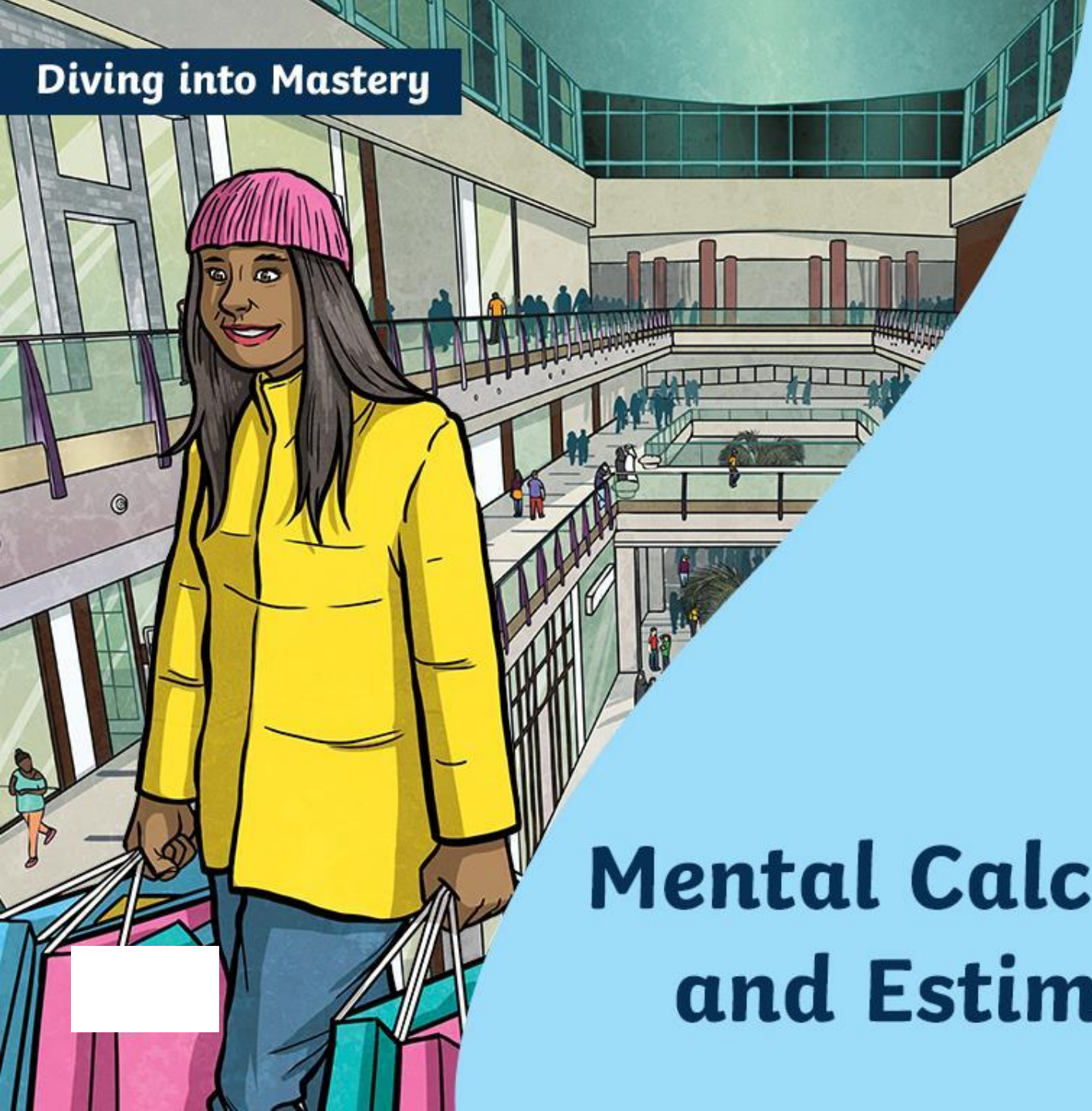
Diving into Mastery



Mental Calculations and Estimation

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Diving into Mastery Guidance for Educators

Each activity sheet is split into three sections, diving, deeper and deepest, which are represented by the following icons:

Diving

Deeper

Deepest

These carefully designed activities take your children through a learning journey, initially ensuring they are fluent with the key concept being taught; then applying this to a range of reasoning and problem-solving activities.

These sheets might not necessarily be used in a linear way. Some children might begin at the 'Deeper' section and in fact, others may 'dive straight in' to the 'Deepest' section if they have already mastered the skill and are applying this to show their depth of understanding.

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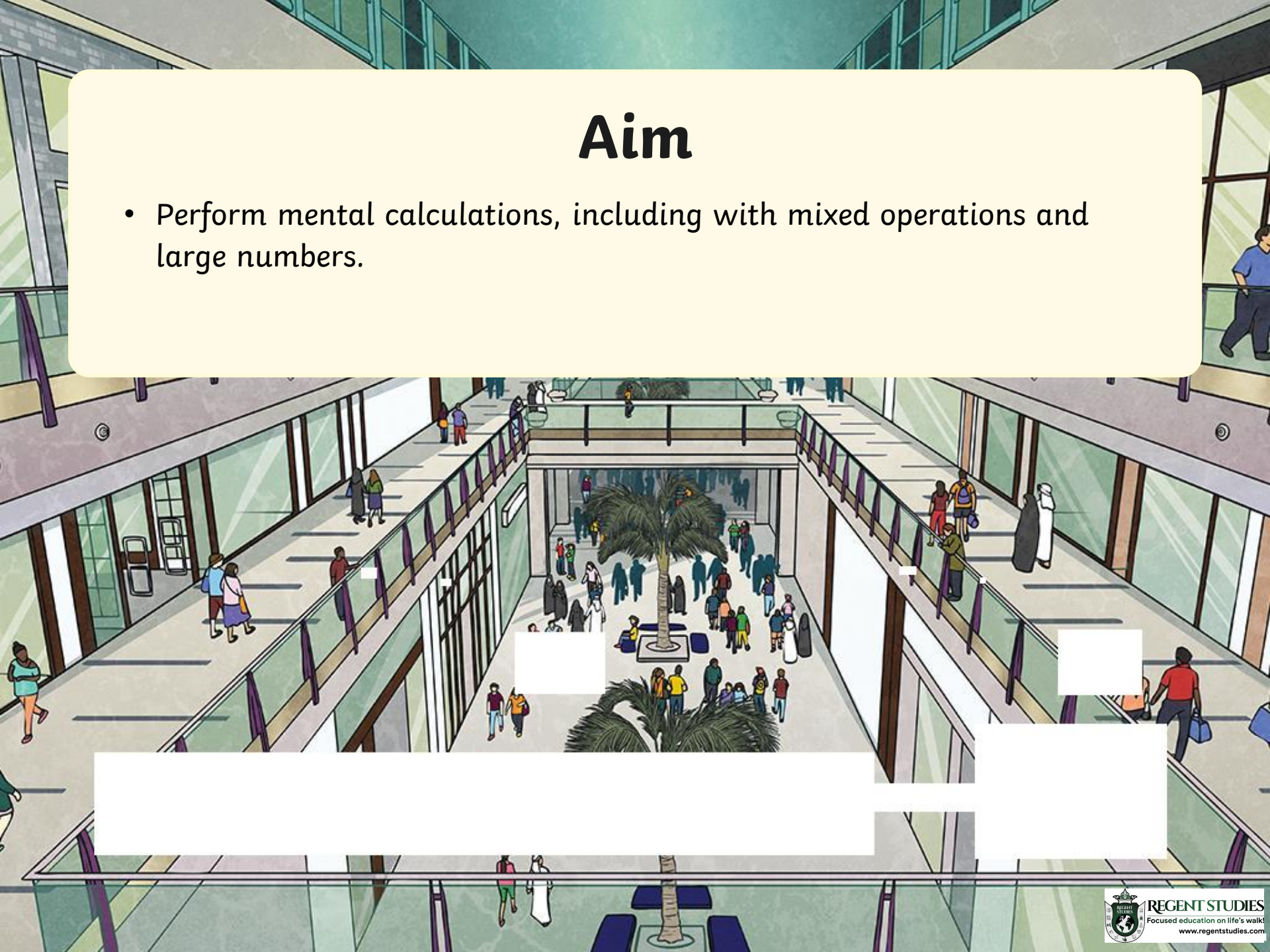
Aim

- Perform mental calculations, including with mixed operations and large numbers.



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Explain how you could use mental methods in order to solve this calculation in the most efficient way.

$$12\,499 + 2500 + 12\,501 = 27\,500$$

$12\,000 + 2500 + 12\,000 = 26\,500$

$499 + 501 = 1000$

$26\,500 + 1000 = 27\,500$

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Explain how you could use mental methods in order to solve this calculation in the most efficient way.

$21 \times 99 = 2079$

$21 \times 100 = 2100$

$2100 - 21 = 2079$

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Mental Calculations and Estimation

Diving

Use your estimating skills and mental methods to quickly decide if Anita has enough money to buy the items she wants from the shop.

I have £70. Can I buy all these items?

No. If we reorder the amounts to start with the greatest, and use estimation, we can see that the amount will be over £70 (£70.95).

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Mental Calculations and Estimation

Deeper

Explain how you could use mental methods in order to solve this calculation in the most efficient way.

2299 + 1201 + 1499

The thousands can quickly be added up mentally:

1000 + 1000 + 2000 = 4000

We are then left with 299 + 201 + 499.

If we use our number bonds, we can see that 299 + 201 = 500.

We are then left with 499 to add on. As 499 is close to 500, we can carry out this calculation mentally:

500 + 500 = 1000

1000 - 1 = 999

Our final answer is: 4000 + 999 = 4999

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Mental Calculations and Estimation — Deepest

When a number from column A is added to or subtracted from a number in column B, the answer can be found in column C. All of the answers to these calculations can be found using mental methods of addition and subtraction.

Show which numbers match to make a complete calculation.

A	B	C
2501	3500	5000
1100	2499	2598
499	1299	3000
1299	1900	3001

2499 + 2501 = 5000

1299 + 1299 = 2598

3500 - 499 = 3001

1900 + 1100 = 3000

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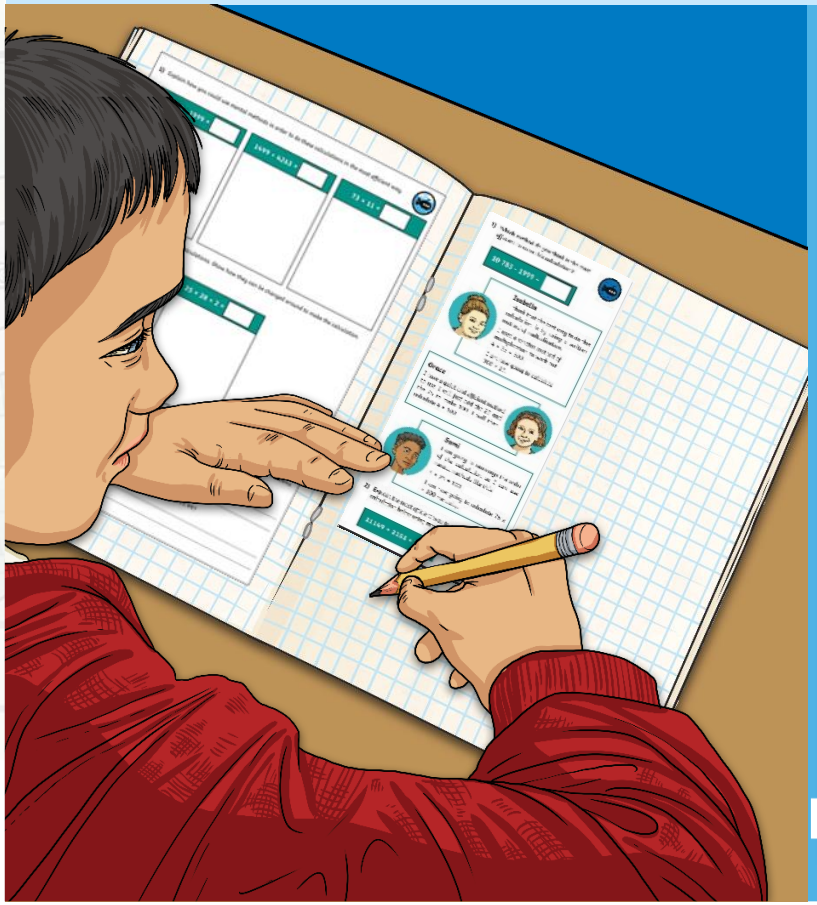
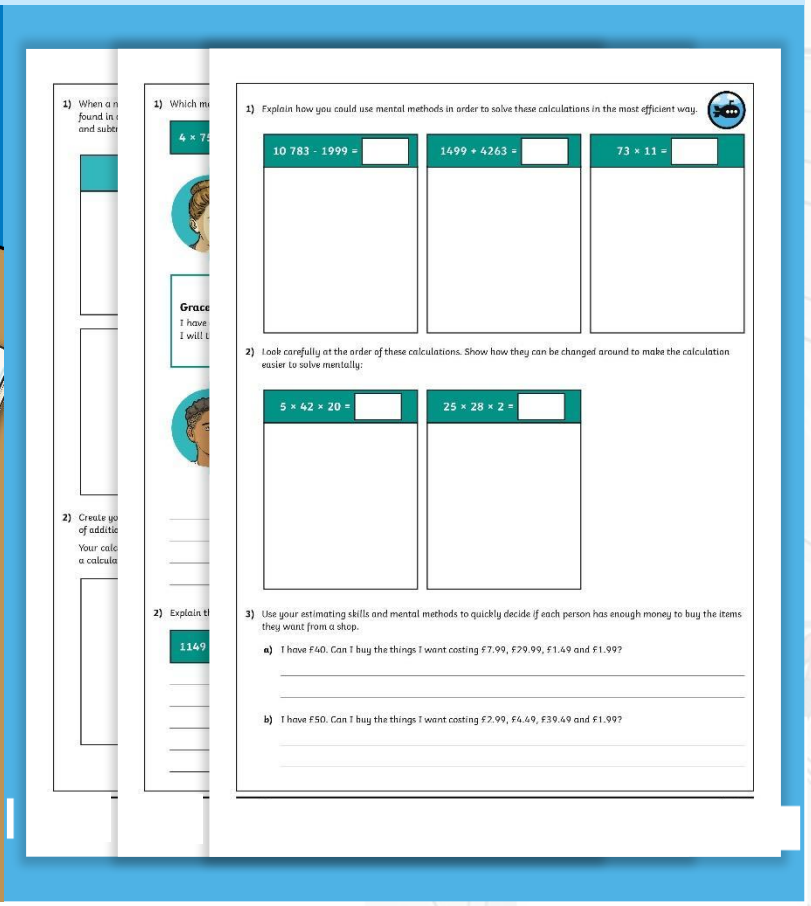
Mental Calculations and Estimation

Dive in by completing your own activity!





1) Explain how you could use mental methods in order to solve these calculations in the most efficient way.

10 783 - 1999 =	1499 + 4263 =	73 × 11 =

2) Look carefully at the order of these calculations. Show how they can be changed around to make the calculation easier to solve mentally:

5 × 42 × 20 =	25 × 28 × 2 =

3) Use your estimating skills and mental methods to quickly decide if each person has enough money to buy the items they want from a shop.

a) I have £40. Can I buy the things I want costing £7.99, £29.99, £1.49 and £1.99?

b) I have £50. Can I buy the things I want costing £2.99, £4.49, £39.49 and £1.99?

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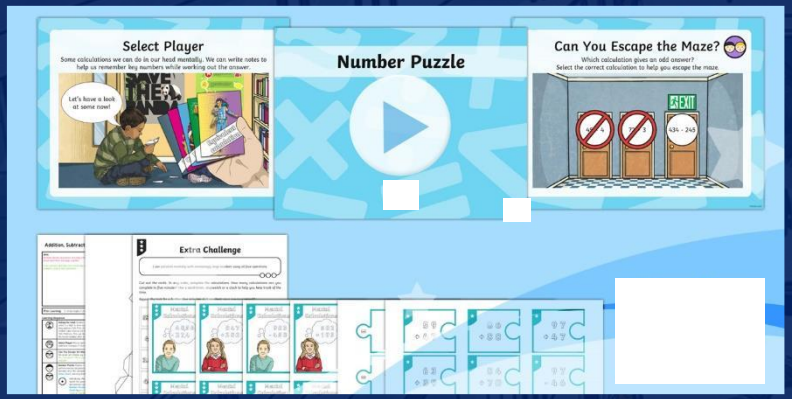
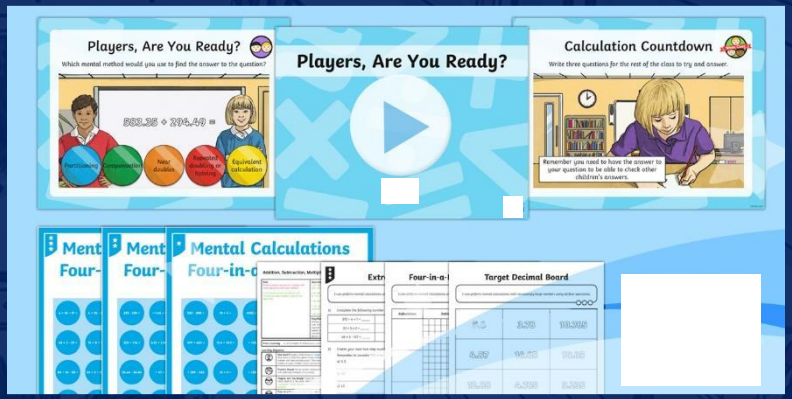
Need Planning to Complement this Resource?

National Curriculum Aim

Perform mental calculations, including with mixed operations and large numbers.

For more planning resources to support this aim, click here.





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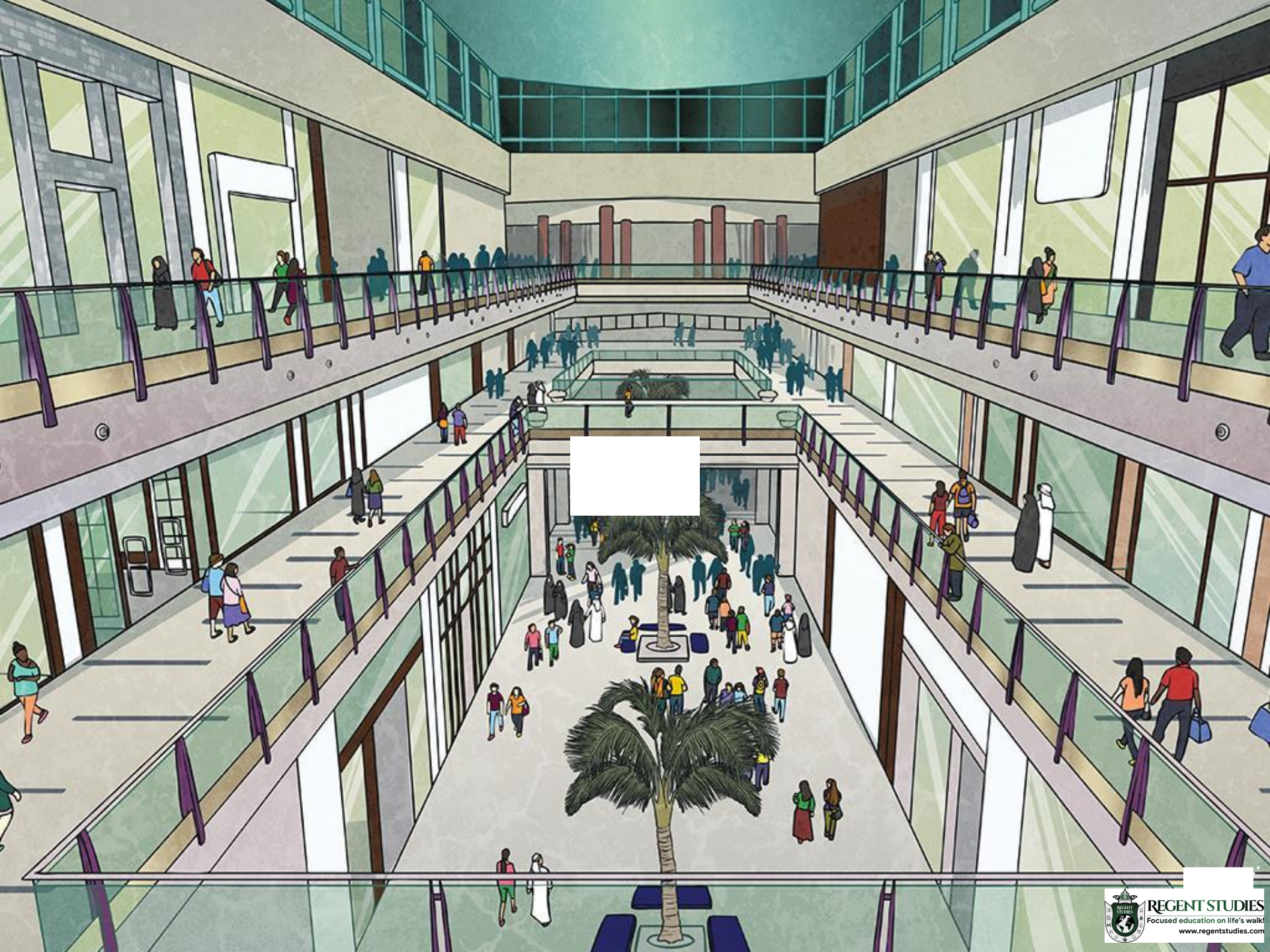

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