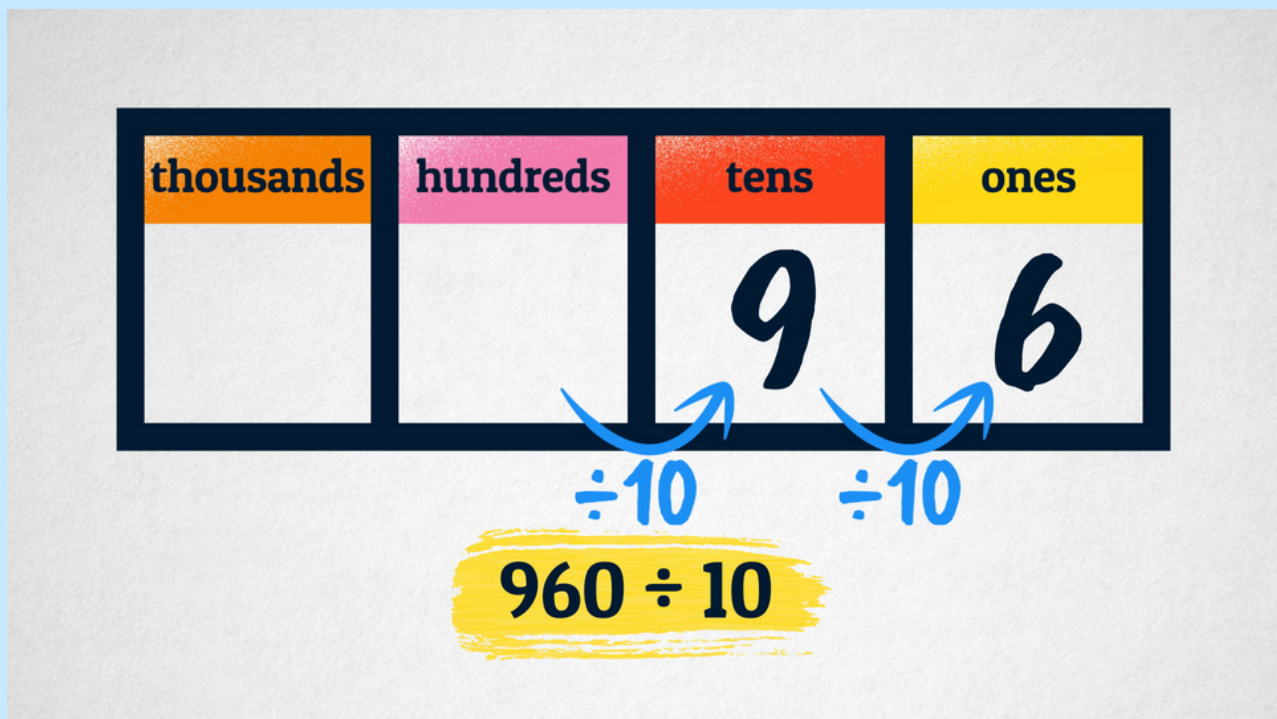


Miniclips: Strategic Maths – Place Value

Multiplying and Dividing by 10



About this video



MINICLIPS: STRATEGIC MATHS – PLACE VALUE

Multiplying and Dividing by 10

Having a good understanding of the place value system can make maths really easy. But do you know how to use your knowledge to help you multiply or divide numbers by ten? With clear spoken and visual explanations, this video is ideal for learning the basic skills of multiplying and dividing by ten.

Essential question:

How can we use our understanding of the place value system to multiply and divide numbers by ten?

Key vocabulary:

multiply

divide

place value column

digit

zero

times

Key strategy and/or idea:

To multiply and divide number by ten we simply move the digits one place value column to the left or right.

Before watching

Make predictions & activate prior knowledge

The purpose of this task is to encourage students to think about some of the important vocabulary that is introduced in the video.

- What do you know about multiplication?
- What do you know about division?
- What happens when we multiply a whole number by ten? Would you expect the answer to be larger or smaller? Why?
- What happens when we divide a whole number by ten? Would you expect the answer to be larger or smaller? Why?

After watching

The following activities can be used to extend your students' learning.

Activity 1: Place value chairs

- Place four chairs next to each other at the front of the room to represent one place value column each. Label the chairs as 'ones', 'tens', 'hundreds', and 'thousands'.
- Ask a student to sit in the 'ones' chair holding a card with the digit '5' on it.
- Encourage students to use their knowledge from the video to describe what will happen to the digit 5 when we multiply it by ten (for example, it will move one place to the left and now be ten times larger, 5 tens).
- Ask the student holding the digit card to move one place to the left.
- Ask the class 'what is the value of the 5 now?' (5 tens, which is 50)
- Invite students to discuss what do we need to place in the ones column? (We need to place a zero in the ones column to show that there are no ones in this number.)
- It is important to note the language here: We are not "adding" a zero, because when we "add" a zero the number shouldn't change, instead we are "placing a zero in the ones column to show there are no ones".
- Repeat the same process to show what would happen to 50 when we multiply it by ten.
- Invite students to go back to their tables and in pairs roll a 0-9 sided dice. They must take turns multiplying the number they roll by ten and write the answer on a piece of paper.
 - For example, 3×10 is 30
- Each pair should repeat this 5-10 times to consolidate their knowledge.

Support (to help struggling learners):

Allow students to continue to use the scaffold of the place value chairs to model the digits moving.



Extension (to further learning after mastery):

Allow students to investigate dividing numbers by 10.



Activity 2: Move it!

- Each pair is given a calculator.
- Player A is to put any number into the calculator and ask their partner Player B to move the digit/s on the screen one place to the left.
 - What is the answer? What buttons do you have to press? For example, "I am putting in 3, can you move the digit 3 one place to the left, what number is it now?"
- Swap roles. It is important that students are making the connection between the digits moving places and multiplying by 10 (and becoming ten times larger). Working with the calculator helps students to make this connection.

Note: After your students have mastered **multiplying** numbers by 10, you can repeat Activity 1 and Activity 2 but change your focus to **dividing** a number by 10.

Support (to help struggling learners):

Encourage students to visualise the digits moving on the place value chairs to scaffold their thinking.



Extension (to further learning after mastery):

Allow students to investigate what happens when you divide a number by 10.



Conclusion

Ask students to respond to the essential question posed at the beginning of the lesson.

Ask if they still have any questions about the content presented in the video. Discuss and answer these questions as a class.