Bronze

1a. 0.42; 0.59
2a. 0.78
3a. 0.25 + 0.002 = 0.27
4a. False; 0.52 + 0.02 = 0.54

1b. Rowan is incorrect. He has added the two digits but not realised that the 5 is 5 hundredths and the 1 is 1 tenth so the answer should be 0.15.

2b.

	corrections
0.0 3 + 0.4 6 = 0.5 3	0.4 9
0.1 5 + 0.4 = 0.2	0.5 5
0.0 4 + 0.0 7 = 0.7 4	0.1 1
0.3 7 + 0.4 2 = 0.7 9	✓
0.8 5 + 0.0 1 = 0.9 5	0.8 6

3b. 0,2; 1,3; 2,4; 3,5; 4,6; 5,7

Silver

4b. Grace is incorrect. If the value in the tenths column is greater than 9, then you need to exchange and carry over into the ones column, so your answer would be 1 or more.

5b.

	corrections
0,9 7 1 + 0,0 0 9 = 0,9 8	✓
0,7 6 + 0,0 7 3 = 1,4 9	0,8 3 3
0,7 4 8 + 0,1 4 3 = 0,8 8 1	0,8 9 1
0,6 2 8 + 0,3 0 4 = 0,9 1 2	0,9 3 2
0,2 0 5 + 0,1 9 8 = 0,3 0 3	0,4 0 3

5a. 0.243; 0.257
6a. 0.561
7a. 0.36 + 0.45 = 0.81
8a. True

6b. 7,0; 8,1; 9,2 and 1,9

Gold

7b. Danny is correct. This is because the sum of 0.5 + 0.5 = 1 so if we increase either of the numbers, even by one thousandth, the number will always be larger than 1. For example: 0.5 + 0.5001 = 1.001

8b.

	corrections
0,4 8 4 + 0,1 5 9 = 0,5 3 4	0,6 4 3
0,2 6 3 + 0,0 0 9 = 0,2 7 2	✓
0,1 5 2 + 0,7 0 9 = 0,8 1 1	0,8 6 1
0,6 2 1 + 0,1 7 8 = 0,8 9 9	0,7 9 9
0,1 5 + 0,0 2 9 = 0,0 4 4	0,1 7 9

9a. 0.262; 0.446
10a. 0.92
11a. 0.42 + 0.49 = 0.91
12a. False; 0.134 + 0.789 = 0.923

9b. 2,5

Challenge

1. Two factories produce chocolate biscuits. Their output for the year is listed below. Complete the missing values in the table.

	Factory 1	Factory 2
April – June	0.345m	278,000
July – September	197,000	0.113m
October – December	143,000	178,000
January – March	0.224m	0.419m
Total	0.909m	0.988m

What questions can you ask about this information? Find the answers to your questions in decimals.

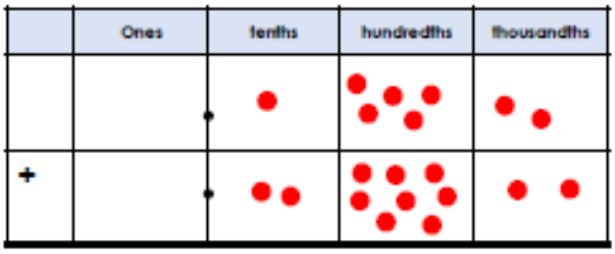
Various answers, for example:

How many biscuits were made between October and March in Factory 2? 0.597m

Which factory made the most biscuits between April and September? Factory 1: 0.542m.

2. If the calculation below includes one exchange, how many counters do you need to complete it? How many different ways can you complete it?

You will always need 20 counters for one exchange. Children may prove this in various ways, for example:



If the calculation below includes two exchanges, how many counters do you need to complete it? How many different ways can you complete it?

You will always need 29 counters for two exchanges. Children may prove this in various ways, for example: