Reasoning and Problem Solving
Step 11: Correspondence Problems

National Curriculum Objectives:

Mathematics Year 4: (4C8) Solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as *n* objects are connected to *m* objects

Differentiation:

Questions 1, 4 and 7 (Reasoning)
Developing Identify and explain missing values by identifying the correspondence between n objects and m objects. Includes 2, 3, 4, 5 and 8 times table with some pictorial support.
Expected Identify and explain missing values by identifying the correspondence between n objects and m objects. All table facts with some pictorial support.
Greater Depth Identify and explain missing values by identifying the correspondence between n objects and m objects. All table facts with no pictorial support.

Questions 2, 5 and 8 (Problem solving)
Developing Calculate the possible combinations of values by identifying the correspondence between n objects and m objects. Includes 2, 3, 4, 5 and 8 times table with some pictorial support.
Expected Calculate the possible combinations of values by identifying the correspondence between n objects and m objects. All table facts with some pictorial support.
Greater Depth Calculate the possible combinations of values by identifying the correspondence between n objects and m objects. All table facts with no pictorial support.

Questions 3, 6 and 9 (Reasoning)
Developing Explain which statement is correct by identifying the correspondence between n objects and m objects. Includes 2, 3, 4, 5 and 8 times table with some pictorial support.
Expected Explain which statement is correct by support identifying the correspondence between n objects and m objects. All table facts with some pictorial support.
Greater Depth Explain which statement is correct by identifying the correspondence between n objects and m objects. All table facts with no pictorial support.

More Year 4 Multiplication and Division resources.

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

Correspondence Problems

1a. Dani is making a bouquet of flowers.

Pot 1	Pot 2
?	rose peony orchids

There are 36 combinations of flowers.

How many different flowers could be in pot 1? Convince me.

D

R

Correspondence Problems

1b. Julia is buying winter clothes.

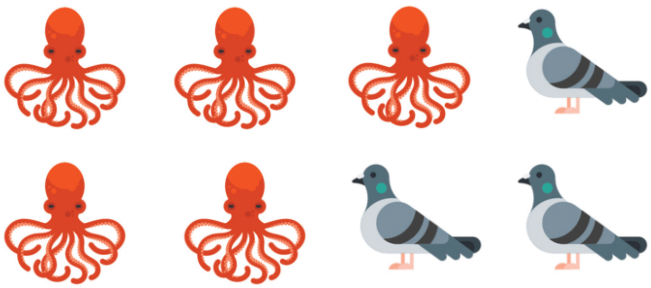
Hats	Scarves
black stripy purple spotty green	?

There are 30 combinations of hats and scarves.
How many different scarves could there be? Convince me.

D

R

2a. There are 46 legs in total. This is made up of octopus and birds.

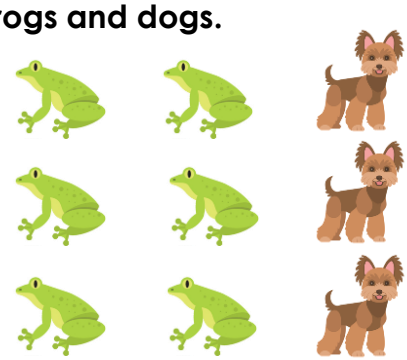


What combination of birds and octopus could there be?
Find 2 possibilities.

D

PS

2b. There are 48 legs in total. This is made up of frogs and dogs.



What combination of frogs and ladybirds could there be?
Find 2 possibilities.

D

PS

3a. Pippa and Saif are looking at bugs in 2 bug hotels. There are a total of 32 different combinations of bugs.

Pippa: I think there are 12 bugs in hotel A and 3 bugs in hotel B.

Saif: I think there are 8 bugs in hotel A and 4 bugs in hotel B.

Who is correct? Prove it.

D

R

3b. Grace and Ben are in a shop buying biscuits from 2 shelves. There are a total of 40 different combinations of biscuits.

Grace: I think there are 8 biscuits on shelf A and 5 biscuits on shelf B.

Ben: I think there are 8 biscuits on shelf A and 4 biscuits on shelf B.

Who is correct? Prove it.

D

R

Correspondence Problems

4a. Suzi is making confetti from petals.

Pot 1	Pot 2	Pot 3
crocus daisy rose peony orchids	?	?

There are 50 combinations of flowers.

How many different flowers could be in pot 2 and pot 3? Convince me.

E R

Correspondence Problems

4b. Jordan is buying plants for his garden.

Shelf 1	Shelf 2	Shelf 3
?	yukka lavender foxglove honeysuckle	?

There are 48 combinations of plants.

How many different plants could be on shelf 1 and shelf 3? Convince me.

E R

5a. There are 100 legs in total. This is made up of dogs and spiders.

What combination of dogs and spiders could there be?
Find 2 possibilities.

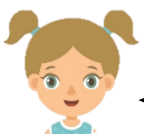
E PS

5b. There are 88 legs in total. This is made up of ladybirds and koala bears.

What combination of ladybirds and koala bears could there be?
Find 2 possibilities.

E PS

6a. Debbie and Tom are in a pet shop buying fish from 2 tanks. There are a total of 60 different combinations of fish.



Debbie: I think there are 12 fish in tank A and 5 fish in tank B.

Tom: I think there are 6 fish in tank A and 10 fish in tank B.

Who is correct? Prove it.

E R

6b. Alex and Isla are in a bakery buying cakes from 2 boxes. There are a total of 36 different combinations of cakes.

Alex: I think there are 6 cakes on shelf A and 8 cakes on shelf B.

Isla: I think there are 9 cakes on shelf A and 4 cakes on shelf B.

Who is correct? Prove it.

E R

Correspondence Problems

7a. George is making a fruit salad.

Fruit Basket 1	Fruit basket 2	Fruit basket 3
?	?	?

There are 48 combinations of fruits.

How many different fruits could be in basket 1, basket 2 and basket? Convince me.

GD R

Correspondence Problems

7b. Livia is making bouquets of flowers.

Pot 1	Pot 2	Pot 3
?	?	?

There are 60 combinations of flowers.

How many different flowers could be in pot 1, pot 2 and pot 3? Convince me.

GD R

8a. There are 102 legs in total. This is made up of ladybirds and spiders.
There are an odd number of ladybirds.

ladybird 6 legs	spiders 8 legs

What combination of ladybirds and spiders could there be?
Find 3 possibilities.

GD PS

8b. There are 112 fins in total. This is made up of orca whales and sharks.
There are more sharks than orca whales.

orca 4 fins	shark 8 fins

What combination of orca whales and sharks could there be?
Find 3 possibilities.

GD PS

9a. Liam and Zara are in a shop buying books from 3 shelves. There are a total of 72 different combinations of books.

Liam

I think there are 12 books on shelf A, 6 books on shelf B and 1 book on shelf C because 12 x 6 x 1 = 72.

I think there are 3 books on shelf A, 3 books on shelf B and 8 books on shelf C because 3 x 3 x 8 = 72.

Zara

Who is correct? Prove it.

GD R

9b. Lila and Rudy are in a bakery buying loaves from 3 boxes. There are a total of 84 different combinations of loaves.

Lila

I think there are 4 loaves on shelf A, 2 loaves on shelf B and 11 loaves on shelf C because 4 x 2 x 11 = 84.

I think there are 7 loaves on shelf A, 6 loaves on shelf B and 2 loaves on shelf C because 42 x 2 = 84.

Rudy

Who is correct? Prove it.

GD R

Reasoning and Problem Solving Correspondence Problems

Developing

1a. 12 flowers in pot 1 (12 x 3 = 36)

2a. Various answers, for example: 5 octopus and 3 birds (5 x 8 + 3 x 2 = 46); 4 octopus and 7 birds (4 x 8 + 7 x 2 = 46)

3a. Saif is correct because 8 x 4 = 32. Pippa is incorrect because 12 x 3 = 36, not 32.

Expected

4a. Various answers, for example: 2 flowers are missing from pot 2 and 5 from pot 3 (5 x 2 x 5 = 50).

5a. Various answers, for example: 10 spiders and 5 dogs (10 x 8 + 5 x 4 = 100); 12 spiders and 1 dog (12 x 8 + 1 x 4 = 100)

6a. Both Debbie and Tom are correct because 12 x 5 = 60 and 10 x 6 = 60.

Greater Depth

7a. Various answers, for example: 2 fruits in column 1, 12 fruits in column 2 and 2 fruits in column 3 (2 x 12 x 2 = 48).

8a. Various answers, for example: 1 ladybird and 12 spiders (1 x 6 + 12 x 8 = 102); 5 ladybirds and 9 spiders (5 x 6 + 9 x 8); 9 ladybirds and 6 spiders (9 x 6 + 6 x 8 = 102); 13 ladybirds and 3 spiders (13 x 6 + 3 x 8 = 102).

9a. Both Liam and Zara could be correct because both 12 x 6 x 1 and 3 x 3 x 8 equal 72. They have both used different methods for calculating the answer.

Reasoning and Problem Solving Correspondence Problems

Developing

1b. 6 scarves missing (5 x 6 = 30)

2b. Various answers, for example: 7 frogs and 5 dogs (7 x 4 + 5 x 4 = 48); 1 frog and 11 dogs (1 x 4 + 11 x 4 = 48);

3b. Grace is correct because 5 x 8 = 40. Ben is incorrect because 8 x 4 = 32, not 40.

Expected

4b. Various answers, for example: 3 plants are missing from shelf 1 and 4 from shelf 3 (3 x 4 x 4 = 48).

5b. Various answers, for example: 4 koalas and 12 ladybirds (4 x 4 + 12 x 6 = 88); 7 koalas and 10 ladybirds (7 x 4 + 10 x 6 = 88)

6b. Isla is correct because 9 x 4 = 36. Alex is incorrect because 6 x 8 = 48, not 36.

Greater Depth

7b. Various answers, for example: 5 flowers in pot 1, 3 flowers in pot 2 and 4 flowers in pot 3 (5 x 3 x 4 = 60)

8b. Various answers, for example: 10 sharks and 8 whales (10 x 8 + 8 x 4 = 112); 11 sharks and 6 whales (11 x 8 + 6 x 4 = 112); 12 sharks and 4 whales (12 x 8 + 4 x 4 = 112).

9b. Rudy is correct because 7 x 6 = 42 and 42 x 2 = 84. Lila has calculated 4 x 2 x 11 which equals 88, not 84.