Day 1

Activity 1: Fractions and decimal equivalents

- ★ Give each of the children a 100 flat, a 10 stick and a 1 cube from the Base 10 apparatus.
- ★ Ask them to pick up the 100 flat. Explain that this is our whole 'one'.
- ★ Now ask them to hold up their 10 stick.
- ★ Explain that this is a fraction of the whole.
- ★ Ask the children to find out what fraction of the whole it is. *How many of them will we need to make the whole?*

✓ **TIP:** Here you are looking for the children to recognise that the stick is one-tenth of the whole.

- ★ Write $\frac{1}{10}$ on the board and then show the children the decimal notation (0.10) on a place value grid.
- ★ Now ask the children to repeat the process with the 1 cube. *What fraction of the 100 flat is this?*
- ★ It is $\frac{1}{100}$. Write this on the place value grid as a decimal 0.01.
- ★ Now show the children two 10 sticks.
- ★ Ask the children to find out what fraction of the whole this is and write it on their whiteboard as a fraction and a decimal.

! **WATCH OUT:** If the children are not secure with their understanding of place value, they may struggle to write $\frac{20}{100}$ or $\frac{2}{10}$ as 0.2.

- ★ Repeat the process, asking the children to find fractions and decimals for different Base 10 combinations until you are confident that they are secure in their understanding. For example, 26, 84, 52, 39, 42, 4, 11, 6.

OBJECTIVES

- Understand and use fraction and decimal equivalents
- Recognise and write decimal equivalents of any number of tenths or hundredths

RESOURCES

- Base 10 apparatus; place value grids; whiteboards and pens; whiteboard for the teacher

Day 2

Activity 2: Practising fraction and decimal equivalence

- ★ Give each child a copy of Worksheet 1.
- ★ Explain to them that they will be asked to find the fraction and decimal equivalents of various numbers.
- ★ Allow the children to work through the table in question 1 independently before running through the answers together as a group.

✓ **TIP:** Before the children complete question 2, it would be beneficial to briefly revise problem-solving strategies and point out key problem-solving language.

- ★ Finally, ask the children to work through the rest of the questions independently and then run through the answers together as a group.

OBJECTIVES

- Understand and use fraction and decimal equivalents
- Recognise and write decimal equivalents of any number of tenths or hundredths

RESOURCE

- Worksheet 1

Worksheet 1

Name _____ **Date** _____

Fraction and decimal equivalence

1. Fill in the table of fraction and decimal equivalents

Fraction	Decimal
$\frac{3}{10}$	
	0.83
	0.52
	0.04
$\frac{3}{100}$	
$\frac{8}{10}$	
$\frac{72}{100}$	
	0.07
	0.11
$\frac{12}{100}$	
$\frac{54}{100}$	

2. Use the information to solve these problems.

There are 100 new houses being built in a new housing estate.

- 0.24 of the houses will have 3 bedrooms.
- 0.11 of the houses will have 5 bedrooms.
- The rest of the houses will have 4 bedrooms.
- $\frac{1}{2}$ of the houses will have a garage.
- 0.98 of the houses will have a garden.

a) How many houses will have a garden?

b) How many houses will have a garage?

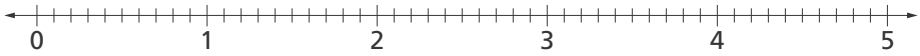
c) How many houses will have 4 bedrooms?

d) What proportion of the houses on the estate will **not** have a garden?

Day 3

Activity 3: Rounding decimals to the nearest whole number

- ★ Ask the children what they already know about **rounding**.
- ★ Give each child a number track. Ask them to count the number of marks between 0 and 1. Establish that each mark is $\frac{1}{10}$ or 0.1.



- ★ Mark 1.8 on the number track. Ask: *Is it nearer to one or two? What would 1.8 be if you rounded to the nearest whole number?*
- ★ Repeat with 3.2. Here, you are looking for the children to understand that 3.2 lies between three and four and is nearest to three.
- ★ Repeat with 3.5. Here, you are looking for the children to understand that they know to round it up to four because if the significant figure is a five, we round up.
- ★ Now ask the children to try a few questions on their own: 4.3, 1.3, 4.9, 0.8.

✓ **TIP:** Tell the children to use their number track as a support, if needed.

- ★ Share answers, using the number track to clarify any errors.

OBJECTIVES

- Count up and down in hundredths; recognise that hundredths arise when dividing an object by 100 and dividing tenths by 10
- Recognise and write decimal equivalents of any number of tenths or hundredths
- Round decimals with one decimal place to the nearest whole number

RESOURCES

- Number track 1–5 marked in tenths; wipe-clean boards and pens

Quiz

Name _____ **Date** _____

1. Complete the table by filling in the equivalent fraction or decimal.

Fraction	Decimal
$16\frac{9}{100}$	**a)**
b)	50.6
$5\frac{65}{100}$	**c)**
d)	8.5
$12\frac{5}{10}$	**e)**

2. Round these decimals to the nearest whole number.

a) 6.3 ☐

b) 8.7 ☐

c) 3.1 ☐

d) 34.8 ☐

e) 15.7 ☐

f) 7.9 ☐

Answers

1. a) 16.9

b) $50\frac{6}{18}$

c) 5.65

d) $8\frac{5}{10}$

e) 12.5

2. a) 6

b) 9

c) 3

d) 35

e) 16

f) 8

Shine Maths Year 4 Decimals

Overview

This learning sequence addresses **place value and rounding to the nearest whole number and fraction and decimal equivalents.** It contains:

- lesson activity plans with key subject knowledge, questions and vocabulary
- worksheets to support pupils with their understanding of mathematical content and provide opportunities to consolidate learning
- a quiz and answers.

The use of this learning sequence should stem from an identified need, highlighted through ongoing assessment.

Activities

Activity 1 Fractions and decimal equivalents

Activity 2 Practising fraction and decimal equivalence

Activity 3 Rounding decimals to the nearest whole number

A range of practical resources needed for each activity is listed on each activity page.

Watch outs

Children ho are not secure in their understanding of place value in decimal numbers may struggle with equivalence.

There are other misconceptions that could affect children's performance in this area of learning or in tests in general. These misconceptions are explored in detail, along with suggestions on how to address them, in the ***Shine Maths* Guidance for Year 4**.

PREPARE

Shine Maths Year 4 Decimals

Timetable

Day 1 Activity 1

Day 2 Activity 2

Day 3 Activity 3

Day 4 Quiz

These sessions are intended to be fast paced and interactive. Each activity is designed to last around 15 minutes. Use your judgement. You will need to determine the exact length of sessions based on the responses and needs of your children.

Teacher guidance

The activity pages provide teacher guidance notes and they can be used as a lesson plan for the session. The activities include sequential questions, advice about potential responses from the children and tips for consolidating or furthering their understanding. Children are encouraged to explain their thinking and how they arrived at answers and to share their strategies.

Written to provide you with maximum support, mathematical language has been incorporated into the activity questions so that children hear and learn the vocabulary modelled in context. Key words are highlighted in bold to help you identify and model the correct language.

Subject knowledge is reinforced in the activity pages through the **Tip** and **Watch out** features, which provide guidance on teaching strategies and how to address any misconceptions that may arise.

A quiz has been included to check what children can do independently and to show their progress within the learning sequence.

Refer to the ***Shine Maths* Guidance for Year 4** for more support and useful information.

DO

Worksheets

The activity worksheets are embedded within the activity teaching sessions. The worksheets provide an opportunity for children to practise and consolidate the skills and knowledge they learn in the session. Each activity worksheet has been developed specifically to support children's learning as part of the lesson. The teacher guidance notes indicate when to distribute the worksheets and how to use them.

These sheets could be kept in a digital folder or exercise book to substantiate teacher assessment.

Shine Maths Year 4 Decimals

Outcomes

By the end of this learning sequence, children should be able to:

- round a decimal to the nearest whole number
- understands the link between decimals and their place values, such as tenths and hundredths.

Quiz and answers

Carefully observe children as they tackle the quiz and note the strategies they use. Encourage children to make jottings and/or use practical resources, if needed. Studying how the children tackle the questions will provide insight into their understanding.

The answers to the quiz are included at the end of this learning sequence to allow for quick, easy and accurate marking. Marking could be done in a group, with children exploring why errors were made and how correct answers were achieved. Encourage children to explain their thinking and strategies to each other for both correct and incorrect answers.

REVIEW

Next steps

High to full score: This quiz result indicates that a child's knowledge and understanding for this learning sequence is now secure. Return to quality-first, whole-class teaching.

A few errors: If a child has made a few errors in the quiz, it is likely that they misunderstood one of the teaching points from the learning sequence, such as how to round decimal numbers. Ask the child to explain how they found the answer to the question in order to pinpoint the concept they misunderstood.

Many errors: By this term, the child has been taught the full Year 4 curriculum and if they are still making consistent errors, such as struggling to understand the connection between tenths and decimals, it may suggest a more significant issue. If a child has made many errors, this could also indicate that the work is fundamentally at the wrong level for the child. If this is the case, locate a relevant teaching sequence from a lower year group to teach the child in a one-to-one session. You may also consider having a discussion with the SENDCO at your school about the child and whether any other measures can be put in place to support them.

Shine Maths Review sheets: Use the review sheets to record feedback and monitor progress for an individual pupil or by small groups. Save and print as many as you need per learning sequence.