Reasoning and Problem Solving – Make a Whole

National Curriculum Objectives:

Mathematics Year 4: (4F6b) Recognise and write decimal equivalents of any number of tenths or hundredths
Mathematics Year 4: (4F10b) Solve simple measure and money problems involving fractions and decimals to two decimal places

Differentiation:

Questions 1, 4 and 7 (Problem Solving)
Developing Calculate 2 missing digits when adding 3 decimal numbers to make a whole. Tenths only.
Expected Calculate 2 missing digits when adding 2 decimal numbers to make a whole. Find all of the solutions. Tenths and hundredths included.
Greater Depth Calculate 3 missing digits when adding 3 decimal numbers to make a whole. Find all of the solutions. Tenths and hundredths included.

Questions 2, 5 and 8 (Reasoning)
Developing Explain the mistake when adding 3 numbers to make a whole. Tenths only.
Expected Explain the mistake when adding 2 numbers to make a whole. Tenths and hundredths included.
Greater Depth Explain the mistake when adding 3 numbers to make a whole (numbers greater than 1 included). Tenths and hundredths included.

Questions 3, 6 and 9 (Problem Solving)
Developing Add 2 or 3 decimal numbers. Identify how much more is need to make a whole. In the context of measure. Tenths only.
Expected Add 2 decimal numbers. Identify how much more is needed to make a whole. In the context of measure. Tenths and hundredths included.
Greater Depth Add 3 decimal numbers. Identify how much more is needed to make a whole (numbers greater than 1 included). Tenths and hundredths included.

More Year 4 Decimals resources.

Did you like this resource? Don't forget to review it on our website.

Make a Whole

1a. Complete the calculation below. How many different solutions can you find?

$$0.3 + 0.\boxed{} + 0.\boxed{} = 1$$

D

PS

1b. Complete the calculation below. How many different solutions can you find?

$$0.\boxed{} + 0.4 + 0.\boxed{} = 1$$

D

PS

2a. Toby says:

> If I have 0.1 and 0.3, I need to add on 0.7 to make a whole.

Is Toby correct? Explain why.

D

R

2b. Mary says:

> If I have 0.2 and 0.2, I need to add on 0.8 to make a whole.

Is Mary correct? Explain why.

D

R

3a. A toy bridge is 1m long.

Each toy car is 0.4m long.
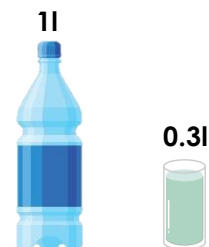
Can 2 toy cars fit on the bridge?

How much space is left?

1m   0.4m

D

PS

3b. A bottle of water holds 1l.

Each glass holds 0.3l.

Can the bottle of water fill 3 glasses?

How much water is left in the bottle?

1l

0.3l

D

PS

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Reasoning and Problem Solving – Make a Whole – Year 4 Developing

4a. Complete the calculation below. How many different solutions can you find?

$$0.5\square + 0.4\square = 1$$

E

PS

4b. Complete the calculation below. How many different solutions can you find?

$$0.\square 3 + 0.\square 7 = 1$$

E

PS

5a. Josh says:

If I have 0.17, I need to add on 0.93 to make a whole.

Is Josh correct? Explain why.

E

R

5b. Gemma says:

If I have 0.15, I need to add on 0.84 to make a whole.

Is Gemma correct? Explain why.

E

R

6a. A table top is 1m long.

Each place mat is 0.32m long.

Can 2 place mats fit on the table?

How much space is left?

1m   0.32m

E

PS

6b. Amir has £1 to spend.

Each cupcake costs £0.48.

Can Amir buy 2 cupcakes?

How much money will he have left?

£0.48

E

PS

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Reasoning and Problem Solving – Make a Whole – Year 4 Expected

Make a Whole

Make a Whole

7a. Complete the calculation below. How many different solutions can you find?

$$0.3\square + 0.4\square + 0.2\square = 1$$

GD

PS

7b. Complete the calculation below. How many different solutions can you find?

$$0.\square5 + 0.\square1 + 0.\square4 = 1$$

GD

PS

8a. Owen says:

If I have 0.24 and 0.35, I need to add on 0.51 to make a whole.

Is Owen correct? Explain why.

GD

R

8b. Asha say:

If I have 1.42 and 0.26, I need to add on 0.31 to make 2.

Is Asha correct? Explain why.

GD

R

9a. A bag of flour weighs 1kg.

Each bowl needs 0.29kg of flour.

Is there enough flour to fill 3 bowls?

How much flour will be left over?

1kg

0.29kg

GD

PS

9b. Rob has £2 to spend.

Each pack of sweets costs £0.56

Can Rob buy 3 packs of sweets?

How much money will he have left?

£0.56

GD

PS

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Reasoning and Problem Solving – Make a Whole – Year 4 Greater Depth

Reasoning and Problem Solving
Make a Whole

Developing
1a. Various possible answers, for example: 0.3 + 0.1 + 0.6 = 1, 0.3 + 0.2 + 0.5 = 1, 0.3 + 0.3 + 0.4 = 1

2a. Toby is not correct. He has made 1.1 because he has forgotten to include the 0.1. He needs to add 0.6 instead.

3a. Two toy cars are 0.8m long so they will fit on the bridge with 0.2m of space left over.

Expected
4a. Various possible answers, for example: 0.51 + 0.49 =1, 0.52 + 0.48 = 1, 0.53 + 0.47 = 1, 0.54 + 0.46 =1, 0.55 + 0.45 = 1, 0.56 + 0.44 = 1, 0.57 + 0.43 = 1, 0.58 + 0.42 = 1, 0.59 + 0.41 = 1

5a. Josh is not correct. He has made 1.1 because he has forgotten that his hundredths will make an extra tenth. He needs to add 0.83 instead.

6a. Two place mats are 0.64m long so they will fit on the table with 0.36m of space left over.

Greater Depth
7a. Various possible answers, for example: 0.31 + 0.42 + 0.27, 0.32 + 0.43 + 0.25, 0.33 + 0.44 + 0.23, 0.34 + 0.45 + 0.21, 0.31 + 0.41 + 0.28, 0.32 + 0.42 + 0.26, 0.33 + 0.43 + 0.24, accept any solution where the hundredths digits add up to 1 tenth.

8a. Owen is not correct. He has made 1.1 because he has forgotten that his hundredths will make an extra tenth. He needs to add 0.41 instead.

9a. Three bowls need 0.87kg of flour so there is enough flour in the bag with 0.13kg left over.

Developing
1b. Various possible answers, for example: 0.1 + 0.4 + 0.5 = 1, 0.2 + 0.4 + 0.4 = 1, 0.3 + 0.4 + 0.3 = 1

2b. Mary is incorrect. She has made 1.2 because she has forgotten to include the other 0.2. She needs to add 0.6 instead.

3b. Three glasses of water are 0.9l so the bottle will fill the glasses with 0.1l of water left over.

Expected
4b. Various possible answers, for example: 0.03 + 0.97 = 1, 0.13 + 0.87 = 1, 0.23 + 0.77 = 1, 0.33 + 0.67 = 1, 0.43 + 0.57 = 1, 0.53 + 0.47 = 1, 0.63 + 0.37 = 1, 0.73 + 0.27 = 1, 0.83 + 0.17 = 1, 0.93 + 0.07 = 1

5b. Gemma is not correct. She has made 0.99 because her hundredths only add up to 0.09. She needs to add 0.85 instead.

6b. Two cupcakes cost £0.96 so Amir can buy them with £0.04 left over.

Greater Depth
7b. Various possible answers, for example: 0.15 + 0.11 + 0.74, 0.15 + 0.21 + 0.64, 0.25 + 0.31 + 0.44, 0.35 + 0.41 + 0.24, 0.45 + 0.51 + 0.04, 0.25 + 0.21 + 0.54, 0.35 + 0.31 + 0.34, accept any solution where the tenths digits add up to 9 tenths.

8b. Asha is not correct. She has made 1.99 because her hundredths only add up to 0.09. She needs to add 0.32 instead.

9b. Three packs of sweets cost £1.68 so Rob can buy them with £0.32 left over.