# An Odd Spell of Maths

**You need** ☑ a classmate

## Activity

One rainy day, Iosefo and Kara are looking for something to do.

*Let's do a maths word find!*

*Good idea! We could use mathematics as our word.*

Iosefo and Kara write down the word *mathematics*. Then they write an odd number under each letter:

| M | A | T | H | E | M | A | T | I | C | S |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 3 | 5 | 7 | 9 | 11 | 13 | 15 | 17 | 19 | 21 |

1. Using the letters in the word *mathematics*, Kara writes 2-letter words and adds up the numbers for each word.

$$H\ E$$
$$7 + 9 = 16$$

$$I\ S$$
$$17 + 21 = 38$$

a. Write two more 2-letter words from *mathematics* and add up the numbers.

b. What do you notice about the totals? Can you explain why this happens?

c.

*For AM, you could write 3 + 1, 13 + 1, 3 + 11, or 13 + 11. Does that make any difference to what you noticed?*

Answer Kara's question. Explain your answer.

**2.**

You can make lots of 3-letter words from *mathematics*.

a. Find the totals for THE and HEM.

b. Write another 3-letter word from *mathematics* and find its total.

c. What do you notice about the totals of these three words? Can you explain why this happens?

d. i. Find all the possible number totals for MAT.

   ii. What do they have in common?

   iii. Why does this happen?

**3.**

I think all 4-letter words from *mathematics* will have a total that is even.

a. Make your own 4-letter words from *mathematics* and see if Iosefo is correct.

b. If he is correct, why does this happen?

**4.** The word *mathematics* has 11 letters. Predict whether the total will be odd or even. Explain why you think this.

**5.**

Let's try a number find using even numbers under the letters in *mathematics*.

Kara writes even numbers under the letters in *mathematics*:

| M | A | T | H | E | M | A | T | I | C | S |
|---|---|---|---|---|---|---|---|---|---|---|
| 2 | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 | 22 |

Make some different words from *mathematics* and check what happens when you add even numbers.

**6.** What have you found out about adding odd numbers and adding even numbers? Discuss this with a classmate.