As outcomes, Year 8 pupils should, for example:	**As outcomes, Year 9 pupils should, for example:**

Consolidate the methods learned and used in previous years, and extend to harder examples of sums and differences with different numbers of digits.

For example:

- 44.8 + 172.9 + 87.36
- 5.05 + 3.9 + 8 + 0.97
- 14 – 3.98 – 2.9
- 32.7 + 57.3 – 45.17
- 18.97 + 2.9 – 17.36 – 28.4 + 5.04

Use a standard column procedure for addition and subtraction of numbers of any size, including a mixture of large and small numbers with differing numbers of decimal places.

For example:

- 6543 + 590.005 + 0.0045
- 5678.98 – 45.7 – 0.6

Multiplication

Use written methods to multiply by decimals with up to two decimal places. Consider the approximate size of the answer in order to check the magnitude of the result. For example:

- 23.4 × 4.5 is approximately 23 × 5 = 115.

```
  ×       20     3     0.4    Check
  4       80    12     1.6     93.6
 0.5      10    1.5    0.2   + 11.7
          90   13.5    1.8    105.3
```

Use a standard procedure to improve efficiency, maintaining accuracy and understanding.

- 1.89 × 23 is approximately 2 × 20 = 40, and is equivalent to 1.89 × 100 × 23 ÷ 100, or 189 × 23 ÷ 100.

```
                    189
              ×      23
   189 × 20        3780
   189 ×  3         567
                   4347
                    1 1
   Answer: 4347 ÷ 100 = 43.47
```

- 23.4 × 4.5 is approximately 23 × 5 = 115, and is equivalent to 23.4 × 10 × 4.5 × 10 ÷ 100, or 234 × 45 ÷ 100.

```
                    234
              ×      45
   234 × 40        9360
   234 ×  5        1170
                  10530
                     1
   Answer: 10530 ÷ 100 = 105.3
```

Multiplication

Use a standard column procedure for multiplications equivalent to three digits by two digits. Understand where to put the decimal point for the answer. Consider the approximate size of the answer in order to check the magnitude of the result. For example:

- 64.2 × 0.43 ≈ 60 × 0.5 = 30, and is equivalent to 642 × 43 ÷ 1000.

```
                   642
          ×         43
              25680
               1926
              27606
                1 1
   Answer: 27606 ÷ 1000 = 27.606
```

Where appropriate, round the answer to a suitable number of decimal places or significant figures. For example:

- 0.0721 × 0.036 ≈ 0.07 × 0.04 = 0.0028, and is equivalent to 721 × 36 ÷ 10 000000, or 0.0025956, or 0.0026 correct to 4 d.p.

- 5.16 × 3.14 ≈ 5 × 3 = 15, and is equivalent to 516 × 314 ÷ 10000, or 16.2024, or 16.2 correct to 3 s.f.

Link to estimating calculations (pages 102–3, 110–11), and multiplying by powers of 10 (pages 38–9).

Link to estimating calculations (pages 102–3, 110–11), and multiplying by powers of 10 (pages 38–9).