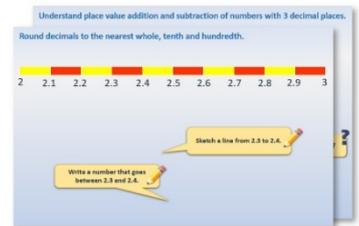


Week 13, Day 3

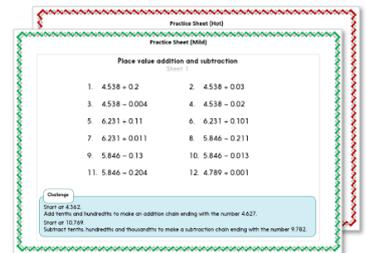
Solve correspondence problems

Each day covers one maths topic. It should take you about 1 hour or just a little more.

1. Start by reading through the **Learning Reminders**. They come from our *PowerPoint* slides.



2. Tackle the questions on the **Practice Sheet**. There might be a choice of either **Mild** (easier) or **Hot** (harder)! Check the answers.

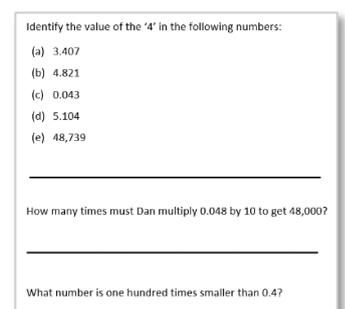


3. Finding it tricky? That's OK... have a go with a grown-up at **A Bit Stuck?**



4. Think you've cracked it? Whizzed through the Practice Sheets? Have a go at the **Investigation...**

5. Have I mastered the topic? A few questions to **Check your understanding**. Fold the page to hide the answers!



Learning Reminders

Solve correspondence problems.

We are going to create a two-course menu, with a choice of 3 main courses and 3 desserts!

We're going to find out how many different possible meals you could have.

**Main course: Veg lasagne, cheesy pizza or cheeseburger.
Dessert: Ice cream, apple tart or jelly.**

What would you choose?

Learning Reminders

Solve correspondence problems.

We should list the possibilities systematically. Start with Veg Lasagne....

veg lasagne with ice cream
veg lasagne with apple tart
veg lasagne with jelly

3 different meals.

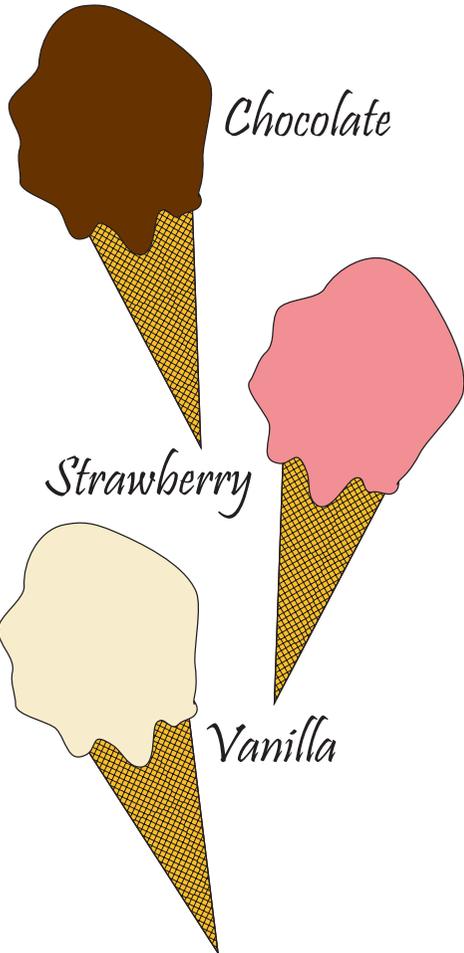
What if you had a cheesy pizza or a cheeseburger for your main course?
How many possible meals for each?
How many possible meals in total?
Is there a quick way to find the answer?

Spoiler!

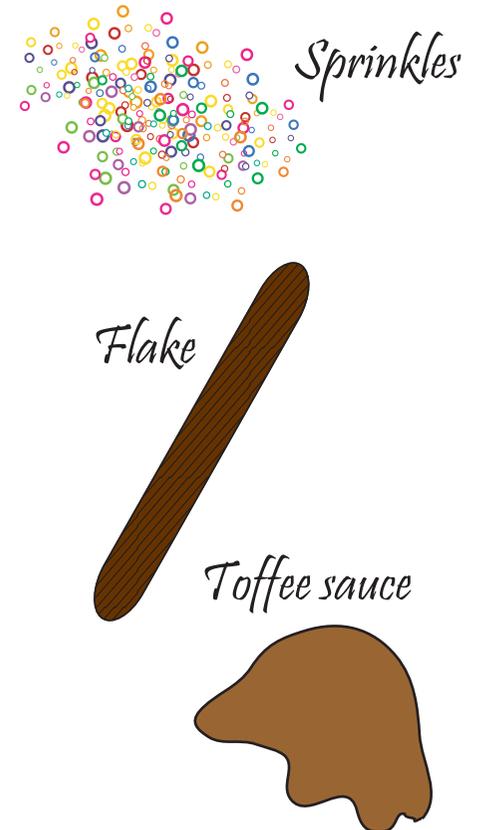
3 meals with cheesy pizza, 3 meals with a cheeseburger, 9 different meals in total. A quick way to find the answer is to multiply the number of main courses by the number of starters.

Practice Sheet Mild Combinations

Each flavour ice cream can be served with one topping. Work out how many possible combinations there are. Try to be systematic to make sure you have all combinations. You could copy and continue this table.

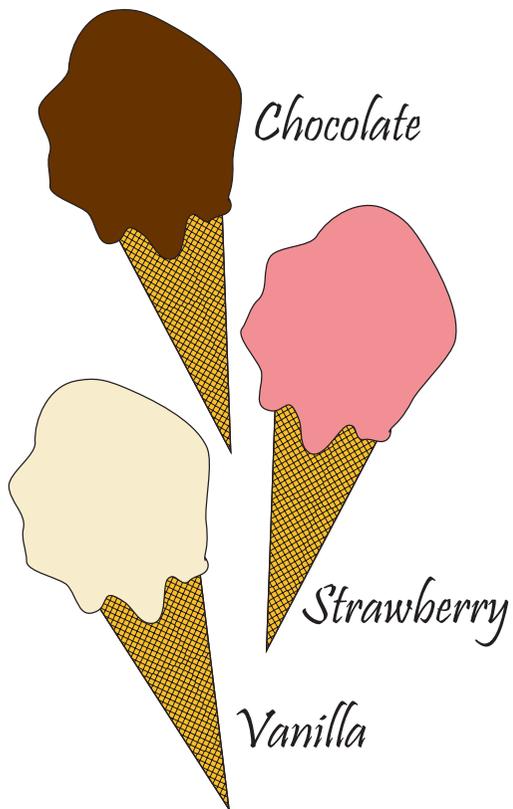


Ice cream	Topping
Chocolate ice cream	Sprinkles
Chocolate ice cream	Flake
Chocolate ice cream	

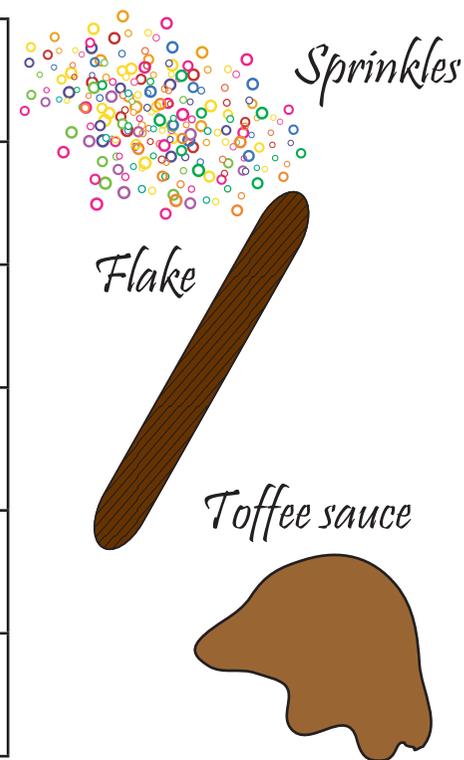


Practice Sheet Hot Combinations

Each flavour ice cream can be served with one topping. Work out how many possible combinations there are. Try to be systematic to make sure you have all combinations. You could copy and continue this table.



Ice cream	Topping
Chocolate ice cream	Sprinkles



Challenge

What if there were four choices of ice cream flavour, and the same three toppings?
 What if there were four choices of ice cream and four toppings? Can you describe any patterns you've noticed?
 Can you explain these patterns?

Practice Sheets Answers

Combinations (mild)

There are 9 possible combinations:

Chocolate ice cream	sprinkles
Chocolate ice cream	flake
Chocolate ice cream	<i>toffee sauce</i>
<i>Vanilla ice cream</i>	<i>sprinkles</i>
<i>Vanilla ice cream</i>	<i>flake</i>
<i>Vanilla ice cream</i>	<i>toffee sauce</i>
<i>Strawberry ice cream</i>	<i>sprinkles</i>
<i>Strawberry ice cream</i>	<i>flake</i>
<i>Strawberry ice cream</i>	<i>toffee sauce</i>

Combinations (hot)

There are 9 possible combinations:

Chocolate ice cream	sprinkles
<i>Chocolate ice cream</i>	<i>flake</i>
<i>Chocolate ice cream</i>	<i>toffee sauce</i>
<i>Vanilla ice cream</i>	<i>sprinkles</i>
<i>Vanilla ice cream</i>	<i>flake</i>
<i>Vanilla ice cream</i>	<i>toffee sauce</i>
<i>Strawberry ice cream</i>	<i>sprinkles</i>
<i>Strawberry ice cream</i>	<i>flake</i>
<i>Strawberry ice cream</i>	<i>toffee sauce</i>

Challenge

What if there were four choices of ice cream flavour, and the same three toppings?

There would be 12 different possible combinations of ice cream and topping.

What if there were four choices of ice cream flavour, and four toppings?

There would be 16 different possible combinations of ice cream and topping.

Can you describe any patterns you've noticed? Can you explain these patterns?

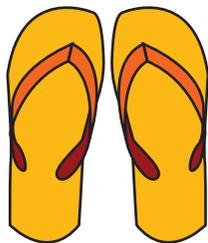
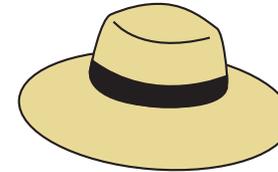
The number of combinations is the product of the number of ice cream flavours and the number of toppings.

For every 'F' flavours, there are 'T' toppings, so the total number of combinations will be $F \times T$.

A Bit Stuck?

How many combinations?

1. How many different combinations of hat and coat could you choose? Write them all down.
2. How many different combinations of hat, coat and footwear are there?



Challenge

You also have a choice of jeans or shorts, how many different combinations now?

A Bit Stuck? Answers

How many combinations?

1. There are **9** combinations of hat and coat.

Bobble hat, red coat

Baseball cap, red coat

Sun hat, red coat

Bobble hat, green coat

Baseball cap, green coat

Sun hat, green coat

Bobble hat, blue coat

Baseball cap, blue coat

Sun hat, blue coat

2. There are **27** combinations of hat, coat and shoes.

Bobble hat, red coat, flip flops

Baseball cap, red coat, flip flops

Bobble hat, red coat, trainers

Baseball cap, red coat, trainers

Bobble hat, red coat, shoes

Baseball cap, red coat, shoes

Bobble hat, green coat, flip flops

Baseball cap, green coat, flip flops

Bobble hat, green coat, trainers

Baseball cap, green coat, trainers

Bobble hat, green coat, shoes

Baseball cap, green coat, shoes

Bobble hat, blue coat, flip flops

Baseball cap, blue coat, flip flops

Bobble hat, blue coat, shoes

Baseball cap, blue coat, shoes

Bobble hat, blue coat, trainers

Baseball cap, blue coat, trainers

Sun hat, red coat, flip flops

Sun hat, red coat, trainers

Sun hat, red coat, shoes

Sun hat, green coat, flip flops

Sun hat, green coat, trainers

Sun hat, green coat, shoes

Sun hat, blue coat, flip flops

Sun hat, blue coat, trainers

Sun hat, blue coat, shoes

Challenge

With a choice of jeans and shorts as well there are **54** different combinations of hats, coats, shoes and clothing.

Investigation

Ice creams



- An ice cream van sells four flavours of ice cream: vanilla, chocolate, strawberry and honeycomb.
- You can choose two scoops: one on top of the other on a cone!
- How many different combinations of two scoops are there?

There are two things to remember:

1. You *can* have a double scoop of the same flavour.
2. Chocolate with vanilla above, is definitely **different** to vanilla with chocolate above, so should be considered a different option.

Hint!

It is a good idea to list **systematically**, e.g. all the combinations with chocolate on the bottom. You could use different colour for each flavour or a letter for each, V for Vanilla, C for Chocolate and so on... There's no wrong way to represent your thinking in an investigation – whatever works for you!

Challenge

What would happen if there were 5 flavours: the original four, plus mint...?
What if double scoops of the same flavour were not allowed?

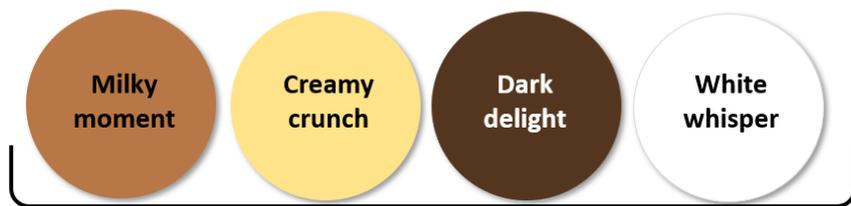
Check your understanding

Questions

Write lots of divisions beginning with 3600, e.g. $3600 \div 4 = 900$.

Mr Jones' rectangular garden measures 5m by 8m. His neighbour – Mr Payne – says, 'My garden is twice as wide and double the length of your garden, so yours is half the size of mine.' Do you agree with Mr Payne?

The top-seller at Giovanni's café is the 'Quad-Choc-Challenge' – a dessert with 4 different flavours of chocolatey ice cream in a long thin dish!
Here is one arrangement of flavours. How many others are there?



Check your understanding

Answers

Write lots of divisions beginning with 3600, e.g. $3600 \div 4 = 900$.

For example:

$$3600 \div 40 = 90; 3600 \div 400 = 9.$$

$$3600 \div 2 = 1800; 3600 \div 20 = 180; 3600 \div 200 = 18.$$

$$3600 \div 6 = 600; 3600 \div 60 = 60; 3600 \div 600 = 6.$$

$$3600 \div 10 = 360; 3600 \div 100 = 36.$$

Mr Jones' rectangular garden measures 5m by 8m. His neighbour – Mr Payne – says, 'My garden is twice as wide and double the length of your garden, so yours is half the size of mine.' Do you agree with Mr Payne?

Mr. Payne is wrong – Mr. Jones' garden is in fact a quarter of the size. Drawing a diagram may help clarify the calculations:

Mr. Jones' garden has an area of 40m^2 . (5m by 8m).

Mr. Payne's garden has an area of 160m^2 . (10m by 16m).

The top-seller at Giovanni's café is the 'Quad-Choc-Challenge' – a dessert with 4 different flavours of chocolatey ice cream in a long thin dish!

Here is one arrangement of flavours. How many others are there? 23



There is a total of 24 arrangements ($4 \times 3 \times 2$), so 23 other than that shown above. What was your child's strategy for recording and organising their ideas? Did they use a system of any sort to avoid missing combinations?