

$$0.9 + 0.9, 74 + 26$$

Number facts

Single digit decimals

Doubles

Bonds of 100

I just knew it!

Use known facts

$$7 + 8$$

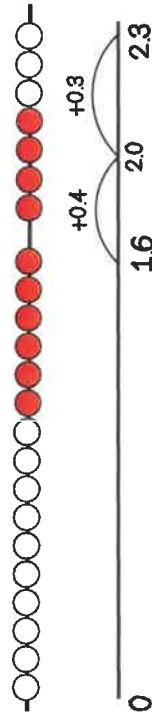
If I know $7 + 8 = 15$
then I know
 $0.7 + 0.8 = 1.5$

$$70 + 80 = 150$$

$$700 + 800 = 1,500$$

$$1.6 + 0.7$$

Bridge through boundaries
by counting in efficient steps



$$5,748 + 3,374$$

Formal written method

Exchange ten of these for one of those!

$$\begin{array}{r} 5,748 \\ + 3,374 \\ \hline 9,122 \\ \hline \end{array}$$

Regroup and rename

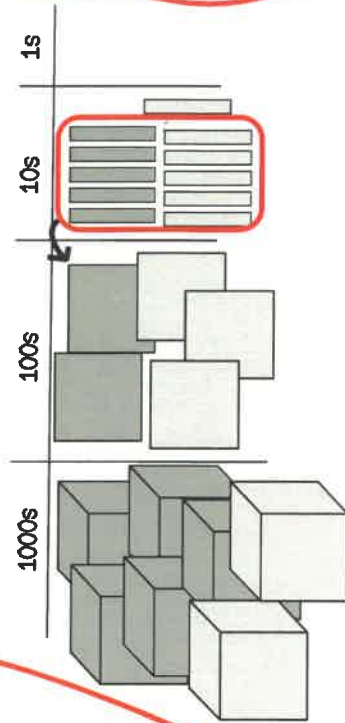
1000s	100s	10s	1s

How shall I add?

$$5,250 + 2,360$$

Partition and recombine

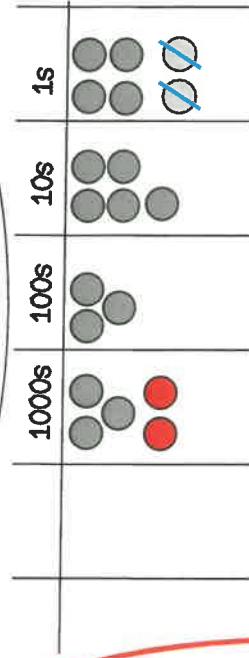
$$5000 + 200 + 50 + 2000 + 300 + 60 = 7610$$



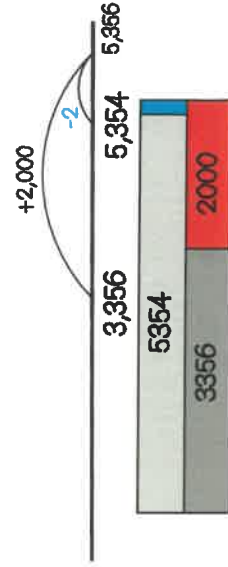
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$$3,356 + 1,998$$

Round then adjust



Add 2,000 then take away 2

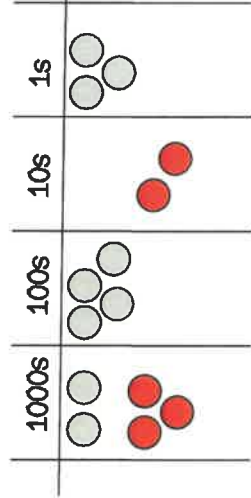


$$2,403 + 3,020$$

Use place value to add

If I know $2 + 3 = 5$
then I know
 $2000 + 3000 = 5000$

I have noticed,
one number has no
hundreds or ones, the
other has no tens



$1.3 - 5, 1.8 - 0.8$

Number facts

Single digit numbers

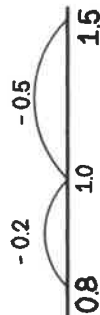
Halves

Wholes and tenths

I just knew it!

$1.5 - 0.7$

Bridge through boundaries
by counting in efficient steps



How shall I subtract?

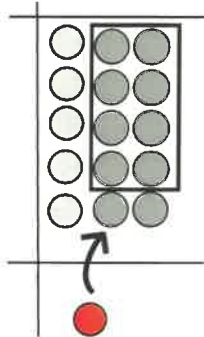
$15 - 8 = 7$

Use known facts

If I know $15 - 8 = 7$
then I know
 $1.5 - 0.8 = 0.7$

$150 - 80 = 70$

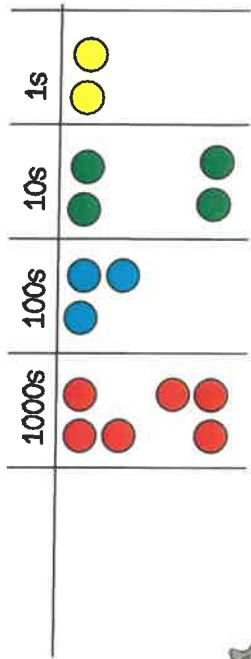
$1500 - 800 = 700$



$6,342 - 3,020$

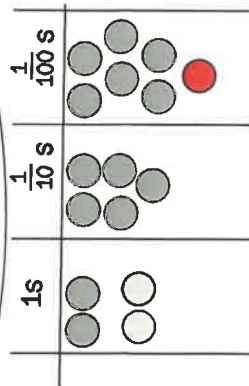
Use place value to subtract

By using place value
counters it is easy to
see how to take away

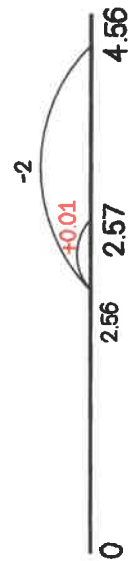


$4.56 - 1.99$

Round then adjust

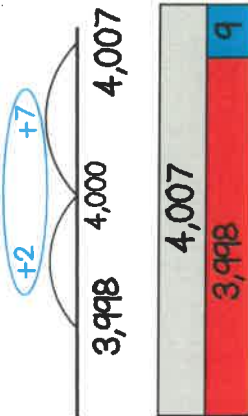


Take away 2 then add one hundredth



$4007 - 3998$

Find the difference between
two numbers



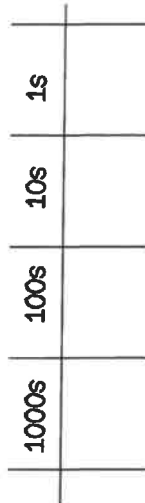
$5,352 - 2,136$

Formal written method

$$\begin{array}{r} 5,352 \\ - 2,136 \\ \hline 3,216 \end{array}$$

Exchange ten of
these for one of
those!

Regroup and rename



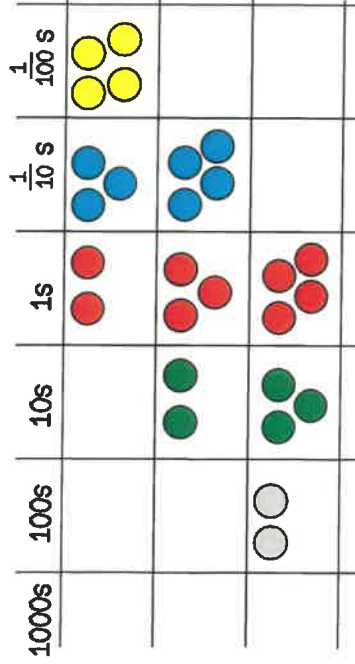
Known facts:
Rapid recall of all
multiplication tables
up to 12×12

Use known facts
and place value

$$6 \times 4$$

$$\begin{aligned} 6 \times 4 &= 24 \\ 60 \times 4 &= 240 \\ 60 \times 40 &= 2400 \end{aligned}$$

2.34×100
Multiply by 10, 100



How shall I multiply?

Use the
distributive law

$$7 \times 36$$

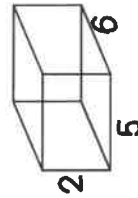
$$\begin{aligned} 7 \times 36 &= 7 \times 30 + 7 \times 6 \\ &= 210 + 42 \\ &= 252 \end{aligned}$$

Use factors and
commutativity

$$45 \times 6$$

Write as factors
then re-order

$$\begin{aligned} 2 \times (5 \times 6) &= (2 \times 5) \times 6 \\ 2 \times 30 &= 10 \times 6 \\ 45 \times 6 &= 5 \times 9 \times 6 \\ &= 5 \times 6 \times 9 \\ &= 30 \times 9 \\ &= 270 \end{aligned}$$



$$\begin{aligned} 200 \times 7 &= 1400 \\ 30 \times 7 &= 210 \\ 6 \times 7 &= 42 \\ 1400 + 210 + 42 &= 1652 \end{aligned}$$

$$236 \times 7$$

$$\begin{array}{r} 36 \\ 30 \quad 6 \\ \times 7 \\ \hline 210 \quad 42 \\ \hline \end{array}$$

Formal written method

$$\begin{array}{r} 36 \\ 30 \quad 6 \\ \times 7 \\ \hline 210 \quad 42 \\ \hline 252 \end{array}$$

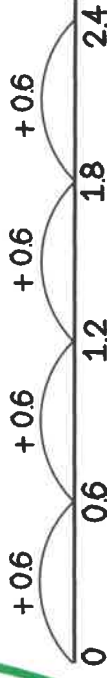
$$6 \times 4$$

Use known facts
and place value

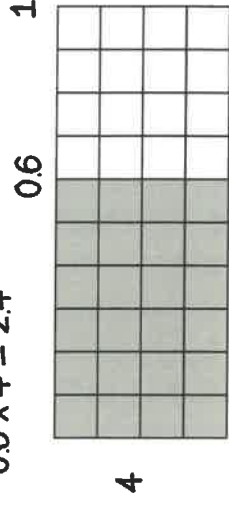
0.6 is ten times
smaller than 6

$$0.6 \times 4 = 2.4$$

4 jumps of 0.6



$$\begin{aligned} 0.6 \times 4 &= 24 \text{ tenths} \\ 0.6 \times 4 &= 2.4 \end{aligned}$$



Known facts:

Use recall of all multiplication tables up to 12×12 to derive division facts

$$24 \div 4$$

Use known facts and place value

$$24 \div 4 = 6$$

$$240 \div 40 = 6$$

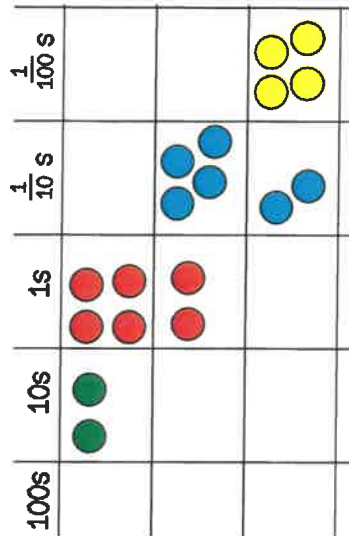
$$2400 \div 400 = 6$$

$$2400 \div 400 = \frac{24 \times 100}{4 \times 100}$$

$$\frac{24}{4} = 6$$

$$24 \div 100$$

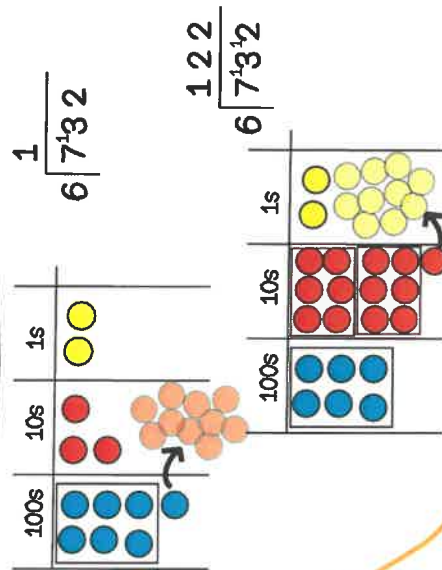
Divide by 10, 100



How shall I divide?

Formal written method

$$732 \div 6$$



$$512 \div 12$$

Using factors

$$516 \div 3 \div 4$$

512			
172		172	172
43	43	43	43

$$496 \div 8$$

Partition and recombine



$$60 + 2 = 62$$

