Multiplying & Dividing Decimals by 10, 100, 1000

Overview

The ability to multiply numbers which include decimals by powers of 10 (10, 100, 1000 etc.) is important for estimating calculations and for converting metric measurements.

This activity takes a 'sensible number' approach, focusing on the leading digit (front number) to do these calculations. This extends the logic and methods for multiplying and dividing whole numbers by powers of 10, rather than introducing new rules about shifting the decimal point backwards and forwards.

Skills and Knowledge

- Multiplying decimal numbers by 10, 100, 1000
- Dividing decimal numbers by 10, 100, 1000

Preparation and Materials

- Photocopy Practice Sheets 1, 2 & 3 (1 per student)
- Calculators (1 per pair or small group of students)

Suggested Procedure

Multiplying by 10, 100, 1000

Start with a simple, whole number, for example 3, and revise with students what happens when it is multiplied by numbers like 10, 100, 1,000 etc.

3 x 10 = 30

3 x 100 = 300

3 x 1000 = 3000

Now look at another number which has a decimal part e.g. 3.25. Write it on the board and ensure that students remember that it is just a bit more than 3.

For example, ask:

- *What the nearest whole number to this?*

  Or

- *How you would approximate or estimate this as a whole number. Is it closest to 2, 3, 4 or…?*

S U P E R O F F I C E S U P P L I E S
PRICE LIST

$1.36 each

Calculator
$21.98 each

Scissors

$2.19 each

Mini Staplers
$3.73 each

Paper clips
$6.14 pkt of 100

Pencil sharpener

$1.17

Coloured Pencils

$7.98 pkt of 10

Ballpoint pens
$2.17 pkt of 10.

Rulers
$0.88 each

Stapler $14.11 each

Maya and Serena go shopping at Super Office Supplies.

Maya shops for her office. She buys 10 of everything.

Serena buys for a school. She buys 100 of each.

Without using a calculator fill in the spaces in their dockets.

Maya

	$
Exercise book 10 @ $1.36 [10 x 1.36]	_____
Calculator 10 @ _____	_____
Pencil sharpeners 10 @ _____	_____
Ballpoint pens 10 pkts @ _____	_____
Staplers 10 @ _____	_____
Paper clips 10 pkts @ _____	_____

Serena

	$
Exercise book 100 @ _____	_____
Scissors 100 @ _____	_____
Pencil sharpeners 100 @ _____	_____
Rulers 100 @ _____	_____
Coloured pencils 100 pkts @ _____	_____
Calculators 100 @ _____	_____

Multiplying & dividing decimals by 10, 100, 1000 Practice Sheet 2

1. Lunch for ten people cost $153.60
   How much each?

2. 10 people share a $978.90 prize.
   Each person gets:

3. Pizzas for 100 people cost $645.
   How much each?

4. A school trip for 100 children cost $1450.

How much each?

5. Ball point pens cost $2.17 a packet of 10.
   Each pen costs:

6. A packet of 100 sweets costs $7.30
   How much per sweet?

7. A box of 10 muffins cost $20.90
   How much each?

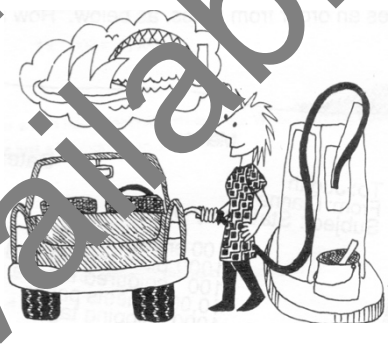
8. 100 metres of rope costs $305.00
   How much per metre?

Multiplying & dividing decimals by 10, 100, 1000 Practice Sheet 3

1. Do these without your calculator.

a.	3.25 x 10	b.	.270 ÷ 10
c.	0.2 x 10	d.	27.6 x 1000
e.	0.537 x 100	f.	3196 ÷ 1000
g.	0.062 x 1000	h.	12.01 x 100
i.	5.09 ÷ 10	j.	0.0384 ÷ 10
k.	126 ÷ 100	l.	0.00057 x 100
m.	22.5 ÷ 1000	n.	0.0032 x 1000

2. Katrina used 100 litres of petrol at 156.95 cents per litre.
   a. How much did it cost her?
   b. How much would it cost her if the price went up to 170.3 cents a litre?



3. 1 kilometre = 1000 metres
   How many kilometres in
   a. 5280 metres?
   b. 11,056 metres?

4. 1 metre = 1000 millimetres.
   A room measures 3427 mm by 4175 mm.
   What is this in metres? _____ x _____

5. Judith supplies stationery to departments at a large company. She receives an order from Sales. How much should she bill them for?

ITEM	*Quantity*	*Cost*
Envelope	1000	$ 39.80
Manila folders (plain)	100	$ 15.65
Manila folders (coloured)	10	$ 9.95
A4 paper	1000 sheets	$ 11.54
Shipping tags	100	$ 2.90
Price tags	1000	$ 19.95