Reasoning and Problem Solving
Step 2 - Subtracting Decimals Within 1

National Curriculum Objectives:

Mathematics Year 5: (5F10) Solve problems involving number up to 3dp.
Mathematics Year 5: (5M9a) Use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling.

Differentiation:

Questions 1, 4, 7 (Problem Solving)
Developing Understand and evaluate statements linked to subtracting decimals to 2 decimal places, using <, > and =, no exchanging.
Expected Understand and evaluate statements linked to subtracting decimals to 3 decimal places, using <, > and =, with one incidence of exchanging.
Greater Depth Understand and evaluate statements linked to subtracting decimals to 3 decimal places, using <, > and =, with multiple exchanges.

Questions 2, 5, 8 (Problem Solving)
Developing Calculate difference of numbers with 2 decimal places, no exchanging.
Expected Calculate difference of numbers with 3 decimal places, one exchange.
Greater Depth Calculate difference of numbers with 3 decimal places multiple exchanges.

Questions 3, 6, 9 (Reasoning)
Developing Use a choice of 4 digits to create a subtraction within 1 (with 2 decimal places). Compare achievable amounts with prediction given.
Expected Use a choice of 6 digits to create a subtraction within 1 (with 3 decimal places). Compare achievable amounts with prediction given using < or >.
Greater Depth Use a choice of 7 digits to create a subtraction within 1 (with 3 decimal places). Compare achievable amounts with prediction given using a value range.

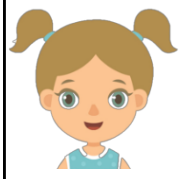
More Year 5 Decimals resources.

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Subtracting Decimals Within 1

1a. Jesse solved these number sentences using <, > or =



0.43 – 0.21 > 0.21 + 0.34

0.94 – 0.04 < 0.09

0.72 – 0.22 = 0.31 + 0.19

0.4 – 0.03 > 0.07 + 0.3

Has she solved them correctly? Correct any mistakes you find.

D

PS

2a. Dogs need to be 0.79 m tall to enter the 'big dog' category at the dog show.

Geoff	0.54 m
Moss	0.86 m
Peanut	0.63 m
Foster	0.72 m
Trigger	0.77 m

Which dog is nearest to the category? By how much did they all miss out?

D

PS

3a. Using the digit cards below for subtraction, Fionn thinks the smallest number he can make is 0.2

4	7	2	8

$$\begin{array}{r} 0.\square\square \\ -\ 0.\square\square \\ \hline 0.\square\square \end{array}$$

Is he correct? Explain your answer.

D

R

Subtracting Decimals Within 1

1b. Denise solved these number sentences using <, > or =



0.82 – 0.61 > 0.1 + 0.34

0.04 + 0.04 = 0.6 + 0.2

0.1 – 0.04 = 0.3 + 0.3

0.96 – 0.43 < 0.22 + 0.33

Has she solved them correctly? Correct any mistakes you find.

D

PS

2b. A carpenter is cutting lengths of wood from planks which are 0.85m in length.

1	0.34 m
2	0.53 m
3	0.12 m
4	0.74 m
5	0.83 m

How much waste does each cut create?

D

PS

3b. Using the digit cards below for subtraction, Jessica thinks the largest number she can make will be > 0.5.

6	2	8	4

$$\begin{array}{r} 0.\square\square \\ -\ 0.\square\square \\ \hline 0.\square\square \end{array}$$

Is she correct? Explain your answer.

D

R

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Subtracting Decimals Within 1

4a. Kamal solved these number sentences using <, > or =



0.882 – 0.764 < 0.201 + 0.48

0.394 – 0.146 > 0.2

0.164 – 0.04 < 0.002 + 0.122

0.67 – 0.393 < 0.3 – 0.13

Has he solved them correctly? Show why you think so correcting any mistakes you find.

E

PS

5a. Anna's running schedule has her covering 0.854km per day. Her trainer advised her to walk to warm up then run each day as follows:

Mon	0.263 km
Tues	0.447 km
Wed	0.568 km
Thurs	0.734 km
Fri	0.8 km

How far did she walk to warm up each day?

E

PS

6a. Using the digit cards below for subtraction, Kayla thinks the smallest number she can make will be > 0.1

7	3	9	5	4	1

	0	•			
–	0	•			
	0	•			

Is she correct? Explain your answer.

E

R

Subtracting Decimals Within 1

4b. Jonnie solved these number sentences using <, > or =



0.95 – 0.141 = 0.701 + 0.038

0.114 – 0.008 > 0.892 – 0.786

0.474 – 0.04 = 0.47

0.1 + 0.009 < 0.546 – 0.455

Has he solved them correctly? Show why you think so correcting any mistakes you find.

E

PS

5b. Class 5 are having a sponsored sunflower growing competition. To meet their target, the flower needs to grow 0.423cm every two days.

Mon	0.116 cm
Wed	0.309 cm
Fri	0.067 cm
Mon	0.16 cm
Wed	0.006 cm

How much have they missed their target by each day?

E

PS

6b. Using the digit cards below for subtraction, Riley thinks the largest number he can make will be > 0.9

7	2	5	8	7	0

	0	•			
–	0	•			
	0	•			

Is he correct? Explain your answer.

E

R

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Subtracting Decimals Within 1

7a. Graham solved these number sentences using <, > or =



0.513 – 0.064 < 0.01 + 0.008

0.94 – 0.046 > 0.086 + 0.808

0.784 – 0.096 = 0.992 – 0.304

0.973 – 0.073 < 0.134 + 0.766

Has he solved them correctly? Show why you think so correcting any mistakes you find.

GD PS

Subtracting Decimals Within 1

7b. Amaya solved these number sentences using <, > or =



0.195 – 0.149 = 0.792 – 0.753

0.472 – 0.385 > 0.673 – 0.596

0.474 – 0.08 < 0.953 – 0.569

0.009 + 0.594 < 0.607 – 0.004

Has she solved them correctly? Show why you think so correcting any mistakes you find.

GD PS

8a. Children must be 0.985m tall to ride the Rocket Launcher ride alone.

Timmy	0.983 m
Keeley	0.576 m
Honey	0.895 m
Jon	0.747 m
Libby	0.795 m

How much does each child have to grow to ride the Rocket Launcher?

GD PS

8b. Joe needs to knit at least 0.673m of his pattern each day to complete the garment by the weekend. This is his knitting record.

Mon	0.673 m
Tues	0.567 m
Wed	0.684 m
Thurs	0.43 m
Fri	0.098 m

How far off his target is he each day?

GD PS

9a. Using the digit cards below for subtraction, Connor thinks the smallest number he can make will be:
< 0.01 and > 0.004

8	9	2	3	5	1	0

	0	•		
–	0	•		
	0	•		

Is he correct? Explain your answer.

GD R

9b. Using the digit cards below for subtraction, Robyn thinks the largest number he can make will be:
< 0.846 and > 0.832

7	2	7	1	8	9	3

	0	•		
–	0	•		
	0	•		

Is he correct? Explain your answer.

GD R

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Reasoning and Problem Solving
Subtracting Decimals Within 1

Developing

1a. Incorrect 0.22 < 0.55; incorrect 0.9 > 0.09; correct 0.5 = 0.5; incorrect 0.37 = 0.37

2a. 0.25m, +0.07m, 0.16m, 0.07m, 0.02m. Moss is in the 'big dog' category; Trigger is the closest to qualifying.

3a. Incorrect. Various possible answers, including: 0.47 – 0.28 = 0.19

Expected

4a. Correct 0.118 < 0.681; correct 0.248 > 0.2; incorrect 0.124 = 0.124; incorrect 0.277 > 0.17

5a. 0.591km, 0.407km, 0.286km. 0.12km, 0.054km

6a. Incorrect. Various possible answers, including: 0.513 – 0.497 = 0.016

Greater Depth

7a. Incorrect 0.449 > 0.018; incorrect 0.894 = 0.894; correct 0.688 = 0.688; incorrect 0.9 = 0.9

8a. 0.002m, 0.409m, 0.09m, 0.238m, 0.19m

9a. Incorrect because 0.301 – 0.298 = 0.003

Reasoning and Problem Solving
Subtracting Decimals Within 1

Developing

1b. Incorrect 0.21 < 0.44; incorrect 0.08 < 0.8; incorrect 0.06 < 0.6; correct 0.53 < 0.55

2b. 0.51m, 0.32m, 0.73m, 0.11m, 0.02m

3b. Correct; 0.86 – 0.24 = 0.62

Expected

4b. Incorrect 0.809 > 0.739; incorrect 0.106 = 0.106; incorrect 0.434 < 0.47; incorrect 0.109 > 0.091

5b. 0.307cm, 0.114cm, 0.356cm, 0.263cm, 0.417cm

6b. Incorrect. Taking the smallest number away from the largest number gives an answer < 0.9

Greater Depth

7b. Incorrect 0.046 > 0.039; correct 0.087 > 0.077; incorrect 0.394 > 0.384; correct 0.603 = 0.603

8b. 0m, 0.106m, +0.011m, 0.243m, 0.575m

9b. Incorrect because 0.987 – 0.123 = 0.864

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