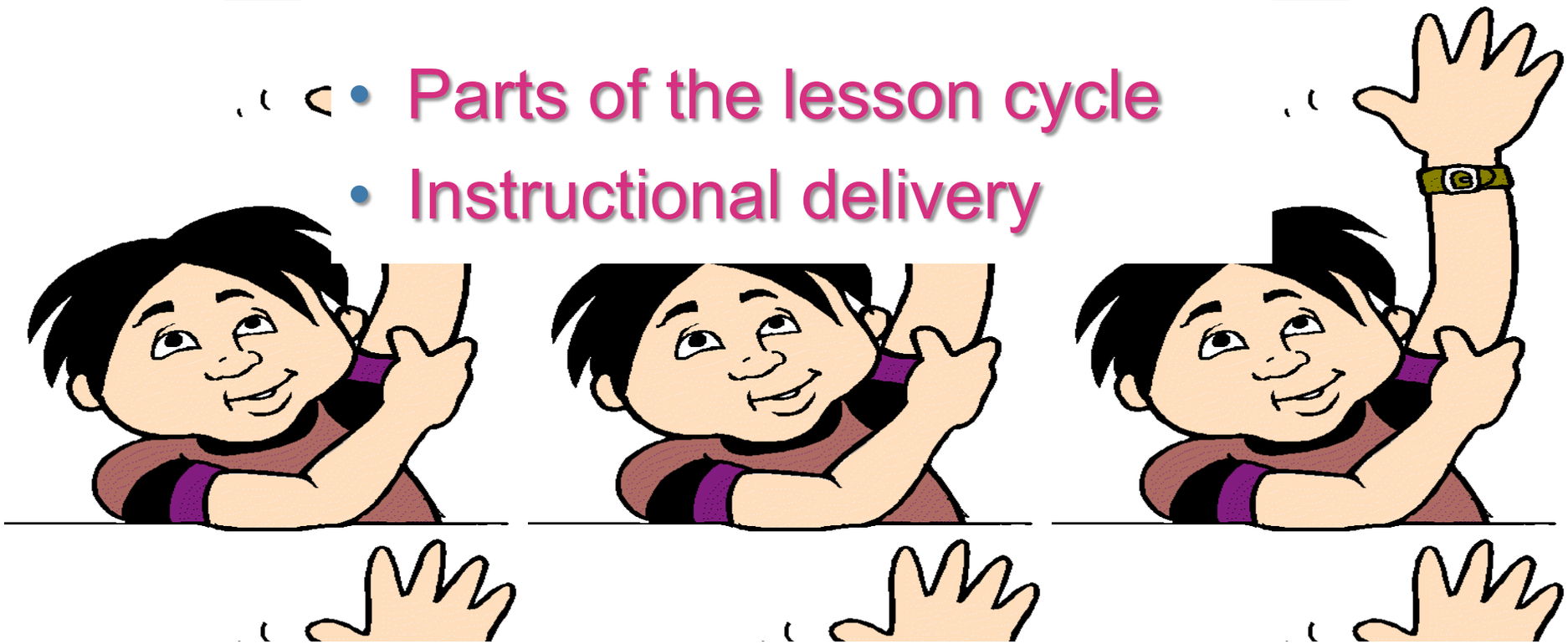
Bell-to Bell Observations:
Professional Development Intervention

1. A pre-visit email is sent to teachers clearly outlining expectations.
2. The entire content block is observed and recorded.
3. The coach and teacher review the observation. Commendations and thought-provoking questions are discussed.
4. The cycle repeats.



PATTERNS

- Parts of the lesson cycle
- Instructional delivery

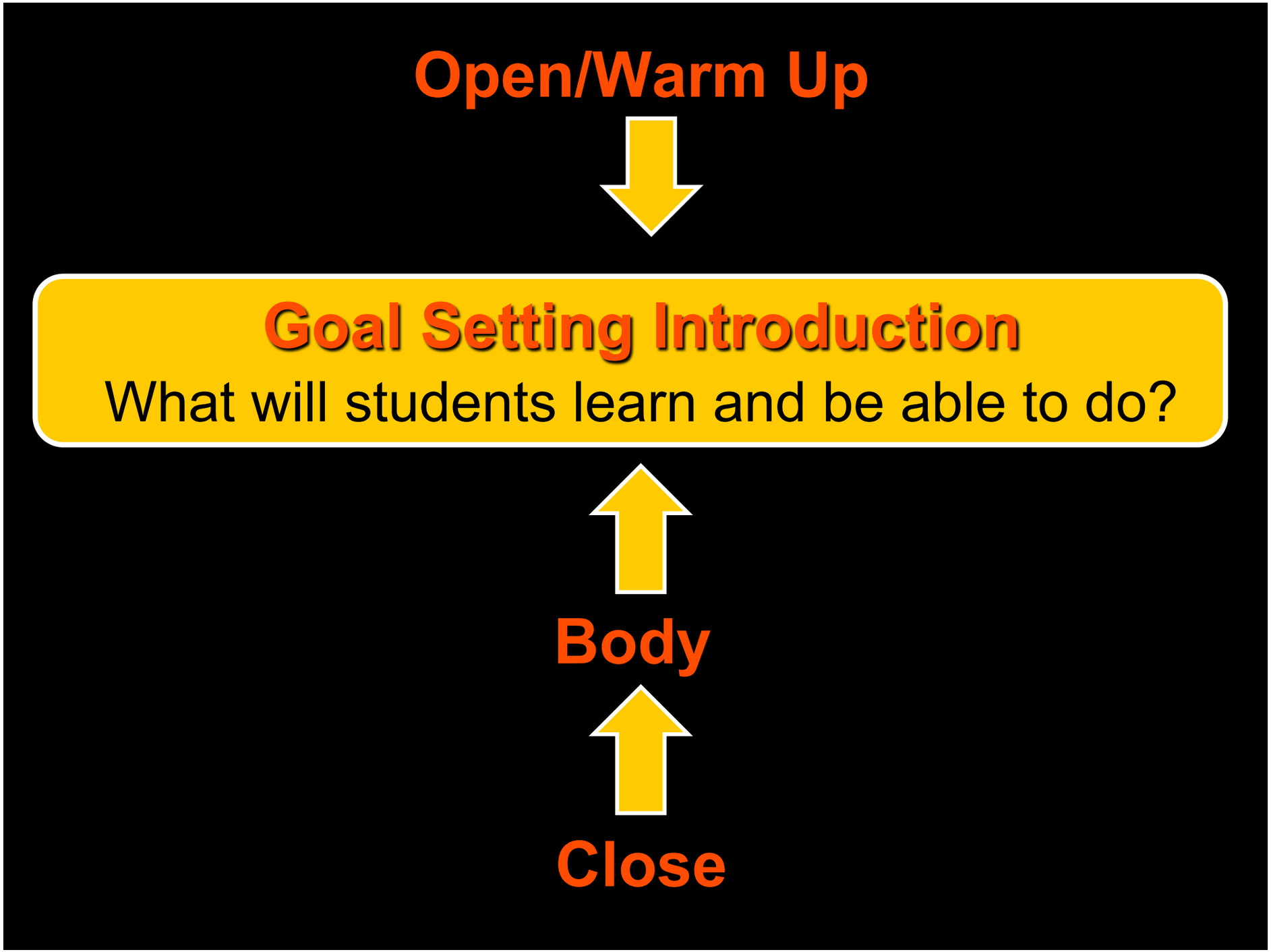


Open/Warm-Up

1. Is student centered.
2. Involves every student in the class.
3. Assesses students' understanding of previous learning and readiness for new learning.
4. Utilizes partner or small group discussions.
5. Relates closely to lesson goals.
6. Bridges prior knowledge to the day's goal.
7. Used to inform the day's instruction.

Close/Reflection

1. Is student centered.
2. Assesses students' understanding of the day's learning.
3. Involves every student in the class.
4. Utilizes partner or small group discussions.
5. Students reflect on their learning and make connections.
6. Aligns with and assesses the lesson goals.


Open/Warm Up
Goal Setting Introduction
What will students learn and be able to do?
Body
Close

"Deciding *what* to teach is only part of the planning. Teachers must contemplate *how* the material can best be internalized for deep understanding. Students must be actively involved in the learning. Each part of the lesson is affected by the *what*, the *why*, and the *how* of teaching."

Simulation

Open

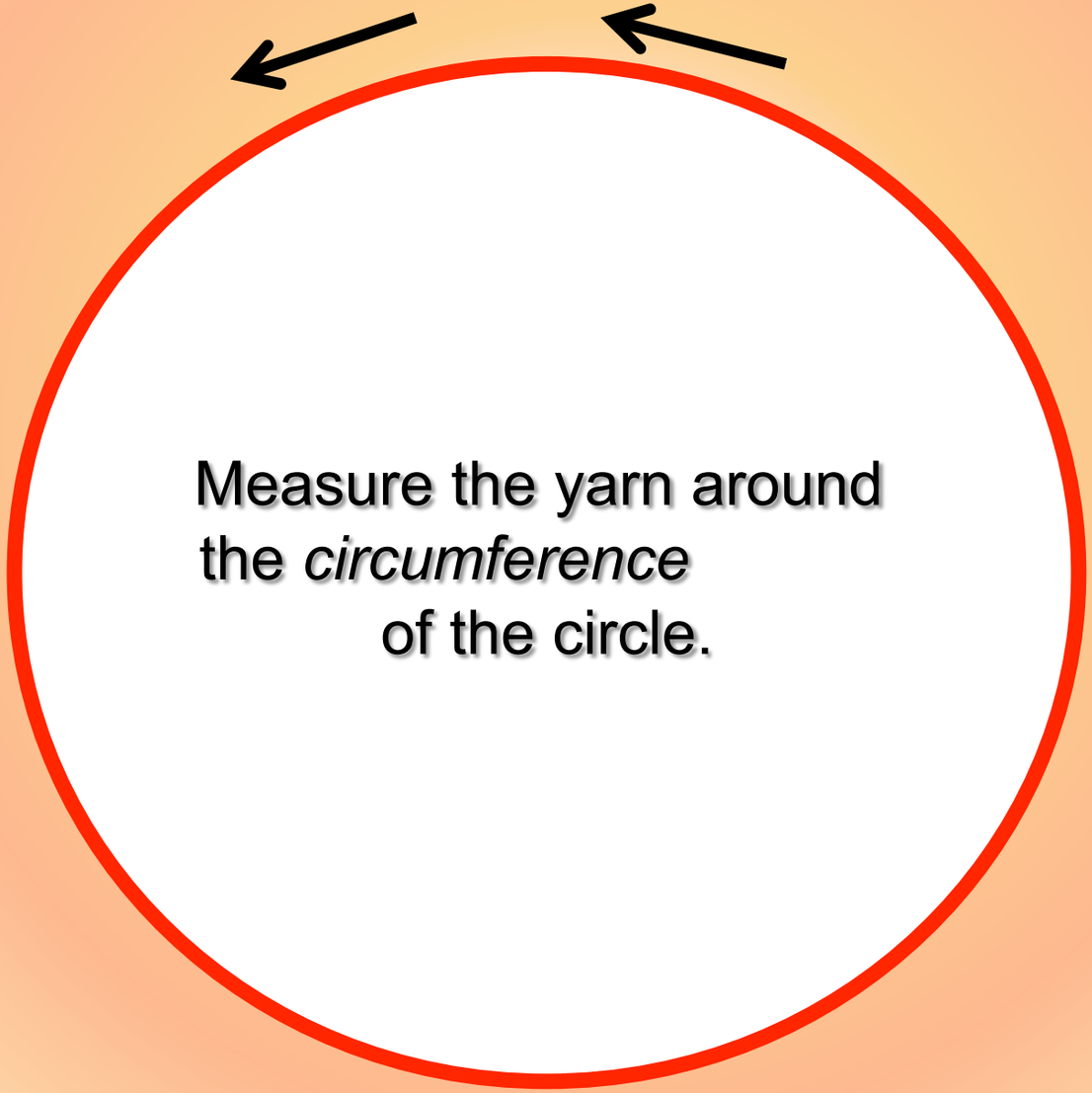
1. What is perimeter?
2. What is the formula for the perimeter of a polygon?
3. How are polygons and circles similar? How are they different?

Direct Instruction

MINI Lab Derive, define, and make sense of the formula for the *circumference* of a circle.

- Materials (in a perfect world)
  - Circles of various sizes
  - Yarn

Circumference of a Circle



Circumference of a Circle

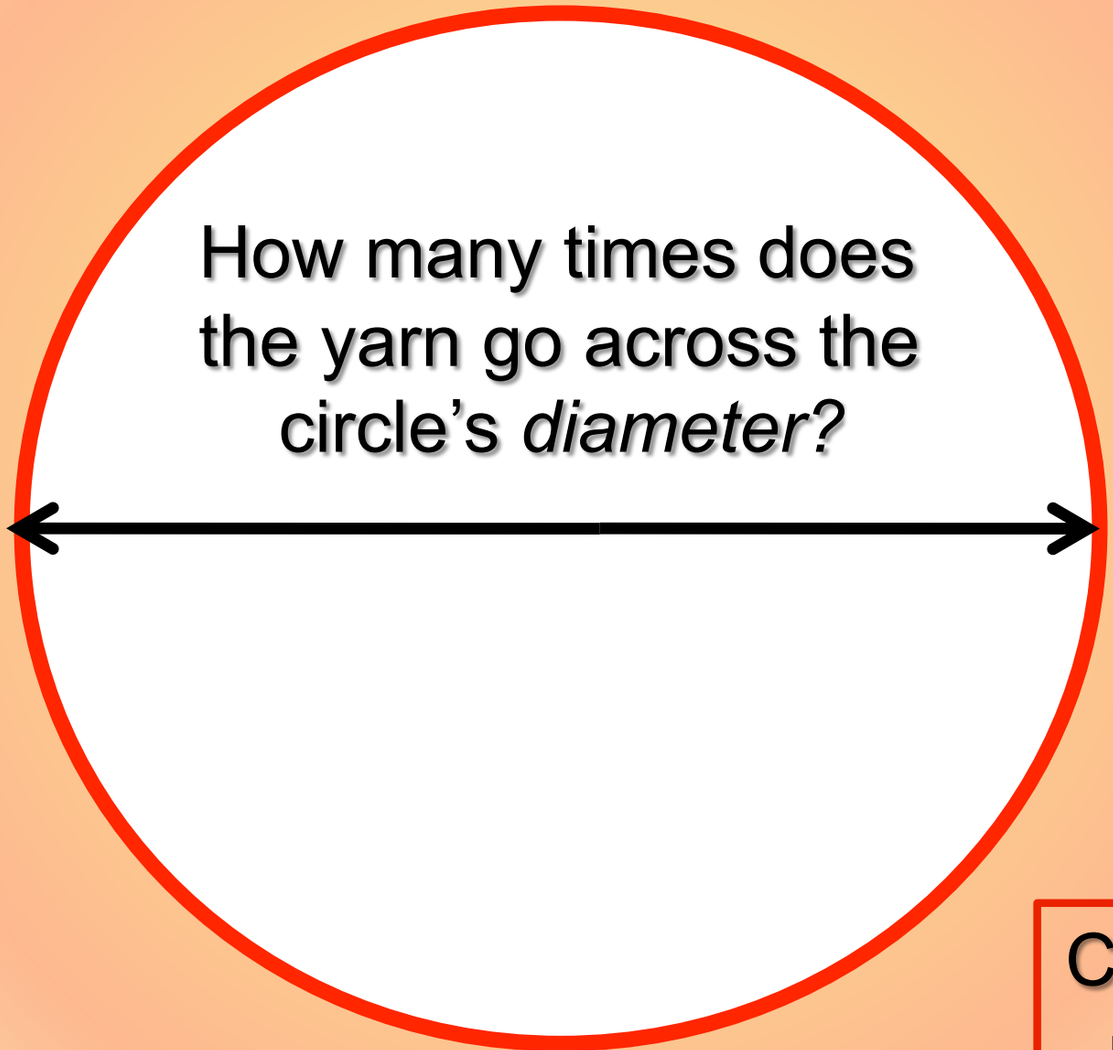


Chart the results!

Circumference and Diameter

Object	Number of times yarn goes across the diameter
A. Paper cup	
B. Die-cut	
C. CD/DVD	
D. Small pot lid	
E. Medium pot lid	
F.	
G.	

Circumference of a Circle

You found that

$$\frac{\text{circumference}}{\text{diameter}} = \textit{about } 3.$$

Circumference of a Circle

You found that

$$\frac{\text{circumference}}{\text{diameter}} = \pi.$$

Circumference of a Circle

Using

$$\frac{\text{circumference}}{\text{diameter}} = \pi,$$

What is the formula for circumference, or *c*?

Circumference of a Circle

Guidance

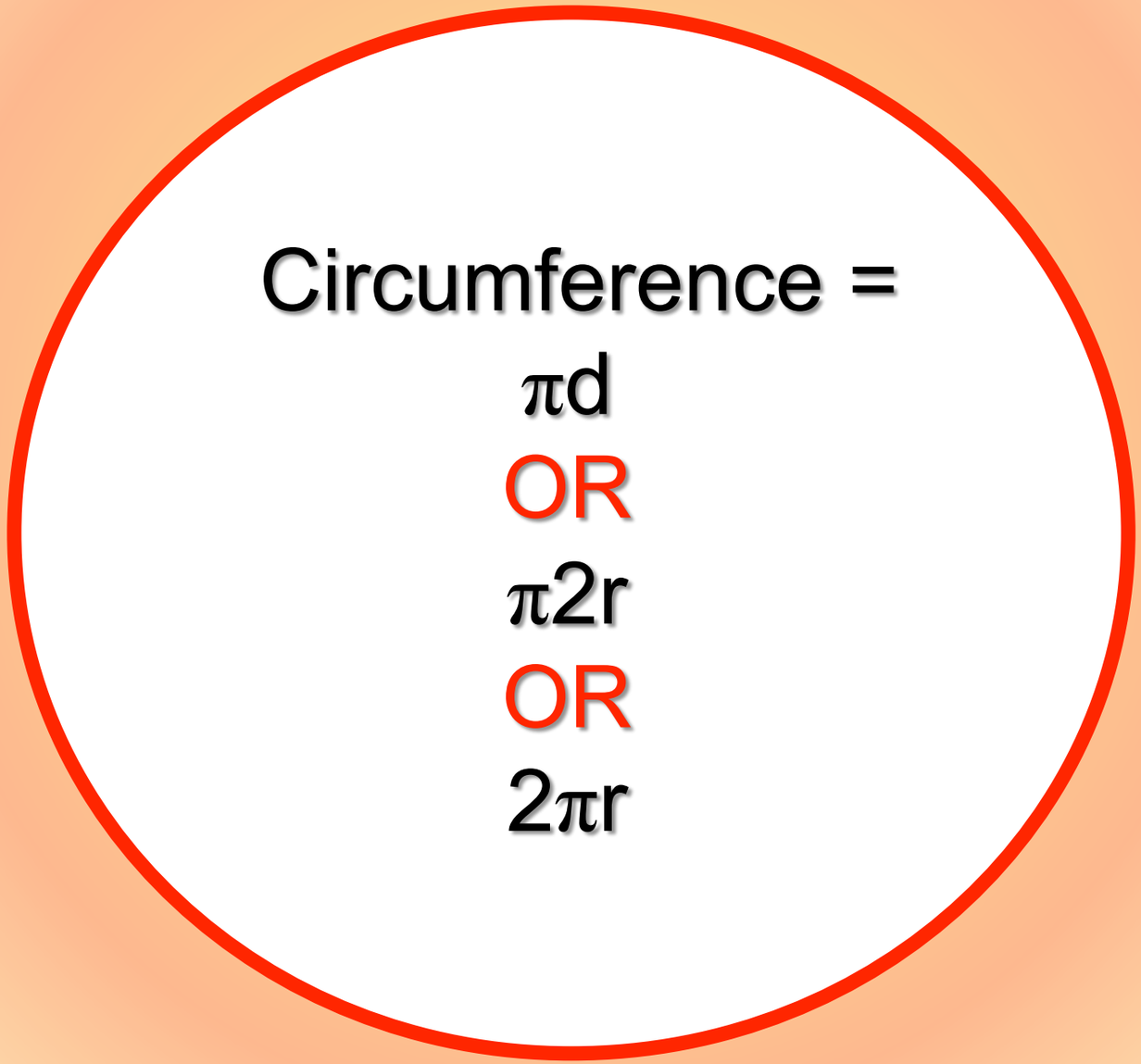
$$\frac{\text{circumference}}{\text{diameter}} = \pi,$$

Think: $\frac{6}{2} = 3$, so

$6 = \_\_\_\_\_$

Accentuate the *relationship between multiplication and division.*

Circumference of a Circle



Guided Practice

Use the formula to find the circumference of a circle you measured.

- What are some ways you can assess the reasonableness of your results?

Guided Practice

Big Ben

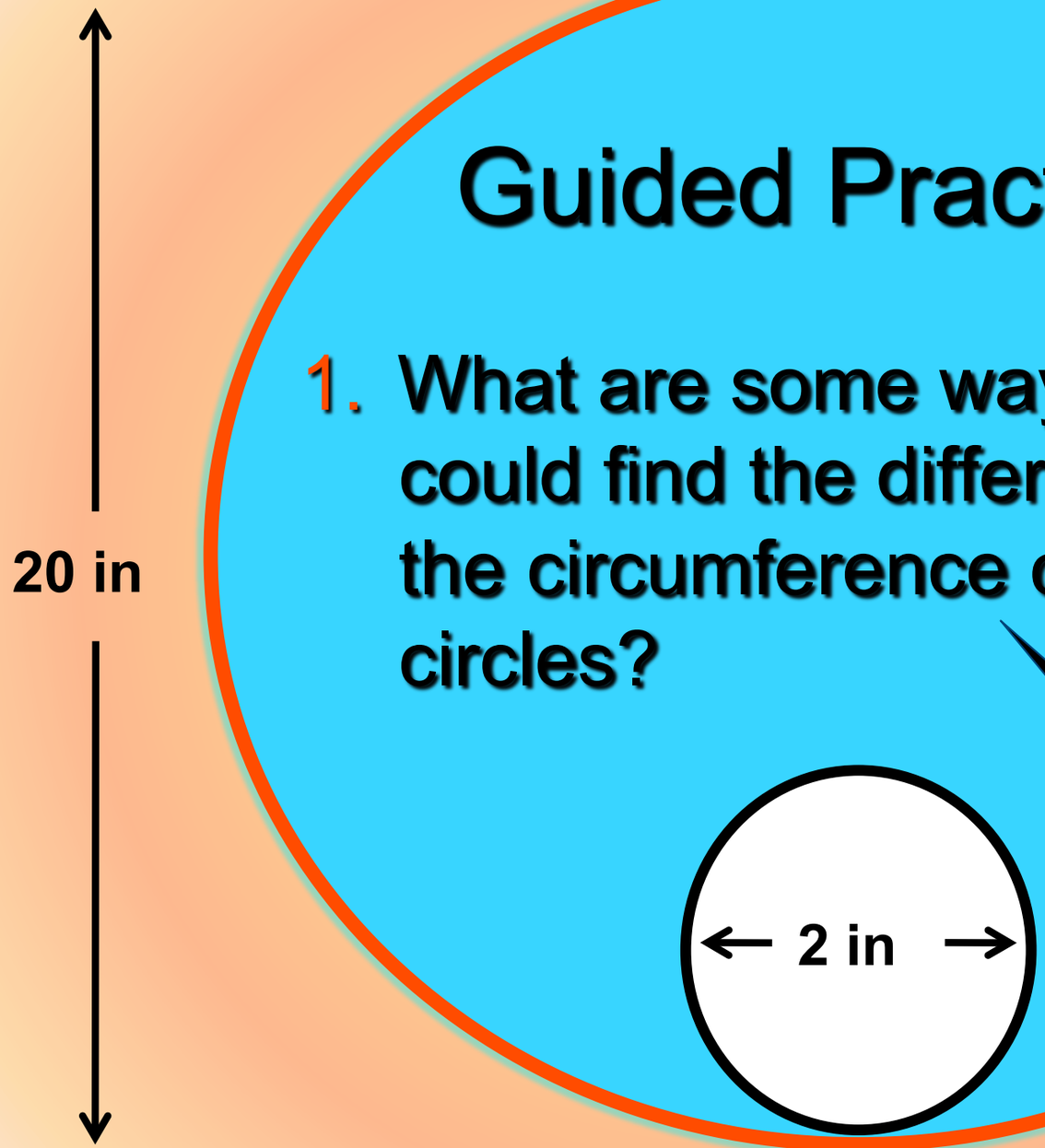
London, England

Diameter: 23 ft

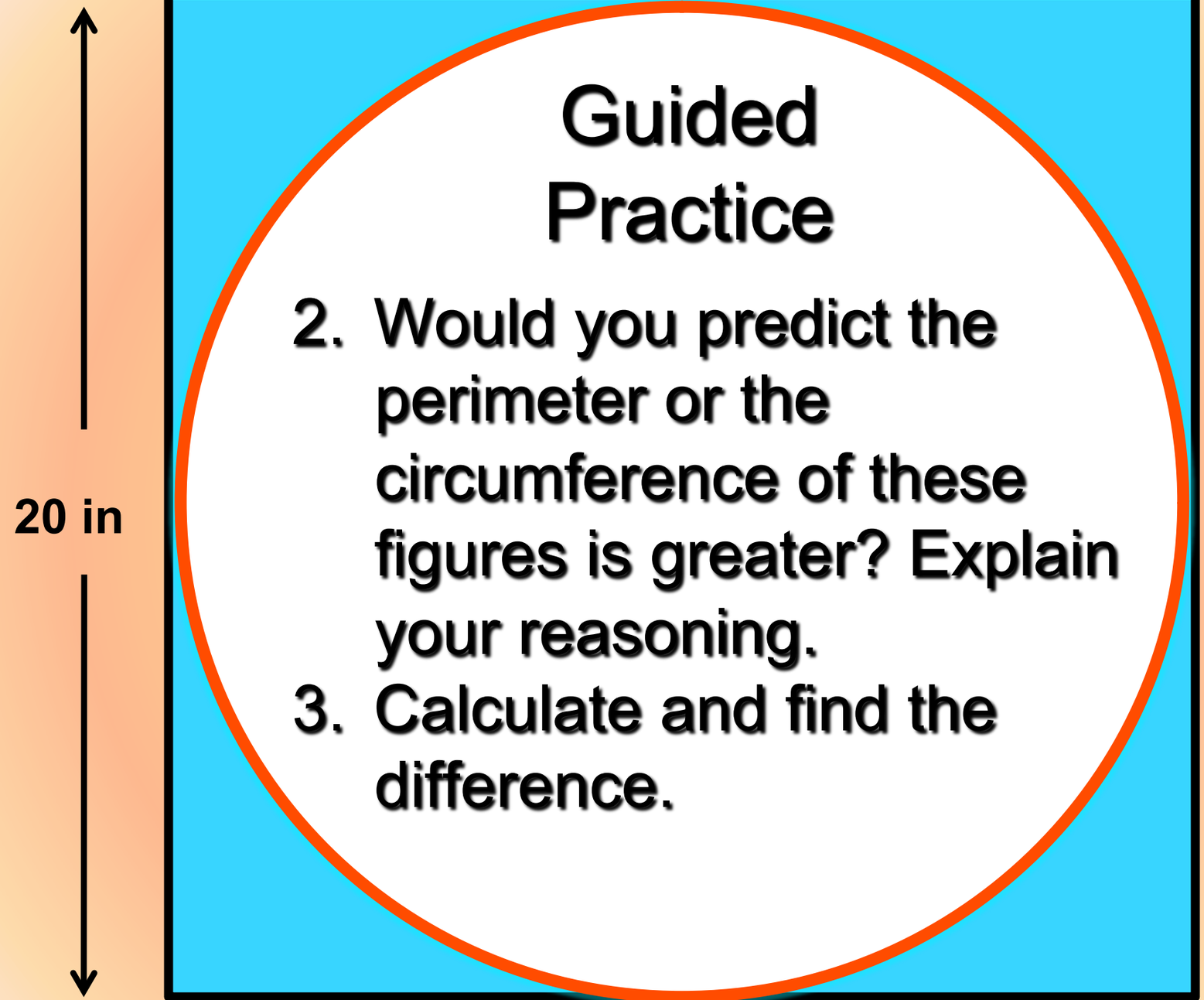
http://www.visitlondon.com/attractions/culture/big-ben

Guided Practice

1. What are some ways you could find the difference in the circumference of the two circles?

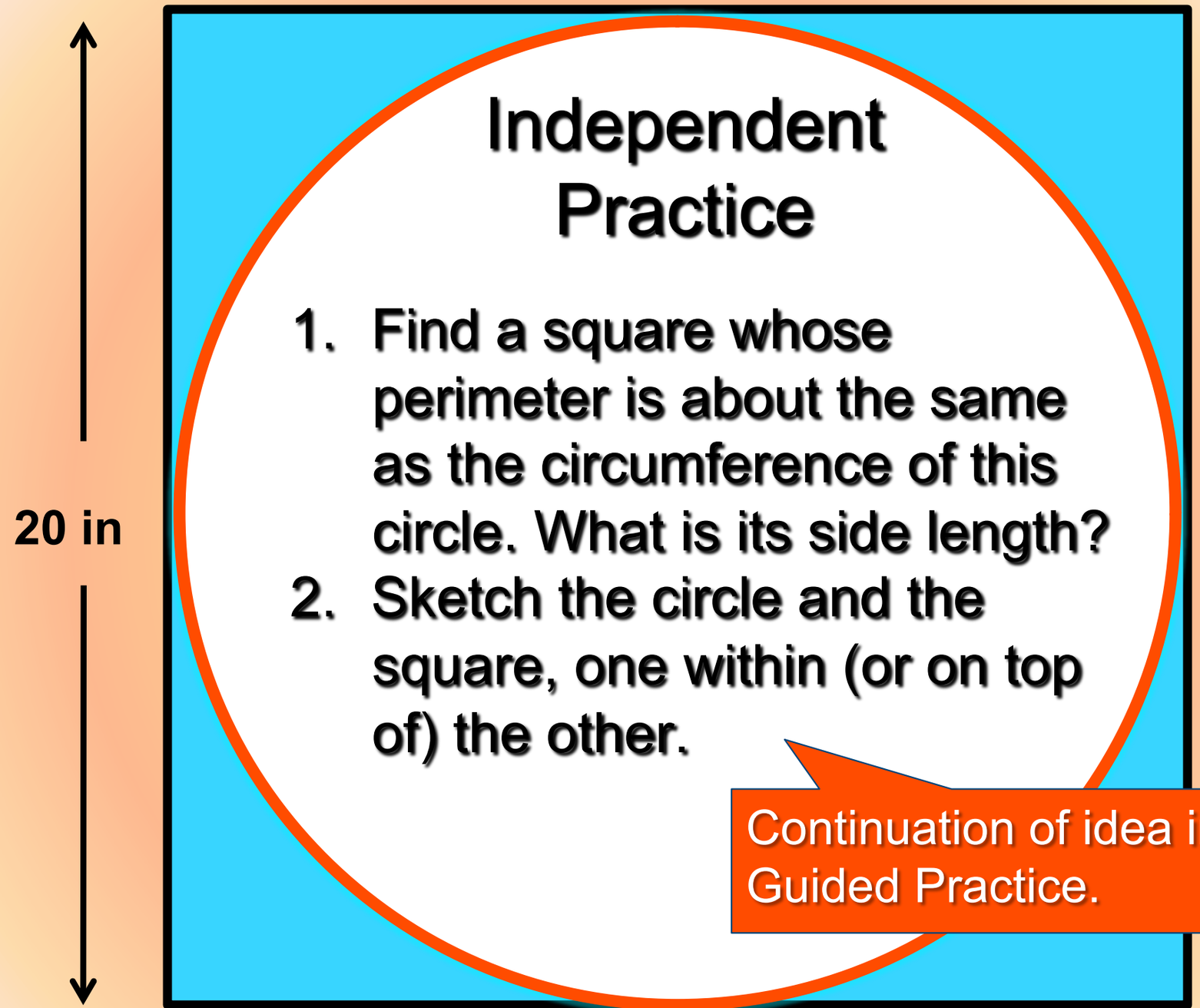


Accentuate the *process* and *math terminology.*



Guided Practice

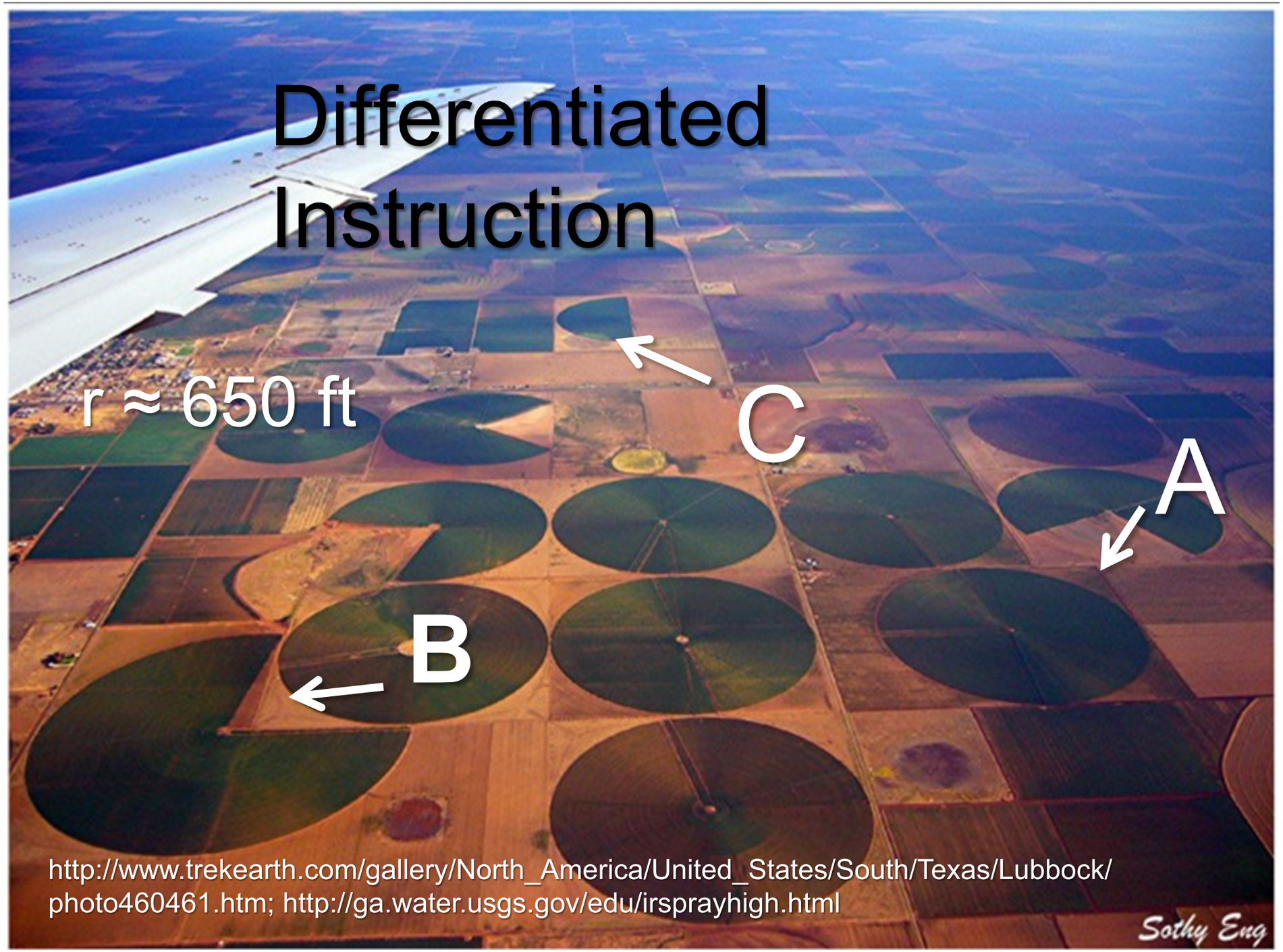
2. Would you predict the perimeter or the circumference of these figures is greater? Explain your reasoning.
3. Calculate and find the difference.



Independent Practice

1. Find a square whose perimeter is about the same as the circumference of this circle. What is its side length?
2. Sketch the circle and the square, one within (or on top of) the other.

Continuation of idea in Guided Practice.


Differentiated Instruction
r ≈ 650 ft
C
A
B
http://www.trekearth.com/gallery/North_America/United_States/South/Texas/Lubbock/photo460461.htm; http://ga.water.usgs.gov/edu/irsprayhigh.html
Sothy Eng

Close

1. You are asked to draw two *concentric* circles whose difference in circumference is about 6. How would you go about solving the problem?
2. How can you find a circle's circumference if you only know the radius? Why does this make sense?

How YOU Can Do This!

Engagement: I *want* to learn!
Accountability: I cannot hide!

DEMO LESSONS!

How YOU Can Do This!

"The people doing the talking are the people doing the learning."

September 28, 2010

Robyn,
When I explained my vision for your visit I had no doubt that we would create something magical. And indeed we did. Last week was transformative. I appreciate the way we work together. Our whole campus will move forward because of the progress the math department made last week.

Thank you for taking my vision and making it work!!!
Christina Ritter
Principal, Caprock High School

May, 2010

Our TAKS scores are back and our math department improved by 20 points! You rock!

David Vasquez
Principal, Estacado High School

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