Lockdown Learning - DT	
Date	<u>14.1.21</u>
Subject/s	<u>Maths</u>
Learning Objective	To find decimal complements to 1 whole

		SA	TA
Success Criteria ✔! ▤	I can use my number bonds to ten		
	I can find complements to one using numbers with 2 decimal places		
	I can find complements to one using numbers with 3 decimal places		
Support	Independent Adult Support ( ) Group Work		

<u>**Pre-task**</u>

Fill in the blanks.

$0.81 + \boxed{} = 1$

$0.13 + \boxed{} = 1$

Fill in the blanks.

$0.067 + \boxed{} = 1$

$0.284 + \boxed{} = 1$

0.81 + 0.19 = 1   0.067 + 0.933 = 1
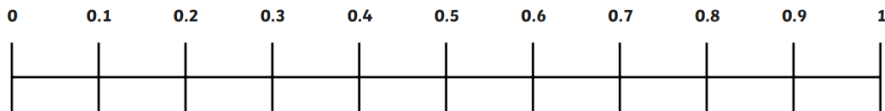
0.13 + 0.87 = 1   0.284 + 0.716 = 1

Teacher Led

Firstly for today's lesson, you will need to use your number bonds to ten.

Write them down – I have started them for you.

1 + 9 = 10

2 + 8 = 10

Now look at this bar model. It shows tenths. Each piece is one tenths or 0.1

I have shaded 3 tenths blue and 7 tenths red. This makes a whole one.

It shows 0.3 + 0.7 = 1

I can also use a decimal number line to count on.

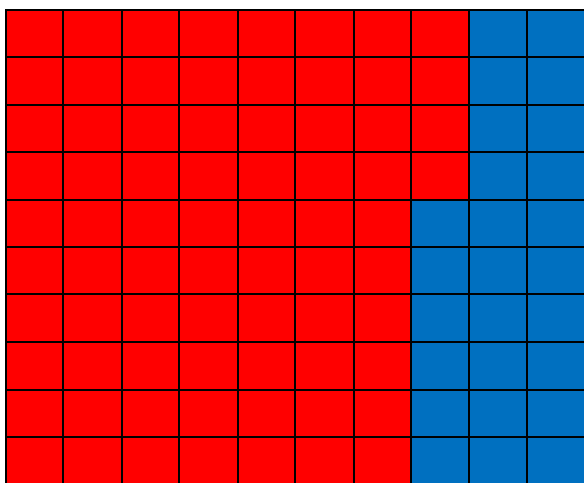The next bar model shows 6 tenths red and 4 tenths blue.

0.6 + 0.4 = 1

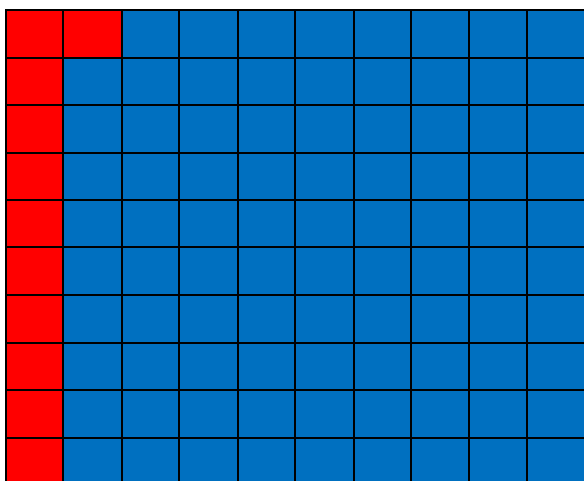I could also write this as a subtraction

1 – 0.6 = 0.4 or 1 – 0.4 = 0.6

This one shows

0.9 + 0.1 = 1 or 0.1 + 0.9 = 1

1 – 0.9 = 0.1 or 1 – 0.1 = 0.9

Ones		1/10	1/100
0	•	6	4
0	•	3	6

Ones		1/10	1/100
0	•	1	1
0	•	8	9

So far we've looked at numbers with one decimal place (one digit after the decimal point).

Now let's look at numbers with 2 decimal places.

Here you can see a hundred square. Our decimals will need to total 100.

I've shaded 64 squares red and 36 squares blue.

64 hundredths and 36 hundredths make one whole.

0.64 + 0.36 = 1   or   0.36 + 0.64 = 1

1 – 0.64 = 0.36   or   1 – 0.36 = 0.64

If we look on a place value grid – I can see that the hundredths add up to 10, the tenths up to 9.

Here is another example.

0.11 + 0.89 = 1   or   0.89 + 0.11 = 1

1 – 0.11 = 0.89   or   1 – 0.89 = 0.11

Again, the hundredths add up to 10 and the tenths add up to 1.

Ones	•	1/10	1/100	1/1000
0	•	0	8	5
0	•	9	1	5

Ones	•	1/10	1/100	1/1000
0	•	3	6	8
0	•	6	3	2

Now let's look at numbers with 3 decimal places. The decimals will need to total 1000.

This time the thousandths add up to 10, the hundredths add up to 9 and the tenths add up to 9.

0.085 + 0.915 = 1   or   0.915 + 0.085 = 1

1 – 0.085 = 0.915   or   1 – 0.915 = 0.085

Here is another example

0.368 + 0.632 = 1   or   0.632 + 0.368 = 1

1 – 0.368 = 0.632   or   1 – 0.632 = 0.368

Fluency

A)
1) 0.1 + ? = 1
2) 0.7 + ? = 1
3) 05. + ? = 1
4) 1 - ? = 0.2
5) 1 - ? = 0.4
6) 1 - ? = 0.9
7) 0.35 + ? = 1
8) 0.75 + ? = 1
9) 0.26 + ? = 1
10) 0.83 + ? = 1

B)
1) 0.26 + ? = 1
2) 0.83 + ? = 1
3) 0.45 + ? = 1
4) ? + 0.79 = 1
5) ? + 0.12 = 1
6) ? + 0.64 = 1
7) 0.37 + ? = 1
8) 0.91 + ? = 1
9) 0.08 + ? = 1
10) ? + 0.53 = 1

C)
1) 0.625 + ? = 1
2) 0.185 + ? = 1
3) 0.935 + ? = 1
4) 1 - ? = 0.813
5) 1 – ? = 0.092
6) 1 - ? = 0.274
7) 0.751 + ? = 1
8) 0.569 + ? = 1

Fluency Answers

A)
1) 0.1 + 0.9 = 1
2) 0.7 + 0.3 = 1
3) 05. + 0.5 = 1
4) 1 − 0.8 = 0.2
5) 1 − 0.6 = 0.4
6) 1 − 0.1 = 0.9
7) 0.35 + 0.65 = 1
8) 0.75 + 0.25 = 1
1) 0.26 + 0.74 = 1
2) 0.83 + 0.17 = 1

B)
1) 0.26 + 0.74 = 1
2) 0.83 + 0.17 = 1
3) 0.45 + 0.54 = 1
4) 0.21 + 0.79 = 1
5) 0.88 + 0.12 = 1
6) 0.36 + 0.64 = 1
7) 0.37 + 0.63 = 1
8) 0.91 + 0.09 = 1
9) 0.08 + 0.92 = 1
10) 0.47 + 0.53 = 1

C)
1) 0.625 + 0.375 = 1
2) 0.185 + 0.815 = 1
3) 0.935 + 0.065 = 1
4) 1 − 0.187 = 0.813
5) 1 − 0.908 = 0.092
6) 1 − 0.726 = 0.274
7) 0.751 + 0.249 = 1
8) 0.569 + 0.431 = 1

$$0.333 + \boxed{} = 1$$

I think the answer is 0.777
because
$$0.3 + 0.7 = 1$$
$$0.03 + 0.07 = 0.1$$
$$0.003 + 0.007 = 0.01$$

Do you agree with Tommy?
Can you explain what his mistake was?

Explain it!

How many different ways can you find a path through the maze, adding each number at a time, to make a total of one?

Use it!

Start →							
0.02	0.01	0.05	0.08	0.3	0.04	0	0.001
0.2	0.06	0.07	0.09	0.001	0.004	0.02	0.04
0.005	0.04	0.2	0.02	0.05	0.06	0.07	0.6
0.5	0.005	0.05	0.02	0.03	0.017	0.006	0.06
0.009	0.8	0.001	0.05	0.015	0.01	0.008	0.007
0.09	0.2	0.08	0.03	0.199	0.01	0.04	0.05
0.01	0.008	0.1	0.09	0.005	0.08	0.02	0.02
0.05	0.03	0.01	0.22	0.07	0.003	0.04	0.09 → 1

Once you have found a way, can you design your own smaller maze for others to solve?

Tommy has forgotten that when you have ten in a place value column you need to use your rules of exchanging.

e.g.
10 tenths = 1 one
10 hundredths = 1 tenth
10 thousandths = 1 hundredth

The correct answer is 0.667

0.02	0.01	0.05	0.08	0.3	0.04	0	0.001
0.2	0.06	0.07	0.09	0.001	0.004	0.02	0.04
0.005	0.04	0.2	0.02	0.05	0.06	0.07	0.6
0.5	0.005	0.05	0.02	0.03	0.017	0.006	0.06
0.009	0.8	0.001	0.05	0.015	0.01	0.008	0.007
0.09	0.2	0.08	0.03	0.199	0.01	0.04	0.05
0.01	0.008	0.1	0.09	0.005	0.08	0.02	0.02
0.05	0.03	0.01	0.22	0.07	0.003	0.04	0.0?

Further Challenge

1. Work out the value of the shapes below. Write each answer to 3dp.

▲ + ★ + ▲ = 1

★ + ▲ + ⬠ + ⬠ = 1

▲ + ▲ + ▲ + ▲ = 1

What decimals could the shapes below represent? How many answers can you find?

● + ⬡ + ⬡ + ⬡ + ⬡ + ● = 1