

Reasoning and Problem Solving

Step 3: Tenths

National Curriculum Objectives:

Mathematics Year 3: (3F1a) [Count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10](#)

Differentiation:

Questions 1, 4 and 7 (Reasoning)

Developing Explain whether a statement is correct when representing tenths. Fractions are shown pictorially in the form of rectangles.

Expected Explain whether a statement is correct when representing tenths. The full fraction is not represented in the image. Includes fractions written as numbers.

Greater Depth Explain whether a two-step statement is correct when representing tenths. Includes fractions written in words with no pictorial support.

Questions 2, 5 and 8 (Problem Solving)

Developing Provide two possible answers when given two facts about a tenth. Includes pictorial support.

Expected Provide three possible answers when give two facts about a tenth. Includes no pictorial support.

Greater Depth Provide three possible answers when given three facts about a tenth. All numbers are written as words.

Questions 3, 6 and 9 (Problem Solving)

Developing Match each given fraction to the correct description. Includes pictorial support in the form of rectangles.

Expected Match each given fraction to the correct description. Includes no pictorial support.

Greater Depth Match each given fraction to the correct description. Includes fractions written in words.

More [Year 3 Fractions](#) resources.

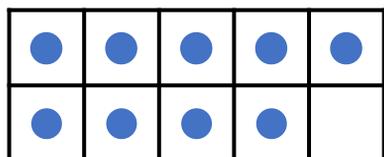
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Tenths

1a. Tara is using a ten frame and counters to represent tenths.



This shows $\frac{9}{10}$.



Is she correct? Explain your answer.



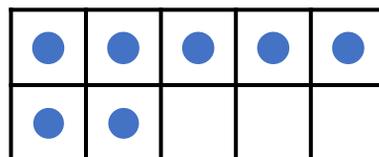
R

Tenths

1b. Stephen is using a ten frame and counters to represent tenths.



This shows $\frac{2}{10}$.



Is he correct? Explain your answer.



R

2a. Ethan is thinking of a tenth.

The denominator is equal to the number of vases.



The numerator is greater than the number of plant pots but less than 10.



What could Ethan's fraction be?

Write two possibilities.



PS

2b. Olivia is thinking of a tenth.

The numerator is less than the number of keys.



The denominator is equal to the number of fans.



What could Olivia's fraction be?

Write two possibilities.



PS

3a. Match each description to the correct fraction.



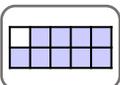
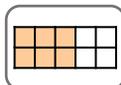
One tenth of my rectangle is not shaded.



More than half of my rectangle is shaded.



My rectangle shows 4 tenths.



PS

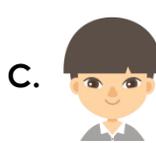
3b. Match each description to the correct fraction.



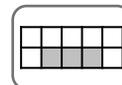
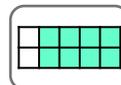
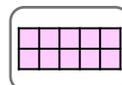
My rectangle shows 8 tenths.



All of my rectangle is shaded.



An odd number of tenths are shaded in my rectangle.



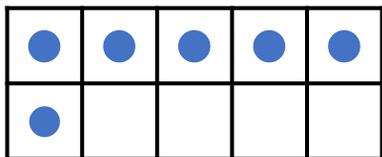
PS

Tenths

4a. Benjamin is using a ten frame and counters to represent tenths.



I would need two more counters to show $\frac{8}{10}$.



Is he correct? Explain your answer.



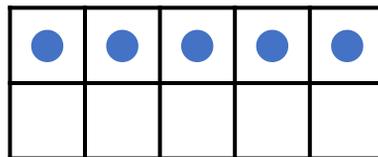
R

Tenths

4b. Florence is using a ten frame and counters to represent tenths.



I need to remove two counters to show $\frac{2}{10}$.



Is she correct? Explain your answer.



R

5a. Nathan is thinking of a tenth.

The numerator is smaller than 9 but greater than 3.

The numerator is a multiple of 2.

What could Nathan's fraction be?

Write three possibilities.



PS

5b. Rosie is thinking of a tenth.

The numerator is smaller than 8 but larger than 2.

The numerator is an odd number.

What could Rosie's fraction be?

Write three possibilities.



PS

6a. Match each description to the correct fraction.



My numerator and denominator are the same.



My fraction is eight tenths.



My numerator is half the denominator.

$\frac{8}{10}$

$\frac{10}{10}$

$\frac{5}{10}$



PS

6b. Match each description to the correct fraction.



My denominator is more than three times greater than my numerator.



My fraction is nine tenths.



My numerator and denominator are both multiples of five.

$\frac{5}{10}$

$\frac{9}{10}$

$\frac{3}{10}$



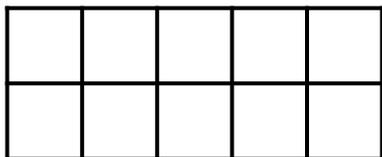
PS

Tenths

7a. Duncan is using a ten frame and ten counters.



I want to show seven tenths. I will only need to use half of my counters.



Is he correct? Explain your answer.



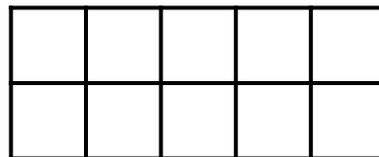
R

Tenths

7b. Alexandra is using a ten frame and ten counters.



I want to show four tenths. I will have six counters that I won't use.



Is she correct? Explain your answer.



R

8a. Joanne is thinking of a tenth.

My numerator is an even number.

My fraction is a non-unit fraction.

The numerator is a multiple of two.

What could Joanne's fraction be?

Write three possibilities in words.



PS

8b. Max is thinking of a tenth.

The numerator is a multiple of 3.

The numerator is larger than 1 but smaller than 10.

The denominator can be divided into ten equal parts.

What could Max's fraction be?

Write three possibilities in words.



PS

9a. Match each description to the correct fraction.

A.



My numerator is an even number.

B.



My numerator is a multiple of 3.

C.



My fraction is between six and eight tenths.

seven tenths

nine tenths

eight tenths



PS

9b. Match each description to the correct fraction.

A.



My numerator is less than 7 but more than 3.

B.



My numerator is double five.

C.



My numerator is a multiple of 4.

five tenths

eight tenths

ten tenths



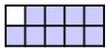
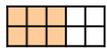
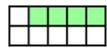
PS

Reasoning and Problem Solving Tenths

Developing

1a. Yes as she has represented $\frac{9}{10}$ by using 9 counters.

2a. Various answers, for example: $\frac{7}{10}$, $\frac{9}{10}$

3a. A = , B =  and C = 

Expected

4a. Yes as he has represented $\frac{6}{10}$ by using 6 counters in the tens frame and

$$\frac{6}{10} + \frac{2}{10} = \frac{8}{10}$$

5a. Various answers, for example: $\frac{4}{10}$, $\frac{6}{10}$ and $\frac{8}{10}$

6a. A = $\frac{10}{10}$, B = $\frac{8}{10}$ and C = $\frac{5}{10}$

Greater Depth

7a. No as half of Duncan's counters equals

5 which would show $\frac{5}{10}$ which is $\frac{2}{10}$ less than $\frac{7}{10}$.

8a. Various answers, for example: two tenths, four tenths and eight tenths.

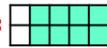
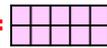
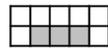
9a. A = eight tenths, B = nine tenths and C = seven tenths

Reasoning and Problem Solving Tenths

Developing

1b. No as he has represented $\frac{7}{10}$. He needs to remove 5 counters.

2b. Various answers, for example: $\frac{2}{10}$, $\frac{5}{10}$

3b. A = , B =  and C = 

Expected

4b. No as she has represented $\frac{5}{10}$ by using 5 counters in the tens frame. $\frac{5}{10} - \frac{3}{10} = \frac{2}{10}$

so he would need to remove 3 counters.

5b. Various answers, for example: $\frac{3}{10}$, $\frac{5}{10}$ and $\frac{7}{10}$

6b. A = $\frac{3}{10}$, B = $\frac{9}{10}$ and C = $\frac{5}{10}$

Greater Depth

7b. Yes as $\frac{10}{10} - \frac{4}{10} = \frac{6}{10}$ so 6 counters would be not be used.

8b. Three tenths, six tenths and nine tenths.

9b. A = five tenths, B = ten tenths and C = eight tenths