

# Reasoning and Problem Solving

## Step 2: Tenths as Decimals

### National Curriculum Objectives:

Mathematics Year 4: (4F6b) [Recognise and write decimal equivalents of any number of tenths or hundredths](#)

### Differentiation:

Questions 1, 4 and 7 (Reasoning)

**Developing** Explain if an answer is correct where a decimal is represented on a hundred square. Includes numbers less than 1 and pictorial representations to support.

**Expected** Explain if an answer is correct where a decimal is represented using different images. Includes numbers less than 1.

**Greater Depth** Explain if an answer is correct where a decimal is represented using different images. Includes numbers less than 1 with some use of equivalent fractions.

Questions 2, 5 and 8 (Reasoning)

**Developing** Explain which given statement is correct. Includes numbers less than 1 and pictorial representations to support.

**Expected** Explain which given statement is correct. Includes numbers less than 1.

**Greater Depth** Explain which given statement is correct. Includes numbers less than 1 with some use of equivalent fractions.

Questions 3, 6 and 9 (Problem Solving)

**Developing** Provide possible answers which meet a given set of criteria. Includes numbers less than 1 and number lines to support.

**Expected** Provide possible answers which meet a given set of criteria. Includes numbers less than 1.

**Greater Depth** Provide possible answers which meet a given set of criteria. Includes numbers less than 1 with some use of equivalent fractions.

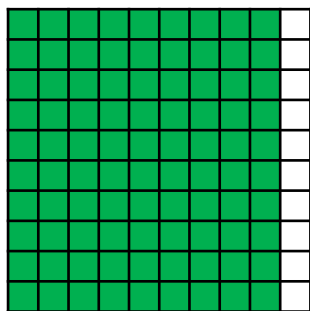
More [Year 4 Decimals](#) resources.

Did you like this resource? Don't forget to [review](#) it on our website.

## Tenths as Decimals

## Tenths as Decimals

1a. Tanya is using a hundred square to represent a decimal.  
She writes down the decimal as 0.7.

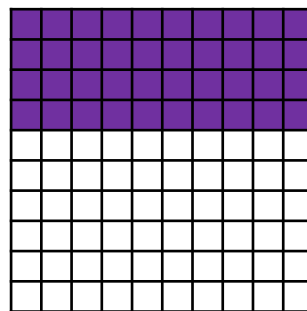


Is Tanya correct? Explain how you know.



R

1b. Ahmed is using a hundred square to represent a decimal.  
He writes down the fraction as 0.4.



Is Ahmed correct? Explain how you know.



R

2a. Monica and Patrick are representing a number on a bar model.



Monica

The model shows 0.5.

The model shows 0.6.



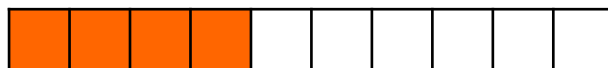
Patrick

Who is correct? Explain your answer.



R

2b. Jenna and Arthur are representing a number on a bar model.



Jenna

The model shows 0.4.

The model shows  $\frac{4}{10}$ .



Arthur

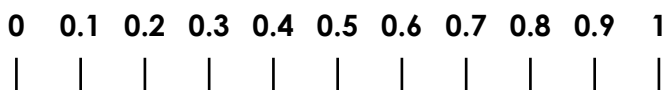
Who is correct? Explain your answer.



R

3a. Niamh is thinking of a decimal.

It comes between  $\frac{4}{10}$  and  $\frac{8}{10}$ .



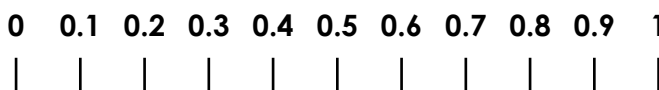
Write down 2 possibilities that Niamh's decimal could be.



PS

3b. David is thinking of a decimal.

It comes between  $\frac{2}{10}$  and  $\frac{6}{10}$ .



Write down 2 possibilities that David's decimal could be.



PS

## Tenths as Decimals

4a. Lucy is using a bar model to represent a decimal.  
She writes down the decimal as 0.6.



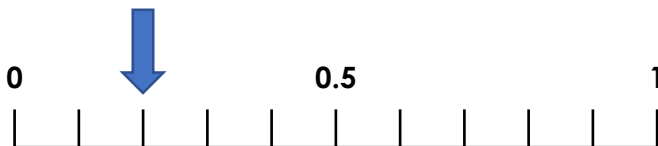
Is Lucy correct? Explain how you know.



R

## Tenths as Decimals

4b. Jamie is using a number line to represent a decimal.  
He writes down the decimal as 0.2.

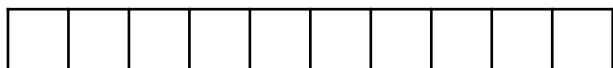


Is Jamie correct? Explain how you know.



R

5a. Harry and Polly are discussing tenths.



Harry

Eight tenths =  $\frac{8}{10}$ .

0.8 = eight tenths.



Polly

Who is correct? Explain your answer.



R

5b. Jen and Charlie are discussing tenths.



Jen

Ten tenths = one whole.

Ten tenths = 0.1.



Charlie

Who is correct? Explain your answer.



R

6a. Peter is thinking of a decimal.

It comes between  $\frac{3}{10}$  and  $\frac{9}{10}$ .

The tenth is an even number.



Write down 2 possibilities that Peter's decimal could be.



PS

6b. Madeleine is thinking of a decimal.

It comes between  $\frac{1}{10}$  and  $\frac{9}{10}$ .

The tenth is an odd number.



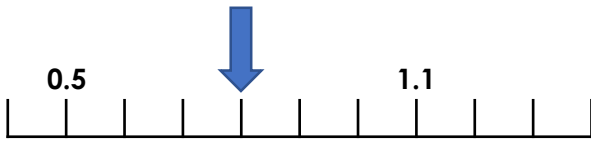
Write down 2 possibilities that Madeleine's decimal could be.



PS

## Tenths as Decimals

7a. Alice is using a number line to represent a decimal.  
She writes down the decimal as 0.9.



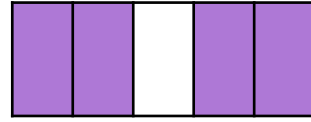
Is Alice correct? Explain how you know.



R

## Tenths as Decimals

7b. Marcus is using a bar model to represent a decimal.  
He writes down the decimal as 0.4.



Is Marcus correct? Explain how you know.



R

8a. Anita and Sebastian are discussing tenths.



Anita

Two fifths as a decimal is 0.2.

Two fifths as a decimal is 0.4.



Sebastian

Who is correct? Explain your answer.



R

8b. Blessing and Scarlett are discussing tenths.



Blessing

Six tenths =  $\frac{3}{5}$ .

0.6 = six tenths.



Scarlett

Who is correct? Explain your answer.



R

9a. Andrew is thinking of a decimal.

It is between  $\frac{1}{5}$  and  $\frac{5}{5}$ .

The tenth is an even number.

It is greater than  $\frac{5}{10}$ .

Write down 2 possibilities that Andrew's decimal could be.



PS

9b. Stephanie is thinking of a decimal.

It is less than  $\frac{4}{5}$ .

The tenth is an odd number.

It is greater than  $\frac{2}{10}$ .

Write down 2 possibilities that Stephanie's decimal could be.



PS

## Reasoning and Problem Solving Tenths as Decimals

### Developing

- 1a. Tanya is incorrect because the hundred square shows nine tenths shaded or 0.9 but she has written 0.7.
- 2a. Patrick is correct because there are six tenths shaded so 0.6 is the correct decimal.
- 3a. Any two from the following: 0.5, 0.6, 0.7

### Expected

- 4a. Lucy is incorrect because the bar model shows seven tenths shaded or 0.7 but she has written 0.9.
- 5a. Both children are correct because they have represented the tenths differently.
- 6a. Any two from the following: 0.4, 0.6, 0.8

### Greater Depth

- 7a. Alice is incorrect because the arrow on the number line shows eight tenths or 0.8 but she has written 0.7.
- 8a. Sebastian is correct because two fifths is equivalent to four tenths.
- 9a. 0.6, 0.8

## Reasoning and Problem Solving Tenths as Decimals

### Developing

- 1b. Ahmed is correct because the hundred square shows four tenths shaded.
- 2b. Both children are correct because there are four tenths shaded and they have represented the number in two ways.
- 3b. Any two from the following: 0.3, 0.4, 0.5

### Expected

- 4b. Jamie is correct because the arrow on the number line shows two tenths.
- 5b. Jen is correct because one whole is equal to ten tenths.
- 6b. Any two from the following: 0.3, 0.5, 0.7

### Greater Depth

- 7b. Marcus is incorrect because the bar model shows four fifths, which is equivalent to eight tenths or 0.8.
- 8b. Both children are correct because they have represented the tenths differently.
- 9b. Any two from the following: 0.3, 0.5, 0.7