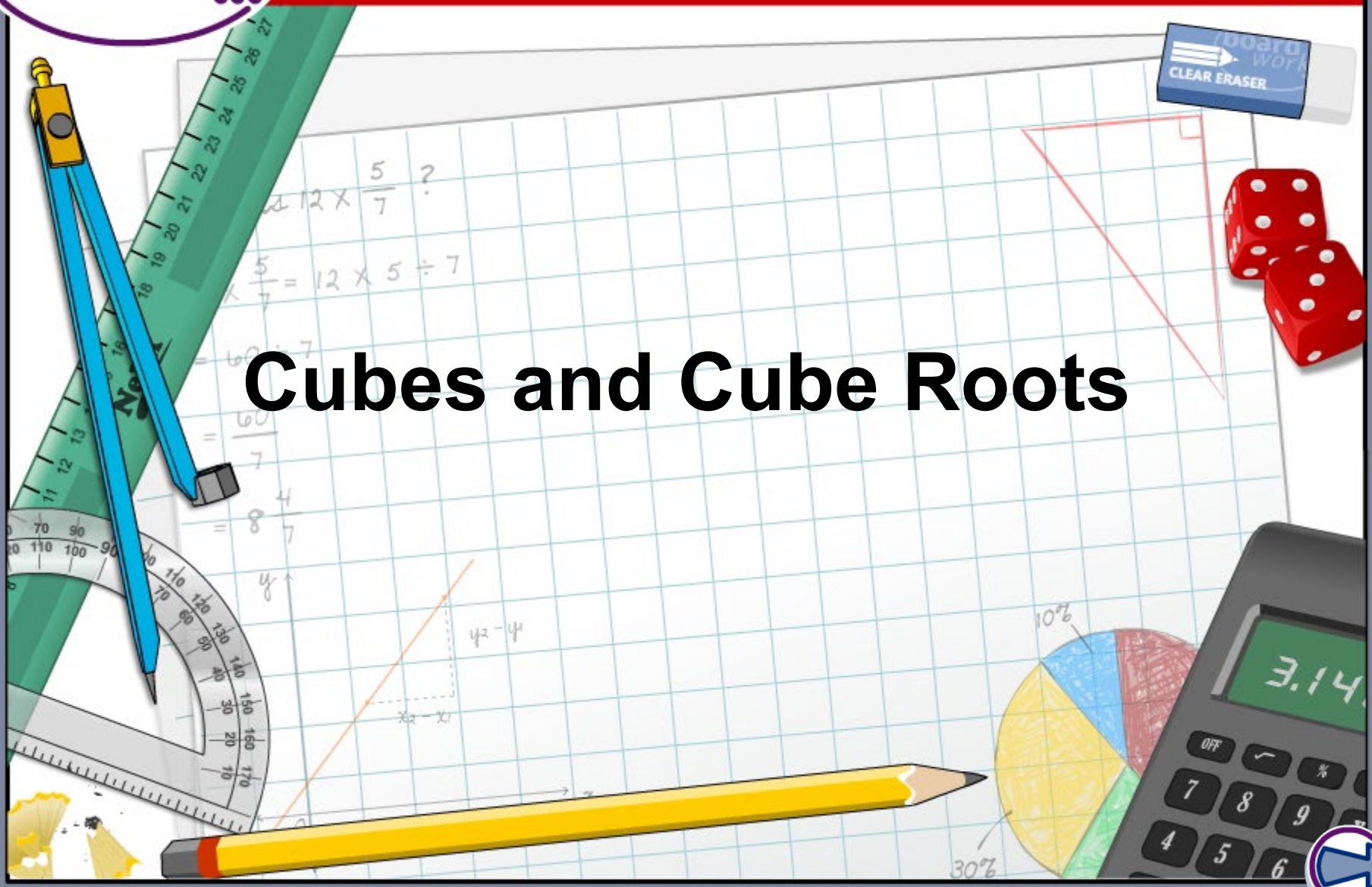


Cubes and Cube Roots

Information

Common core icons

This icon indicates a slide where the Standards for Mathematical Practice are being developed. Details of these are given in the Notes field.

Slides containing examples of mathematical modeling are marked with this stamp.

This icon indicates an opportunity for discussion or group work.

The **Standards for Mathematical Practice** outlined in the Common Core State Standards for Mathematics describe varieties of expertise that mathematics educators at all levels should seek to develop in their students.

These are:

1) Make sense of problems and persevere in solving them.

2) Reason abstractly and quantitatively.

3) Construct viable arguments and critique the reasoning of others.

4) Model with mathematics.

5) Use appropriate tools strategically.

6) Attend to precision.

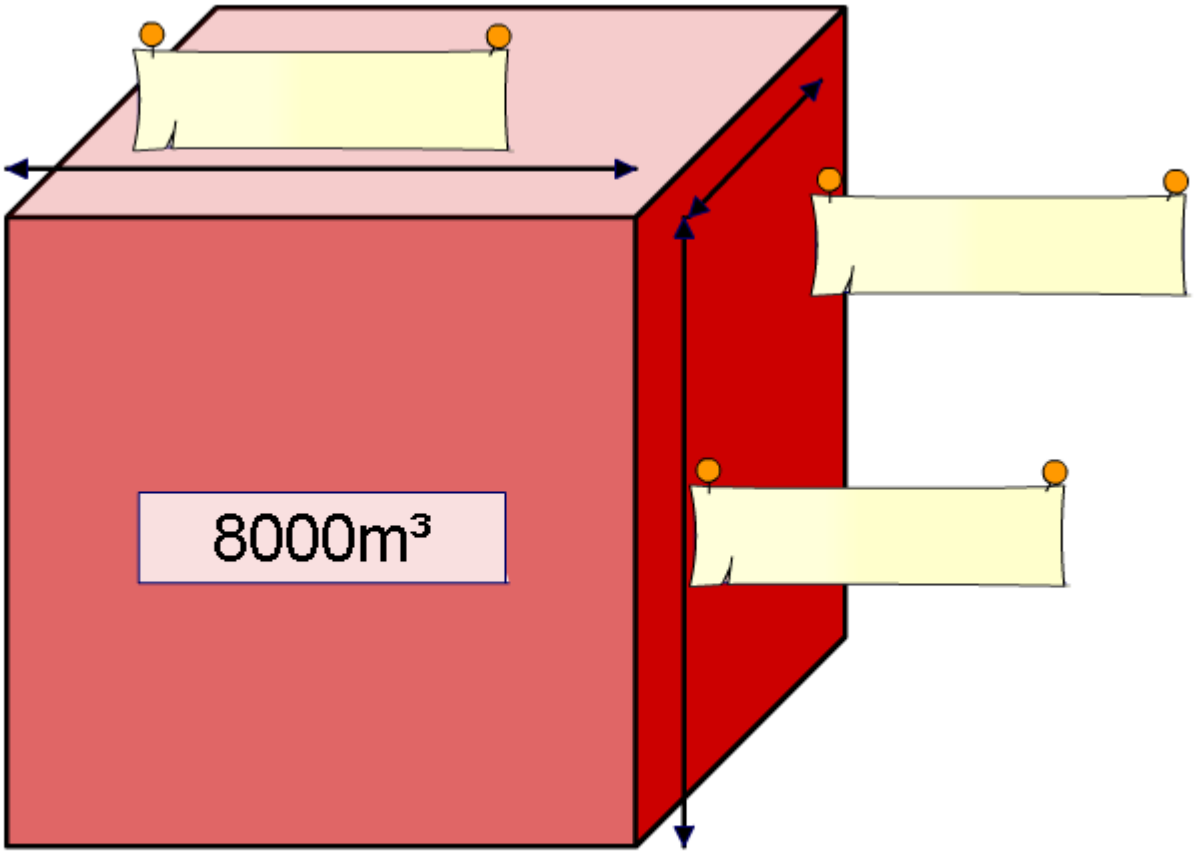
7) Look for and make use of structure.

8) Look for and express regularity in repeated reasoning.

This icon indicates that the slide contains activities created in Flash. These activities are not editable.

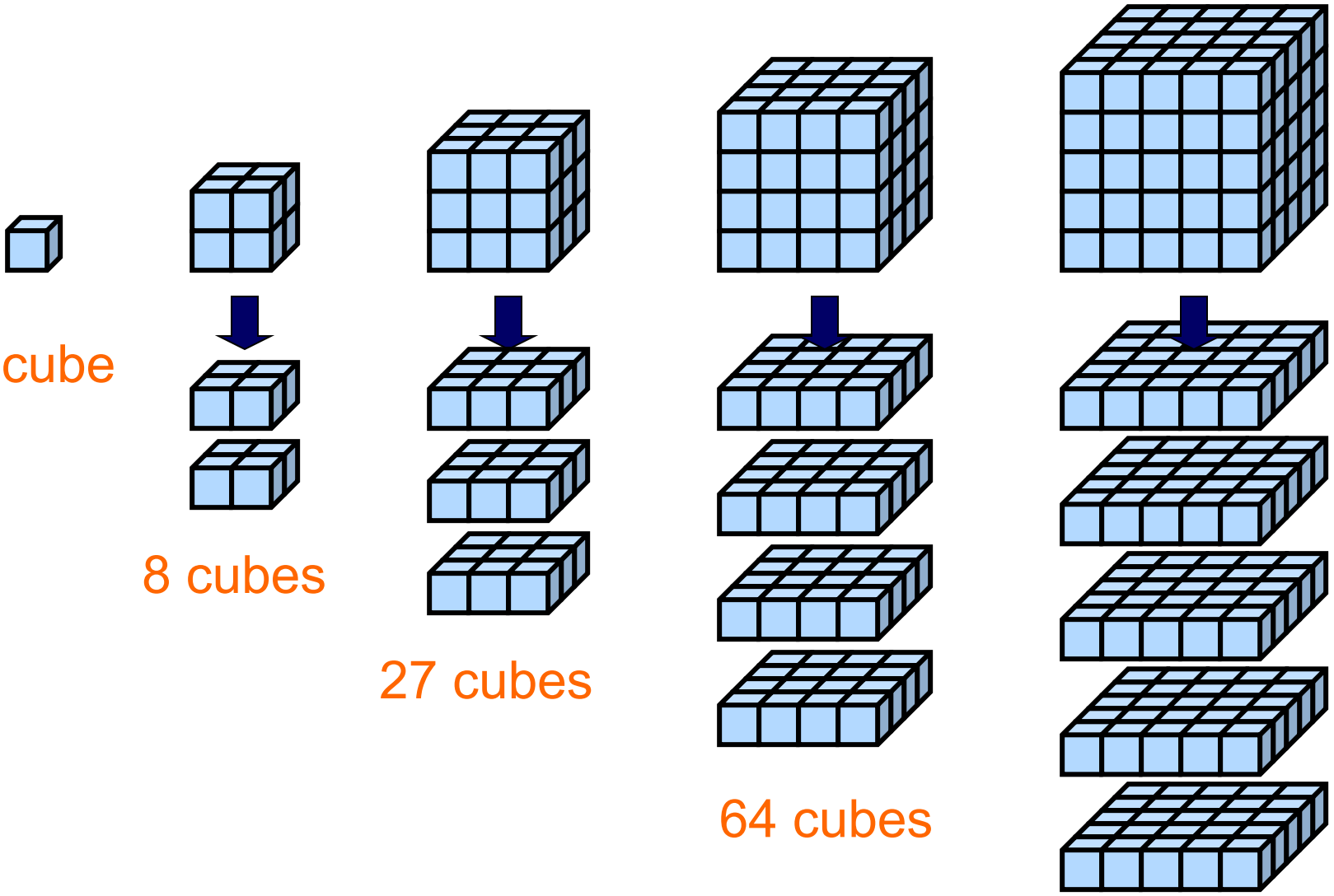
This icon indicates teacher's notes in the Notes field.

Edge length and volume



Press the notes to hide or reveal the side lengths.

Building cubes



Cube numbers

Complete these calculations involving cubes.

When we multiply a number by itself twice, we find the cube. Complete the following calculations involving cubes.

Press **start** to begin.

start

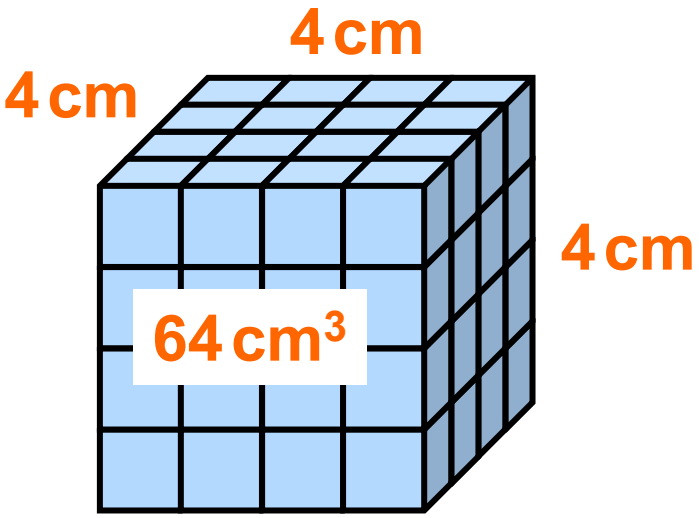
5^3

S C

How would you say each of these numbers aloud?

Cube roots

What can you say about the relationship between the volume of a cube and the length of its edges?

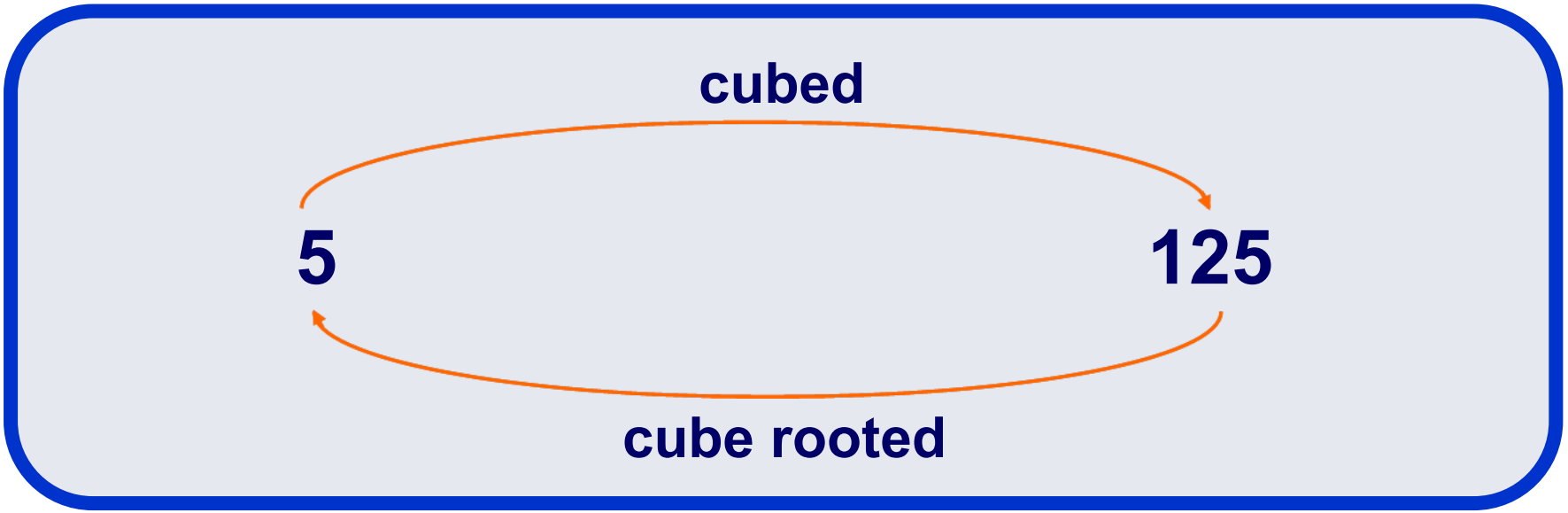


volume of a cube = length of one edge^3

A number that is multiplied by itself twice to form a product is the **cube root** of that product.

Cube roots

Finding the cube root is the inverse of finding the cube:



We write:

$$\sqrt[3]{125} = 5$$

The cube root of 125 is 5.

Applying cube roots

Antoine is making his mother a jewelry box in shop class. He wants the volume of the box to be 729 in^3. How long should he make each edge if the box is to be a cube?

We know that the volume of the box equals the length of one edge cubed.

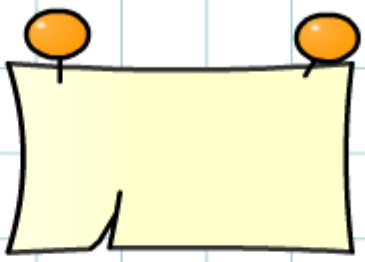
To solve this problem, we must find the cube root of 729.

$$\sqrt[3]{729} = 9$$

Each edge should be 9 in long.

Squares, cubes and roots

Calculate the hidden number.

$9^2 =$ 

Squares 1

Square roots 2

Cubes 3

Cube roots 4

positive only