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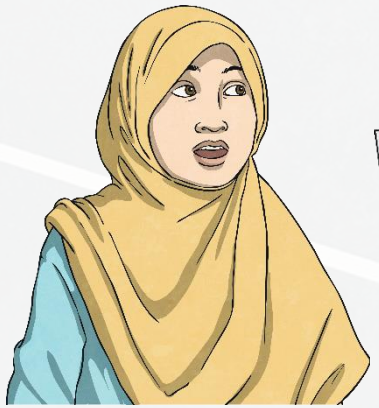
Finding Factor Pairs

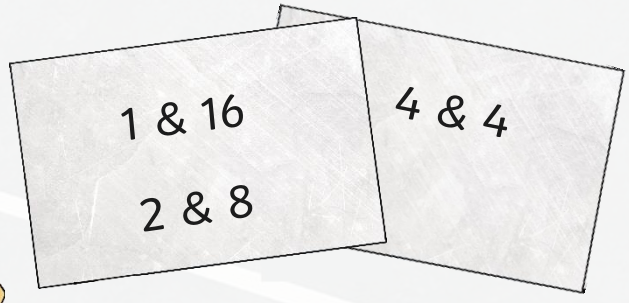
Fatima and Alfie share the factor pairs they have found to 16.

Working with a partner, choose one of the following numbers each and find all the factor pairs.

15	24	32	56	80

Explain to each other how you have done this and how you know you have all the factor pairs.





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Finding Factor Pairs **Example**

Factor pairs of 24
Start with 1 and the number: 1 × 24.

Use each number in turn checking for factor pairs: 2, 3, 4...

2 × 12, 3 × 8, 4 × 6

Keep going until you have used both numbers in a factor pair (4 × 6), or multiplying the number you are using by itself is greater than the number you are working with: 5 × 5 = 25.

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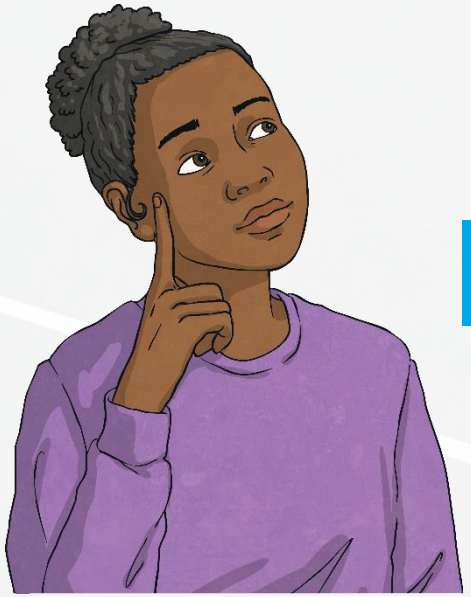
Using Factor Pairs

There are 30 children in Laura's class.

How many different ways are there to divide the class into equal groups?

Explain how factor pairs can help.



What if 2 children are absent?

Why would 1 child being absent be tricky?

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Using Factor Pairs **Answers**

30 has factor pairs of 1 × 30, 2 × 15, 3 × 10, 5 × 6.

There could be:

1 group of 30 or 30 groups of 1

2 groups of 15 or 15 groups of 2

3 groups of 10 or 10 groups of 3

5 groups of 6 or 6 groups of 5

28 has factor pairs of 1 × 28, 2 × 14, 4 × 7.

There could be:

1 group of 28 or 28 groups of 1

2 groups of 14 or 14 groups of 2

4 groups of 7 or 7 groups of 4

29 only has factor pairs of 1 × 29, so only a whole class group or groups of 1 are possible.

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Commutativity

Fatima, Alfie and Laura are investigating whether the order in which numbers are multiplied changes the answer.

Work with a partner or in a group of 3.

Choose 3 single-digit numbers which you will multiply together:
(say 4, 3, 8)

Write the numbers in different orders – there are 6 ways to write them:

4 × 3 × 8	8 × 3 × 4	4 × 8 × 3
3 × 4 × 8	3 × 8 × 4	8 × 4 × 3

Write the answer to each calculation.
What do you notice?

The answer is always the same.

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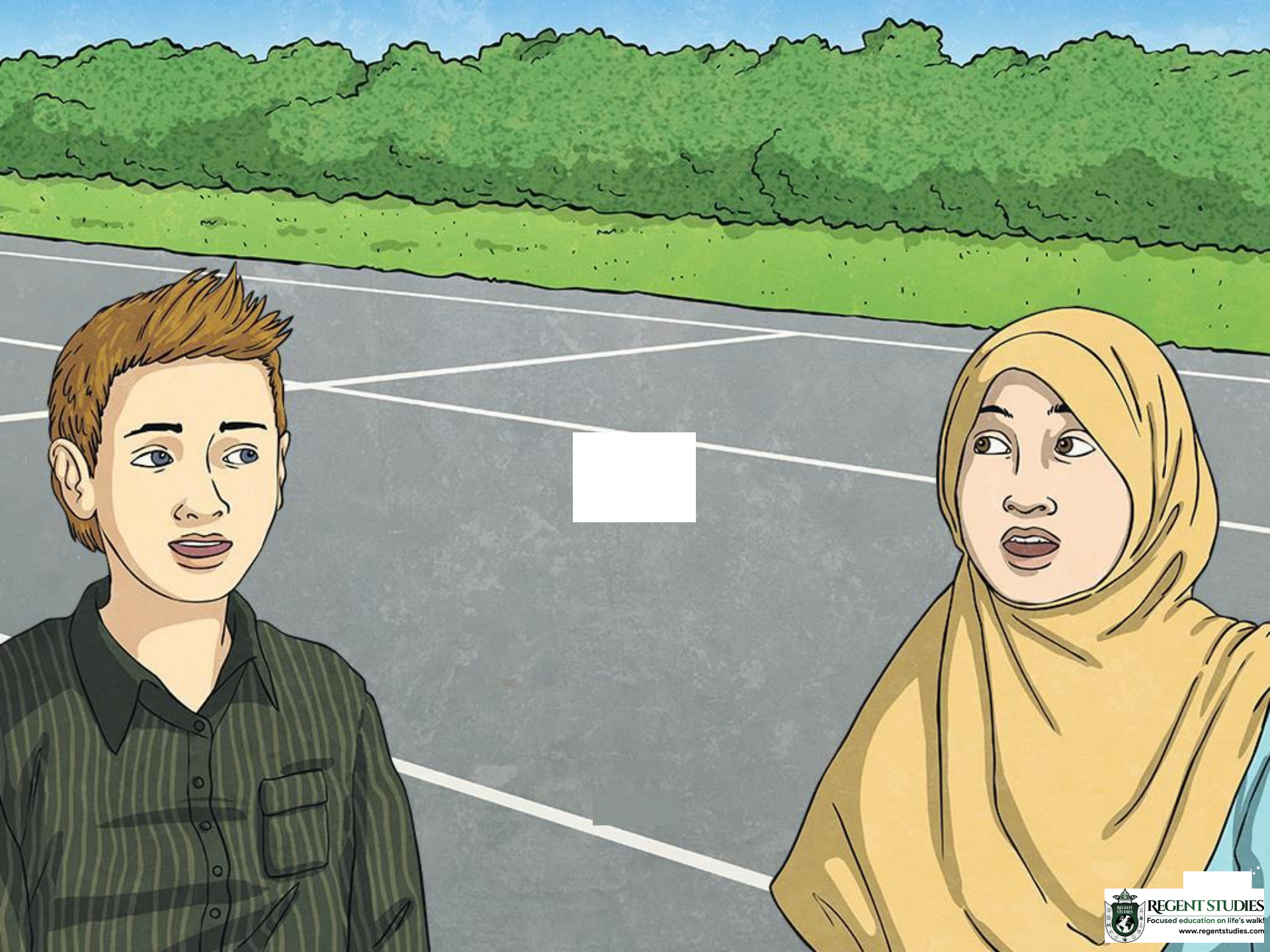
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