

## LEARNING and TEACHING POINTS

for

### Chapter 18

## Calculations with Decimals

When adding or subtracting with decimals, show children how the principle of 'one of these can be exchanged for ten of these' works in the same way as when working with integers.

Base your explanation of multiplication and division of decimal numbers by 10 (and 100 and 1000) on the principle of place value. Talk about *the digits* moving, rather than the decimal point. Allow children to explore repeated multiplications and divisions by 10 with a calculator, making use of the constant facility.

Locate calculations with decimals in realistic contexts where the decimals represent money or measurements. Emphasize the usefulness of having the same number of digits after the decimal point when adding or subtracting money or measurements written in decimal notation. Explain to children about putting in extra zeros as place holders where necessary.

Let children explore and discover with a calculator the principle that the smaller the number you divide by the larger the answer (and vice versa). Then make the principle explicit.

Get children into the habit of checking the reasonableness of their answers to calculations – including those done on calculators – by making estimates based on approximations of the numbers involved.

Although much of the material in some of this chapter may be beyond what is taught in primary schools to most children, if you find that your personal confidence is boosted by explanations based on understanding rather than on recipes learnt by rote, then adopt this principle in your own teaching of mathematics!

Realistic multiplication and division problems with decimals involving money or measurements can often be recast into calculations with whole numbers by changing the units (for example, pounds to pence, metres to centimetres). Teach children how to do this.

Children should memorize some of the common equivalences between fractions and decimals, such as  $\frac{1}{2} = 0.5$ ,  $\frac{1}{4} = 0.25$ ,  $\frac{3}{4} = 0.75$ , tenths, and possibly fifths.