

Preparing for Open-Ended Questions

Patterns Patterns Patterns

Use the chart below to record the number of cubes with 0, 1, 2, 3, 4, 5, or 6 painted sides formed from cutting solid painted cubes of various dimensions into unit cubes.

	3 x 3 x 3 cube	4 x 4 x 4 cube	5 x 5 x 5 cube	6 x 6 x 6 cube	10 x 10 x 10 cube	$n \times n \times n$ cube
Total Cubes	27	64	125	216	1000	n^3
# of painted sides	# of cubes	# of cubes	# of cubes	# of cubes	# of cubes	# of cubes
0						
1						
2						
3						
4						
5						
6						

Write a sentence to describe the pattern that occurs for 0, 1, 2, and 3 painted sides formed by dividing a cube of dimension n .

Zero sides painted:

One side painted:

Two sides painted:

Three sides painted: