

## Addition: Violet (Y6)

### Mental Work

Derive and recall

- sums of decimals, e.g.  $6.5 + 2.7$
- doubles (and halves) of decimals, e.g. double 3.4 (half of 5.6)
- addition facts for multiples of 10 to 1000 and decimal numbers with one decimal place, e.g.  $650 + \Delta = 930$ ,  $\Delta + 1.7 = 3.5$
- what must be added to a decimal with units, tenths and hundredths to make the next whole number, e.g.  $7.26 + \Delta = 8$

Work mentally (with jottings if needed)

- add pairs of decimals with units, tenths or hundredths, e.g.  $0.7 + 3.38$  (use knowledge of place value)
- find doubles of decimals each with units and tenths, e.g.  $1.6 + 1.6$  (knowledge of place value and of doubles of 2-digit numbers)
- add near doubles of decimals, e.g.  $2.5 + 2.6$  (partition: double and adjust)
- add a decimal with units and tenths that is nearly a whole number, e.g.  $4.3 + 2.9$  (partition: add a whole number and adjust, e.g.  $4.3 + 2.9 = 4.3 + 3 - 0.1$ )
- count on in minutes and hours, bridging through 60 (analogue and digital times, 12-hour and 24-hour clock)

Children should be encouraged to:

\* **approximate** their answers before calculating

\* **consider if a mental calculation** would be appropriate **before** using written methods

\* **check their answers** after calculation using an appropriate strategy

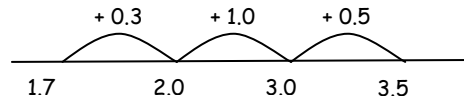
### Number lines

All of the mental calculations listed above can be worked out using an empty number line, and this is an extremely valuable way to analyse where errors are being made so that these can be addressed.

They are particularly useful to support missing number calculations, e.g.  $650 + \Delta = 930$  and  $\Delta + 1.7 = 3.5$ .

Number lines can also be used to try out different operations and find the most efficient.

$$\Delta + 1.7 = 3.5$$



### Recording

Children should extend the carrying method to add decimal numbers.

Start by adding simple decimals and begin to add two or more three-digit sums of money, with or without adjustment from the pence to the pounds; Know that the decimal points should line up under each other, particularly when adding mixed amounts, e.g.  $\pounds 3.59 + 78\text{p}$ ,  $5.03 + 1.4$ .

REMEMBER: Every digit has a place, every place has a value; it may be useful to use headings to show values.

Using similar methods, children will

- add several numbers with different numbers of digits and decimal places;
- begin to add two or more decimal fractions with up to four digits and either one or two decimal places;
- know that decimal points should line up under each other, particularly when adding mixed amounts, e.g.  $401.2 + 26.85 + 0.71$ .

**Algebra - express missing number problems algebraically.**

**Solve multi step problems involving decimals and using rounding to estimate determining levels of accuracy.**