Reasoning and Problem Solving
Step 8: Scaling

National Curriculum Objectives:

Mathematics Year 3: (3C6) Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables
Mathematics Year 3: (3C8) Solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which *n* objects are connected to *m* objects

Differentiation:

Questions 1, 4 and 7 (Problem Solving)
Developing Arrange the number cards to complete the scaling sentence. Includes pictorial support.
Expected Arrange the number cards to complete the scaling sentence.
Greater Depth Complete and arrange the number cards to complete the scaling sentence.

Questions 2, 5 and 8 (Reasoning)
Developing Explain errors in a scaling statement. Includes pictorial support and bar models.
Expected Explain errors in a scaling statement. Includes bar models.
Greater Depth Explain errors in a scaling statement. Includes two-step problems.

Questions 3, 6 and 9 (Problem Solving)
Developing Identify the starting number in a word problem by scaling. Includes pictorial support and bar models.
Expected Identify the starting number in a word problem by scaling. Includes bar models.
Greater Depth Identify the starting number in a word problem by scaling. Includes two-step problems.

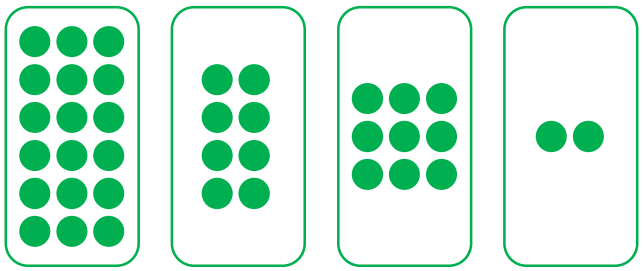
More Year 3 Multiplication and Division resources.

Did you like this resource? Don't forget to review it on our website.

Scaling

Scaling

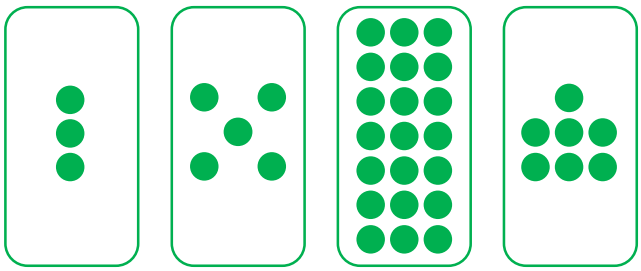
1a. Choose from the number cards below to complete the sentence.



☐ is ☐ times smaller than ☐

D PS

1b. Choose from the number cards below to complete the sentence.

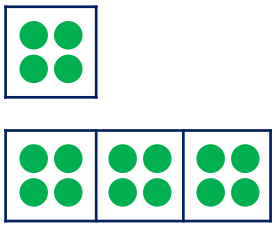


☐ is ☐ times bigger than ☐

D PS

2a. Mia says,

4 is 3 times bigger than 12.

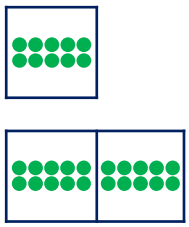


Explain the mistake that she has made.

D R

2b. Imran says,

10 is 2 times smaller than 22.



Explain the mistake that he has made.

D R

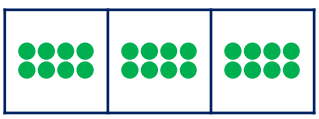
3a. Solve the word problem below.

I am thinking of a number.

It is 3 times smaller than 24.

What number am I thinking of?

? 

24 

D PS

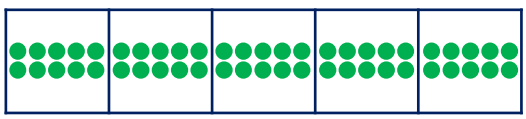
3b. Solve the word problem below.

I am thinking of a number.

It is 5 times bigger than 10.

What number am I thinking of?

10 

? 

D PS

Scaling

4a. Choose from the number cards below to complete the sentence. Find 2 possibilities.

20	4	6	5

☐ is ☐ times smaller than ☐

E PS

Scaling

4b. Choose from the number cards below to complete the sentence. Find 2 possibilities.

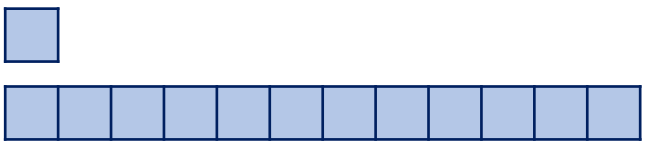
3	4	9	27

☐ is ☐ times bigger than ☐

E PS

5a. Kelly says,

36 is 33 times bigger than 3.

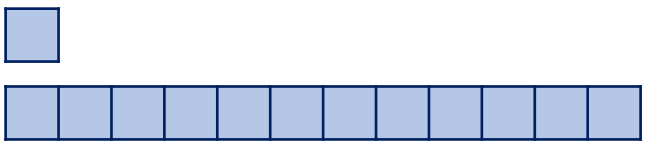


Explain the mistake that she has made.

E R

5b. Sam says,

96 is 8 times smaller than 12.



Explain the mistake that he has made.

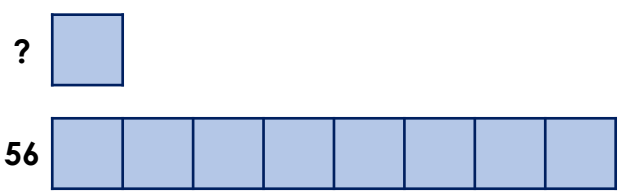
E R

6a. Solve the word problem below.

I am thinking of a number.

It is 8 times smaller than 56.

What number am I thinking of?



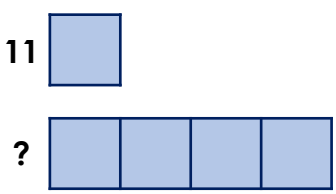
E PS

6b. Solve the word problem below.

I am thinking of a number.

It is 4 times bigger than 11.

What number am I thinking of?



E PS

Scaling

7a. Complete the digit cards so that you can find 3 different possibilities.

21	3	?	5	?	15

☐ is ☐ times smaller than ☐

GD PS

Scaling

7b. Complete the digit cards so that you can find 3 different possibilities.

3	?	4	?	24	12

☐ is ☐ times bigger than ☐

GD PS

8a. Rita says,

48 is 2 times bigger than 24 and 4 times bigger than 11.

Explain the mistake that she has made.

GD R

8b. Alfie says,

6 is 8 times smaller than 48 and 4 times smaller than 20.

Explain the mistake that he has made.

GD R

9a. Solve the word problem below.

I am thinking of a number.

It is 8 more than the number that is 4 times smaller than 36.

What number am I thinking of?

GD PS

9b. Solve the word problem below.

I am thinking of a number.

It is 12 less than the number 4 times bigger than 8.

What number am I thinking of?

GD PS

Reasoning and Problem Solving Scaling

Developing

1a. 9 is 2 times smaller than 18 or 2 is 9 times smaller than 18

2a. Mia has mixed up the numbers 4 and 12. Her sentence should be: 12 is 3 times bigger than 4.

3a. 8

Expected

4a. 5 is 4 times smaller than 20; 4 is 5 times smaller than 20.

5a. Kelly has worked out the difference between 3 and 36. Her sentence should be: 36 is 12 times bigger than 3.

6a. 7

Greater Depth

7a. Various answers, for example: Missing digit cards 7 and 35. 7 is 3 times smaller than 21; 5 is 3 times smaller than 15; 7 is 5 times smaller than 35.

8a. Rita has not used the times tables correctly. 48 is 4 times bigger than 12 not 11. Her sentence should be: 48 is 2 times bigger than 24 and 4 times bigger than 12.

9a. 17

Reasoning and Problem Solving Scaling

Developing

1b. 21 is 3 times bigger than 7 or 21 is 7 times bigger than 3

2b. Imran has not used the times tables correctly. 10 is 2 times smaller than 20 not 22.

3b. 50

Expected

4b. 27 is 3 times bigger than 9; 27 is 9 times bigger than 3.

5b. Sam has mixed up the numbers 12 and 96. His sentence should be: 12 is 8 times smaller than 96.

6b. 44

Greater Depth

7b. Various answers, for example: Missing digit cards 8 and 2. 12 is 4 times bigger than 3; 24 is 3 times bigger than 8; 8 is 2 times bigger than 4.

8b. Alfie has incorrectly divided 20 by 4, 6 is 4 times smaller than 24 not 20. His sentence should say: 6 is 8 times smaller than 48 and 4 times smaller than 24.

9b. 20