Division – understanding of dividing by 10, 100 and 1000.

Objective: I can divide amounts by 10, 100 and 1000.

NC: NMD 7: multiply and divide whole numbers and those involving decimals by 10, 100 and 1000.

Teacher Input Ideas:

Before teaching strategies for mental and written division, you want to ensure that children can use knowledge of place value to divide by 10, 100, 1000 etc.

Assessment task: Place these questions on to the board or read aloud, giving the children about 5 to 10 seconds for each one.

1) $70 \div 10$
2) $1500 \div 100$
3) $400 \div 10$
4) $2500 \div 1000$
5) $7 \div 10$
6) $16 \div 100$
7) $179 \div 100$
8) $6.9 \div 10$
9) $12.09 \div 10$
10) $0.9 \div 100$

From these questions and the children's explanations, group the children using their needs and select activities based on these.

When the children are explaining, ensure that they use the correct terminology to explain and that they show understanding that the digits move columns. Encourage the children to see the link between dividing by 10, then 100 and then 1000. Why do the digits move columns? When is a decimal created? Why?

Explain how our number system works by grouping in ten and this is why when we divide by ten all of the digits can move one place to the right. Encourage the children to explain that when we divide by 100, they then move one more time. Why do the digits move 2 columns when dividing by 100?

Encourage the children to model and explain their understanding of place value, including numbers that contain zeroes already and decimal amounts. The green resource sheet provided may want be used whilst modelling and some children will benefit from having their own copy of this to join in.

hundreds of thousands	tens of thousands	thousands	hundreds	tens	ones	tenths	hundredths	thousandths

Practice Activities

Purple Practice: most suited for children who have little understanding of dividing by 10, 100 and 1000 or have made several errors in Q1-5 in the mini assessment at the start of the lesson.

For the purple activity the children are given whole amounts to divide by 10, 100 or 1000 to develop their understanding of place value and what happens when we divide by 10,100 and 1000. They have 3 blocks so that they can work out divide by 10 first, then 100 and then 1000 so that they can see what happens to the number each time and develop their understanding as to why the digits move that many places. Additionally, the children may want to use the place value chart provided in the green activity to help explain what is happening to the digits. If children are finding this difficult then they can work out only the divide by 10 and 100 columns.

Green Practice: most suited for children who have understanding of dividing whole numbers by 10, 100 and 1000, however made errors in Q6- 10 when creating decimal amounts or dividing amounts with decimals already present.

The green activity is laid out the same as the purple activity, however the amounts the children are provide with either contain decimal amounts or create decimal amounts when divided by 10, 100 and 1000. The children can also use the support sheet in the green task if they are finding this tricky.

Answers:

Purple :

1) 30, 000	3000	300	30
2) 4000	400	40	4
3) 63000	6300	630	63
4) 3600	360	36	3.6
5) 200	20	2	0.2
6) 10	1	0.1	0.01
7) 15	1.5	0.15	0.015
8) 7	0.7	0.07	0.007

Green :

1) 300	30	3	0.3
2) 6329	632.9	63.29	6.329
3) 42361	4236.1	423.61	42.361
4) 229	22.9	2.29	0.229
5) 16	1.6	0.16	0.016
6) 8	0.8	0.08	0.008
7) 0.12	0.012	0.0012	0.00012
8) 12.3	1.23	0.123	0.0123
9) 163.68	16.368	1.6368	0.16368
10) 0.5	0.05	0.005	0.0005

Yellow :

0.3 ÷ 10 = 0.03

67 ÷ 100 = 0.67

0.05 ÷ 10 = 0.005

28 ÷ 1000= 0.028

652 ÷ 100= 6.52

0.02 ÷ 100= 0.0002

3 ÷ 10= 0.3

8 ÷ 100= 0.08

4 ÷ 1000 = 0.004

63000 ÷ 10 = 6300

462 ÷ 10 = 46.2
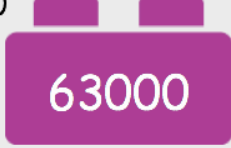
52.4 ÷ 100 = 0.524

501 ÷ 1000 = 0.501

Mastery:

Children to show understanding of when amounts end in a zero and when they end in digits how this can change the place value when dividing by 10 and 100.

BRICKWORK Mathematics

Purple Activity

LO: I can divide by 10, 100 and 1000.

Look at the amount in the pink block. Divide each amount by 10, 100 and 1000.

	÷10	÷100	÷1000
1) 30000			
2) 4000			
3) 63000			
4) 3600			
5) 200			
6) 10			
7) 15			
8) 7			

Look at the amount in the yellow block. Divide each amount by 10, 100 and 1000.

	÷10	÷100	÷1000
1) 300			
2) 6329			
3) 42361			
4) 229			
5) 16			
6) 8			
7) 0.12			
8) 12.3			
9) 163.68			
10) 0.5			

Green Practice

Resource sheet

thousandths	hundredths	tenths	ones	tens	hundreds	thousands	tens of thousands	hundreds of thousands

Select a block at a time and find the answer.

0.3 ÷ 10

0.05 ÷ 10

67 ÷ 100

28 ÷ 1000

652 ÷ 100

0.02 ÷ 100

3 ÷ 10

8 ÷ 100

4 ÷ 1000

63000 ÷ 10

462 ÷ 10

52.4 ÷ 100

501 ÷ 1000

Challenge: Explain to a friend how to divide by 10,100 and 1000.

BRICKWORK
Mathematics

Find an example of a number for each statement:

When a 2 digit number is divided by 10 it still creates a whole number.

When a 2 digit number is divided by 10 it creates a number to one decimal place.

When a 3 digit number is divided by 10 it creates a number to one decimal place.

When a 3 digit number is divided by 10 it still creates a whole number.

When a 3 digit number is divided by 100 it creates a number with 2 decimal places.

When a 3 digit number is divided by 100 it creates a number to one decimal place.