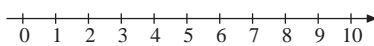
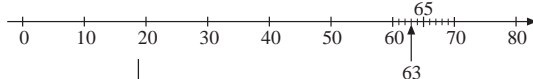
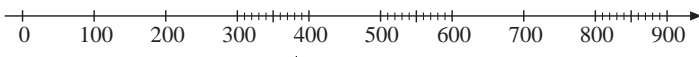
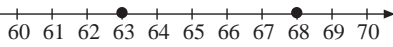


<p>Y7</p>	<p>UNIT 2 Arithmetic: Place Value Lesson Plan 1</p>	<p><i>Place Value</i></p>										
<p>Activity</p> <p>1</p>	<p>Place value table</p> <p>T: I'm just a simple man/woman. I only know 10 numbers.</p> <p>T: What happens though if I write some of the numbers close together; for example (on BB) 634 ?</p> <p>T: Hundred? Thirty? What do those words mean?</p> <p>T: I see; so the number under the Hundreds column is 6, but it has a real value of 600.</p> <p>T: What about the number in the Tens column? (<i>Real value 30</i>)</p> <p>T: Let's try another number (on BB e.g. 40 361).</p> <p>T: But how can I write it in our table?</p> <p>T: What does the 6 represent now? (<i>60</i>) The 3 ? (<i>300</i>)</p> <p>T: OK, but who can extend the place value table further?</p> <p>T: Fantastic! Is there a number large enough to fill up the table?</p> <p style="text-align: right;"><i>12 mins</i></p>	<p style="text-align: center;">Notes</p> <p>0, 1, 2, 3, 4, 5, 6, 7, 8, 9 written on BB.</p> <p>Ps respond in chorus (six hundred and thirty four).</p> <p>Ps try to explain, and T leads them on to place value table on BB e.g. <table style="display: inline-table; border-collapse: collapse; margin-left: 20px;"> <tr> <td style="border-right: 1px dashed black; padding: 0 5px;">Hundreds</td> <td style="border-right: 1px dashed black; padding: 0 5px;">Tens</td> <td style="padding: 0 5px;">Units</td> </tr> <tr> <td style="border-right: 1px dashed black; text-align: center;">6</td> <td style="border-right: 1px dashed black; text-align: center;">3</td> <td style="text-align: center;">4</td> </tr> </table></p> <p>Ps respond (forty thousand three hundred and sixty one).</p> <p>Ps extend table on BB, writing 'Thousands', 'Tens of thousands' and then 40 361.</p> <p>Ps volunteer and T chooses P to write on BB the next column (extending up to hundreds of millions). Agreement. Praising.</p> <p>One P writes 9-digit numbers in table on BB, others write in Ex.Bs.</p> <p>This P chooses another P to read number out, and they write another 9-digit number, etc. Agreement. Praising.</p>	Hundreds	Tens	Units	6	3	4				
Hundreds	Tens	Units										
6	3	4										
<p>2</p>	<p>PB2.1, Q6</p> <p>T points to Ps in turn to firstly read out number and then to answer question.</p> <p style="text-align: right;"><i>17 mins</i></p>	<p>Whole class activity, without writing. First P chooses the next P, etc. Agreement. Praising.</p>										
<p>3</p> <p>Number systems</p> <p>T: Working in our system of numbers, based on 10, it is easy to read and write numbers. But what other systems have been used?</p> <p><i>(continued)</i></p>	<p>T: Working in our system of numbers, based on 10, it is easy to read and write numbers. But what other systems have been used?</p>	<p>See <i>Teaching Notes</i> for other systems.</p> <table style="margin-left: 20px;"> <tr> <td style="border-right: 1px solid black; padding: 0 5px;">e.g. <i>Number</i></td> <td style="padding: 0 5px;"><i>Word</i></td> </tr> <tr> <td style="border-right: 1px solid black; text-align: center;">0</td> <td style="text-align: center;">sky</td> </tr> <tr> <td style="border-right: 1px solid black; text-align: center;">1</td> <td style="text-align: center;">moon</td> </tr> <tr> <td style="border-right: 1px solid black; text-align: center;">2</td> <td style="text-align: center;">eye</td> </tr> <tr> <td style="border-right: 1px solid black; text-align: center;">3</td> <td style="text-align: center;">fire</td> </tr> </table> <p>and read backwards, so that 210 is sky-moon-eye, etc.</p>	e.g. <i>Number</i>	<i>Word</i>	0	sky	1	moon	2	eye	3	fire
e.g. <i>Number</i>	<i>Word</i>											
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Y7	UNIT 2 Arithmetic: Place Value Lesson Plan 1	<i>Place Value</i>
Activity 3 <i>(continued)</i>	<p>T: What system did the Romans use? On BB I = 1 V = 5 X = 10 L = 50 C = 100 D = 500 M = 1000</p> <p>T: In Roman numerals, - how old are you? - what is the number of your house? - what year is it? - when were you born? etc.</p> <p style="text-align: right;">_____ 27 mins _____</p>	<p style="text-align: center;">Notes</p> <p>Encourage Ps to define symbols; ensure that all are defined and written on BB.</p> <p>Ps write answers (in turn) on BB, with encouragement from T and help if necessary from other Ps.</p> <p>Praising.</p>
<p>4A</p> <p>4B</p> <p>4C</p>	<p>PB 2.1, Q11 (a), (b), (c)</p> <p>T: Now we return to <i>our</i> number system.</p> <p>PB 2.1, Q11 (d)</p> <p>T: OK; let's add another zero to the digits. Who can answer the questions now?</p> <p style="text-align: right;">_____ 37 mins _____</p>	<p>Whole class activity. Discuss answers. Praising.</p> <p>Individual work (monitored, helped). Checking (one P writes numbers on BB). Agreement. Feedback. Self-correction. Praising.</p> <p>T chooses P to answer (choose one who needs help with part (d)). Praising.</p>
<p>5</p>	<p>Number line</p> <p>T: So now we understand place value tables, but how can we illustrate our numbers showing how they relate to one another? <i>(Number line)</i></p> <p>T: What is a number line? How do we construct it?</p> <p>T: How do you illustrate the number 63 on your number line? <i>(Impossible)</i></p> <p>T: Why is it impossible? <i>(Number too big)</i></p> <p>T: Construct a more suitable number line.</p> <p>T: Who would like to show 68? 2? 79? 81?</p>	<p>Whole class activity, recalling the idea of a number line.</p> <p>T draws (or reveals already prepared) number line on BB with 0, 1, ..., 10 as dividing points; Ps copy into Ex.Bs.</p>  <p>e.g.</p>  <p>T on BB, Ps in Ex.Bs. P at BB; agreement, praising.</p> <p style="text-align: right;">_____ 45 mins _____</p>

<p>Y7</p>	<p>UNIT 2 Arithmetic: Place Value Lesson Plan 1</p>	<p><i>Place Value</i></p>
<p><i>Activity</i></p> <p>6</p>	<p>Set homework</p> <p>A PB 2.1, Q7 (a), (e), (f), (g), (h), (i) and with the extra question, 'What does the 3 represent in each of these numbers?'</p> <p>B PB 2.1, Q8, (a), (c), (e), (f), (g) using place value table in Ex.Bs.</p> <p>C PB 2.1, Q9.</p> <p>D Construct a suitable number line to illustrate these numbers:</p> <p>310</p> <p>570</p> <p>890</p> <p>575</p> <p>817</p>	<p><i>Notes</i></p>

<h1>Y7</h1>	<h2>UNIT 2 Arithmetic: Place Value</h2> <h3>Lesson Plan 2</h3>	<h3>Rounding and Estimation</h3>
<p>Activity</p> <p>1</p> <p><i>Extensions</i></p>	<p>Mental work</p> <p>T: Let's start with some simple questions!</p> <p>(i) What is the smallest number with 3 digits? (100)</p> <p>(ii) What is the largest number with 3 digits? (999)</p> <p>(iii) How many whole numbers are there with 3 digits? (900)</p> <p>(iv) How many whole numbers are there with 2 digits? (90)</p> <p>{ (v) How many whole numbers are there with 4 digits? (9000)</p> <p>{ (vi) How many whole numbers are there from 12 to 674, including 12 and 674? (663)</p> <p style="text-align: right;"><i>8 mins</i></p>	<p style="text-align: center;">Notes</p> <p>T asks, Ps put hands up or show answers on paper or slates.</p> <p>This question might cause problems as it can be answered in two different ways:</p> <ol style="list-style-type: none"> There are 99 numbers from 1 to 99 and 999 from 1 to 999, so answer = $999 - 99 = 900$. There are 899 steps from 100 to 999, so, including the first step, there are 900 numbers. <p>(You can illustrate with easier questions, e.g. how many numbers from 6 to 9?)</p>
<p>2</p> <p>2AB</p> <p>2C</p> <p>2D</p>	<p>Checking homework</p> <p>PB 2.1, Q7 (a), (e), (f), (g), (h), (i)</p> <p>Q8 (a), (c), (e), (f), (g)</p> <p>PB 2.1, Q9</p> <p>Illustrate numbers 310 570 890 575 817 on a number line.</p>  <p>T: Where on the line is 575? (Halfway between 570 and 580) What about 817?</p> <p style="text-align: right;"><i>18 mins</i></p>	<p>T prepares OHP with answers. Feedback. Self-correction. Praising.</p> <p>Ps read out statements and reasons for true or false; discussion. Praising.</p> <p>Whole class discussion about suitable number lines, e.g.</p> <p>OK for 310, 570, 890</p> <p>Discussion; T shows approximate place for number.</p>
<p>3</p> <p><i>(continued)</i></p>	<p>Rounding</p> <p>T: Did anyone watch the Man. Utd. game last night? (Response!)</p> <p>T: For those not into football, this was a Champions League match, Man. Utd. against Lille. I'm sure you can tell us the result ... (Response, maybe at length!)</p> <p>T: In my paper it says that there were 65 000 spectators. I couldn't believe it - exactly 65000! Do you believe it?</p> <p>T: So the papers told a lie? (No, they just gave an estimate.)</p> <p>T: What do you mean by an estimate?</p> <p>T: Draw a number line in your Ex.B to illustrate how 63 and 68 round to the nearest 10.</p>	<p>T refers to an actual event - it doesn't have to be football!</p> <p>Ps respond that the information is probably not exact.</p> <p>Ps (hopefully) will suggest that the number has been rounded (to the nearest 1000).</p> <p>T on BB, Ps in Ex.Bs.</p>

Y7	UNIT 2 Arithmetic: Place Value Lesson Plan 2	<i>Rounding and Estimation</i>
Activity 3 <i>(continued)</i>	<p>T: What does 63 round to? (60) Why? (Nearer to 60 than to 70)</p> <p>T: What does 68 round to? (70) Why? etc.</p> <p>T: What about rounding 310 to the nearest 100 (300) and 380, 817, to the nearest 100 (400, 800)</p> <p>T: What is 817 rounded to the nearest 10? (820)</p> <p>T: What about 575 rounded to the nearest 10? (580)</p> <p style="text-align: right;">28 mins</p>	<p style="text-align: center;">Notes</p>  <p>P writes on number line on BB.</p> <p>T discusses with Ps the convention of rounding '5' up.</p>
4	PB 2.1, Q1, Q2 or Q3 <p style="text-align: right;">33 mins</p>	Mental work; T points to Ps one at a time. Agreement. Praising.
5	PB 2.1, Q15 <p style="text-align: right;">40 mins</p>	Individual work, monitored, helped. Checking. Discussion. Agreement. Feedback. Self-correction. Praising. T and Ps discuss what is meant by estimation.
6	Estimation <p>T: Give me some examples of situations when you have used estimation.</p> <p>T: Suppose you have £3 in your pocket and you put these items into a shopping basket. As you near the check-out, you begin to wonder if you have enough money.</p> <p>T: How can you quickly see if you have enough money? (Estimate by rounding to the nearest 10p)</p> <p>T: Now add them up quickly. Total? (270p)</p> <p>T: So what can you conclude? (Since £3 = 300p, you will have enough money, so you can go to the check-out)</p> <p style="text-align: right;">45 mins</p>	Give Ps opportunity and encouragement to think of possible practical situations. On OHS, e.g. Choc Bar 29p Crisps 22p Pie 97p Drink 48p Apples 71p P on OHS Choc Bar → 30p Crisps → 20p Pie → 100p Drink → 50p Apples → 70p
7	Set homework A Write down the prices from the OHS and work out the exact total price of the items. See if you can find an easy way to add them up. B PB 2.1, Q4 C PB 2.1, Q13	

Y7	UNIT 2 Arithmetic: Place Value Lesson Plan 3	<i>Place Value and Rounding of Decimals</i>																				
<p>Activity</p> <p>1</p> <p>1A</p> <p>1B, C</p>	<p>Checking homework</p> <p>T: How much is $29p + 22p + 97p + 48p + 71p$?</p> <p>T: Who added up in an easy way $(29 + 71) + (22 + 48) + 97$ $= 100 + 70 + 97$ $= 170 + 97$ $= 267$)</p> <p>T: Who got this right? Who got another answer? Can you work out where you made the mistake?</p> <p>T: So was the estimation OK?</p> <p>PB 2.1, Q4 and Q13</p> <p style="text-align: right;"><i>5 mins</i></p>	<p style="text-align: center;">Notes</p> <p>Checking P's work.</p> <p>Discuss P's ideas; they might add 97 by using $100 - 3$, etc.</p> <p>Self-correction. Praising.</p> <p>Tasks checked by Ps writing solutions on BB.</p> <p>Agreement. Feedback. Self-correction. Praising.</p>																				
<p>2</p> <p>2A</p> <p>2B</p> <p>2C</p> <p>2D</p>	<p>Decimals in place value table</p> <p>T: Do you remember the place value table we used?</p> <p>T: What comes next on the left hand side? <i>(Thousands, tens of thousands, ...)</i></p> <p>T: What is the difference between the real values of the same digit in the tens and units? $(\frac{1}{10})$</p> <p>T: Is there a tenth part of the units? <i>(Tenths)</i></p> <p>T: And more? <i>(Hundredths, thousandths)</i></p> <p>T: Let's see if you can read out a number ... (1.47, 302.4, 0.05, etc.)</p> <p>T reads out numbers from OS 2.5 and Ps write them in Ex.Bs using table.</p> <p style="text-align: center;"> 147.209 26.092 5.007 470.05 </p> <p>T: What is the value of the 2 in each of our numbers? <i>(2 tenths in first number, etc.)</i></p> <p style="text-align: right;"><i>18 mins</i></p>	<p>Whole class activity.</p> <p>P draws table on BB with hundreds, tens and units.</p> <p>Praising.</p> <p>Help needed to recognise that the opposite of $\times 10$ is $\div 10$ or $\times \frac{1}{10}$.</p> <p>T draws extension to RHS of place value table on BB, and Ps in Ex.Bs.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th><i>Hundreds</i></th> <th><i>Tens</i></th> <th><i>Units</i></th> <th><i>Tenths</i></th> <th><i>Hundredths</i></th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td>1</td> <td>• 4</td> <td>7</td> </tr> <tr> <td>3</td> <td>0</td> <td>2</td> <td>• 4</td> <td></td> </tr> <tr> <td></td> <td></td> <td>0</td> <td>• 0</td> <td>5</td> </tr> </tbody> </table> <p>Ps read out the numbers. Agreement. Praising</p> <p>Individual work.</p> <p>Having finished, T puts OS 2.5 onto OHP and Ps check their answers.</p> <p>Feedback (no mistakes? one mistake? ...)</p> <p>Self correction. Praising.</p> <p>Whole class activity. Ps respond. Agreement. Praising.</p>	<i>Hundreds</i>	<i>Tens</i>	<i>Units</i>	<i>Tenths</i>	<i>Hundredths</i>			1	• 4	7	3	0	2	• 4				0	• 0	5
<i>Hundreds</i>	<i>Tens</i>	<i>Units</i>	<i>Tenths</i>	<i>Hundredths</i>																		
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		0	• 0	5																		

<p>Y7</p>	<p>UNIT 2 Arithmetic: Place Value Lesson Plan 3</p>	<p><i>Place Value and Rounding of Decimals</i></p>
<p><i>Activity</i> 5</p>	<p>PB 2.2, Q5</p> <p style="text-align: right;"><i>45 mins</i></p>	<p>Notes</p> <p>Individual work. Checking: P reads out solutions giving reasons. Agreement. Feedback. Self-correction. Praising.</p>
<p>6</p>	<p>Set homework PB 2.2, Q2, Q3, Q4 and Q6.</p>	

<p>Y7</p>	<p>UNIT 2 Arithmetic: Place Value Lesson Plan 4</p>	<p><i>Rounding in Practical Contexts</i></p>
<p><i>Activity</i> 5</p>	<p>Set homework. M 2.4, Q1 - Q8</p>	<p><i>Notes</i></p>
	<div style="border: 1px solid black; padding: 5px;"> <p>NB For lessons 5 and 6, see the last two lessons for Unit 1, and follow a similar style. Make sure that there is enough for stronger pupils to do; there are many Extra Exercises and, for example, Activity 2.3, that could be used.</p> </div>	