Correspondence problems

Notes and guidance

In this small step, children consolidate their understanding of correspondence problems from Year 3, using multiplication to work out the number of possible combinations of sets of items.

Children use a range of representations and contexts to support them. Using tables helps to encourage children to adopt a systematic approach to finding all of the possible combinations in a given context. Children then generalise to make the link between the number of possibilities for each item and using multiplication to find the total number of combinations.

Once confident with finding all possible combinations for two sets of items children may begin to explore finding all possible combinations for three sets of items.

Things to look out for

- Children may see the same choices in a different order as a different choice.
- Children may need support to work systematically when listing all possibilities.
- Children may add instead of multiply the number of possibilities for each item.

Key questions

- How can you use a table to help you find the possible combinations?
- How can you be sure that you have listed all the possibilities?
- How could you use a code to help you list the combinations?
- What do you notice about the number of choices for each item and the total number of combinations?
- How can you check your answer?
- Does the order in which you make your choices matter?

Possible sentence stems

- For every _____, there are _____ _____
- Altogether, there are _____ × _____ = _____ possible combinations.

National Curriculum links

- Solve problems involving multiplying and adding, including using the distributive law to multiply 2-digit numbers by 1 digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects

Correspondence problems

Key learning

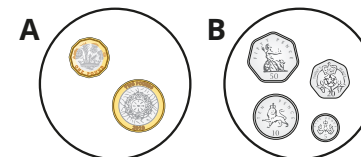- A cafe has 4 flavours of ice cream and 2 choices of toppings.

Ice cream flavours	Toppings
vanilla chocolate strawberry lemon	sauce wafer

  ▶ Complete the table to show the 8 possible combinations of flavours and toppings.

	Sauce	Wafer
Vanilla		VW
Chocolate		
Strawberry		SW
Lemon	LS	

  ▶ What multiplication could you use to work out the total number of combinations?

   How do you know?

  ▶ How many combinations would there be if the cafe also offered mint ice cream?

  ▶ How many combinations would there be if there were 6 ice cream flavours and 3 different toppings?

- Huan has two piles of coins.

  He chooses one coin from each pile.

  ▶ List all the possible combinations of coins Huan could choose.

  ▶ How many different combinations of coins are there?

  ▶ List all the possible total amounts of money Huan can make.

  ▶ How many different total amounts of money are there?

- Esther is choosing what to wear on a snowy day.

Hat	Scarf	Gloves

  ▶ How many different ways can Esther choose a hat and a scarf?

  ▶ How many different ways can Esther choose a hat and a pair of gloves?

  ▶ How many different ways can Esther choose a hat, a scarf and a pair of gloves?

  How can you check your answers?

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Reasoning and problem solving

Here are the meal choices in the school canteen.

Starter	Main	Dessert
soup	pasta	cake
garlic bread	chicken	ice cream
	beef	fruit salad
	salad	

Children can make one choice from each section.

How many possible combinations of starters, mains and desserts can be chosen?

If there were 20 possible meal combinations, how many starters, mains and desserts could there be?

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_____

multiple possible answers, e.g.

1S, 1M, 20D

1S, 2M, 10D

1S, 4M, 5D

2S, 2M, 5D

1S, 20M, 1D

Brett has 6 T-shirts and 4 pairs of shorts.

Dani has 12 T-shirts and 2 pairs of shorts.

Who has the most combinations of T-shirts and shorts?

Explain your answer.

They have the same.

Jo rolls two 6-sided dice and multiplies the numbers together.

There are 6 × 6 = 36 different possible answers Jo could get.

Explain why Tiny is wrong.

How many different answers could Jo get?

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