

# Homework/Extension

## Step 6: Cube Numbers

### National Curriculum Objectives:

Mathematics Year 5: (5C5d) [Recognise and use square numbers and cube numbers, and the notation for squared \(2\) and cubed \(3\)](#)

### Differentiation:

Questions 1, 4 and 7 (Varied Fluency)

**Developing** Complete the maze by moving from cube number to cube number. Includes the first 5 cube numbers.

**Expected** Complete the maze by moving from cube number to cube number. Includes the first 12 cube numbers.

**Greater Depth** Complete the maze by moving between cube and square numbers. Includes the first 12 cube numbers and knowledge of square numbers.

Questions 2, 5 and 8 (Varied Fluency)

**Developing** Join three matching pairs to find the odd one out. Includes calculations involving the first 5 cube numbers.

**Expected** Join three matching pairs to find the odd one out. Includes calculations involving the first 12 cube numbers.

**Greater Depth** Join three matching pairs to find the odd one out. Includes calculations involving the first 12 cube numbers and knowledge of square numbers.

Questions 3, 6 and 9 (Reasoning and Problem Solving)

**Developing** Explain if given statements describe even numbers. Statements include the first 5 cube numbers.

**Expected** Explain if given statements describe even numbers. Statements include the first 12 cube numbers.

**Greater Depth** Explain if given statements describe even numbers. Statements include the first 12 cube numbers and knowledge of square numbers.

More [Year 5 Multiplication and Division](#) resources.

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# Cube Numbers

1. A ladybird is flying from leaf to leaf, landing on cube numbers only. Circle the leaves the ladybird will land on.



1	4	6	29	6	33	
27	9	36	3	15	121	
8	64	1	125	27	8	
16	25	49	81	144	64	End



VF  
HW/Ext

2. Join the matching pairs to find the odd one out.

$3^3$

$2 \times 4$

$3 \times 3$

$8 \times 8$

$9 \times 3$

$2^3$

$4^3$



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3. Whose number is even? Explain your answer.



Alex

My number is  $4^3 + 10$ .



Paulina

My number is a cube number between 20 and 30.



Harry

My number is  $5^3$  subtract 100.



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# Cube Numbers

4. A butterfly is flying from flower to flower, landing on cube numbers only. Circle the flowers the butterfly will land on.



1	3	144	12	1,584	648	
27	9	729	1,000	1,331	8	
512	6	216	126	256	512	
125	64	343	121	225	1,728	End



VF  
HW/Ext

5. Join the matching pairs to find the odd one out.

$$8^3$$

$$10 \times 100$$

$$10^3$$

$$432 \div 2$$

$$686 \div 2$$

$$7^3$$

$$6^3$$



VF  
HW/Ext

6. Whose number is even? Explain your answer.



George

My number is  $9^3 + 100$ .



Jermaine

My number is a cube number between 200 and 250.



Aishah

My number is half of  $12^3$ .



RPS  
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# Cube Numbers

7. A frog is jumping from lily pad to lily pad, landing on cube numbers and square numbers alternately. Circle the lily pads the frog will land on.



8	2	729	81	1,000	124	
16	15	49	68	100	1,236	
27	32	343	72	1,728	1,464	
36	125	36	27	121	1,331	End



VF  
HW/Ext

8. Join the matching pairs to find the odd one out.

$$4^3 + 8^2$$

$$5^2 + 10^2$$

$$5^3$$

$$7^3 + 20$$

$$8^3 \div 2$$

$$2 \times 4^3$$

$$11^2 \times 3$$



VF  
HW/Ext

9. Whose number is even? Explain your answer.



Freya

My number is  
 $9^3 + 4^2$ .



Anna

My number is  
 $10^3$  divided by  
 $10^2$ .



Marcus

My number is  
less than  $3^3$  but  
more than  $5^2$ .



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## Homework/Extension

### Cube Numbers

#### Developing

- 1, 27, 8, 64, 1, 125, 27, 8, 64
- $3 \times 3$  is the odd one out ( $3^3 = 9 \times 3$ ;  $2^3 = 2 \times 4$ ;  $4^3 = 8 \times 8$ ).
- Only Alex has an even number ( $64 + 10 = 74$ ). Paulina's number is 27 because this is the only cube number between 20 and 30, and Harry's number is 25 ( $125 - 100$ ).

#### Expected

- 1, 27, 512, 125, 64, 343, 216, 729, 1,000, 1,331, 8, 512, 1,728
- $8^3$  is the odd one out ( $10^3 = 10 \times 100$ ;  $6^3 = 432 \div 2$ ;  $7^3 = 686 \div 2$ ).
- Jermain and Aishah both have even numbers. Jermain's number must be 216 as this is the only cube number between 200 and 250, and Aishah's number is 864 (half of 1,728). George's number is 829 ( $729 + 100$ ).

#### Greater Depth

- 8, 16, 27, 36, 125, 36, 343, 49, 729, 81, 1,000, 100, 1,728, 121, 1,331
- $8^3 \div 2$  is the odd one out ( $4^3 + 8^2 = 2 \times 4^3$ ;  $5^2 + 10^2 = 5^3$ ;  $7^3 + 20 = 11^2 \times 3$ )
- Anna and Marcus both have even numbers. Anna's number is 10 ( $1,000 \div 100$ ) and Marcus' number must be 26 ( $3^3 = 27$  and  $5^2 = 25$ ). Freya's number is 745 ( $729 + 16$ ).