

## Year 5 maths – Summer 2 Week beginning: 6.7.20

Theme	Lesson 4 of 12 CONSOLIDATION LESSON <u>Formal methods</u> Multiplication	Lesson 5 of 12 CONSOLIDATION LESSON <u>Formal methods</u> Multiplication	Lesson 6 of 12 CONSOLIDATION LESSON <u>Formal methods</u> Multiplication	Lesson 7 of 12 CONSOLIDATION LESSON <u>Formal methods</u> Division	Lesson 8 of 12 CONSOLIDATION LESSON <u>Formal methods</u> Division
Factual fluency (to aid fluency)	Practise estimating products <a href="#">activity</a>	Practise multiplication patterns <a href="#">activity</a>	Practise choosing multiples <a href="#">activity</a>	Practise division facts <a href="#">activity</a>	Practise properties of division <a href="#">activity</a>
<p><b>Problem/activity of the day</b></p> <p><b>Remember, just like in class, you can still show the depth of your knowledge <a href="#">LINK</a></b></p>	<p><b>(Lesson 1 resources below)</b> <b>MAKING LINKS:</b> In year 4 we learnt to multiply 2 and 3-digit numbers. Today we will continue working with formal multiplication methods.</p> <p>You may want to recap the formal method from year 4 <a href="#">multiplication</a> of 3-digit numbers by a 1-digit number before this lesson.</p> <p><b>THINK: (support below)</b> Can you help me with this problem? My friend has 28 bean plants in her garden. Each bean plant produced 26 beans. How many beans has she grown?</p> <p><i>If you have online parent access this lesson is based on Year 5 textbook 5A, chapter 3, lessons 13.</i></p> <p><b>SEE: (model below)</b> Check the solution below. Watch the <a href="#">steps</a> for formal multiplication here and the <a href="#">lesson</a> video here.</p> <p><b>DO:</b> Use what you have learnt today to solve: PART 1: Complete the questions in part 1 below.</p> <p>Check your answers below before moving on to: PART 2: Complete the questions in part 2 below.</p>	<p><b>(Lesson 2 resources below)</b> <b>MAKING LINKS:</b> Yesterday we worked with formal multiplication methods. We will continue this today.</p> <p>You may want to recap the formal method from year 4 <a href="#">multiplication</a> of 3-digit numbers by a 1-digit number before this lesson.</p> <p><b>THINK: (support below)</b> Can you help me with this problem? £1 used to be worth about 12 times the value of the Hong Kong dollar. If I spent £132, how much would that be in Hong Kong dollars?</p> <p><i>If you have online parent access this lesson is based on Year 5 textbook 5A, chapter 3, lessons 14.</i></p> <p><b>SEE: (model below)</b> Check the solution below.</p> <p>Refer back to yesterday's lesson videos, if need be. Watch the <a href="#">steps</a> for formal multiplication here and the <a href="#">lesson</a> video here.</p> <p><b>DO:</b> Use what you have learnt today to solve: PART 1: Complete the questions in part 1 below.</p> <p>Check your answers below before moving on to: PART 2: Complete the questions in part 2 below.</p>	<p><b>(Lesson 3 resources below)</b> <b>MAKING LINKS:</b> Yesterday we worked with formal multiplication methods. We will continue this today.</p> <p><b>THINK: (support below)</b> Using the digits 1, 2, 3, 4 and 5, make two numbers. One number must be a 3-digit number and the other must be a 2-digit number. Then find their product. Try to make an equation that gives you an odd product and an even product.</p> <p><i>If you have online parent access this lesson is based on Year 5 textbook 5A, chapter 3, lessons 15.</i></p> <p><b>SEE: (model below)</b> Check the solution below.</p> <p>Refer back to Monday's lesson videos, if need be. Watch the <a href="#">steps</a> for formal multiplication here and the <a href="#">lesson</a> video here.</p> <p><b>DO:</b> Use what you have learnt today to solve: PART 1: Complete the questions in part 1 below.</p> <p>Check your answers below before moving on to: PART 2: Complete the questions in part 2 below.</p>	<p><b>(Lesson 4 resources below)</b> <b>MAKING LINKS:</b> Yesterday we worked with formal multiplication methods. Today, we will work with formal division methods.</p> <p><b>THINK: (support below)</b> Can you help me with this problem? My friend poured 2528ml of water into 8 bottles so that each bottle holds the same volume. What is the volume of water in each bottle?</p> <p><i>If you have online parent access this lesson is based on Year 5 textbook 5A, chapter 3, lesson 18.</i></p> <p><b>SEE: (model below)</b> Check the solution below. Watch method 1 on tomorrow's <a href="#">lesson</a> video but remember in today's lesson you will not have any remainders!</p> <p><b>DO:</b> Use what you have learnt today to solve: PART 1: Complete the questions in part 1 below.</p> <p>Check your answers below before moving on to: PART 2: Complete the questions in part 2 below.</p>	<p><b>(Lesson 5 resources below)</b> <b>MAKING LINKS:</b> Yesterday we worked with formal division methods. We will continue with this today.</p> <p><b>THINK: (support below)</b> Can you help me with this problem? My friends use two different strategies to divide 376 by 5. Look at both of the methods below. How are they similar? How are they different?</p> <p><i>If you have online parent access this lesson is based on Year 5 textbook 5A, chapter 3, lessons 19.</i></p> <p><b>SEE: (model below)</b> Check the solution below.</p> <p>Watch method 1 and 2 on the <a href="#">lesson</a> video.</p> <p><b>DO:</b> Use what you have learnt today to solve: PART 1: Complete the questions in part 1 below.</p> <p>Check your answers below before moving on to: PART 2: Complete the questions in part 2 below.</p>
Methods, tips, clues & checks	Day 1 resources and answers (below)	Day 2 resources and answers (below)	Day 3 resources and answers (below)	Day 4 resources and answers (below)	Day 5 resources and answers (below)

**See below for resources to support you to THINK-SEE-DO**

**DAY 1 RESOURCES:**

**THINK:** My friend has 28 bean plants in her garden. Each bean plant produced 26 beans. How many beans has she grown?

**If you have online parent access this lesson is based on Year 5 textbook 5A, chapter 3, lessons 13.**

**DO:** Use what you have learnt today to solve:

**PART 1:** Complete these questions:

- a)  $60 \times 19$
- b)  $13 \times 31$
- c)  $42 \times 24$
- d)  $39 \times 51$

Check your answers below before moving on to:

**PART 2:** Complete:

$$\begin{array}{r} 29 \\ \times 28 \\ \hline \end{array} \quad \begin{array}{r} 44 \\ \times 57 \\ \hline \end{array} \quad \begin{array}{r} 24 \\ \times 58 \\ \hline \end{array} \quad \begin{array}{r} 30 \\ \times 92 \\ \hline \end{array} \quad \begin{array}{r} 67 \\ \times 54 \\ \hline \end{array}$$

$$\begin{array}{r} 65 \\ \times 14 \\ \hline \end{array} \quad \begin{array}{r} 41 \\ \times 57 \\ \hline \end{array} \quad \begin{array}{r} 91 \\ \times 41 \\ \hline \end{array} \quad \begin{array}{r} 22 \\ \times 17 \\ \hline \end{array} \quad \begin{array}{r} 24 \\ \times 21 \\ \hline \end{array}$$

$$\begin{array}{r} 96 \\ \times 57 \\ \hline \end{array} \quad \begin{array}{r} 44 \\ \times 91 \\ \hline \end{array} \quad \begin{array}{r} 15 \\ \times 62 \\ \hline \end{array} \quad \begin{array}{r} 23 \\ \times 53 \\ \hline \end{array} \quad \begin{array}{r} 17 \\ \times 70 \\ \hline \end{array}$$

**DEEPENING:** <https://nrich.maths.org/1129> This represents

the multiplication of a 4-figure number by 3.

The whole calculation uses each of the digits 0–9 once and once only.

The 4-figure number contains three consecutive numbers, which are not in order. The third digit is the sum of two of the consecutive numbers.

The first, third and fifth figures of the five-digit product are three consecutive numbers, again not in order. The second and fourth digits are also consecutive numbers.

Can you replace the stars in the calculation with digits?

**NOTE:** ‘Consecutive numbers’ means the numbers follow on from each other, like 5, 6 and 7.

$$\begin{array}{r} \star \star \star \star \\ \times \quad \quad \quad 3 \\ \hline \star \star \star \star \star \end{array}$$

**SEE:** You may want to recap the formal method from year 4 [multiplication](#) of 3-digit numbers by a 1-digit number before this lesson. Watch the [steps](#) for formal multiplication here and the [lesson](#) video here.

First, write the equation in a vertical form. **Ones** in the **ones place** (or column), **Tens** in the **tens place** (or column).

$$\begin{array}{r} \text{T} \quad \text{O} \\ 28 \\ \times 26 \\ \hline \end{array}$$

$$28 \times 6 = 168 \quad \text{Then, multiply by the ones,}$$

$$28 \times 20 = 560 \quad \text{then by the tens.}$$

$$\begin{array}{r} 1 \\ 168 \\ + 560 \\ \hline 728 \end{array} \quad \text{Finally add the two amounts to reach the total.}$$

$$\begin{array}{r} 28 \\ \times 6 \\ \hline 8 \end{array} \quad \rightarrow \quad \begin{array}{r} 28 \\ \times 6 \\ \hline 168 \end{array}$$

Multiply 28 by 6  
 $8 \times 6 = 48$   
 We put 8 in the ones place and 40 in the tens place  
 $20 \times 6 = 120$  but we must remember to add our 40 (our 4 tens)

$$\begin{array}{r} 28 \\ \times 20 \\ \hline 168 \\ 60 \end{array} \quad \rightarrow \quad \begin{array}{r} 28 \\ \times 20 \\ \hline 168 \\ 560 \end{array}$$

Multiply 28 by 20  
 $8 \times 20 = 160$   
 We put 6 in the tens place and 100 in the hundreds place  
 $20 \times 20 = 400$  but we must remember to add our 100 (our 1 hundred)  
 $20 \times 28 = 560$

$$\begin{array}{r} 1 \\ 4 \\ 28 \\ \times 26 \\ \hline 168 \\ + 560 \\ \hline 728 \end{array}$$

Add the results of our two multiplication calculations to reach the answer to  $28 \times 26$

**DAY 2 RESOURCES:**

**THINK:** £1 used to be worth about 12 times the value of the Hong Kong dollar. If I spent £132, how much would that be in Hong Kong dollars?

*If you have online parent access this lesson is based on Year 5 textbook 5A, chapter 3, lessons 14.*

**DO:** Use what you have learnt today to solve:

**PART 1:** Complete the questions below:

- a)  $24 \times 122$
- b)  $23 \times 212$
- c) Find the product of 12 and 133
- d) Find the product of 32 x 123

Check your answers below before moving on to:

**PART 2:** Complete the questions in part 2 below:

- |                      |                     |
|----------------------|---------------------|
| 1) $234 \times 25 =$ | 7) $337 \times 25$  |
| 2) $368 \times 46 =$ | 8) $365 \times 46$  |
| 3) $562 \times 22 =$ | 9) $562 \times 72$  |
| 4) $213 \times 14$   | 10) $453 \times 43$ |
| 5) $132 \times 18$   | 11) $567 \times 28$ |
| 6) $245 \times 37$   | 12) $355 \times 39$ |

**DEEPENING:**

Can you work out the missing numbers using the clues?

The 4 digits being multiplied by 5 are consecutive numbers.

The first 2 digits of the product are the same.

The fourth and fifth digits of the answer add to make the third.

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**SEE:** Refer back to yesterday's lesson videos, if need be. Watch the [steps](#) for formal multiplication here and the [lesson](#) video here.

**H T O**

First, write the equation,  $132 \times 12$ , in a vertical form.

	1	3	2
X		1	2

**Ones** in the **ones place** (or column),  
**Tens** in the **tens place** (or column)  
**Hundreds** in the **hundreds place** (or column).

$12 \times 132 =$

Then:

- multiply 132 by the ones (**2**),
- multiply 132 by the tens (10 or **1** ten).

	1	3	2	
×		1	2	
	2	6	4	→ multiply by 2
+	1	3	2	0 → multiply by 10
	1	5	8	4

Finally, add the amounts to reach the total.



**Day 3:**

**DEEPENING:** <https://nrich.maths.org/1119>

Mrs Morgan, the class's teacher, pinned numbers onto the backs of three children: Mona, Bob and Jamie.

"Now", she said, "Those three numbers add up to a special kind of number. What is it?"

"It's a square number", Michael answered.

"Correct", smiled Mrs Morgan.

"Oh!" exclaimed Mona, "The two numbers I can see also add to a square!"

"And me!" called out Bob, "The two numbers I can see add to a square number too!"

"Oh dear", said Jamie disappointedly, "the two numbers I can see don't add to a square! It's either 5 too little or 6 too big!"

What numbers did the three children have on their backs?

**Clues:** What can you deduce from what Jamie says?

Making a list of square numbers might help.

You could try finding pairs of numbers that make squares.

All the numbers, including the squares, are less than 40.

**Remember** a square number is a number that is the result of multiplying a number by itself. 9 is a square number because it is the result of multiplying 3 by itself.  $3 \times 3 = 9$  so 9 is a square number!

You learnt about square numbers this year and a little in year 4.

**Before we move onto division remind yourself of the language we use in division. We learnt this in year 4 and year 5:**

$$\begin{array}{r} \text{quotient} \rightarrow 5 \\ \text{divisor} \rightarrow 3 \overline{) 16} \\ \text{dividend} \nearrow 15 \\ \text{remainder} \rightarrow 1 \end{array}$$

## DAY 4 RESOURCES:

**THINK:** My friend poured 2528ml of water into 8 bottles so that each bottle holds the same volume. What is the volume of water in each bottle?

If you have online parent access this lesson is based on Year 5 textbook 5A, chapter 3, lesson 18.

**DO:** Complete these:

**PART 1:**

- a)  $5048 \div 4$
- b)  $5048 \div 8$
- c)  $9114 \div 6$
- d)  $9114 \div 3$

Check your answers below before moving on. Remember to estimate.

**PART 2:**

$$3 \overline{)2076} \quad 7 \overline{)6888} \quad 5 \overline{)3025} \quad 5 \overline{)1610}$$

$$8 \overline{)2064} \quad 9 \overline{)8496} \quad 9 \overline{)3447} \quad 3 \overline{)1386}$$

$$8 \overline{)2072} \quad 7 \overline{)2989} \quad 6 \overline{)3966} \quad 6 \overline{)2310}$$

**SEE:** Watch method 1 on tomorrow's [lesson](#) video but remember in today's lesson you will not have any remainders!

**First** write the equation you would need to solve to answer the question:

$$2528 \text{ml} \div 8 =$$

**Then** write down the multiples of the **divisor** so that we can easily recognise how many we have in the **dividend**.

In this division problem we need to find **how many groups of 8** there are in **2528** so we jot down the multiples of 8:

8, 16, 24, 32, 40, 48, 56, 64, 72, 80, 88, 96

**Next**, I can partition the dividend into multiples of 8.

I can see 24 is a multiple of 8 so 2400 will be too!

**2400** is **300** groups of 8 ( **$300 \times 8$** )

That leaves **128**. I know I can find more multiples of 8 in 128.

**80** and **48** are multiples of 8 that I can get from 128.

80 is **10**  $\times$  8 and 48 is **6**  $\times$  8.

Now I have,

$$2400 \div 8 = 300$$

$$(300 \times 8 = 2400)$$

$$80 \div 8 = 10$$

$$(10 \times 8 = 80)$$

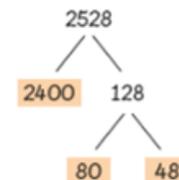
$$48 \div 8 = 6$$

$$(6 \times 8 = 48)$$

Finally, I can see how many 8s were in 2528ml.

$$300 + 10 + 6 = 316$$

**3 Hundreds + 1 Ten + 6 Ones**



H T O  
**3 1 6**

$$\begin{array}{r} 8 \overline{)2528} \\ - 2400 \\ \hline 128 \\ - 80 \\ \hline 48 \\ - 48 \\ \hline 0 \end{array}$$

## DEEPENING:

### Counting Pebbles

I have a bagful of pebbles, 400 at most,  
Keepsakes I've gathered on trips coast to coast.

In the bag there are pebbles from Wrexham and Crewe,  
One pebble is left if I make groups of two.

In the bag there are pebbles from Westgate-on-Sea,  
One pebble is left if I make groups of three.

In the bag there are pebbles from Rushden and Flore,  
One pebble is left if I make groups of four.

In the bag there are pebbles from Ludlow and Clive,  
One pebble is left if I make groups of five.

In the bag there are pebbles from Harlow and Wix,  
One pebble is left if I make groups of six.

In the bag there are pebbles from Dorset and Devon,  
No pebbles are left if I make groups of seven.

I have a bagful of pebbles, 400 or less.  
Just exactly how many, perhaps you can guess.

**DAY 5 RESOURCES:**

**THINK:** My friends use two different strategies to divide 376 by 5. Look at both of the methods below. How are they similar? How are they different?

$$5 \overline{) 375} \text{ remainder } 1$$

$$\begin{array}{r} \phantom{5} \overline{) 376} \\ - 350 \\ \hline \phantom{5} \phantom{) 2} 6 \\ - 25 \\ \hline \phantom{5} \phantom{) 1} 1 \end{array}$$

If you have online parent access this lesson is based on Year 5 textbook 5A, chapter 3, lessons 19.

**DO: PART 1:**

You might want to try the 'compact' method for dividing:

- a)  $99 \div 7$
- b)  $347 \div 6$
- c)  $593 \div 3$
- d)  $278 \div 8$

Check your answers below before moving on to:

**PART 2:**

$$9 \overline{) 949} \quad 2 \overline{) 1915} \quad 3 \overline{) 1939} \quad 2 \overline{) 263}$$

$$7 \overline{) 4651} \quad 9 \overline{) 5557} \quad 4 \overline{) 2695} \quad 4 \overline{) 3405}$$

$$4 \overline{) 2437} \quad 3 \overline{) 1139} \quad 7 \overline{) 5163} \quad 8 \overline{) 1730}$$

**SEE:** We are looking at two methods today. You can use either method when you do your work as long as you remember the remainder! Watch method 1 and 2 on the [lesson](#) video.

$$376 \div 5 =$$

Follow the same method as yesterday:

First, write down the multiples of the **divisor** so that we can easily recognise how many we have in the **dividend**.

5, 10, 15, 20, 25, 30, 35, 40, 45, etc

Then partition your dividend into multiples of the divisor. In this case multiples of 5:

$$\text{So, } 376 = 350 \text{ and } 25 \text{ and } 1$$

Divide each of those numbers by 5.

$$350 \div 5 = 70$$

$$25 \div 5 = 5$$

1 is the remainder.

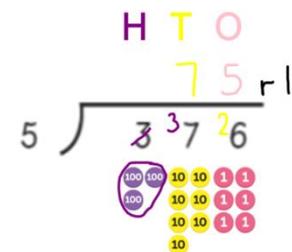
Finally add up those groups of 5 and note the number of groups on the top of the 'bus stop'.

$$70 + 5 = 75 \text{ and } 1 \text{ is the remainder}$$

With the compact method, you must ask yourself, 'Can I take groups of 5 from each place?'

I only have a group of **3** in the hundreds place so I cannot take groups of 5 from the hundreds place. I must move the **3** hundreds into the tens place.

This gives me 37 in the tens place. Can I take groups of 5 from the tens place? Yes, I can take 7 groups of 5 from the tens place ( $37 \div 5 = 7$  with 2 tens left). I am left with **2** which isn't enough to take another group of 5 from so I move that into the ones place.



**DEEPENING DAY 5:**

Write an explanation for your teacher comparing the different methods used in the '**DO**' problem.

Language you should use:

Dividend  
Quotient  
Divisor

Language you could use:

Multiple  
Factor  
'Bus stop'

This gives me 26 in the ones place.

Can I take groups of 5 from the ones place?

Yes, there are **5** groups of 5 in the ones place with 1 remaining.

$$26 \div 5 = 5 \text{ r } 1$$

Can I find any more groups of 5? No, I just have 1 remaining.

## ANSWERS – part 1:

<u>Day 1</u>	<u>Day 2</u>	<u>Day 3</u>	<u>Day 4</u>	<u>Day 5</u>
<p><u>Part 1:</u> a) <math>60 \times 19 = 1,140</math> b) <math>13 \times 31 = 403</math> c) <math>42 \times 24 = 1,008</math> d) <math>39 \times 51 = 1,989</math></p>	<p><u>Part 1:</u> a) <math>24 \times 122 = 2,928</math> b) <math>23 \times 212 = 4,876</math> c) The product of 12 and 133 is 1,596 d) The product of 32 x 123 is 3,936</p>	<p><u>Part 1:</u> a) <math>135 \times 24 = 3240</math> b) <math>145 \times 23 = 3335</math> c) <math>245 \times 13 = 3185</math> d) <math>459 \times 13 = 5967</math></p>	<p><u>Part 1:</u> a) <math>5048 \div 4 = 1,262</math> b) <math>5048 \div 8 = 631</math> c) <math>9114 \div 6 = 1,519</math> d) <math>9114 \div 3 = 3,038</math></p>	<p><u>Part 1:</u> a) <math>99 \div 7 = 14 \text{ r}1</math> b) <math>347 \div 6 = 57 \text{ r}5</math> c) <math>593 \div 3 = 197 \text{ r}2</math> d) <math>278 \div 8 = 34 \text{ r}6</math></p>

## ANSWERS – part 2 and deepening:

Day 1	Day 2	Day 3	Day 4	Day 5
<p><b>Part 2:</b></p> $\begin{array}{r} 29 \\ \times 28 \\ \hline 812 \end{array}$ $\begin{array}{r} 44 \\ \times 57 \\ \hline 2508 \end{array}$ $\begin{array}{r} 24 \\ \times 58 \\ \hline 1392 \end{array}$ $\begin{array}{r} 30 \\ \times 92 \\ \hline 2760 \end{array}$ $\begin{array}{r} 67 \\ \times 54 \\ \hline 3618 \end{array}$ $\begin{array}{r} 65 \\ \times 14 \\ \hline 910 \end{array}$ $\begin{array}{r} 41 \\ \times 57 \\ \hline 2337 \end{array}$ $\begin{array}{r} 91 \\ \times 41 \\ \hline 3731 \end{array}$ $\begin{array}{r} 22 \\ \times 17 \\ \hline 374 \end{array}$ $\begin{array}{r} 24 \\ \times 21 \\ \hline 504 \end{array}$ $\begin{array}{r} 96 \\ \times 57 \\ \hline 5472 \end{array}$ $\begin{array}{r} 44 \\ \times 91 \\ \hline 4004 \end{array}$ $\begin{array}{r} 15 \\ \times 62 \\ \hline 930 \end{array}$ $\begin{array}{r} 23 \\ \times 53 \\ \hline 1219 \end{array}$ $\begin{array}{r} 17 \\ \times 70 \\ \hline 1190 \end{array}$ <p><b>DEEPENING:</b>  <a href="https://nrich.maths.org/1129/solution">https://nrich.maths.org/1129/solution</a>            The only three consecutive numbers that can go in the 4-figure number are 4, 5 and 6. 7, 8 and 9 are too big. The sum of any two of these is greater than 9. For example:  <math>7 + 8 = 15</math>  <math>8 + 9 = 17</math>  <math>9 + 7 = 16</math>            0, 1 and 2 cannot go on the first line because:  <math>0 \times 3 = 0</math> (same number twice)  <math>1 \times 3 = 3</math> (same number twice)            Therefore the third number must be 9 (5 + 4) because 6 + 5 and 6 + 4 are both too big.            The fourth number in the 4-figure number cannot be 5 as <math>5 \times 3 = 15</math> (repeat digit 5).            The fourth number also cannot be 6 as then we would get 8 twice, so it must be 4.            So, the last two digits must be 5 then 6 so they're not in order.  <math>5694 \times 3 = 17082</math></p>	<p><b>Part 2:</b></p> <ol style="list-style-type: none"> <li><math>234 \times 25 = 5,850</math></li> <li><math>368 \times 46 = 16,928</math></li> <li><math>562 \times 22 = 12,364</math></li> <li><math>213 \times 14 = 2,982</math></li> <li><math>132 \times 18 = 2,376</math></li> <li><math>245 \times 37 = 9,065</math></li> <li><math>337 \times 25 = 8,425</math></li> <li><math>365 \times 46 = 16,790</math></li> <li><math>562 \times 72 = 40,464</math></li> <li><math>453 \times 43 = 19,479</math></li> <li><math>567 \times 28 = 15,876</math></li> <li><math>355 \times 39 = 13,845</math></li> </ol> <p><b>DEEPENING:</b>  <math>2,345 \times 5 = 11,725</math></p>	<p><b>Part 2:</b></p> $\begin{array}{r} 437 \\ \times 52 \\ \hline 22724 \end{array}$ $\begin{array}{r} 603 \\ \times 10 \\ \hline 6030 \end{array}$ $\begin{array}{r} 939 \\ \times 51 \\ \hline 47889 \end{array}$ $\begin{array}{r} 177 \\ \times 51 \\ \hline 9027 \end{array}$ $\begin{array}{r} 141 \\ \times 38 \\ \hline 5358 \end{array}$ $\begin{array}{r} 658 \\ \times 67 \\ \hline 44086 \end{array}$ $\begin{array}{r} 618 \\ \times 37 \\ \hline 22866 \end{array}$ $\begin{array}{r} 480 \\ \times 19 \\ \hline 9120 \end{array}$ $\begin{array}{r} 679 \\ \times 60 \\ \hline 40740 \end{array}$ $\begin{array}{r} 251 \\ \times 33 \\ \hline 8283 \end{array}$ $\begin{array}{r} 205 \\ \times 47 \\ \hline 9635 \end{array}$ $\begin{array}{r} 220 \\ \times 30 \\ \hline 6600 \end{array}$ $\begin{array}{r} 674 \\ \times 56 \\ \hline 37744 \end{array}$ $\begin{array}{r} 256 \\ \times 47 \\ \hline 12032 \end{array}$ $\begin{array}{r} 278 \\ \times 14 \\ \hline 3892 \end{array}$ <p><b>DEEPENING:</b>            Answers may vary, see <a href="https://nrich.maths.org/1119/solution">https://nrich.maths.org/1119/solution</a>:            We know Mona's number plus Bob's number is 5 less than a square and 6 more than a square. So these squares must be 11 apart. The only squares that are 11 apart are 25 and 36. So Mona's number plus Bob's number is 31. We know that when you add them all up you get a square, so Jamie's number plus 31 is a square. From the hint, all the numbers are less than 40, so Jamie's number plus 31 is 36. So Jamie's number is 5. Then the only way to make the rest of the problem work is to have Mona's number as 11 and Bob's as 20 (or the other way round).</p>	<p><b>Part 2:</b></p> $\begin{array}{r} 692 \\ 3 \overline{)2076} \end{array}$ $\begin{array}{r} 984 \\ 7 \overline{)6888} \end{array}$ $\begin{array}{r} 605 \\ 5 \overline{)3025} \end{array}$ $\begin{array}{r} 322 \\ 5 \overline{)1610} \end{array}$ $\begin{array}{r} 258 \\ 8 \overline{)2064} \end{array}$ $\begin{array}{r} 944 \\ 9 \overline{)8496} \end{array}$ $\begin{array}{r} 383 \\ 9 \overline{)3447} \end{array}$ $\begin{array}{r} 462 \\ 3 \overline{)1386} \end{array}$ $\begin{array}{r} 259 \\ 8 \overline{)2072} \end{array}$ $\begin{array}{r} 427 \\ 7 \overline{)2989} \end{array}$ $\begin{array}{r} 661 \\ 6 \overline{)3966} \end{array}$ $\begin{array}{r} 385 \\ 6 \overline{)2310} \end{array}$ <p><b>DEEPENING:</b>            SEE BELOW</p>	<p><b>Part 2:</b></p> $\begin{array}{r} 105 \text{ r } 4 \\ 9 \overline{)949} \end{array}$ $\begin{array}{r} 957 \text{ r } 1 \\ 2 \overline{)1915} \end{array}$ $\begin{array}{r} 646 \text{ r } 1 \\ 3 \overline{)1939} \end{array}$ $\begin{array}{r} 131 \text{ r } 1 \\ 2 \overline{)263} \end{array}$ $\begin{array}{r} 664 \text{ r } 3 \\ 7 \overline{)4651} \end{array}$ $\begin{array}{r} 617 \text{ r } 4 \\ 9 \overline{)5557} \end{array}$ $\begin{array}{r} 673 \text{ r } 3 \\ 4 \overline{)2695} \end{array}$ $\begin{array}{r} 851 \text{ r } 1 \\ 4 \overline{)3405} \end{array}$ $\begin{array}{r} 609 \text{ r } 1 \\ 4 \overline{)2437} \end{array}$ $\begin{array}{r} 379 \text{ r } 2 \\ 3 \overline{)1139} \end{array}$ $\begin{array}{r} 737 \text{ r } 4 \\ 7 \overline{)5163} \end{array}$ $\begin{array}{r} 216 \text{ r } 2 \\ 8 \overline{)1730} \end{array}$ <p><b>Deepening:</b>            Answers will vary.            Share with teachers.</p>
<p><b>DEEPENING DAY 4:</b></p> <p>I have a bagful of pebbles, 400 at most,            Keepsakes I've gathered on trips coast to coast.</p> <p>In the bag there are pebbles from Wrexham and Crewe,            One pebble is left if I make groups of two.  <b>Therefore the total number is odd because it is 1 more than a multiple of 2.</b>            In the bag there are pebbles from Westgate-on-Sea,            One pebble is left if I make groups of three.  <b>The total number is 1 more than a multiple of 3.</b>            In the bag there are pebbles from Rushden and Flore,            One pebble is left if I make groups of four.  <b>The total number is 1 more than a multiple of 4.</b>            In the bag there are pebbles from Ludlow and Clive,            One pebble is left if I make groups of five.  <b>The number in the ones column must be a 1 or a 6 because it is 1 more than a multiple of 5.</b></p> <p>In the bag there are pebbles from Harlow and Wix,            One pebble is left if I make groups of six.  <b>The total number is 1 more than a multiple of 6.</b>            In the bag there are pebbles from Dorset and Devon,            No pebbles are left if I make groups of seven.  <b>The total number is a multiple of 7.</b>            I have a bagful of pebbles, 400 or less.            Just exactly how many, perhaps you can guess.  <b>Therefore I must have 301 pebbles.</b></p>  