Mathematics

Number and Algebra

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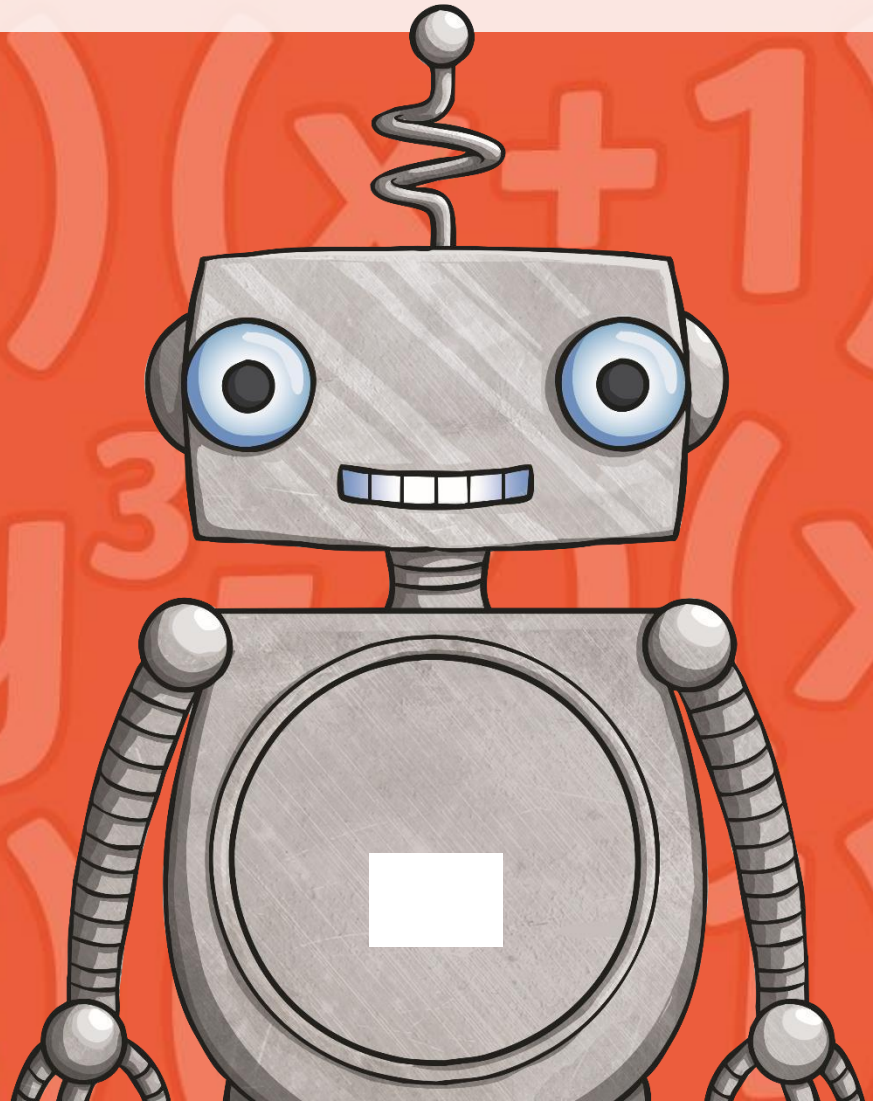
Robot Rounding



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Aim

- I can round numbers to a required degree of accuracy.

Success Criteria

- I can identify which digit to consider when rounding to different degrees of accuracy.
- I can identify which digits to round up and which digits to round down.

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Dice Dilemma

On your **Dice Dilemma Activity Sheet**, you will see several blank number comparisons like this one:

>

You need to work with a partner to roll a dice to make each number comparison true.

Think carefully about where you place each digit as you roll the dice.

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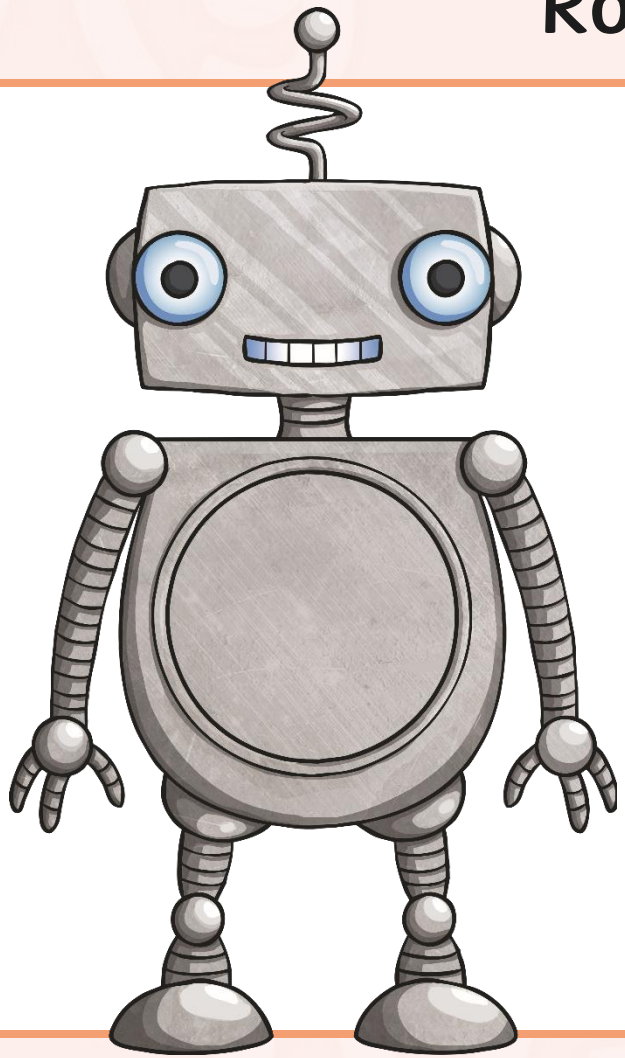
Rounding



Rounding makes it easier to talk about and understand numbers.

We round numbers in order to make numbers simpler to work with, to estimate answers or to explain how near a number is to another number.

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Rounding Accurately

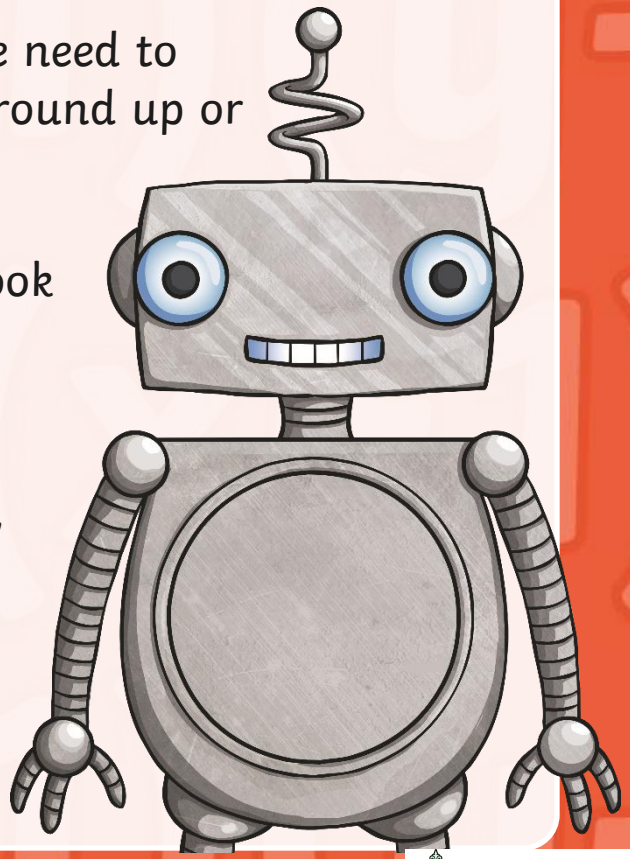
We can round numbers to different degrees of accuracy. Sometimes, it is useful to round a number to the nearest 10. Other times we may round a number to the nearest 100, 1000, 10 000, 100 000 or 1 000 000!

In order to round to a given degree of accuracy, we need to know which digit to consider to tell us whether to round up or round down.

The rule for identifying the digit to consider is to look at the digit in the place before the value we are rounding to.

For example, if we want to round to the nearest 10, we will look at the number in the ones place.
This is because ones are in the place before tens.

Let's look at some examples.



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Rounding Accurately

Round 34 233 to the nearest 10.

To do this, we first of all identify the tens numbers either side of this number.

We then look at the digit in the place before the tens place.
In 34 233, the digit we need to consider is the 3 in the ones place.

We use this digit to decide whether to round up to 240, or down to 230.

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Rounding Accurately

Round 34 233 to the nearest 10.

If the digit is a 1, 2, 3 or 4, we round down.

If the digit is a 5, 6, 7, 8 or 9, we round up.

In 34 233, the digit we need to consider is a 3, so we round down.

34 233 rounded to the nearest 10 is 34 230.

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Rounding Accurately

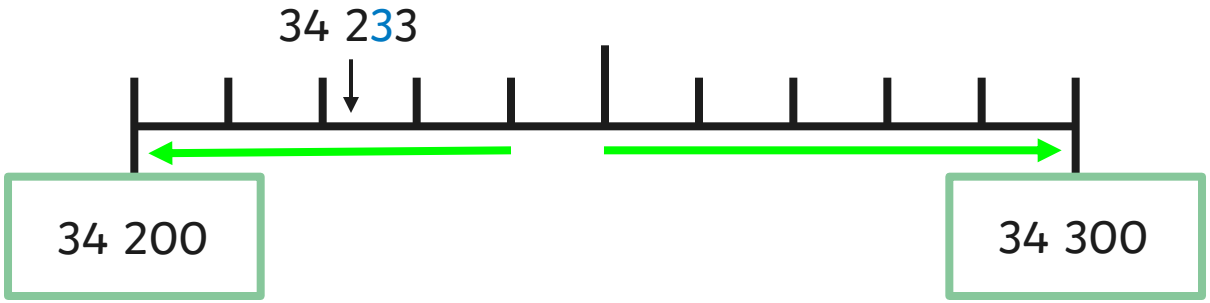
Now try this one:

Round 34 233 to the nearest 100.

Identify the hundreds number either side of this number.

Look at the digit in the place before the hundreds place.
In 34 233, this digit is the 3 in the tens place.

Decide whether to round down to 34 200 or up to 34 300.



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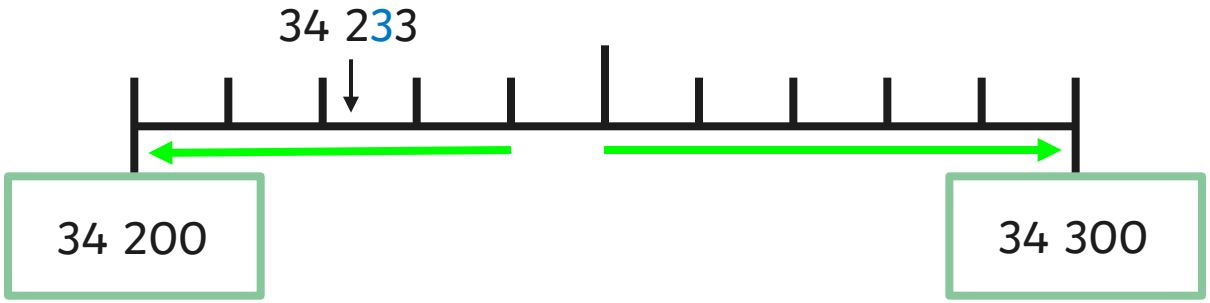
Rounding Accurately

Did you get it?

Round 34 233 to the nearest 100.

34 233 rounded to the nearest 100 is 23 200.



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Rounding Accurately

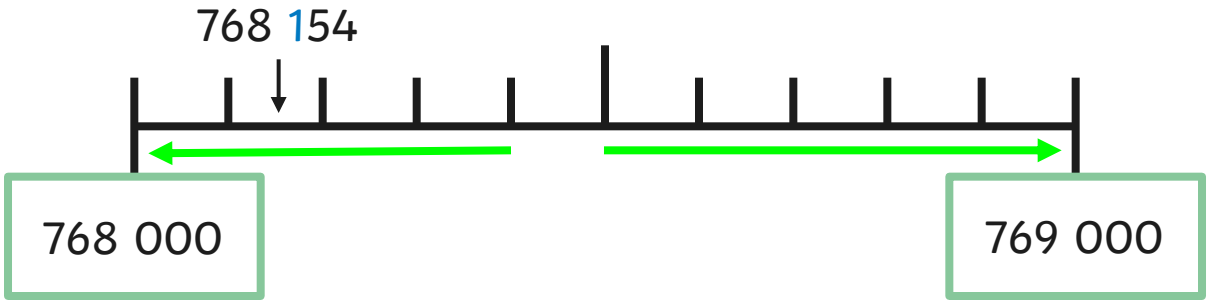
Rounding to the nearest 1000 is just the same!

Round 768 154 to the nearest 1000.

Identify the thousands numbers either side of the number.

The digit we need to consider is the one before the thousands digit.
In this case, it is the 1 in the hundreds place.

Decide whether to round down or round up.



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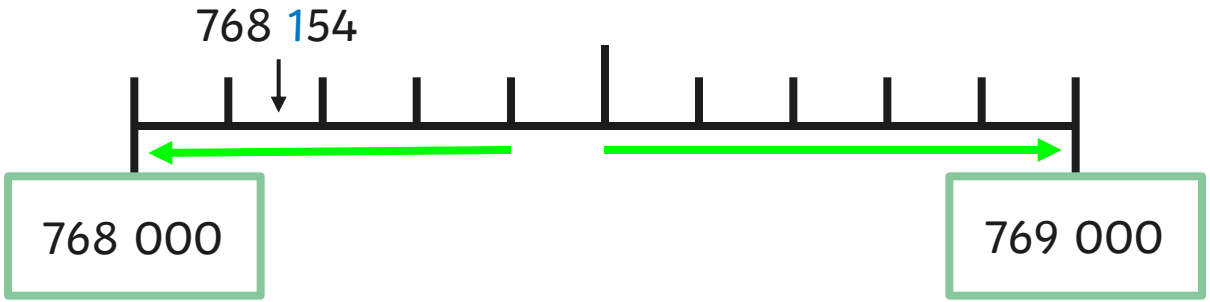
Rounding Accurately

Did you get it?

Round 768 154 to the nearest 1000.

768 154 to the nearest 1000 is 768 000.



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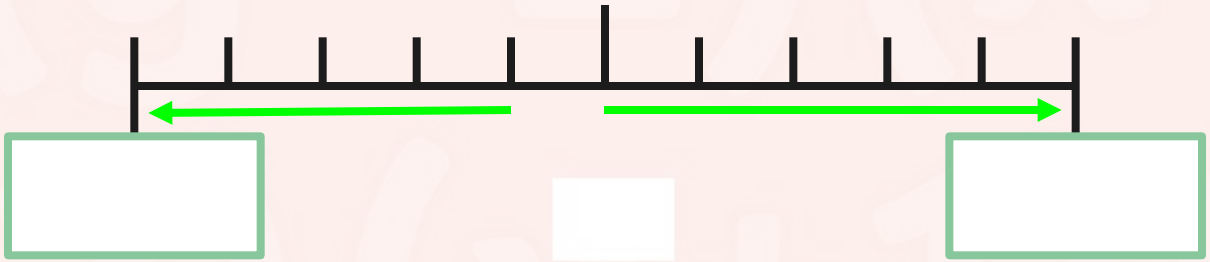
Rounding Accurately

We follow exactly the same steps to round to the nearest 10 000, 100 000 or 1 000 000.

Identify the numbers either side of the numbers.

Find the digit we need to consider - this is the digit before the value of what you need to round to.

Use this digit to decide whether to round up or round down.



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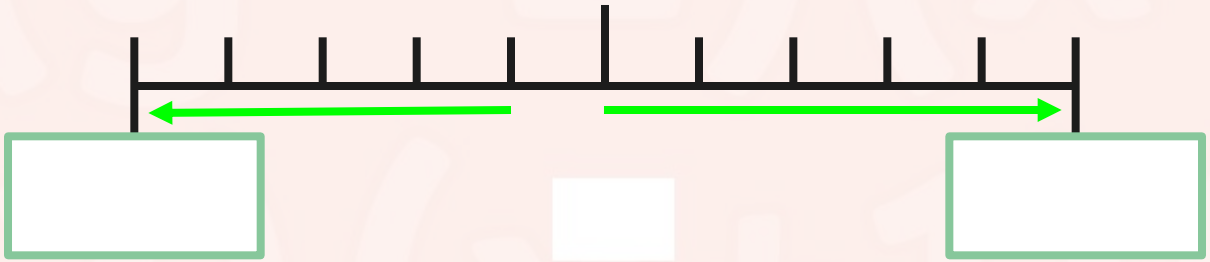
Rounding Accurately

Choose one of these numbers and round them to the required degrees of accuracy. You can use the diagram below to help you.

Round to the nearest 10, 100 and 1000	Round to the nearest 10, 100, 1000 and 10 000	Round to the nearest 10, 100, 1000, 10 000 and 100 000
46 274	521 835	7 569 217
97 162	985 427	3 583 912



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Rounding Accurately

How did you do?

Round to the nearest 10, 100 and 1000	Round to the nearest 10, 100, 1000 and 10 000	Round to the nearest 10, 100, 1000, 10 000 and 100 000
46 274: 46 270 46 300 46 000	521 835: 521 840 521 800 522 000 520 000	7 569 217: 7 569 220 7 569 200 7 570 000 7 570 000 7 600 000
97 162: 97 160 97 200 97 000	985 427: 985 430 985 400 985 000 990 000	3 583 912: 3 583 910 3 583 900 3 584 000 3 580 000 3 600 000

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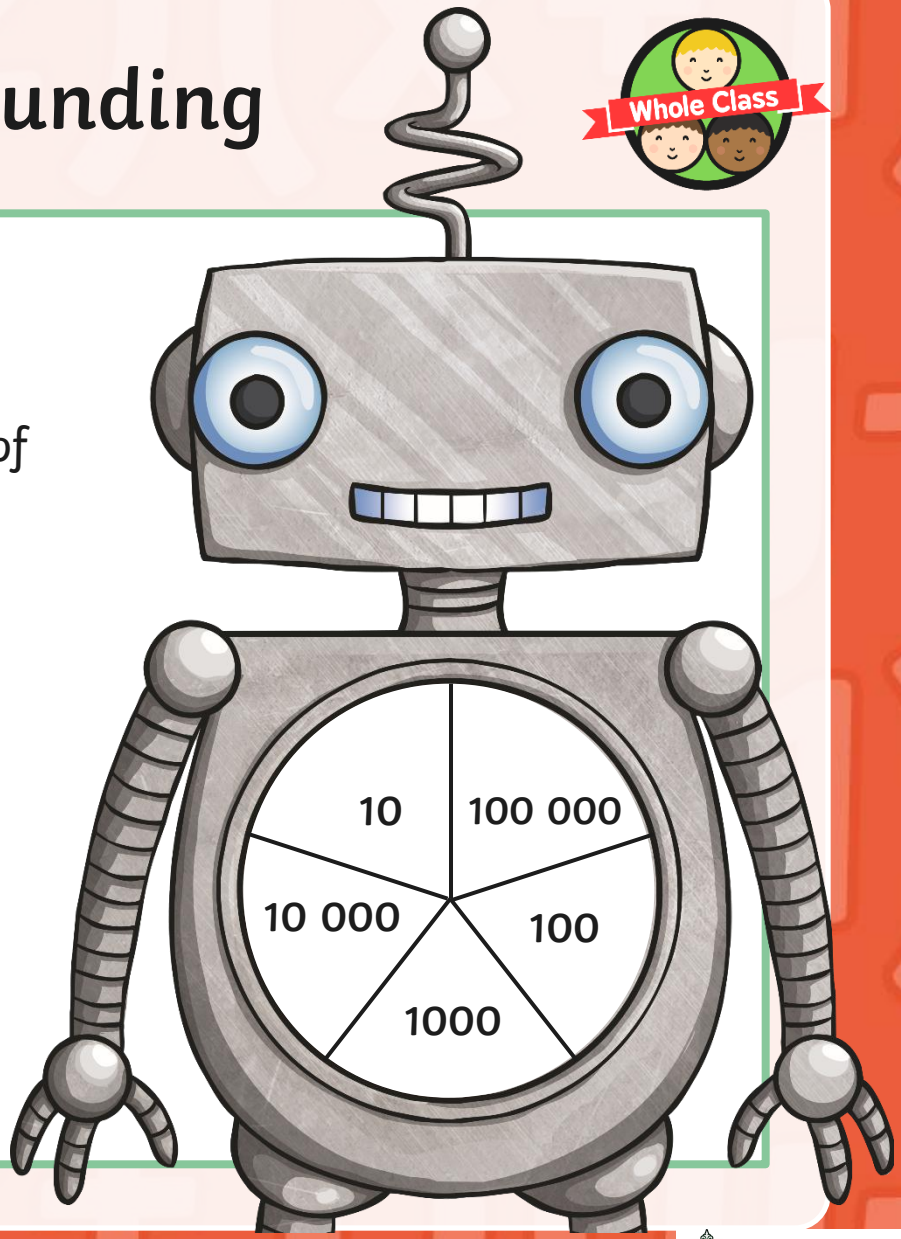
Robot Rounding

Whole Class

These robots are designed to round numbers!

The dial on the front sets the degree of accuracy. The robot takes a number and rounds it to the correct degree.

Can you give the number that each robot should say? Click the speech bubble to reveal the answer!



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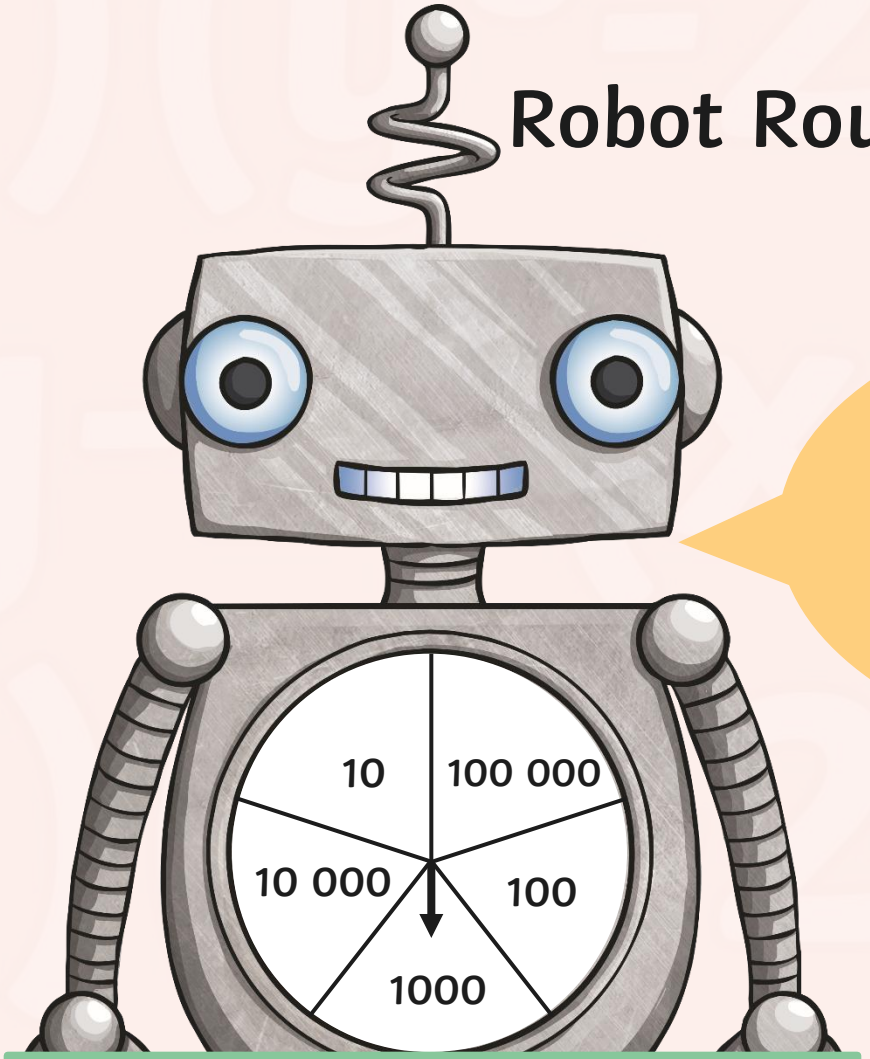
Robot Rounding



2 485 000

2 485 000

Click the robot to reveal the answer!

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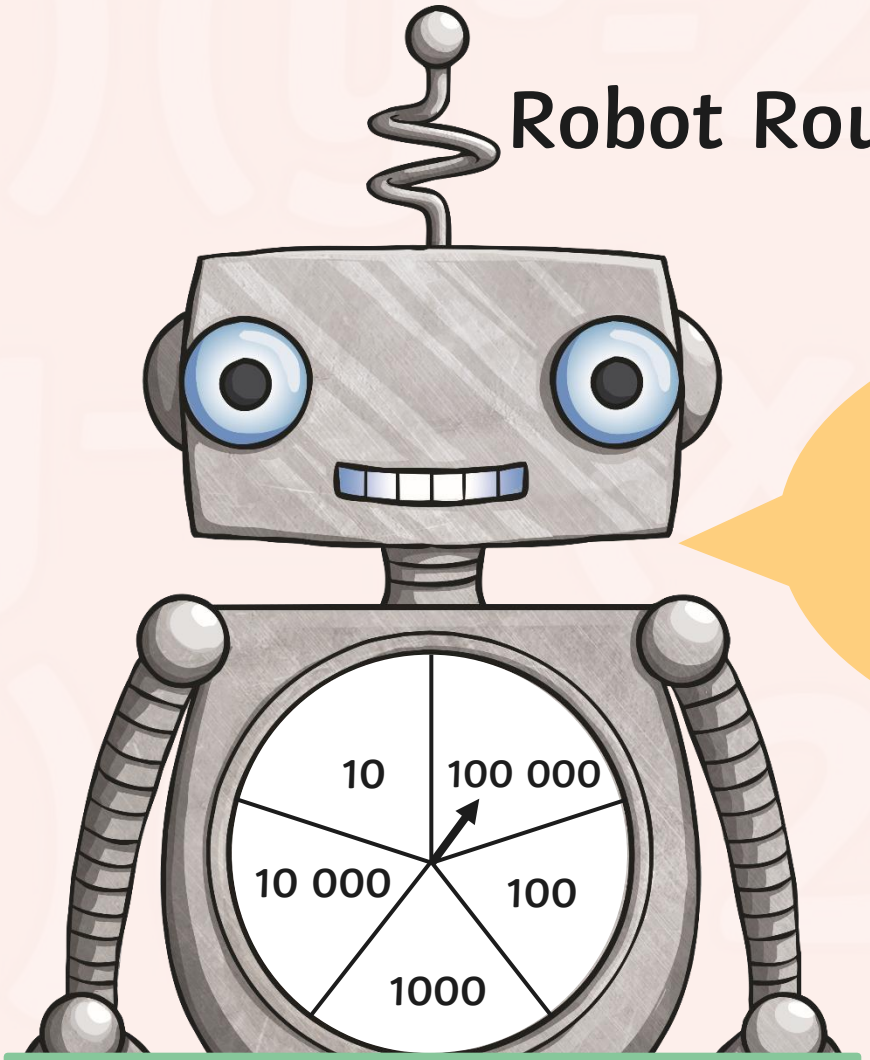
Robot Rounding

Whole Class



783 924

800 000

Click the robot to reveal the answer!

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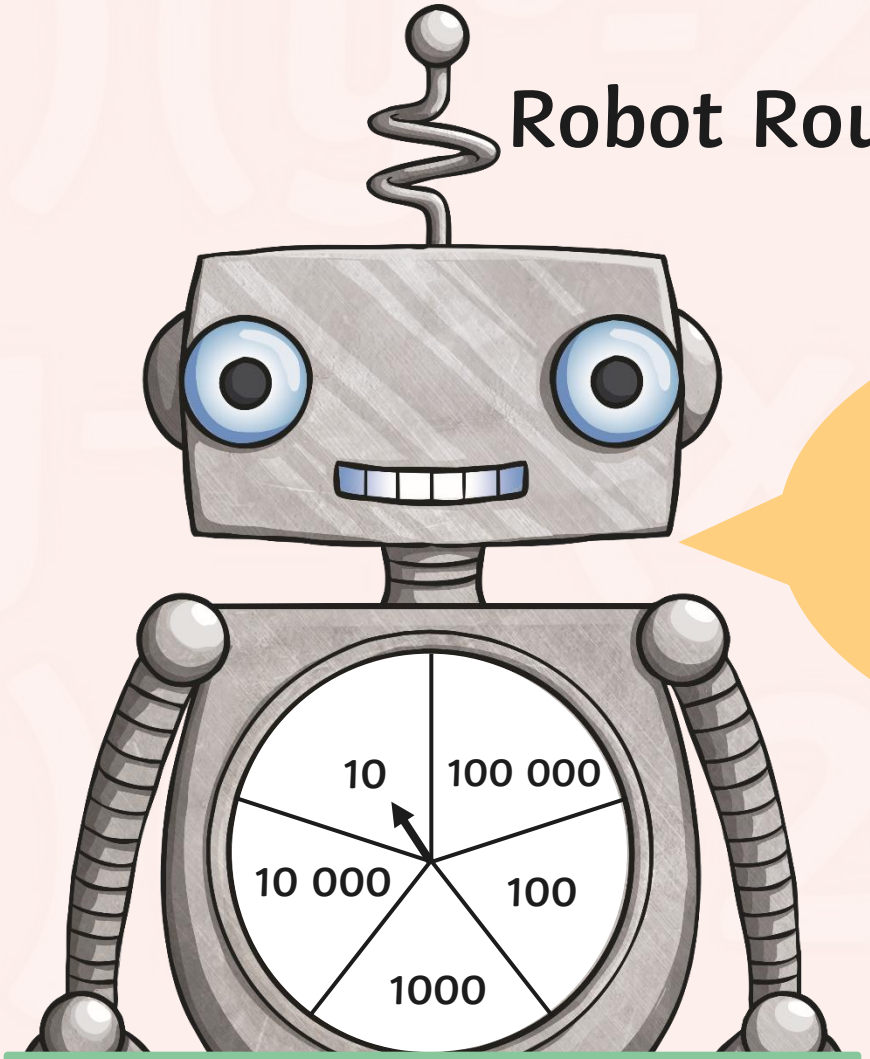
Robot Rounding



45 628

45 630

Click the robot to reveal the answer!

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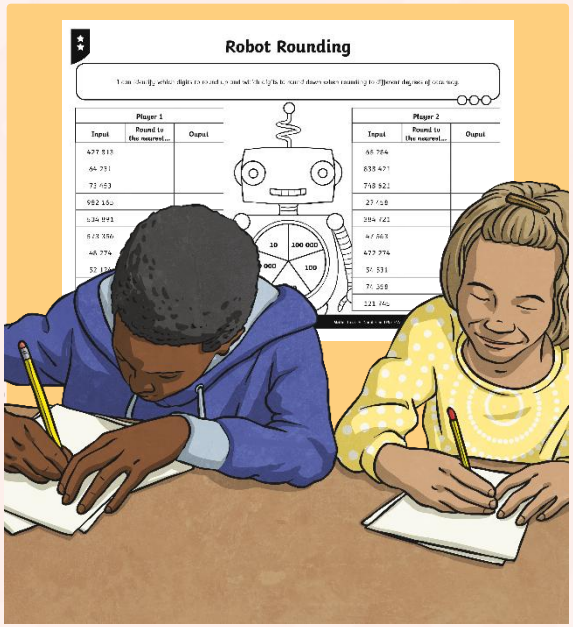
Robot Rounding Activity

Use the dial on your Robot Rounding Activity Sheet to play a rounding game with your partner.

To use the dial, place a paper clip in the centre of the dial. Place the point of your pencil inside the paper clip, on the exact centre of the dial. Spin the paper clip around the point of your pencil to play!



The aim of the game is to get the most points. You get one point for every number you round correctly.

Look at the first number in the 'Input' column. Spin the robot's dial to find the degree of accuracy. Record this in the 'Round to the Nearest...' column. Then round the number to the required degree of accuracy. Record your answer in the 'Output' column.

Take turns to spin the dial and round each of the numbers in the 'Input' column.

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Rounding Reminders

What are your top tips for rounding numbers?

Think about how to decide which digit to consider and how to decide whether to round up or down.

Write your rounding reminders down so that you remember what to do!

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