Year 4 maths – Summer 2 Week 7 beginning: 13.07.20

Theme	Formal Methods Lesson 1 of 2 Division	Formal Methods Lesson 2 of 2 Division	Word Problems Lesson 1 of 2 Addition and Subtraction	Word Problems Lesson 2 of 2 Multiplication and Division	Place Value Lesson 1 of 1
Factual fluency (to aid fluency)	**Division facts to 12**	**True or False? Division Facts**	**Subtract with up to three digits**	**True or False? Multiplication Facts**	**Identify the place value of digits**
Problem/ activity of the day **Remember, just like in class, you can still show the depth of your knowledge** LINK	**(Lesson 1 resources below)** **MAKING LINKS:** Earlier on this year, we learnt how to divide numbers using partitioning and a formal written method. Today we are going to remind ourselves how to divide two digit numbers by a one digit number. Have a look at this Making Links video before we start. **THINK: (support below)** Can you help me with this problem? Ravi brought 68 bags of sweets to the class end of Year 4 party. He wanted to share them equally into 2 boxes. How many bags of sweets will fit into each box? *If you have online parent access, this lesson is based on Textbook 4A, Chapter 4, Lesson 12.* **SEE: (model below)** You can see how to solve this problem here. **DO:** Answer the questions below.	**(Lesson 2 resources below)** **MAKING LINKS:** Yesterday, we reminded ourselves how to divide two digit by one digit numbers using a formal written method. Today we are going to practice dividing three digit numbers by one digit numbers. **THINK: (support below)** Can you help me with this problem? Ruby has 696 stickers. She wants to share them equally between Sam, Hannah and Elliott. How many stickers will Sam, Hannah and Elliott each receive? *If you have online parent access, this lesson is based on Textbook 4A, Chapter 4, Lesson 13.* **SEE: (model below)** You can see how to solve this problem here. **DO:** Answer the questions below.	**(Lesson 3 resources below)** **MAKING LINKS:** Last week, we had a go at solving word problems involving addition and subtraction. Today, we are going to consolidate our learning. **THINK (support below):** Can you help me with this problem? A baker made 2750 chocolate cookies and 1638 vanilla cookies. He sold 3195 cookies altogether. How many cookies did he have left? *If you have online parent access, this lesson is based on Textbook 4A, Chapter 2, Lesson 15.* **SEE: (model below)** Click here and scroll down to the Year 4 addition and subtraction videos to remind yourself how to use these operations successfully. **DO:** Answer the questions below.	**(Lesson 4 resources below)** **MAKING LINKS:** Yesterday we had a go at solving word problems using addition and subtraction. Today, we are going to have a go at solving word problems using multiplication and division. **THINK (support below):** Can you help me with this problem? Amira has 264 marbles. She has 6 times as many marbles as Emma has. How many marbles does Emma have? How many marbles do Amira and Emma have altogether? *If you have online parent access, this lesson is based on Textbook 4A, Chapter 4, Lesson 18.* **SEE: (model below)** Click here to see how to use the bus stop method for division. **DO:** Answer the questions below.	**(Lesson 5 resources below)** **MAKING LINKS:** In Year 4, we have been working with numbers up to 10,000. In Year 5, we will be working with numbers up to one million! We are going to remind ourselves about place value. **THINK: (support below)** Can you help me with this problem? Sam and Ruby want to buy a new house. They've seen houses of different sizes and different prices but they are not sure which house is the most expensive. Can you help them? **SEE: (model below)** Watch the lesson video here. **DO:** Answer the questions below.
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: *If you have online parent access, this lesson is based on Textbook 4A, Chapter 4, Lesson 12*

Ravi brought 68 bags of sweets to the class end of Year 4 party. He wanted to share them equally into 2 boxes. How many bags of sweets will fit into each box?

DO:

Part 1: Solve using the partitioning method.

a. 88 ÷ 4
b. 64 ÷ 2
c. 96 ÷ 3
d. 42 ÷ 2
e. 66 ÷ 6

Part 2: Solve using the bus stop method.

a. 96 ÷ 8
b. 98 ÷ 7
c. 64 ÷ 4
d. 91 ÷ 7
e. 81 ÷ 3

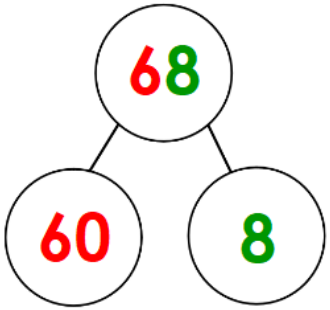
Deepening:

My friend is stuck on this question: 88 ÷ 4. Write a step-by-step guide to explain how to solve it. Use these words in your explanation: partition, divide, add, lots of, part, part-whole, tens and ones. Challenge yourself to include the key vocabulary: dividend, divisor and quotient.

SEE MAKE LINKS HERE AND WATCH THE LESSON VIDEO HERE:

METHOD 1 - PARTITIONING

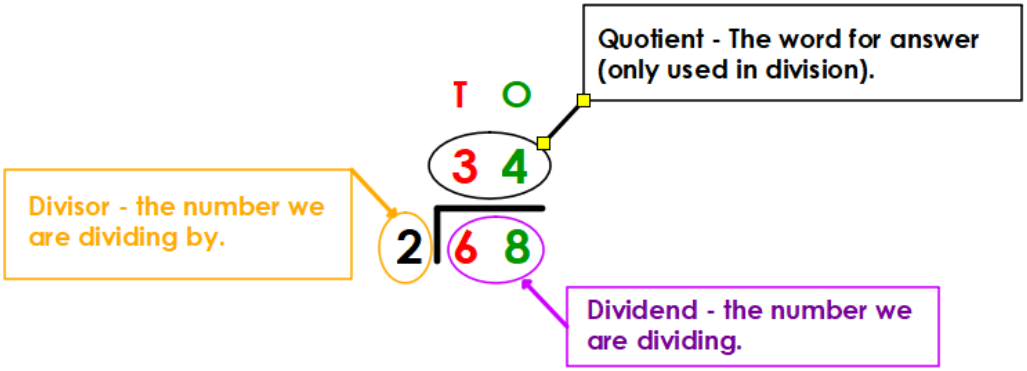
To share 68 sweets equally into 2 boxes, we need to divide 68 by 2: 68 ÷ 2. To help us, we can partition 68 into 60 and 8. This will make it easier to divide as we can divide each part separately before adding them back together.



Step 1: Divide tens **60 ÷ 2 = 30**
Step 2: Divide ones **8 ÷ 2 = 4**
Step 3: Add the quotients **30 + 4 = 34**
68 ÷ 2 = 34.

METHOD 2 – FORMAL WRITTEN METHOD (COMPACT METHOD)

Here is a reminder of the key vocabulary you will need to use when completing division calculations:

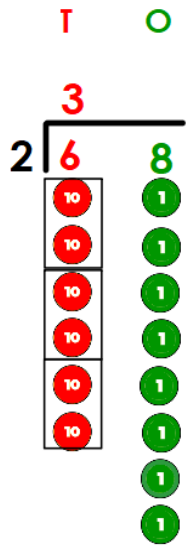


You can find interactive counters here.

Day 1 Resources SEE Continued:

With the compact method, you must ask yourself: "Can I take groups of 2 from each place?"
We are taking groups of 2 because that is the divisor in this problem.

Step 1

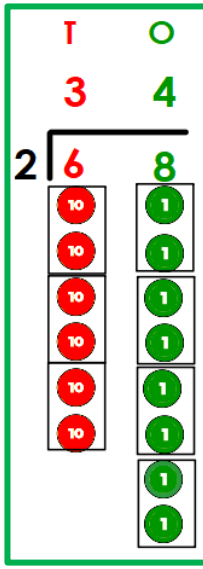


Look at the **tens** place.
Can I take **groups of 2** from the **tens** place?

I can take **3 groups of 2** from the **tens** place.

3 x 2 = 6 but remember, as we are working in the **tens** place, we are actually taking **3 groups of 20**.

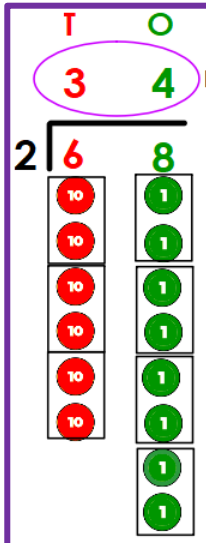
Step 2



Look at the **ones** place.
Can I take **groups of 2** from the **ones** place?

I can take **4 groups of 2** from the **ones** place.

4 x 2 = 8.



I can now see the quotient is 34.

Ravi can fit 34 sweets in equally in 2 boxes.

Day 2 Resources

THINK: *If you have online parent access, this lesson is based on Textbook 4A, Chapter 4, Lesson 13.*

Ruby has 696 stickers. She wants to share them equally between Sam, Hannah and Elliott. How many stickers will Sam, Hannah and Elliott each receive?

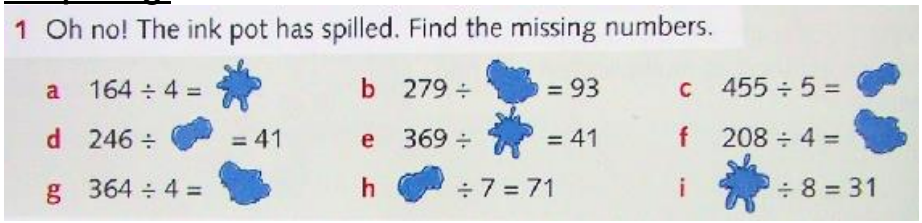
DO:

Part 1: Use both strategies to solve these division equations.

a. 448 ÷ 2
b. 996 ÷ 3
c. 486 ÷ 2
d. 884 ÷ 4
e. 862 ÷ 2
f. 969 ÷ 3
g. 484 ÷ 4
h. 884 ÷ 2
i. 696 ÷ 3
j. 848 ÷ 4

Part 2: Which strategy did you prefer to use? Write an explanation of how to use your chosen strategy for a child in Year 3. Don't forget to include the key vocabulary.

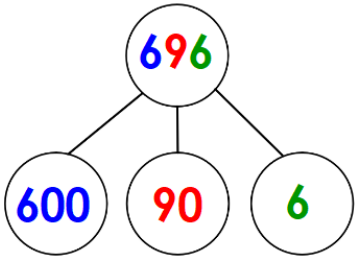
Deepening:



SEE VIDEO HERE:

METHOD 1 – PARTITIONING

To help Ruby share 696 stickers equally between Sam, Hannah and Elliott, she needs to divide 696 by 3. Her calculation will be: 696 ÷ 3. Just like yesterday, we can partition 696 into 600, 90 and 6 because this will make it easier to divide each part separately before adding the quotients back together.

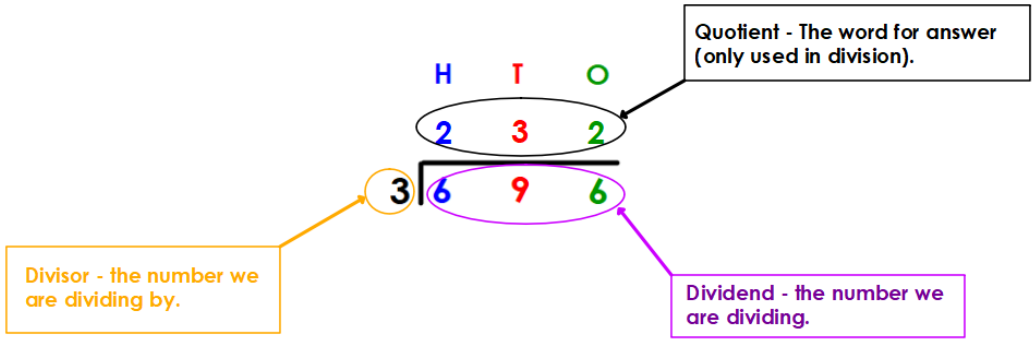


Step 1: Divide hundreds **600 ÷ 3 = 200**
Step 2: Divide tens **90 ÷ 3 = 30**
Step 3: Divide ones **6 ÷ 3 = 2**
Step 4: Add the quotients **200 + 30 + 2 = 232**

696 ÷ 3 = 232

METHOD 2 – FORMAL WRITTEN METHOD (COMPACT METHOD)

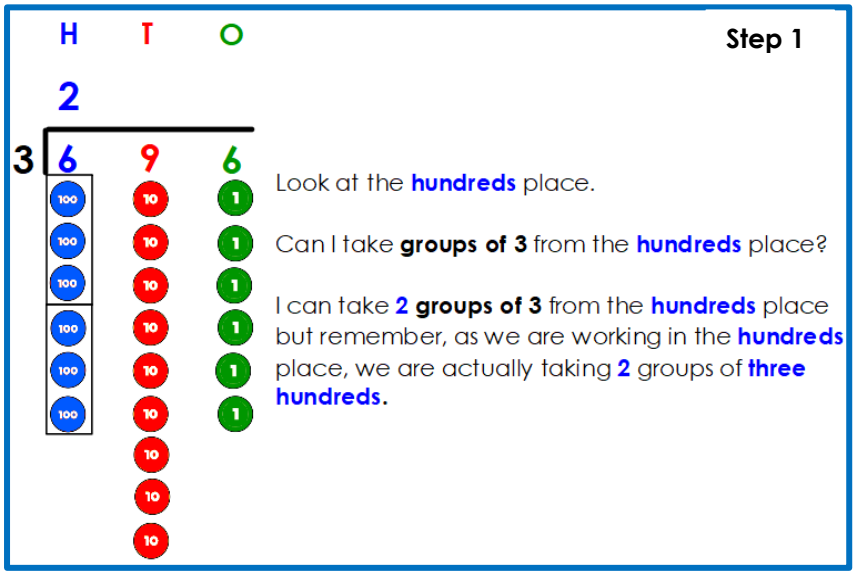
Here is a reminder of the key vocabulary that you will need to use when completing division calculations:

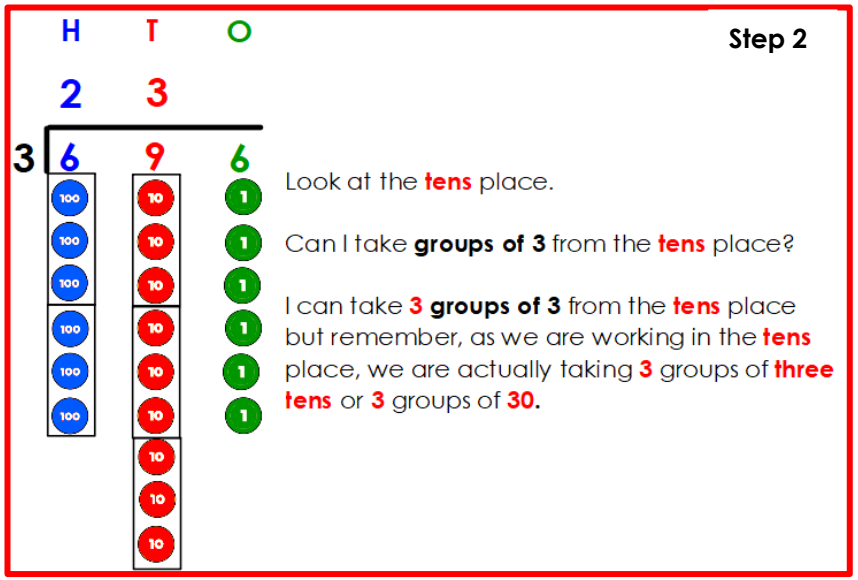


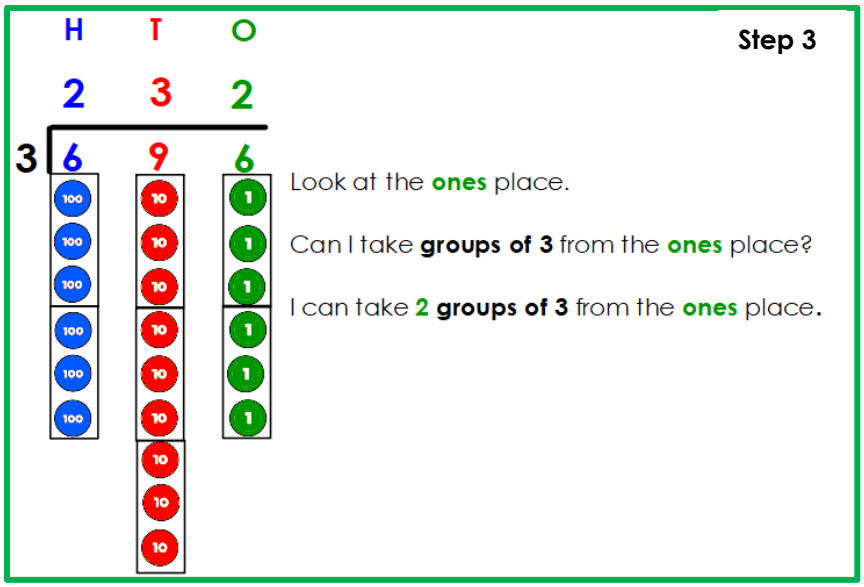
You can find interactive counters here.

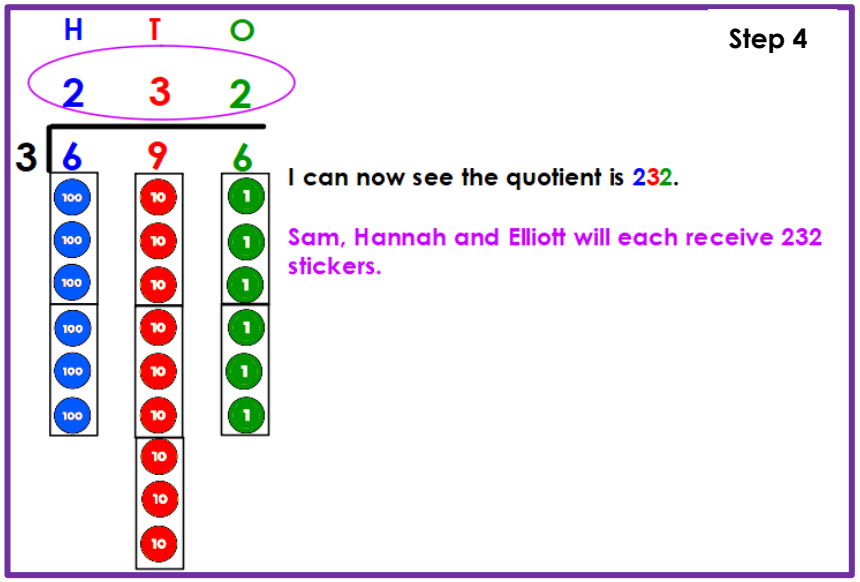
Day 2 SEE Resources Continued:

With the compact method, you must ask yourself: "Can I take groups of 3 from each place?"
We are taking groups of 3 because that is the divisor in this problem.









Day 3 Resources

THINK: *If you have online parent access, this lesson is based on Textbook 4A, Chapter 2, Lesson 15.*

A baker made 2750 chocolate cookies and 1638 vanilla cookies.
He sold 3195 cookies altogether. How many did he have left?

DO:

Solve these word problems involving addition and subtraction. Represent each stage of the calculation using a bar model and then use a formal written method to solve.

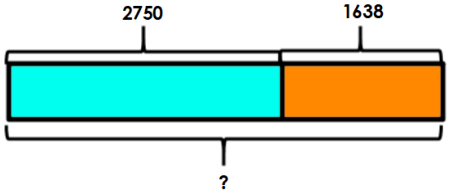
a. Out of 4820 fans watching a football match, 1884 are men, 1798 are women and the rest are children. How many children were at the match?
b. The snack stall at the football match took £3450. £890 was spent on drinks, £1650 was spent on hot food and the rest was spent on cold food. How much was spent on cold food?
c. On Saturday, 3018 people attended a funfair. 850 more people attended the funfair on Saturday than attended it on Sunday. Altogether, how many people attended the funfair over the two days?
d. There were 8000 books for sale at the school book fair. 2419 books were sold on the first day and 2398 books were sold on the second day. How many books were left at the end of the second day?
e. Phoebe and Harry are playing a new computer game. Phoebe scores 7252 on her first game. On her second game, her score increased by 599. Harry's compares the scores he received from his first and second games. He scores 3500 less than Phoebe. What is Harry's score?

Deepening:

Have a go at writing your own two step problems for your teacher or someone at home to solve! Use these words to help you: ***more***, ***fewer***, ***marbles***, ***left***, ***altogether***. Remember to check to make sure they have followed all the steps to find the correct answer!

SEE: VIDEOS HERE – scroll down for the Year 4 addition and subtraction videos.

We can represent the first part of the problem as a bar model. This will help us to see what we need to do first:

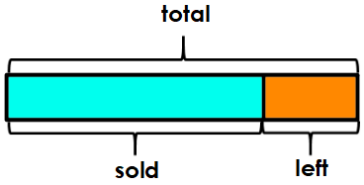


We can see from the bar model that we need to add the number of chocolate cookies to the number of vanilla cookies to find the total number of cookies that the baker made.

	TH	H	T	O
		1		
	2	7	5	0
+	1	6	3	8
	4	3	8	8

Remember to:
- Add ones
- Add tens
- Add hundreds
- Add thousands.

We can see that the baker made 4388 cookies in total. Now, we need to figure out the next part of the problem. The baker sold 3195 cookies altogether. Again, we can visualise this problem on a bar model.



We can see that now we need to subtract the number of cookies sold from the total number of cookies made.

	TH	H	T	O
		2		
	4	~~3~~	18	8
-	3	1	9	5
	1	1	9	3

Remember to:
Greatest number on top!
- Subtract ones
- Subract tens
- Subtract hundreds
- Subtract thousands.

Now we can see that the baker had 1193 cookies left.

Day 4 Resources

THINK: *If you have online parent access, this lesson is based on Textbook 4A, Chapter 4, Lesson 18.*

Amira has 264 marbles. She has six times as many marbles as Emma. How many marbles does Emma have? How many marbles do Amira and Emma have altogether?

DO:

Solve these word problems involving multiplication and division. Represent each stage of the calculation using a bar model and then use a formal written method to solve.

a. A 44cm ribbon is cut into two pieces so that one piece is 3 times as long as the other. What is the length of the shorter piece?

b. There are 156 sheep on a farm. The farm has three times as many cows as sheep. How many cows are on the farm?

c. A farmer picked 173 apples on Monday. On Tuesday, he picked three times as many apples as he did on Monday. How many apples did the farmer pick altogether on the two days?

d. There are five times as many boys as girls in a school. Together the school has 810 pupils. How many boys are there?

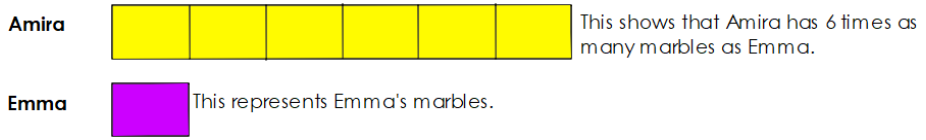
e. There are six lollies in a packet. A teacher buys 25 packets and divides them equally among her pupils. Each pupil gets four lollies and there are 22 lollies left over. How many pupils are there altogether?

Deepening:

Write your own word problem for someone at home or your teacher to solve. Make sure your word problem involves division and multiplication! When you have finished, write an explanation (and use diagrams) to prove that the answer is correct.

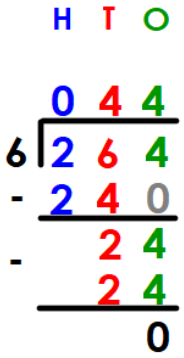
SEE:

Let's represent the problem using a bar model.



First, we need to find out how many marbles Emma has. We know that Amira has 264 marbles and she has six times as many as Emma. We need to find out what one part of Amira's bar model is worth because then we can find out how much Emma's part is worth.

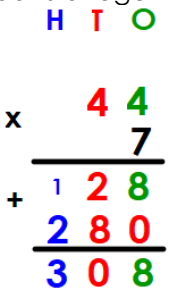
Amira has 264 marbles so we need to divide this amount by 6 as she has 6 times as many marbles as Emma.



When we divide 264 by 6, we can see that there are equal groups of 44.
Therefore, Emma has 44 marbles.

VIDEO HERE to see how to use the bus stop method of division to solve this problem.

Now we know that Emma's part is worth 44 marbles, we need to calculate how many marbles Amira and Emma have altogether. We need to multiply 44 by 7 because between them, Emma and Amira's bar models are made up of 7 parts altogether.



We can see that Emma and Amira had 308 marbles altogether.

Day 5 Resources

THINK:

Sam and Ruby want to buy a new house. They've seen three houses that they like, but they are not sure which house is the most expensive. Can you help them?

£572,750

£581,425

£561,500

DO:

Part 1: Use the place value chart below. What is the value of the digit 4 in each of these numbers?

a. 376, 984
b. 642, 311
c. 834, 263
d. 417, 677
e. 109, 540
f. 583, 428

Part 2: Write these amounts in words.

a. 376, 984
b. 642, 311
c. 834, 263
d. 417, 677
e. 109, 540
f. 583, 428

Part 3: Write these amounts in numbers.

a. Four hundred and thirty three thousand, six hundred and twenty one.
b. Two hundred and sixty two thousand, four hundred and ninety eight.
c. Five hundred and eighty one thousand, three hundred and seventy six.
d. One hundred thousand, five hundred and nine,

SEE: VIDEO HERE

We can use a place value chart to help Sam and Ruby find out which of the three houses are the most expensive. We can see that each of the numbers is a six digit number, so our place value chart will need to have six places.
Sam and Ruby use this place value chart to help, by writing the digits from the prices on to their chart. They start with House 1.

Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones
100,000	10,000	1000	100	10	1
5	7	2	7	5	0

Five hundred and seventy two thousand , seven hundred and fifty pounds

£ 572 , 750

They do the same for House 2.

Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones
100,000	10,000	1000	100	10	1
5	8	1	4	2	5

Five hundred and eighty one thousand , four hundred and twenty five pounds

£ 581 , 425

Finally, they use their place value chart to find out how much House 3 is.

Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones
100,000	10,000	1000	100	10	1
5	6	1	5	0	0

Five hundred and sixty one thousand , five hundred pounds

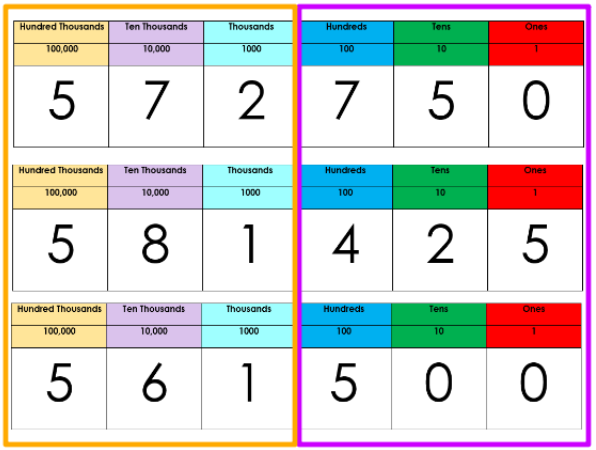
£ 561 , 500

e. Eight hundred thousand, eight hundred.

Deepening:

Elliott and Amira are using calculators to play a game of 'Place Invaders'. Amira uses the calculator to key in the number 234, 658. Elliott challenges Amira to change the 4 in her number into a 9.

By changing the 4 into a 9, what has Amira done to her number? Write an explanation to describe what Amira has done and how her number has changed. Remember to use your knowledge of place value in your description.



Sam and Ruby can check which is the most expensive house by comparing the digits.

They start in the **hundred thousands** place because this is the highest value. As all the digits in the **hundred thousands** place are all 5, they look at the next highest value which is the **ten thousands** place.

They can see that House 2 has the highest value digit in the **ten thousands** place.

Therefore, Sam and Ruby can see that House 2 is the most expensive.

You might have noticed that the six digit numbers have commas in them. This is to help Ruby and Sam read them accurately. A comma is used after every three places:

Five hundred and seventy two thousand , seven hundred and fifty

£**572 , 750**

Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones
100,000	10,000	1000	100	10	1
5	7	2	7	5	0

By using their place value chart to find out the value of each digit in the six digit number, Ruby and Sam are able to see that House 2 is the most expensive and House 3 is the least expensive. Which one do you think they should buy?

ANSWERS:

DAY 1	DAY 2	DAY 3	DAY 4	DAY 5
Part 1: **a.** 22 **b.** 32 **c.** 32 **d.** 21 **e.** 11 **Part 2:** **a.** 12 **b.** 14 **c.** 16 **d.** 13 **e.** 27 **Deepening:** Answers will vary but should include the key vocabulary. Send to your teacher for checking.	**Part 1:** **a.** 224 **b.** 332 **c.** 243 **d.** 221 **e.** 431 **f.** 323 **g.** 121 **h.** 442 **i.** 232 **j.** 212 **Part 2:** Share your written explanation with your teacher. Make sure you have included the key vocabulary: dividend, divisor and quotient. **Deepening:** a. 41 b. 3 c. 91 d. 6 e. 9 f. 52 g. 91 h. 497 i. 248	Make sure you have drawn a bar model and used a formal written method to help you solve today's problems. **a.** 1138 were children. **b.** £910 was spent on cold food. **c.** 5186 people attended the funfair over the two days. **d.** 3183 books were left at the end of the second day. **e.** Harry's score is 4351. **Deepening:** Your answer must include the key vocabulary from the problem. Send to your teacher for checking.	Make sure you have drawn a bar model and used a formal written method to help you solve today's problems. **a.** The shorter piece is 11cm in length. **b.** There are 468 cows on the farm. **c.** The farmer picked 692 apples on both days. **d.** There are 675 boys in the school. **e.** There are 32 pupils altogether. **Deepening:** Make sure you have included diagrams to show how to solve your problems. Send to your teacher for checking.	**Part 1 :** **a.** 4 **b.** 40,000 or forty thousand. **c.** 4000 or four thousand. **d.** 400,000 or four hundred thousand. **e.** 40 or forty. **f.** 400 or four hundred. **Part 2 :** **a.** Three hundred and seventy six thousand, nine hundred and eighty four. **b.** Six hundred and forty two thousand, three hundred and eleven. **c.** Eight hundred and thirty four thousand, two hundred and sixty three. **d.** Four hundred and seventeen thousand, six hundred and seventy seven. **e.** One hundred and nine thousand, five hundred and forty.

				f. Five hundred and eighty three thousand, four hundred and twenty eight. **Part 3 :** a. 433, 621 b. 262, 498 c. 581, 376 d. 100,509 e. 800,800 **<u>Deepening:</u>** Amira could have solved her problem in two ways: She could have subtracted 4000 and added 9000 or she could have taken 4000 and added 5000 to make 9000. The number has changed from 234, 658 into 239, 658 because the value of the digit in the thousands place has changed from 4000 to 9000.