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+ 4
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Hints and Tips

Multiplication square

A times tables square can be used to find the answer to any multiplication question for numbers between 1 and 10. Just find the first number you need to multiply along the top row of the square, and the second number in the first column. Then find where the two lines meet to find your answer. Using the square, we can see that 5 x 10 = 50....

1	2	3	4	5	6	7	8	9	10
2	4	6	8	10	12	14	16	18	20
3	6	9	12	15	18	21	24	27	30
4	8	12	16	20	24	28	32	36	40
5	10	15	20	25	30	35	40	45	50
6	12	18	24	30	36	42	48	54	60
7	14	21	28	35	42	49	56	63	70
8	16	24	32	40	48	56	64	72	80
9	18	27	36	45	54	63	72	81	90
10	20	30	40	50	60	70	80	90	100

Bridging the Divide

Some handy tips on dividing:

- If a number ends in 0 it can be divided by 10
- If a number ends in 5 or 0 it can be divided by 5
- If a number is an even number it can be divided by 2
- If you add the digits of a number and the sum can be divided by 3 so can the original number
- If you add the digits of a number and the sum can be divided by 9 so can the original number

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Hints and Tips

Eleven times ….!

Want to multiply any 2 digit number by 11 without getting a migraine? No problem!

Look at these sums and see if you can spot a pattern:-

23 x 11 = 253

61 x 11 = 671

42 x 11 = 462

Have you got it yet? *(Hint: look at the answer – is there a connection between the digit in the middle and the other two?)*

Can you do this one?

54 x 11 =

That's right…
Add the digits of the 2 digit number together and insert the answer between the 2 digits.

5 + 4 = 9
so 54 x 11 = 594

Check out **why** this works by writing the sum out as a 'long multiplication'. This will also show you what to do if you have to 'carry' numbers as part of the sum.

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+ 4
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Hints and Tips

VAT the easy way

The easiest way is to get the Chancellor to set VAT at a level that is easy to work out! At the moment VAT is 20%. There are lots of ways to work this out; here's one of them.

- First find 10%. You do this by dividing by 10. (10% is one tenth of 100%)
- Then multiply by 2 (20% is twice as much as 10%)

Here's an example:
The plumber's bill comes to £140 before VAT, how much will his final bill be?

- First divide £140 by 10 to find 10% — 140 ÷ 10 = 14
- Double this to give 20% — 14 x 2 = 28
- Add this on to give you the final bill — £140 + £28 = **£168**

Using 10% to find other percentages:
If you can find 10% you can build up other percentages from it, here are some examples:

- 30%.....Multiply 10% by 3
- 5% …….....Divide 10% by 2 (halve it)
- 1% …….....Divide 10% by 10

How could we find 13% of 600?

- Find 10%... — 600 ÷ 10 = 60
- Find 1%... — 60 ÷ 10 = 6
- Multiply the 1% by 3... — 6 x 3 = 18
- Add 10% and 3% together... — 60 + 18 = 78

Over to you:

- Have a go at finding 15% of £260.
- Try this... 4800 people were at a football match. 70% of the crowd were men. So how many men were there?

Breaking down the calculation like this takes the fear out of working out percentages.

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Hints and Tips

99 Heaven

Multiplying by 99 is difficult, right? Wrong!

An easier way to multiply by 99 is to multiply by 100 first and then take one lot off….

For example: 99 people attend a live music night and pay £23 each for a ticket. How much ticket money is taken?

Step 1 Identify what we need to do, which is find 99 'lots of' £23... 99 x 23

Step 2 First find 100 'lots of' 23... 100 x 23 = 2300

Step 3 Take one lot of 23 away... 2300 – 23 = 2277

Step 4 Review the problem and answer it. Ticket money taken is **£2277**

You can do something similar in many situations:-

- You're playing 301 at darts and you score 79. First take off 80 (this is 1 too much) which leaves 221 then add 1 back on again which gives you 222 as your new total.
- You've been shopping, you spent £45 and £68 how much did you spend altogether? First add £70 (this is £2 too much) onto the £45 which is £115 then take off £2 which gives you £113.

Try a similar method in the following examples. Look for how you can make the sum easier but remember to adjust your answer afterwards.

36 + 49 *(Hint: think of 49 as 50)*

47 x 9 *(Hint: think of 9 as 10)*

£283 - £58 *(Hint: think of the £58 as £60)*

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Hints and Tips

Just for Fun - Age Wizard!

Want to find out someone's age without them telling you? Here's how…

Ask them to add 103 to their age using a calculator, and then ask them to multiply the result by 20. Then ask them to subtract 58 and finally divide the answer by 2. You will see the person's age appear in the answer sandwiched between a 1 on either side.

Try it out on a friend or relative and then see if you can work out how this 'trick' works.

Hint: the last two steps are something to do with reversing the first two steps. (What happens if you multiply 100 by 20 and then divide your answer by 2? What happens if you multiply 3 by 20 then take away 58 then divide by 2? … Got it?)