

PERFECT CUBES ACTIVITY

(Integrated with Art education)

Name _____

Date _____

Using your perfect square tile and perfect cube cubes , create each of the following models :

LENGTH OF EACH SIDE (DIMENSION)	SKETCH OF YOUR PERFECT SQUARE WITH DIMENSIONS LABELLED	NUMBER OF TILES USED IN CREATING A PERFECT SQUARE	SKETCH OF YOUR PERFECT CUBE WITH DIMENSIONS LABELLED	NUMBER OF CUBES USED IN CREATING A PERFECT CUBE
1				
2				
3				
4				
5				

1. Apply what you already know about perfect squares to answer the following questions .
 - a) What does it mean to cube a number? Explain using full sentences.
 - b) Which part of your model represents the value of cubing a number , ex . the value of 4^3 is represented where , how ? Explain using full sentences .
 - c) Which part of your model represents the cube root of a number , such as the cube roots of 8 written as $\sqrt[3]{8}$? Explain using full sentences .
 - d) What does it mean for a number to be a perfect cube ? Would you say that all numbers are perfect cubes , explain your answer ?

e) Estimate the value of following expressions without using a calculator.

i) $\sqrt[3]{900}$

ii) $\sqrt[3]{100}$

iii) $\sqrt[3]{12}$

iv) $\sqrt[3]{320}$

EXTENSION ACTIVITY:

Square and square roots , cube and cube roots are applied in geometry. Let’s think about how squares and cubes relate to geometry .

1. Match the following geometry vocabulary to the correct part of your models created and sketched in the activity today .

- a) Perimeter _____ 1. Number of cubes inside a perfect cube
- b) Area _____ 2. Sum of side length on a perfect square
- c) Volume _____ 3. Number of tiles inside a perfect square

2. Application questions using perimeter , area and volume .

- a) The area of a square is 36 inch² . What is the perimeter of the square ?
- b) The volume of the cube is 27 ft³ . What is the area of the square base (flat square on the bottom side) of the cube ?
- c) The perimeter of a square is 28 cm , What is the area of the same square ?
- d) The area of a square is 81 m² . What are the dimensions of this square ?
- e) The volume of a cube is 125 ft³ . What are the dimensions of the cube ?

3. Complete the following table and then use this table to create the following graphs

Perimeter of perfect squares		Area of perfect squares		Volume of perfect cubes	
Length of side (cm)	Perimeter(cm)	Length of side (cm)	Area(cm ²)	Length of side (cm)	Volume (cm ³)
1		1		1	
2		2		2	
3		3		3	
4		4		4	
5		5		5	

Perimeter Graph

Area Graph

Volume Graph