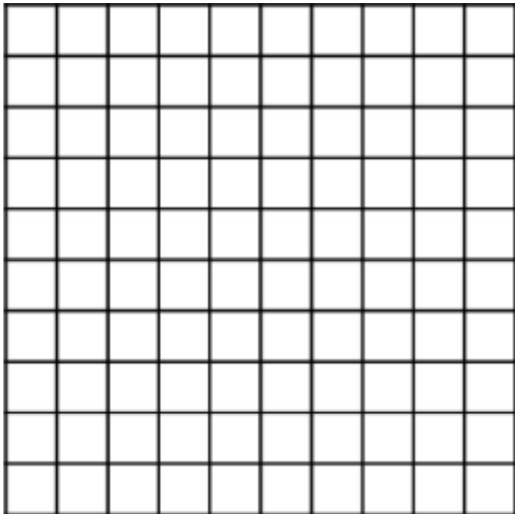


Session One - Complements to 1

In this session you will find the complements which sum to make 1.

1. Write down all of the number bonds (complements) to 10.
2. How does the number bonds to 10 help you with the number bonds to 1?
3. Using the blank 100 square below, where each square represents one hundredth, find the complements to 1 for these numbers.



a) $0.55 + ? = 1$

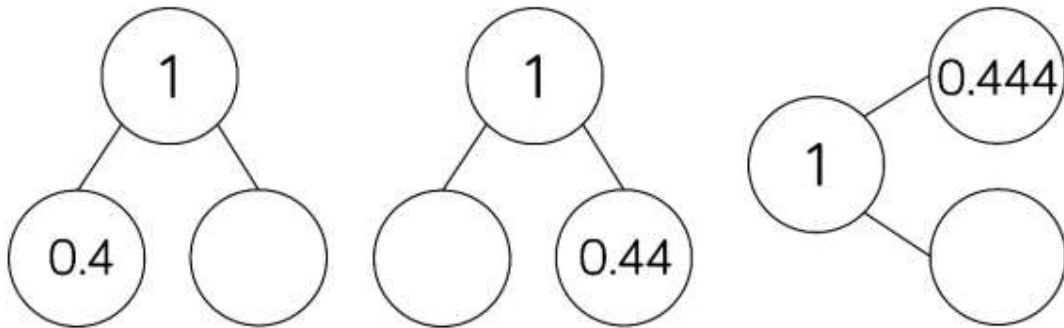
b) $1 = 0.32 + ?$

c) $0.11 + 0.5 + ? = 1$

d) How does using the blank 100 square grid help you?

4. Complete the part-whole models below.

a)



b) Can you come up with 3 more of your own part-whole models?

5. Use the number line to find the complements to 1.

a) 0.324 ————— 1

b) 0.459 ————— 1

(draw your own number lines for the below)

c) 0.656

d) 0.764

e) 0.233

6. How many complements to 1 can you write in 3 minutes?

Session Two - Adding Decimals

In this session you will be adding decimals and crossing the whole.

You should use your skills of finding complements to 1 from our last session.

Top tip: Remember if you are finding something tricky, try partitioning (part-whole) the number to break it up into easier chunks!

For example:

$$0.74 + 0.48$$



$$0.74 + 0.26 + 0.22 = 1.22$$

1. Use the place value grid to solve the addition: $0.453 + 0.664 =$
Remember we are crossing the whole, so you will have to exchange.

Ones	Tenths	Hundredths	Thousandths

2. Now draw your own place value grid and solve the following addition questions:
- $0.446 + 0.524 = ?$
 - $0.354 + 0.336 = ?$
 - $0.642 + 0.522 = ?$
3. Try using complements to 1 to help you solve these additions.

Example:

$$0.45 + 0.67 =$$

$$0.55 + 0.12$$

$$0.45 + 0.55 + 0.12 = 1.12$$

- $0.56 + 0.78 =$
- $3.42 + 0.79 =$

(Take your time to consider the complements to 1. Use your book to show your working out and clearly part-whole the decimal to break it into easier chunks).

4. Now it is time try using the column method to solve some calculations. If you find this tricky, support yourself with a place value grid.
- $0.47 + 0.6 = ?$
 - $0.982 + 0.18 = ?$
 - $0.92 + 0.8 = ?$

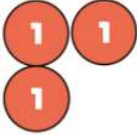





Take care of your place value!

- Why does it help us to partition a number?
- How do you decide which decimal to partition?
- What happens when we have 10 in a place value column?

Session 3 - Adding Decimals

In this session, we will be adding decimals over 1 with the same number of decimal places.

1. Using the place value grid with the column method, solve this addition.

Ones	Tenths	Hundredths
		
		

$$\begin{array}{r}
 3.45 \\
 + 4.14 \\
 \hline \\
 \hline
 \end{array}$$

2. Draw your own place value grid to solve the following addition sums. Then, double check each question using the column method.
- $3.35 + 4.24 =$
 - $4.52 + 2.33 =$
 - $1.36 + 4.45 =$
3. Use the column method to solve the below. Can you **estimate** what the answer might be before you solve it (you will need to use your rounding skills for this part)?
- $4.42 + 7.63 =$
 - $4.55 + 3.07 =$

4. Zak goes to the shop. He buys 3 items.



£4.45



£5.59



£3.99



£4.05

- What is the most he could pay?
 - Round it to 1.
 - Round it to the nearest tenth.
 - What is the least he could pay?
 - Round it to the nearest 1.
 - Round it to the nearest tenth.
5. Why is it so important to line up your numbers correctly when using the column method?
6. Why is the position of the decimal point so important?

Session 4 - Reasoning with Adding Decimals

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

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?

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

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

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

A place value grid is used to solve
 $0.7 + 0.5$

Ones	Tenths

Alex thinks the answer is 0.12
 What mistake has she made?

$$3.2 + 2.8 = 3 + 3$$

+ 0.2
- 0.2

$$3.18 + 2.82 = 3 + 3$$

+ 0.18
- 0.18

Using these strategies, can you find more number sentences which have the same total as $3 + 3$