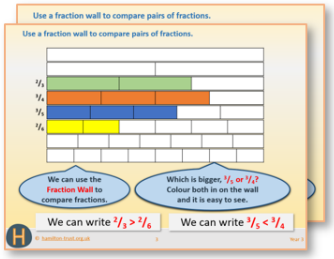
Week 6, Day 1

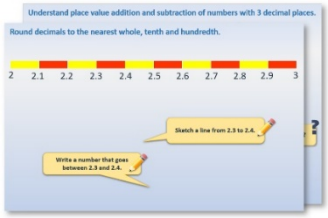
Use mental strategies to multiply by 5, 20, 6, 4 and 8.

Each day covers one maths topic. It should take you about 1 hour or just a little more.

1. If possible, watch the **PowerPoint presentation** with a teacher or another grown-up.



OR start by carefully reading through the **Learning Reminders**.



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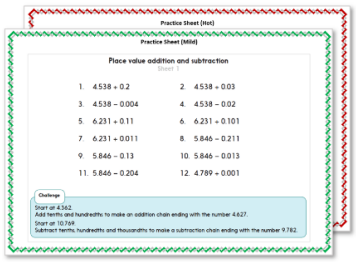
2. Tackle the questions on the **Practice Sheet**.
There might be a choice of either Mild (easier) or Hot (harder)!
Check the answers.



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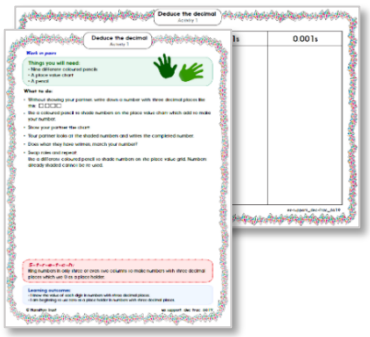
3. Finding it tricky? That's OK… have a go with a grown-up at **A Bit Stuck?**



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4. Think you've cracked it? Whizzed through the Practice Sheets?
Have a go at the **Investigation**…

Learning Reminders

Use mental strategies to multiply by 5, 20, 6, 4 and 8.

23 x 10 = 230

23 x 5 = 115

We can multiply numbers by 5 by multiplying by 10, then halving.

23 x 20 = 460

We can double the answer to 23 x 10 to find 23 x 20.

23 x 19 = 437

We can subtract 23 from the answer to 23 x 20 to find 23 x 19.

Learning Reminders

Use mental strategies to multiply by 5, 20, 6, 4 and 8.

23 x 3 = 69.

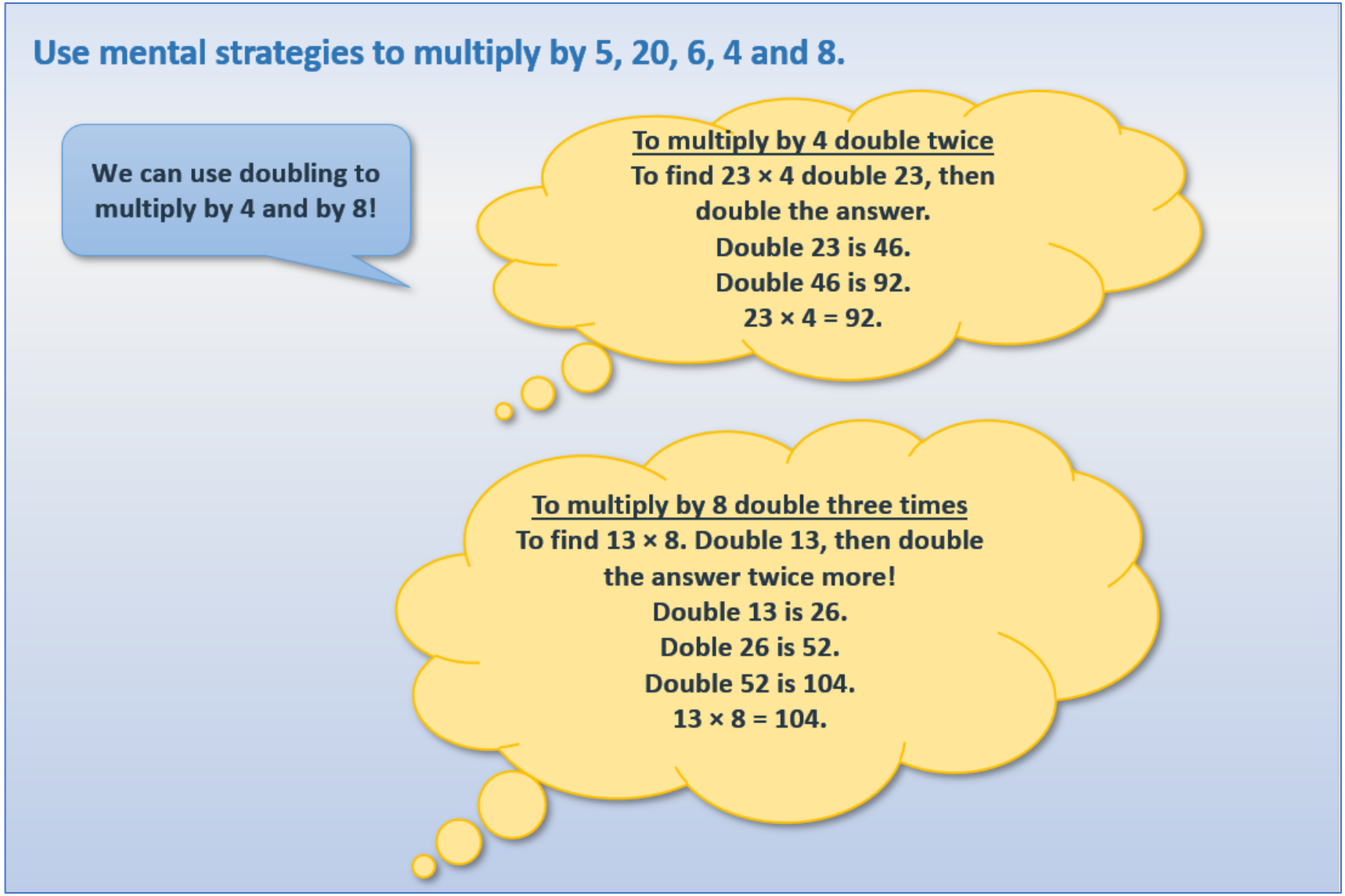
23 x 6 = 138

We can use 23 × 3 = 69 to work out the answer to 23 × 6. Try doubling 69!

So one way to multiply a number by 6 is to multiply by 3, and then by 2.

We are using a pair of factors of 6.

Learning Reminders



Practice Sheet Mild

Using mental strategies to multiply

1. Solve these:

   34 × 10 34 × 2 34 × 3

2. Use your answers from question 1 to make it easy to solve these:

   34 × 5 34 × 20 34 × 4 34 × 8 34 × 6

3. Use similar strategies to solve the following:

   62 × 5

   51 × 20

   43 × 6

   31 × 4

   26 × 8

Note down what you did to find the answer to each question,
e.g. 'Multiplied by 10 and then doubled'.

Challenge

Does 24 x 30 give the same answer as 34 x 20?
Make a prediction.
Use mental strategies to solve each multiplication and test your prediction.

Practice Sheet Hot

Using mental strategies to multiply

1. Solve these:

   36 × 10 36 × 2 36 × 3

2. Use your answers from question 1 to easily solve:

   36 × 5 36 × 20 36 × 4 36 × 8 36 × 6

3. Use similar strategies to solve the following:

   76 × 5

   64 × 20

   53 × 6

   82 × 4

   37 × 8

   153 × 5

   240 × 20

   In each case note down what you did to find the answer, e.g. 'Multiplied by 10 and then doubled'.

4. Does 24 x 30 give the same answer as 34 x 20?
   Make a prediction.
   Use mental strategies to solve each multiplication and test your prediction.

Challenge

Can you find a strategy for quickly solving these:
36 × 50 36 × 200 36 × 60

(Hint! Look at what you already know.)

Practice Sheets Answers

Using mental strategies to multiply (mild)

1. 34 × 10 = 340
   34 × 2 = 68
   34 × 3 = 102

2. 34 × 5 = 170
   34 × 20 = 680
   34 × 4 = 136
   34 × 8 = 272
   34 × 6 = 204

3. 62 × 5 = 310
   51 × 20 = 1020
   43 × 6 = 258
   31 × 4 = 124
   26 × 8 = 208

Challenge

30 x 24 = 720. 20 x 34 = 680

Using mental strategies to multiply (hot)

1. 36 × 10 = 360
   36 × 2 = 72
   36 × 3 = 108

2. 36 × 5 = 180
   36 × 20 = 720
   36 × 4 = 144
   36 × 8 = 288
   36 × 6 = 216

3. 76 × 5 = 380
   64 × 20 =1280
   53 × 6 = 318
   82 × 4 = 328
   37 × 8 = 296
   153 × 5 = 765
   240 × 20 = 4800

4. 30 x 24 = 720 20 x 34 = 680

Challenge

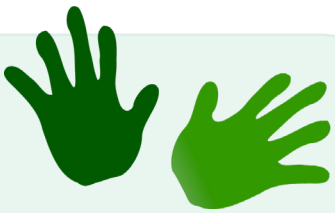
36 × 50 = 180 36 × 200 = 7200 36 × 60 = 2160
Students should notice that these multiplications are similar to the first three multiplications in Question 2, except the second number has been multiplied by ten. This means that students simply need to add on a zero to the answers they already have.

A Bit Stuck?
Moving multiplications

Work in pairs

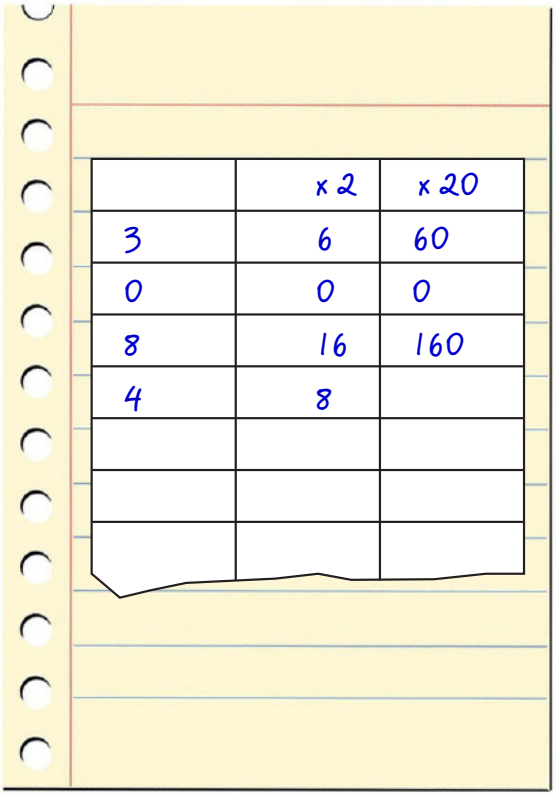
Things you will need:

- A set of 0 to 12 cards
- Multiples strips
- A pencil



What to do:

- Choose a pair of times tables. Find that table.
- Shuffle a pack of 0 to 12 cards and place face down.
- Turn the cards over one at a time.
- Write the number in the left column of the table.
- Multiply that number by the two numbers in the table, e.g. 2 and 20.
- Write the answers on the table.
- Repeat with another pair of tables.



	x 2	x 20
3	6	60
0	0	0
8	16	160
4	8	

S-t-r-e-t-c-h:

Try and fill in ALL the tables!

Learning outcomes:

- I can use times tables and place value to multiply by 20 and 50.
- I am beginning to multiply by 30 and 40.

A Bit Stuck?
Moving multiplications

	x2	x20

	x5	x50

A Bit Stuck?
Moving multiplications

	x3	x30

	x4	x40

Investigation
Mega mental multiplications

1. Make a bank of useful calculations...
   Write the answer to:
   - 42 × 10
   - 42 x 3
   - 42 x 2

2. Use these to solve at least 5 of the following multiplications:
   42 x 5
   42 x 6
   42 x 20
   42 x 12
   42 x 19
   42 x 8
   42 x 11

Explain your mental strategy for each calculation you chose.

42 x 6

42 x 3 can be completed mentally by partitioning:

(40 x 3) + (2 x 3) = 120 + 6 = 126

Doubling this product gives the answer to 42 x 6:

double 126 = 252

3. Now try the same thing with 62.

4. Now try the same thing with 123.

Challenge

Can you suggest a strategy to multiply a number by 15? Try it with four different starting numbers.