

Unit 11

Fractions and decimals

Five daily lessons

National
Numeracy Strategy

Year 4
Summer term

Unit Objectives

Year 4

- **Recognise simple fractions that are several parts of a whole, and mixed numbers; recognise the equivalence of simple fractions**, e.g. fractions equivalent to $\frac{1}{2}$, $\frac{1}{4}$, or $\frac{3}{4}$. Identify two simple fractions with a total of 1, e.g. $\frac{3}{10}$ and $\frac{7}{10}$.
- Understand decimal notation and place value for tenths and hundredths and use it in context. For example, convert a sum of money such as £13.25 to pence, or a length such as 125 cm to m; round a sum of money to the nearest pound.
- Begin to use ideas of simple proportion: for example, 'one for every...' and 'one in every...'

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Pages 28, 30

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This Unit Plan is designed to guide your teaching. You will need to adapt it to meet the needs of your class.

Resources needed to teach this unit:

- Resource sheet 11.1
- Resource sheet 11.2
- Activity sheet 11.1
- OHT 11.1
- OHT 11.2
- OHT 11.3
- OHT 11.4
- OHT 11.5
- OHT 11.6
- Self-assessment sheet 11.1
- Counting stick
- Whiteboards
- Interlocking cubes
- 12 cubes and a bag

Year 3

Link Objectives

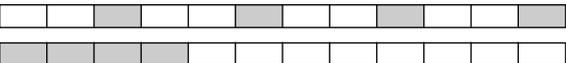
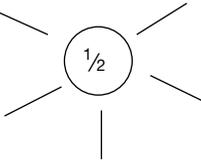
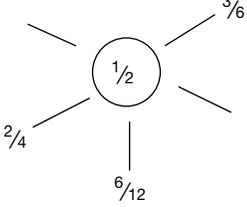
Year 5

- **Understand and use £.p notation**, for example, know that £3.06 is £3 and 6p.
- Begin to recognise simple fractions that are several parts of a whole, such as $\frac{3}{4}$, $\frac{2}{3}$, or $\frac{3}{10}$. Begin to recognise simple equivalent fractions: for example, five tenths and one half, five fifths and one whole.
- Recognise unit fractions such as $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{5}$, $\frac{1}{10}$ and use them to find fractions of shapes and numbers.

- **Use decimal notation for tenths and hundredths.**
- Recognise when two simple fractions are equivalent, including relating hundredths to tenths.
- **Relate fractions to their decimal representations;** that is, recognise the equivalence between the decimal and fraction forms of $\frac{1}{2}$, $\frac{1}{4}$, $\frac{3}{4}$, and tenths and hundredths.
- Solve simple problems using ideas of ratio and proportion.

(Key objectives in bold)

Planning sheet	Day One	Unit 11 <i>Fractions and decimals</i>	Term: <i>Summer</i>	Year Group: <i>4</i>
Oral and Mental		Main Teaching		Plenary
Objectives and Vocabulary	Teaching Activities	Objectives and Vocabulary	Teaching Activities	Teaching Activities/Focus Questions
<p>Understand fraction notation and count forwards in tenths beyond one.</p> <p>VOCABULARY fraction tenths</p> <p>RESOURCES Counting stick</p>	<ul style="list-style-type: none"> Show children a counting stick marked in ten divisions. Explain that 0 is at one end and 1 at the other. Point to the first marker. <ul style="list-style-type: none"> Q What number does this represent? <p>Collect answers and ensure the answers $\frac{1}{10}$ and 0.1 are used. Remind the children that $\frac{1}{10}$ and 0.1 are equivalent and record $\frac{1}{10} = 0.1$ on the board. Say that you want them to count in fractions. With the children, count from 0 in steps of $\frac{1}{10}$; when the children reach the end of the stick use $\frac{10}{10}$.</p> <p>Q What number is $\frac{10}{10}$ equivalent to?</p> <p>Remind the children that $\frac{1}{10}$, $\frac{2}{10}$, etc are numbers and the number $\frac{10}{10}$ is equivalent to the whole number, 1. Record on the board. Repeat the count in steps of $\frac{1}{10}$ but this time use 1 not $\frac{10}{10}$.</p> <ul style="list-style-type: none"> Explain that the stick now starts at 1 and ends at 2. Point to the first marker. <ul style="list-style-type: none"> Q What number does this represent? <p>Collect answers and ensure the answers $1\frac{1}{10}$ and 1.1 are used. Remind the children that these are equivalent and record them on the board. Count from 1 to 2 in steps of $\frac{1}{10}$; when the children reach the end of the stick establish that $1\frac{10}{10} = 2 = \frac{20}{10}$. Record this on the board.</p> <ul style="list-style-type: none"> Repeat counting from 2 to 3, 3 to 4, etc. each time establishing and recording equivalents, e.g. $2\frac{10}{10} = 3 = \frac{30}{10} = 1\frac{20}{10}$. <ul style="list-style-type: none"> Q What number is $\frac{80}{10}$ equivalent to? <p>Collect answers and record these on the board. Count from 8 to 9 in tenths.</p>	<p>Recognise the equivalence of simple fractions.</p> <p>Identify two simple fractions with a total of 1.</p> <p>VOCABULARY fraction tenths total quarters eighths sixths</p> <p>RESOURCES Resource sheet 11.1 12 cubes A bag</p>	<ul style="list-style-type: none"> Count ten cubes into a bag. Take out one cube and hold it up; ask: <ul style="list-style-type: none"> Q What fraction of the cubes is in my hand? What fraction of the cubes is in the bag? <p>Emphasise that $\frac{9}{10}$ are in the bag, $\frac{1}{10}$ are in your hand.</p> <p>Q What must $\frac{9}{10} + \frac{1}{10}$ represent?</p> <p>Collect answers and establish that $\frac{9}{10} + \frac{1}{10}$ represents all the cubes, so $\frac{9}{10} + \frac{1}{10} = \frac{10}{10} = 1$.</p> <p>Put the cube back in and repeat, taking out different numbers of cubes. Each time record the fraction statement.</p> <p>Q When I take out five cubes, what fraction of cubes do I have?</p> <p>Agree it is $\frac{5}{10}$ or half the cubes. Record $\frac{5}{10} = \frac{1}{2}$, and $\frac{5}{10} + \frac{5}{10} = \frac{1}{2} + \frac{1}{2} = 1$.</p> <ul style="list-style-type: none"> Count 12 cubes into a bag. Take out a number of cubes and ask: <ul style="list-style-type: none"> Q What fraction is in my hand, in the bag? <p>Return cubes and repeat. Agree that with six cubes you have half the cubes and record $\frac{6}{12} = \frac{1}{2}$, and $\frac{6}{12} + \frac{6}{12} = \frac{1}{2} + \frac{1}{2} = 1$.</p> <p>Establish that with three cubes you have one quarter and record $\frac{3}{12} = \frac{1}{4}$, with nine cubes you have three quarters, $\frac{9}{12} = \frac{3}{4}$. Record $\frac{3}{12} + \frac{9}{12} = \frac{1}{4} + \frac{3}{4} = 1$.</p> <ul style="list-style-type: none"> Repeat with eight cubes and ask children to identify fractions with a total of 1. <ul style="list-style-type: none"> Q If I have $\frac{3}{8}$ in my hand, what fraction is in the bag? Q If there is $\frac{7}{8}$ in the bag, what fraction am I holding? <p>Collect answers and get the children to record $\frac{3}{8} + \frac{5}{8} = 1$. Establish that $\frac{4}{8}$ is equivalent to $\frac{1}{2}$ and $\frac{2}{8}$ to $\frac{1}{4}$.</p>	<ul style="list-style-type: none"> Give each pair of children a cut up copy of Resource sheet 11.1. Write $\frac{1}{2}$ on board. Ask the children to use the cards to show an equivalent fraction. Discuss the different cards shown. Repeat the activity to include complements to 1. <p>ASSESSMENT – Explain to the children that during the week they will be completing ‘My Mathematics’ Self-assessment sheet.</p> <p>By the end of the lesson the children should be able to:</p> <ul style="list-style-type: none"> Begin to know the equivalence between: halves, quarters and eighths; Identify complements to 1 of simple fractions. <p>(Refer to supplement of examples, section 6, pages 22, 28.)</p>

Planning sheet	Day Two	Unit 11 <i>Fractions and decimals</i>	Term: <i>Summer</i>	Year Group: 4						
Oral and Mental		Main Teaching		Plenary						
Objectives and Vocabulary	Teaching Activities	Objectives and Vocabulary	Teaching Activities	Teaching Activities/Focus Questions						
<p>Understand fraction notation and count forwards and backwards in tenths and convert from improper fractions to mixed fractions.</p> <p>RESOURCES: Counting stick</p>	<ul style="list-style-type: none"> Show the children a counting stick marked in ten divisions. Remind them of the equivalents they identified on day 1. <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p>Q What are $\frac{10}{10}$ and $\frac{40}{10}$ equivalent to?</p> </div> <p>Establish $\frac{10}{10} = 1$ and $\frac{40}{10} = 4 = 3\frac{10}{10} = 2\frac{20}{10} = 1\frac{30}{10}$.</p> <ul style="list-style-type: none"> Say the counting stick covers the interval 5 to 6. With the class count from 5 to 6 in tenths. Count backwards from 6 in tenths. <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p>Q How can we represent 5 and 6 in tenths?</p> </div> <p>Collect answers and agree $5 = \frac{50}{10}$, etc and $6 = \frac{60}{10}$, etc. Repeat for other intervals. Ask:</p> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p>Q Which two whole numbers does $\frac{84}{10}$ lie between?</p> </div> <p>Agree it lies between $\frac{80}{10} = 8$ and $\frac{90}{10} = 9$.</p> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p>Q How can we rewrite $\frac{84}{10}$?</p> </div> <p>Establish that it is $8\frac{4}{10}$, $7\frac{14}{10}$, $6\frac{24}{10}$, etc. Identify this number on the counting stick. Repeat with other improper tenths fractions.</p> <ul style="list-style-type: none"> Explain the counting stick represents a whole number interval. <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p>Q If $\frac{73}{10}$ is on the stick what is the interval?</p> </div> <p>Collect answers. Agree the stick is from 7 to 8. The children count up from 7 in tenths and identify $7\frac{3}{10} = \frac{73}{10}$. Repeat with other improper tenths fractions.</p>	<p>Recognise the equivalence of simple fractions.</p> <p>VOCABULARY equivalent decimal fraction</p> <p>RESOURCES OHT 11.1 OHT 11.2 Interlocking cubes of two colours</p>	<ul style="list-style-type: none"> Show diagram 1 on OHT 11.1. Say it represents a row of interlocking cubes, some are dark, some are light. <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p>Q How many cubes are there? What fraction are dark cubes? What fraction are light cubes?</p> </div> <p>Collect answers, and discuss the fractions $\frac{5}{9}$ and $\frac{4}{9}$.</p> <ul style="list-style-type: none"> Record on the board: <table style="margin-left: 40px;"> <tr> <td>Dark</td> <td>Light</td> <td>Statement</td> </tr> <tr> <td>$\frac{5}{9}$</td> <td>$\frac{4}{9}$</td> <td>$\frac{5}{9} + \frac{4}{9} = 1$</td> </tr> </table> <ul style="list-style-type: none"> Show diagram 2 and repeat the questions. Establish the fractions are $\frac{3}{6}$ and $\frac{3}{6}$ and these are each $\frac{1}{2}$. Record the two answers on the board; $\frac{3}{6}$; $\frac{3}{6} + \frac{3}{6} = \frac{1}{2} + \frac{1}{2} = 1$. Repeat for each diagram and use interlocking cubes to demonstrate equivalent fractions by rearranging the cubes, e.g. for diagram 3, show that the two arrangements: <div style="margin-left: 40px;">  </div> <p>are equivalent, and $\frac{4}{12} = \frac{1}{3}$.</p> <p>Collect answers and record on the board: $\frac{4}{12}$, $\frac{8}{12}$, $\frac{4}{12} + \frac{8}{12} = 1$ and $\frac{1}{3}$, $\frac{2}{3}$, $\frac{1}{3} + \frac{2}{3} = 1$</p> <ul style="list-style-type: none"> Ask the children to look at the answers on the board. <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p>Q How could we explain to someone what fraction of the cubes are light if we know what fraction of the cubes are dark?</p> </div> <p>Let the children work in pairs with two different colours of cubes (light and dark).</p> <ul style="list-style-type: none"> Tell them that half of a rod is light. Write on the board: $\frac{1}{2} + \frac{1}{2} = 1$. <p>Ask them to use this information to make a rod using 14 cubes. Ask them to hold up the rods and make a statement. Write a variety of these statements on the board, e.g. $\frac{1}{2} + \frac{7}{14} = 1$, $\frac{7}{14} + \frac{7}{14} = 1$, $\frac{7}{14} + \frac{1}{2} = 1$</p> <ul style="list-style-type: none"> Repeat for 20 cubes, 4 cubes, etc. Now say that a fifth are light. Write on the board $\frac{1}{5} + \frac{4}{5} = 1$. Repeat the activity for 20 cubes, 15 cubes, 10 cubes. 	Dark	Light	Statement	$\frac{5}{9}$	$\frac{4}{9}$	$\frac{5}{9} + \frac{4}{9} = 1$	<ul style="list-style-type: none"> Display OHT 11.2. <p>Discuss the fraction wall with the children.</p> <p>Write on the board</p> <div style="text-align: center; margin: 10px 0;">  </div> <p>and invite the children to suggest equivalent fractions, e.g.</p> <div style="text-align: center; margin: 10px 0;">  </div> <p>Do the same for $\frac{2}{3}$, $\frac{3}{4}$, $\frac{4}{10}$.</p> <div style="border: 1px solid black; padding: 10px; margin-top: 20px;"> <p>By the end of the lesson the children should be able to:</p> <ul style="list-style-type: none"> Begin to know the equivalence between <ul style="list-style-type: none"> – halves, quarters and eighths; – tenths and fifths; – thirds and sixths. <p>(Refer to supplement of examples, section 6, page 22.)</p> </div>
Dark	Light	Statement								
$\frac{5}{9}$	$\frac{4}{9}$	$\frac{5}{9} + \frac{4}{9} = 1$								

Planning sheet	Day Three (page 1 of 2)	Unit 11 <i>Fractions and decimals</i>		Term: <i>Summer</i>	Year Group: <i>4</i>
Oral and Mental		Main Teaching			Plenary
Objectives and Vocabulary	Teaching Activities	Objectives and Vocabulary	Teaching Activities	Teaching Activities/Focus Questions	
<p>Understand fraction and decimal notation and count forwards and backwards in tenths and steps of 0.1 and identify equivalents.</p> <p>RESOURCES Counting stick</p>	<ul style="list-style-type: none"> Show a counting stick marked in ten divisions. Say that you want the children to count from 0 to 1 in steps of 0.1. Emphasise that after 0.9 comes 1 or 1.0. Record on the board $1 = 1.0$. Say the counting stick starts at 1. The children are to count forwards from 1 in steps of 0.1. <p>Q What comes after 1.9?</p> <p>Agree it is 2 and record $2 = 2.0$. Count backwards from 2 in steps of 0.1 to 1.</p> <p>Q What comes before 1?</p> <p>Correct answers and establish it is 0.9. Repeat for starting numbers 2, 3, etc.</p> <ul style="list-style-type: none"> Remind the children they previously counted in tenths. Say the stick starts at 0 and with the children count forwards to 1, first in tenths as fractions then in steps of 0.1. Identify a marker, e.g. the fourth marker. <p>Q What number does this represent?</p> <p>Agree it represents $\frac{4}{10}$ or 0.4. Remind the children that the number $\frac{4}{10}$ is equivalent to the number 0.4.</p> <p>Q What other equivalents can you identify on the stick?</p> <p>Collect answers and agree $\frac{1}{10} = 0.1$, $\frac{2}{10} = 0.2$ to $\frac{10}{10} = 1.0$.</p> <ul style="list-style-type: none"> Say the stick starts at 5 and count forwards and backwards in tenths and steps of 0.1. Ask the children to identify equivalents such as $5\frac{7}{10} = 5.7$. 	<p>Understand decimal notation and place value for tenths. Recognise the equivalence of simple fractions.</p> <p>RESOURCES Activity sheet 11.1 OHT 11.3 OHT 11.4 Self-assessment sheet 11.1</p>	<ul style="list-style-type: none"> Show a copy of OHT 11.3. Ask the children to count from 0 to 1 in steps of 0.1. Point to the boxes on the top row as they count. Repeat counting backwards. Point to a box on the top row. <p>Q What number should we write in this box?</p> <p>Collect answers and record the correct decimal number in the box. Repeat and fill up the first row.</p> <ul style="list-style-type: none"> Ask the children to count from 0 to 1 in tenths, point to boxes in the second row as the children count. Repeat counting backwards. Point to an empty tenths box and ask: <p>Q What number should we write in this box?</p> <p>Collect answers and record the tenths in boxes. Discuss the fraction and decimal equivalents with the children.</p> <ul style="list-style-type: none"> Identify the fifths and halves boxes. <p>Q What number should we write in these boxes?</p> <p>Collect answers and refer to the work in the previous lesson to establish $\frac{2}{10} = \frac{1}{5}$, etc. Complete all the boxes. Discuss the various equivalents. Hide the OHT, and ask a series of questions such as:</p> <p>Q What decimal is equivalent to $\frac{7}{10}$, $\frac{4}{5}$, $\frac{1}{2}$?</p> <p>Discuss responses and reshoot the OHT to confirm answers:</p> <ul style="list-style-type: none"> Show a blank copy of OHT 11.3. Say this time the interval is from 3 to 4. Point to empty boxes and ask: <p>Q What decimal or fraction should we write in this box?</p> <p>With the class fill in the empty boxes.</p> <ul style="list-style-type: none"> Compare the two copies of OHT 11.3. <p>Q How can we explain the difference between the two?</p> <p>Establish the similarities in the tenths, fifths and halves which describe the interval between the two whole numbers.</p> <p>Q How would the numbers change if we started the interval at 7?</p>	<ul style="list-style-type: none"> Reintroduce the counting stick. Say that the stick starts at 10 and ends at 11. Point to the middle marker. <p>Q What is this number as a decimal, as a fraction?</p> <p>Collect answers and discuss strategies.</p> <ul style="list-style-type: none"> Repeat identifying other markers and asking for the number as a decimal, and as tenths and fifths where appropriate. <p>ASSESSMENT –</p> <ul style="list-style-type: none"> Give out ‘My Mathematics’ Self-assessment sheet 11.1. Explain that the sheet is to help the children to identify what mathematics they have been able to do during the week. Ask the children to identify what mathematics they have been able to do during the week. Ask the children to work out the first ‘cloud’ question on the sheet. Say that you want them to record their answers in the middle box. when they have done this, they should show their work to a friend. Some children may need help. Tell the children they should tick the box to show if they worked on their own or with others. Give the children a few minutes to complete the task and ask them to put their sheet away for the next lesson. 	

Planning sheet	Day Three (page 2 of 2)	Unit 11 <i>Fractions and decimals</i>	Term: <i>Summer</i>	Year Group: <i>4</i>
Oral and Mental		Main Teaching		Plenary
Objectives and Vocabulary	Teaching Activities	Objectives and Vocabulary	Teaching Activities	Teaching Activities/ Focus Questions
			<p>Agree the difference would be in the whole number part of the numbers in the boxes.</p> <ul style="list-style-type: none"> Show OHT 11.4. Record the whole numbers 3, 4, and 5 on the line. <div data-bbox="972 368 1800 411" style="border: 1px solid black; padding: 5px;"> <p>Q Where would we place 3.6, 4.1, $3\frac{3}{10}$, $4\frac{1}{2}$, $3\frac{1}{5}$?</p> </div> <p>Select some children to show the numbers on the number line while others confirm they are correct.</p> <ul style="list-style-type: none"> Give out Activity sheet 11.1. The children work in pairs. In turn they give each other a number as a decimal or as a fraction with halves, fifths and tenths, to mark on the appropriate line. After eight numbers the children compare and correct their answers recorded on the sheet and repeat with another eight numbers. 	<p>HOMEWORK – Write on board: $7\frac{4}{5}$, 8.2, 7.5, $7\frac{3}{5}$, 8.9, $8\frac{2}{5}$.</p> <p>Tell the children that they are to write each number as a decimal or in tenths and draw a number line and place each number on it (for day 5).</p> <div data-bbox="1839 544 2179 842" style="border: 1px solid black; padding: 10px;"> <p>By the end of the lesson the children should be able to:</p> <ul style="list-style-type: none"> Identify equivalence between halves, fifths, tenths and decimals. Place simple fractions and decimals on a number line. <p>(Refer to supplement of examples, section 6, page 22, 28 and 30.)</p> </div>

Planning sheet	Day Four (page 1 of 2)	Unit 11 <i>Fractions and decimals</i>	Term: <i>Summer</i>	Year Group: <i>4</i>																				
Oral and Mental		Main Teaching		Plenary																				
Objectives and Vocabulary	Teaching Activities	Objectives and Vocabulary	Teaching Activities	Teaching Activities/Focus Questions																				
<p>Convert improper and mixed tenths to decimals and decimals to tenths.</p> <p>VOCABULARY convert equivalent</p> <p>RESOURCES Whiteboards</p>	<ul style="list-style-type: none"> Write as three headings on the board : <div style="text-align: center;"> <table style="border-collapse: collapse; margin: auto;"> <tr> <td style="border: 1px solid black; width: 20px; height: 20px; display: inline-block;"></td> <td style="border: 1px solid black; width: 20px; height: 20px; display: inline-block;"></td> <td style="border: 1px solid black; width: 20px; height: 20px; display: inline-block;"></td> <td style="border: 1px solid black; width: 20px; height: 20px; display: inline-block;"></td> <td style="border: 1px solid black; width: 20px; height: 20px; display: inline-block;"></td> <td style="border: 1px solid black; width: 20px; height: 20px; display: inline-block;"></td> <td style="border: 1px solid black; width: 20px; height: 20px; display: inline-block;"></td> <td style="border: 1px solid black; width: 20px; height: 20px; display: inline-block;"></td> <td style="border: 1px solid black; width: 20px; height: 20px; display: inline-block;"></td> <td style="border: 1px solid black; width: 20px; height: 20px; display: inline-block;"></td> </tr> <tr> <td style="text-align: center; border-top: 1px solid black; width: 20px;"></td> <td style="text-align: center; border-top: 1px solid black; width: 20px;"></td> <td style="text-align: center; border-top: 1px solid black; width: 20px;"></td> <td style="text-align: center; border-top: 1px solid black; width: 20px;"></td> <td style="text-align: center; border-top: 1px solid black; width: 20px;"></td> <td style="text-align: center; border-top: 1px solid black; width: 20px;"></td> <td style="text-align: center; border-top: 1px solid black; width: 20px;"></td> <td style="text-align: center; border-top: 1px solid black; width: 20px;"></td> <td style="text-align: center; border-top: 1px solid black; width: 20px;"></td> <td style="text-align: center; border-top: 1px solid black; width: 20px;"></td> </tr> </table> </div> <p>Under the first heading write $4\frac{6}{10}$.</p> <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <p>Q What are the missing numbers that make the fractions and decimals equivalent?</p> </div> <p>The children write their answers on the whiteboards and show.</p> <p>Agree that: $4\frac{6}{10} = 4\frac{6}{10} = 4.6$ and record on the board.</p> <p>Ensure the children record their numbers in the correct form. Remind them that we could write $4\frac{6}{10}$ as $3\frac{16}{10}$, etc.</p> <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <p>Q Are there other ways we could write this number?</p> </div> <p>Agree that: $4\frac{6}{10} = 3\frac{16}{10} = 2\frac{26}{10} = 1\frac{36}{10}$.</p> <ul style="list-style-type: none"> Repeat, writing numbers under the first, second and third heading for children to convert. Collect and record answers. 																					<p>Understand place value for tenths and hundredths and use it in context.</p> <p>VOCABULARY units tenths hundredths decimal point</p> <p>RESOURCES Resource sheet 11.2 OHT 11.5 OHT 11.6 Self-assessment sheet 11.1</p>	<ul style="list-style-type: none"> Say that a savings box has $10 \times 10p$ coins and $4 \times 2p$ coins. <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <p>Q How much is in the box?</p> </div> <p>Collect answers and agree that $10 \times 10p$ coins is £1 and $4 \times 2p$ coins is 8p, a total of one pound and eight pence. <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <p>Q How do we write this?</p> </div> <p>Establish that it is written as £1.08. <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <p>Q How many pence in £1?</p> </div> <p>Agree there are 100p in £1.</p> <ul style="list-style-type: none"> Write on the board: 105 cm <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <p>Q How do we write this in metres?</p> </div> <p>Establish that it is written as 1.05 m. <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <p>Q How many cm in 1 m?</p> </div> <p>Agree there are 100 cm in 1 m.</p> <ul style="list-style-type: none"> Write on the board : 4.6 <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <p>Q What do the digits 4 and 6 represent?</p> </div> <p>Establish the 4 represents 4 units and the 6 represents 6 tenths.</p> <ul style="list-style-type: none"> Write on the board: 2.75 <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <p>Q What do the digits represent?</p> </div> <p>Establish the 2 represents 2 units and the 7 represents 7 tenths. Remind the children that when we write £2.75 the 5 represents 5p and there are 100p in £1; when we write 2.75 m the 5 represents 5 cm and there are 100 cm in 1 m. Explain that the 7 represents tenths, the 5 represents hundredths. Emphasise that</p> </p></p></p>	<p>the decimal point separates the whole numbers and the part numbers.</p> <ul style="list-style-type: none"> Show OHT 11.5. <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <p>Q How many small squares are in this large square?</p> </div> <p>Establish there are 100 squares. <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <p>Q What fraction of the large square is one small square?</p> </div> <p>Agree it is one hundredth of the large square. Record on the board: $\frac{1}{100}$. <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <p>Q How can we represent this as a decimal?</p> </div> <p>Agree there are no units or tenths only one hundredth. Record on the board 0.01. Emphasise the meaning of each digit, and ensure the children can read this correctly as zero point zero one. <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <p>Q What shall we write for two small squares?</p> </div> <p>Collect answers and record 0.02, emphasise the meaning of each digit and how to read it. Repeat with the children counting along the grid in steps of 0.01. Stop at the end of the first row. <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <p>Q What fraction of the large square is ten small squares?</p> </div> <p>Establish it is $\frac{10}{100}$ or $\frac{1}{10}$. <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <p>Q How do we represent this as a decimal?</p> </div> </p></p></p></p></p>

Planning sheet	Day Four (page 2 of 2)	Unit 11 <i>Fractions and decimals</i>		Term: <i>Summer</i>	Year Group: 4
Oral and Mental		Main Teaching			Plenary
Objectives and Vocabulary	Teaching Activities	Objectives and Vocabulary	Teaching Activities		Teaching Activities/Focus Questions
			<p>Explain that it can be represented as 0.1 or 0.10. Continue counting to 0.30, point to the squares on the grid as the children count.</p> <ul style="list-style-type: none"> Identify a square on the grid and ask: <div data-bbox="981 432 1355 501" style="border: 1px solid black; padding: 2px; margin: 5px 0;"> Q What decimal number would we write in this square? </div> <p>Explain how to count the rows in tenths and then along in hundredths. Repeat using other small squares.</p> <ul style="list-style-type: none"> Replace OHT 11.5 with OHT 11.6. Discuss the pattern of the digits with the children. Point to a number in the table. <div data-bbox="981 692 1355 761" style="border: 1px solid black; padding: 2px; margin: 5px 0;"> Q How do we read this number? What do the digits represent? </div> <p>Collect answers and discuss different numbers on the grid.</p> <ul style="list-style-type: none"> Point to the last small square and ask: <div data-bbox="981 879 1355 925" style="border: 1px solid black; padding: 2px; margin: 5px 0;"> Q Why is this 1.00? </div> <p>Ensure the children understand this means we have 100 small squares which is equivalent to 1 large square.</p> <div data-bbox="981 1038 1355 1085" style="border: 1px solid black; padding: 2px; margin: 5px 0;"> Q What would 2.14 represent? </div> <p>Collect answers and establish that it represents two large squares, one row of ten small squares and four small squares.</p> <p>Repeat with other decimal numbers.</p>		

Planning sheet	Day Five	Unit 11 <i>Fractions and decimals</i>		Term: <i>Summer</i>	Year Group: 4
Oral and Mental		Main Teaching			Plenary
Objectives and Vocabulary	Teaching Activities	Objectives and Vocabulary	Teaching Activities	Teaching Activities/Focus Questions	
<p>Convert a sum of money to pence.</p> <p>Round a sum of money to the nearest pound.</p> <p>VOCABULARY pounds pence round</p> <p>RESOURCES Whiteboards</p>	<ul style="list-style-type: none"> Write on the board: £6.00, £4.82, £3.05, £0.49, £0.05. <div data-bbox="331 379 638 475" style="border: 1px solid black; padding: 5px;"> <p>Q How many pence are there in each of these sums of money?</p> </div> <p>The children show answers on whiteboards. Discuss their answers. Ensure the children interpret the decimal point correctly, and record answers as 600p, etc. Repeat.</p> <ul style="list-style-type: none"> Point to £4.82 and ask: <div data-bbox="331 699 638 762" style="border: 1px solid black; padding: 5px;"> <p>Q Is this sum closer to £4 or £5?</p> </div> <p>Collect answers and agree £5. Write on the board £4.28.</p> <div data-bbox="331 842 638 906" style="border: 1px solid black; padding: 5px;"> <p>Q Is this sum closer to £4 or £5?</p> </div> <p>Collect answers and agree £4. Write on the board: £4.50 and £4.49.</p> <div data-bbox="331 1002 638 1066" style="border: 1px solid black; padding: 5px;"> <p>Q Are these sums closer to £4 or £5?</p> </div> <p>Discuss responses and agree the first is closer to £5 but the second is closer to £4. Repeat, rounding other sums such as £0.99, £0.09, etc.</p>	<p>Begin to use ideas of simple proportion.</p> <p>VOCABULARY one in every... proportion two in every... three in every...</p> <p>RESOURCES OHT 11.1 OHT 11.4 Interlocking cubes Self-assessment sheet 11.1</p>	<ul style="list-style-type: none"> Show OHT 11.1. Remind the children that earlier in the week they described the fractions of dark and light cubes in these rows of cubes. Explain that this time the diagrams represent part of continuing patterns of cubes. <div data-bbox="931 411 1644 459" style="border: 1px solid black; padding: 5px;"> <p>Q Can you describe the different patterns?</p> </div> <p>Give the children interlocking cubes of two colours and in pairs get them to make and then describe the six different patterns.</p> <ul style="list-style-type: none"> Collect the children's descriptions for diagram 1. Establish that the 'basic unit' consists of two cubes, one dark and one light. Introduce the language that one in every two cubes is dark. Explain that this describes the 'basic unit' of two cubes and the proportion of the cubes that are dark/light. <div data-bbox="931 699 1644 762" style="border: 1px solid black; padding: 5px;"> <p>Q If we used a basic unit of four cubes, how would we describe this pattern?</p> </div> <p>Collect answers and encourage the use of the language 'two in every four cubes is light/dark'.</p> <div data-bbox="931 858 1644 906" style="border: 1px solid black; padding: 5px;"> <p>Q What if we described 6, 8, 10, 12 cubes?</p> </div> <p>Collect answers, correct errors and any mistakes of language.</p> <ul style="list-style-type: none"> Collect answers to the description of the remaining diagrams. In each case, identify the 'basic unit' and encourage the children's use of '...in every...'. Ask the children to extend the pattern to describe larger numbers of cubes. For diagram 6, ask the children if knowing that three in every five cubes is dark means that the pattern in diagram 6 is the only possible pattern. Invite the pairs of children to use the cubes to make alternative three in every five patterns. Collect and discuss alternatives. Ask the pairs of children to make their own patterns of cubes and write down their descriptions using the 'in every' language. Get pairs to swap descriptions and use the descriptions they are given to make the patterns then compare answers. Discuss the descriptions and patterns with the children. 	<ul style="list-style-type: none"> Remind the children that a proportion can be described using the ...in every... language or a fraction. Draw on the board:  <div data-bbox="1715 427 2181 475" style="border: 1px solid black; padding: 5px;"> <p>Q Can you describe this pattern in both ways?</p> </div> <p>Collect answers and agree that 'one in every four cubes is dark' and $\frac{3}{12}$ or $\frac{1}{4}$ is dark.</p> <ul style="list-style-type: none"> Review the homework from day 3. Collect the decimal and tenths answers and record them on the board: 7.8, 8.2, 7.5, 7.6, 8.9, 8.4 $7\frac{8}{10}$, $8\frac{2}{10}$, $7\frac{5}{10}$, $7\frac{6}{10}$, $8\frac{9}{10}$, $8\frac{4}{10}$. Show OHT 11.4. <div data-bbox="1715 730 2181 802" style="border: 1px solid black; padding: 5px;"> <p>Q To record these numbers on this line, what whole numbers should we add?</p> </div> Agree that they are 7, 8 and 9. With the class, record the numbers on the line. Remind the children that they met decimals with tenths and hundredths earlier. Write on the board: 7.70, 7.73, 7.80, 8.56. Discuss with the class where they think these numbers might go on the number line. <p>ASSESSMENT – Ask the children to review their 'My Mathematics' Self-assessment sheet 11.1. Consider the work undertaken over the week and think about one area in which they wish to improve. Write a target for themselves.</p> <div data-bbox="1686 1225 2181 1449" style="border: 1px solid black; padding: 5px;"> <p>By the end of the lesson the children should be able to:</p> <ul style="list-style-type: none"> Discuss statements and describe patterns using the language 'in every' and simple fractions <p>(Refer to supplement of examples, section 6, pages 22, 26 and 28.)</p> </div>	

$$\frac{4}{6}$$

$$\frac{2}{8}$$

$$\frac{4}{8}$$

$$\frac{6}{8}$$

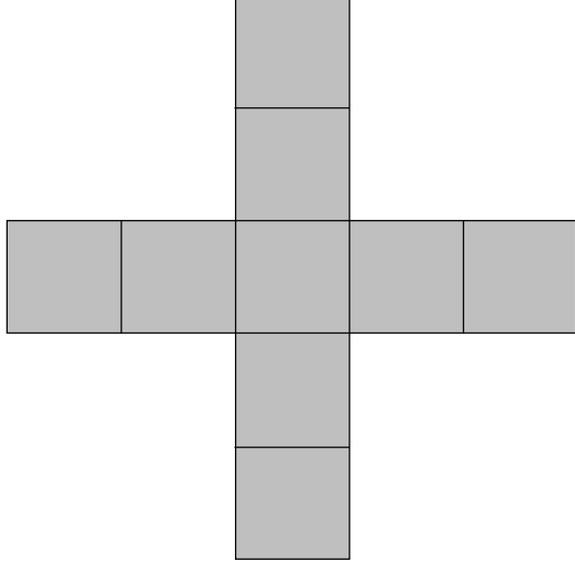
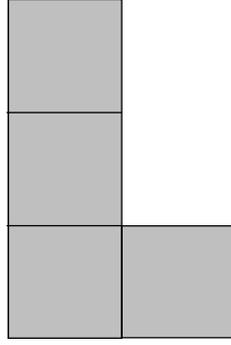
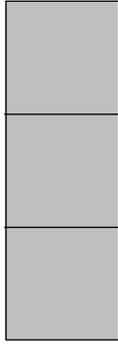
$$\frac{2}{10}$$

$$\frac{2}{6}$$

$$\frac{8}{10}$$

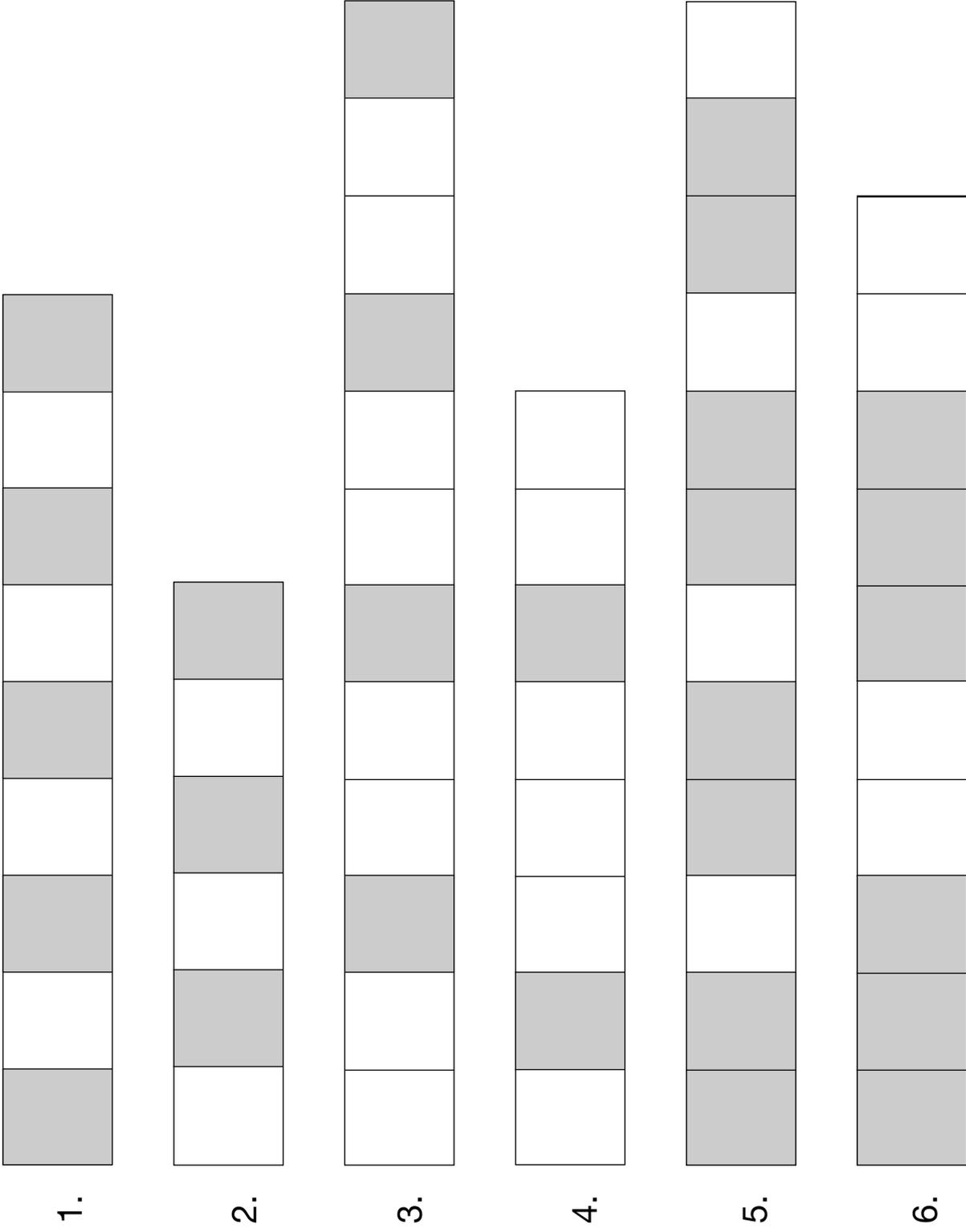
$$\frac{5}{10}$$

$$\frac{3}{6}$$

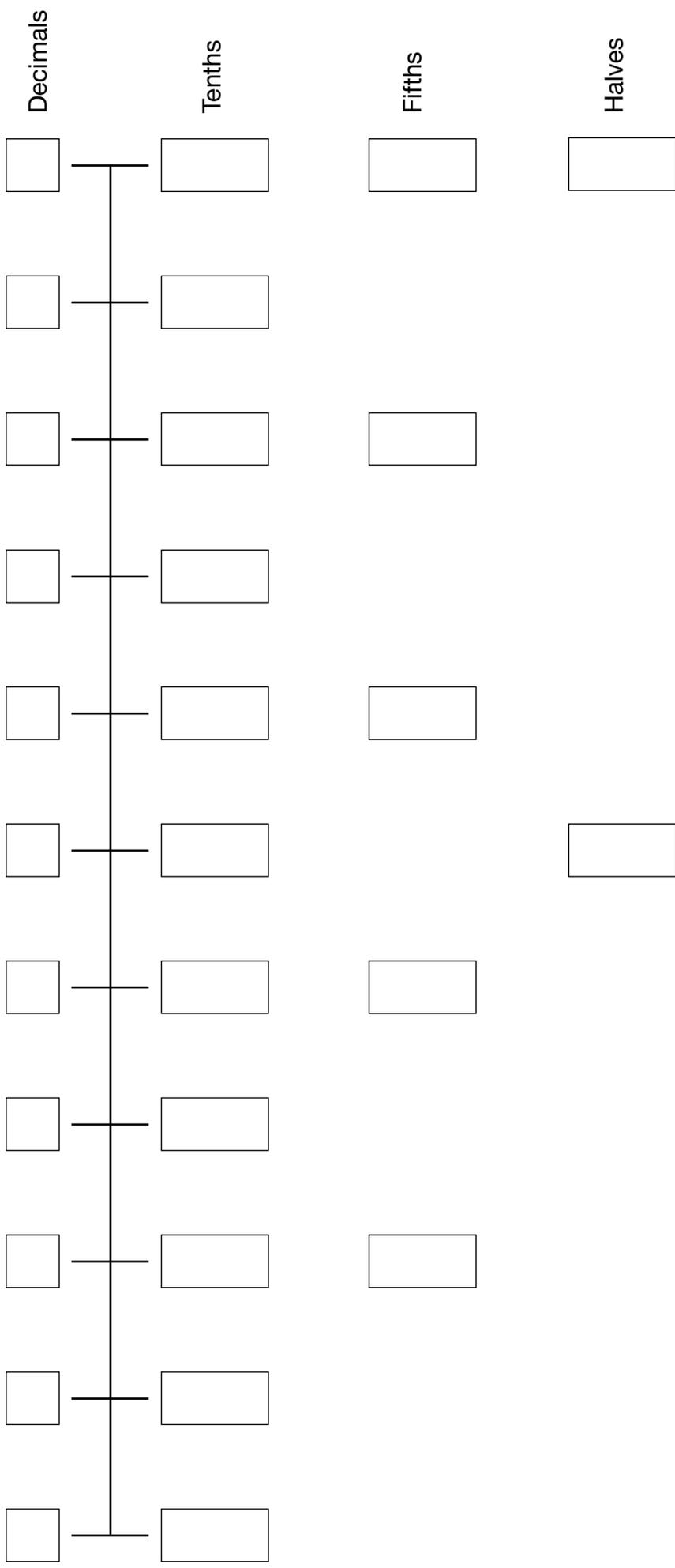


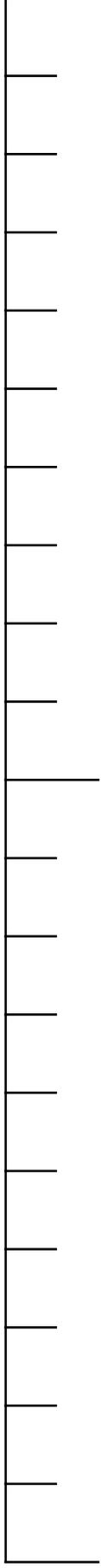
Unit 11 Year 4 (Summer Term)

OHT 11.1



$\frac{1}{2}$		$\frac{1}{2}$	
$\frac{1}{3}$	$\frac{1}{3}$	$\frac{1}{3}$	$\frac{1}{3}$
$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$
$\frac{1}{5}$	$\frac{1}{5}$	$\frac{1}{5}$	$\frac{1}{5}$
$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$
$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$
$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$
$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$





0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.10
0.11	0.12	0.13	0.14	0.15	0.16	0.17	0.18	0.19	0.20
0.21	0.22	0.23	0.24	0.25	0.26	0.27	0.28	0.29	0.30
0.31	0.32	0.33	0.34	0.35	0.36	0.37	0.38	0.39	0.40
0.41	0.42	0.43	0.44	0.45	0.46	0.47	0.48	0.49	0.50
0.51	0.52	0.53	0.54	0.55	0.56	0.57	0.58	0.59	0.60
0.61	0.62	0.63	0.64	0.65	0.66	0.67	0.68	0.69	0.70
0.71	0.72	0.73	0.74	0.75	0.76	0.77	0.78	0.79	0.80
0.81	0.82	0.83	0.84	0.85	0.86	0.87	0.88	0.89	0.90
0.91	0.92	0.93	0.94	0.95	0.96	0.97	0.98	0.99	1.00

