

11-14 YEAR OLDS
WORD PROBLEMS

Here are some notes on the word problem skills we practised in today's lesson. You will also find an extension activity which you can complete in your own time.

USING ALGEBRA

Algebra can often be used to solve word problems. First of all, we need to understand how we can represent sentences as algebraic expressions.

I ate x slices of pizza. You ate 3 more slices than me. How many did you eat?
 $x + 3$

I am x years old. You are 3 times older than I was 3 years ago. How old are you?
 $3(x - 3)$

We covered 2 different types of question in today's lesson.

1. Jakub is 4 years younger than Anna. Rhian is 3 times older than Jakub. The sum of their ages is 24. What are the ages of Jakub, Anna and Rhian?

$$\text{Anna} = x \quad \text{Jakub} = x - 4 \quad \text{Rhian} = 3(x - 4)$$

$$x + x - 4 + 3(x - 4) = 24$$

$$\text{Expand brackets: } x + x - 4 + 3x - 12 = 24$$

$$\text{Collect terms: } 5x - 16 = 24$$

$$5x = 40$$

$$x = 8$$

Anna is 8, Jakub is 4 and Rhian is 12.

2. Watching two movies back-to-back takes 221 minutes. If you start them at the same time, the first movie finishes 25 minutes before the other. How long are each of the movies?

$$(1) a + b = 221 \quad (2) a - b = 25$$

$$\text{Rearrange (2): } a = 25 + b$$

$$\text{Substitute into (1) } 25 + b + b = 221$$

$$\text{Collect terms: } 25 + 2b = 221$$

$$2b = 196$$

$$b = 98, \text{ so } a = 123$$

TAKEAWAY CHALLENGE

Create Two Word Problems

Use the examples above to create two of your own word problems which require algebra to solve. For the first one, you need to provide information on how the numbers relate to each other and also give the total. For the second one, you need to give the sum and difference between two numbers.

Parents - We would love it if you could share your child's work with us on Twitter, Facebook and Instagram using #exploreathome