



**PURPOSE AND  
PROMPTS**

This will help children to see the need for zeros as placeholders when recording numbers. This will support them later in understanding what happens when numbers are multiplied by 10, 100, etc.

*Sometimes children have difficulty reading numbers with zeros, especially numbers such as 40 090.*

This will help children see the effect of multiplying numbers by 10 or 100.

**UNIT 6 SUPPLEMENTARY TEACHING SEQUENCES**

**SEQUENCE 1**

**The effect of multiplying and dividing by 10, 100 and 1000**

**RESOURCES:**

ITP 'Moving digits' (on the accompanying CD-ROM in ITPs Index)

**STEP 1**

Open the ITP, switch off decimal point and set headings as H, T, U, etc. and column markers visible. Place 7 in the hundreds column of the second row.

Ask children the value of the 7 digit and ask how they know.

Remove the headings and column markers and repeat the discussion. There is now no way of knowing that the 7 represents 700.

**Q What can we do?**

Children might suggest that we need to fill the 'invisible' columns with zeros. Tell children that these are called placeholders and ask them why they think they might be called this.

Reset and repeat with 4 in the 10 000s column of the second row and 9 in the tens column of the second row.

Ask the children to write the number on their whiteboards, putting in zeros as placeholders (40 090).

Check by putting the digits 4 and 9 in the first row on the ITP and letting the computer do the rest!

Ask them to read the number.

If necessary, repeat the activity with different digits in different places.

**STEP 2**

In the ITP with the decimal point switched off and the headings and column settings as above, enter the number 759 in the second row.

Explain to children that you want to multiply this number by 10.

**Q What will happen to 9? What will happen to 50? What will happen to 700?**

**PURPOSE AND PROMPTS**

*It is important that children make the connection between what they see on the screen and a mathematical sentence.*

This will help children see the effect of dividing numbers by 10 or 100.

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**UNIT 6 SUPPLEMENTARY TEACHING SEQUENCES**

Move the digit 9 to the first row into the tens column, the digit 5 to the first row into the hundreds column and 7 to the first row into the thousands column. You may want to re-enter 759 in the second row to remind children of the number you started with and to compare it with 7590.

Ask children if they can give you this in a mathematical sentence, both orally and recorded, i.e.  $759 \times 10 = 7590$

Repeat the activity using a two-digit number and multiply by 100.

Repeat the activity again with several two- or three-digit numbers multiplying by either 10 or 100.

It might be useful to place a number in the second row, place it in the top row also, predict the answer to multiplying by 10 or 100, press the appropriate button and check whether the prediction was correct. Discuss the effect of the multiplication.

**STEP 3**

Step 2 can be repeated but this time using division. You can use the ITP with the decimal point switched on.

e.g. enter 540 in the second row. Explain that you are going to divide this number by 10.

**Q What will happen to 500?**

**Q What will happen to 40?**

**Q What will happen to 0?**

Children should be able to tell you what will happen to these numbers, although they might not be sure about zero.

Move the digit 5 to the first row into the tens column, the digit 4 to the first row into the units column and the 0 into the tenths.

You might need to discuss with the children why 54.0 is the same as 54.

Ask children if they can give you this in a mathematical sentence, both orally and recorded, i.e.  $540 \div 10 = 54$

**Can the children explain what has happened?**

Repeat the activity using other numbers and divide by 100.

Use the ITP function to divide numbers by 10 or 100 to illustrate the effect of doing so, each time asking children to explain what has happened and asking them to give you a mathematical sentence, both orally and recorded.

## Unit 6 SUPPLEMENTARY TEACHING SEQUENCES

### PURPOSE AND PROMPTS

This will help children see the effect of multiplying or dividing numbers by 1000.

### UNIT 6 SUPPLEMENTARY TEACHING SEQUENCES

#### STEP 4

Earlier steps could be repeated for multiplying and dividing by 1000.