Lesson 1 for children

Jack has used a Gattegno chart to divide a 2-digit number by 10
He has placed counters over the numbers in his answer.

100	200	300	400	500	600	700	800	900
10	20	30	40	50	60	70	80	90
1	⬤	3	4	5	6	7	8	9
0.1	0.2	0.3	0.4	0.5	⬤	0.7	0.8	0.9
0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09

What was Jack's original number?
How can you use the chart to help you?

Dexter says,

When I divide a 2-digit number by 10, my answer will always have digits in the ones and tenths columns.

Show that Dexter is incorrect.

Lesson 1 with answers

Jack has used a Gattegno chart to divide a 2-digit number by 10
He has placed counters over the numbers in his answer.

100	200	300	400	500	600	700	800	900
10	20	30	40	50	60	70	80	90
1	⬤	3	4	5	6	7	8	9
0.1	0.2	0.3	0.4	0.5	⬤	0.7	0.8	0.9
0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09

What was Jack's original number?
How can you use the chart to help you?

Jack's original number was 26
You can move each counter up one to multiply them by 10, which is the inverse to division.

Dexter says,

When I divide a 2-digit number by 10, my answer will always have digits in the ones and tenths columns.
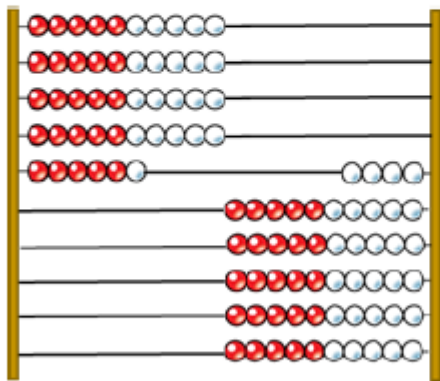
Show that Dexter is incorrect.

Children should give an example of when Dexter is incorrect.
For example, when you divide 80 by 10, the answer is 8 so there does not need to be anything in the tenths column.

Here is a Rekenrek made from 100 beads.

If the Rekenrek represents one whole, what fractions have been made on the left and on the right?

Can you partition both of the fractions into tenths and hundredths?

Complete the statements.

3 tenths and 2 hundredths = 2 tenths and ☐ hundredths

14 hundredths and 3 tenths = 4 tenths and ☐ hundredths

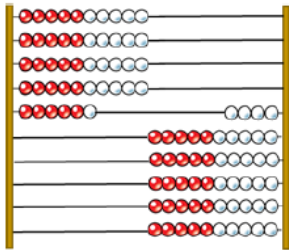5 tenths and 1 hundredth < 5 tenths and ☐ hundredths

5 tenths and 1 hundredth > ☐ tenths and 5 hundredths

Can you list all the possibilities?

Lesson 2 with answers

Here is a Rekenrek made from 100 beads.

If the Rekenrek represents one whole, what fractions have been made on the left and on the right?

Can you partition both of the fractions into tenths and hundredths?

On the left, there are 46 hundredths, this is equivalent to 4 tenths and 6 hundredths.
On the right, there are 54 hundredths, this is equivalent to 5 tenths and 4 hundredths.

Children could also explore hundredths using a 100 bead string.

Complete the statements.

3 tenths and 2 hundredths = 2 tenths and ☐ hundredths

14 hundredths and 3 tenths = 4 tenths and ☐ hundredths

5 tenths and 1 hundredth < 5 tenths and ☐ hundredths

5 tenths and 1 hundredth > ☐ tenths and 5 hundredths

Can you list all the possibilities?

12

4

Anything more than 1

0, 1, 2, 3 or 4

Lesson 3 for children

Alex and Eva have been asked to write the decimal shaded on the 100 grid.

Dora says,

17 hundredths is the same as 1,700

Is she correct?
Explain your answer.

Alex says the grid shows 0.70
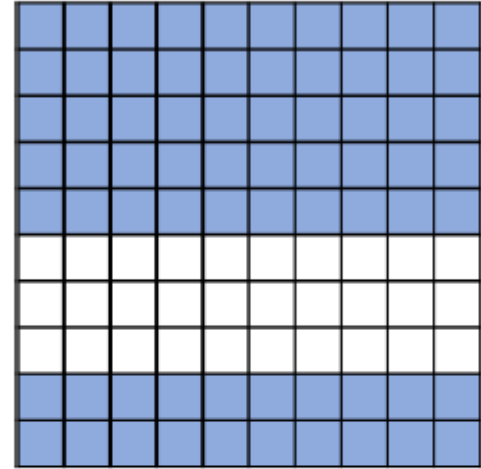
Eva says the grid shows 0.7

Who do you agree with?

Explain your answer.

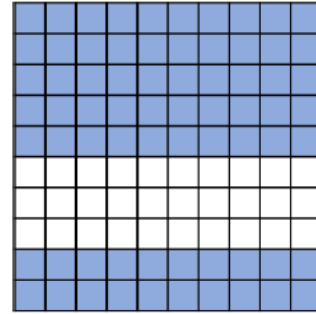# Lesson 3 with answers

Dora says,

17 hundredths is the same as 1,700

Is she correct?
Explain your answer.

Dora is wrong as she has mistaken hundredths for hundreds.

Alex and Eva have been asked to write the decimal shaded on the 100 grid.

Alex says the grid shows 0.70

Eva says the grid shows 0.7

Who do you agree with?

Explain your answer.

They are both correct.
The grid shows 70 hundredths or 7 tenths and this is what Alex and Eva have given as their answers.
In Alex's answer the 0 in the hundredths column isn't needed as it is not a place holder and doesn't change the value of the number.

Lesson 4 for children

Use four counters and a place value grid. Place all four counters in either the ones, tenths or hundredths column.
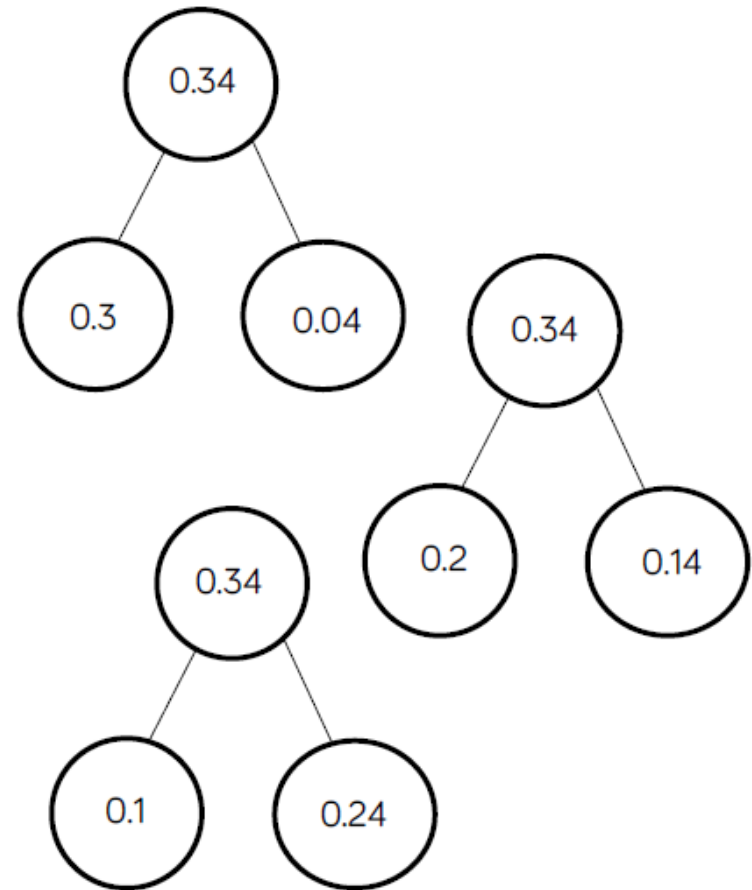
How many different numbers can you make?

Describe the numbers you have made by completing the sentences.

There are ☐ ones, ☐ tenths and ☐ hundredths.

☐ ones + ☐ tenths + ☐ hundredths = ☐

Ron says he can partition 0.34 in more than one way.

Use Ron's method to partition 0.45 in more than one way.

Lesson 4 with answers

Use four counters and a place value grid. Place all four counters in either the ones, tenths or hundredths column.

How many different numbers can you make?

Describe the numbers you have made by completing the sentences.

There are ☐ ones, ☐ tenths and ☐ hundredths.
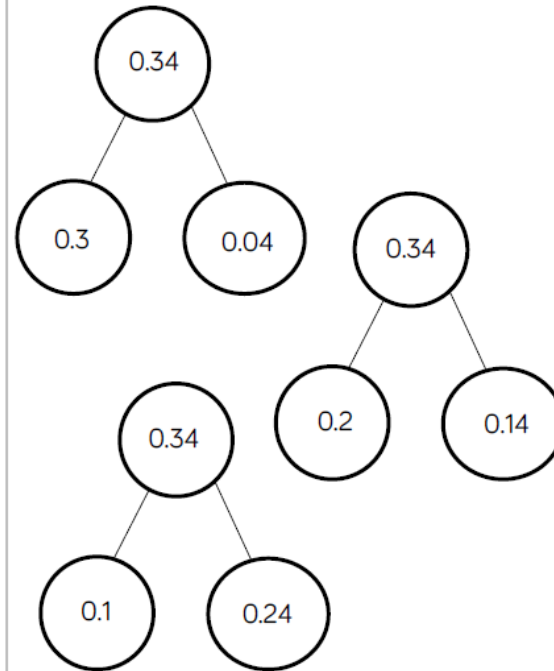
☐ ones + ☐ tenths + ☐ hundredths = ☐

Children can either make:
4, 3.1, 3.01, 2.2, 2.11, 2.02, 1.3, 1.21, 1.12, 1.03, 0.4, 0.31, 0.22, 0.13, 0.04

e.g. There are 2 ones, 0 tenths and 2 hundredths.

2 ones + 0 tenths + 2 hundredths = 2.02

Ron says he can partition 0.34 in more than one way.

Use Ron's method to partition 0.45 in more than one way.

Children may partition 0.45 into:
0 tenths and 45 hundredths
1 tenth and 35 hundredths
2 tenths and 25 hundredths
3 tenths and 15 hundredths
4 tenths and 5 hundredths

Other ways of partitioning are possible.

Describe the pattern.

$$7,000 \div 100 = 70$$
$$700 \div 100 = 7$$
$$70 \div 100 = 0.7$$
$$7 \div 100 = 0.07$$

Can you complete the pattern starting with 5,300 divided by 100?

Teddy says,

45 divided by 100 is 0.45 so I know 0.45 is 100 times smaller than 45

Mo says,

45 divided by 100 is 0.45 so I know 45 is 100 times bigger than 0.45

Who is correct?
Explain your answer.

Lesson 5 with answers

Describe the pattern.

$$7{,}000 \div 100 = 70$$
$$700 \div 100 = 7$$
$$70 \div 100 = 0.7$$
$$7 \div 100 = 0.07$$

Can you complete the pattern starting with 5,300 divided by 100?

Children will describe the pattern they see e.g. 7,000 is 10 times bigger than 700, therefore the answer has to be 10 times bigger as the divisor has remained the same.

For 5,300:
$$5{,}300 \div 100 = 53$$
$$530 \div 100 = 5.3$$
$$53 \div 100 = 0.53$$
$$5.3 \div 100 = 0.053$$

Teddy says,

45 divided by 100 is 0.45 so I know 0.45 is 100 times smaller than 45

Mo says,

45 divided by 100 is 0.45 so I know 45 is 100 times bigger than 0.45

Who is correct?
Explain your answer.

Teddy and Mo are both correct. Children may use a place value chart to help them explain their answer.