Name ____ Class _______

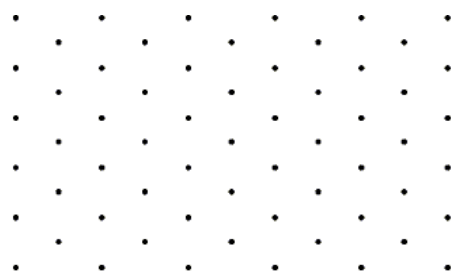
4-6 Hands-On Lab
Explore Cube Roots

Materials:	**Remember:**
Smallest base 10 blocks, rainbow cubes, or centimeter cubes	• All edges of a cube are the same length. • **<u>Volume</u>:** the number of cubic units needed to fill the space of a solid.

The number of small unit blocks it takes to construct a cube is equal to the volume of the cube. By building a cube with edge length x and counting the number of unit blocks needed to build the cube, you can find x^3, the volume.

Activity 1

1. Build a cube with an edge length of 2. Draw the figure on the isometric dot paper. (2 pts)



2. The volume of the cube is the same as 2^3. What is 2^3? (1 pt)

Activity 2

You can determine whether any number x is a perfect cube by trying to build a cube out of x unit blocks. If you can build a cube with the given number of blocks, then the number is a perfect cube. Its ***cube root*** ($\sqrt[3]{\ }$) will be the length of one edge of the cube that is formed.

3. Try to build a cube using 27 unit blocks. Draw the figure on the isometric dot paper. (2 pts)

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4. Is 27 a perfect cube? If so, what is its cube root? (2 pts)

Answer the Following

Model the following. How many blocks do you need to model each? (4 pts)

5. $\mathbf{5^3}$ **6.** $\mathbf{3^3}$ **7.** $\mathbf{6^3}$ **8.** $\mathbf{1^3}$

9. How can you find the value of a number squared from the model of that number cubed? (2 pts)

10. Is 100 a perfect cube? Why or why not? (2 pts)

11. A solid has a length of 3, a height of 2, and a width of 2. What is the volume? Is it a perfect cube? Why or why not? (3 pts)

Model to find whether each is a perfect cube. If the number is a perfect cube, find its cube root. (6 pts)

12. 64 13. 75 14. 125 15. 200

16. Complete the table with the first ten perfect cubes. (10 pts)

x	1	2	3	4	5	6	7	8	9	10
x^3										

17. $\sqrt[3]{100}$ **is between which two integers? (1 pt)**