

Unit 1

Ordering and rounding numbers

Three daily lessons

National
Numeracy Strategy

Year 4
Spring term

Unit Objectives

Year 4

- Multiply or divide any integer up to 1000 by 10 (whole-number answers), and understand the effect. Begin to multiply by 100.
- Read and write the vocabulary of comparing and ordering numbers.
- **Use symbols correctly including less than (<), greater than (>) and equals (=).**
- **Round any positive integer less than 1000 to nearest 10 or 100.**

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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 1.1
- Resource sheet 1.2
- Resource sheet 1.3
- OHT 1.1
- Pendulum: string and weight
- Large digit cards 0–9 (and extra 0)
- Counting stick
- Whiteboards
- Dice

Link Objectives

Year 3

- Read and begin to write the vocabulary of comparing and ordering numbers, including ordinal numbers to at least 100.
- Compare two given three-digit numbers, say which is more or less, and give a number which lies between them.
- Round any two-digit number to the nearest 10 and any three-digit number to the nearest 100.



Year 5

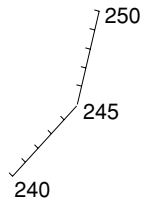
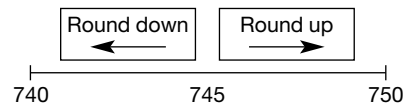
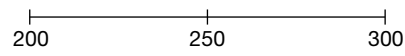
- **Multiply and divide any positive integer up to 10 000 by 10 or 100 and understand the effect.**
- Use the vocabulary of comparing and ordering numbers, including symbols such as <, >, ≥, ≤, =.
- Round any integer up to 10 000 to the nearest 10, 100 or 1000.

(Key objectives in bold)

department for
education and skills

Planning sheet	Day One	Unit 1 Ordering and rounding numbers	Term: Spring	Year Group: 4								
Oral and Mental		Main Teaching		Plenary								
Objectives and Vocabulary	Teaching Activities	Objectives and Vocabulary	Teaching Activities	Teaching Activities / Focus Questions								
<p>Count on and back in tens and hundreds from any two-digit or three-digit number.</p> <p>RESOURCES Pendulum: string and weight</p>	<ul style="list-style-type: none">Use a pendulum, i.e. any weight attached to a piece of string, to set up a counting rhythm. <p>Children count in tens on the half swing or full swing.</p> <div><div><div>10</div><div>20</div></div><div><div>30</div><div>40</div></div><div><div>50</div><div>60</div></div><div>half swing</div></div> <div><div><div>10</div><div>20</div></div><div><div>20</div><div>30</div></div><div>full swing</div></div> <p>Choose a new starting number, e.g. 93, count on and back in tens.</p> <div><div>Q What happens to a number when it gets ten times bigger?</div></div> <p>Choose a three-digit number, e.g. 827, count on and back in hundreds.</p> <div><div>Q What happens to a number when it gets one hundred times bigger?</div></div> <ul style="list-style-type: none">Increase the pace of the count by shortening the length of the string.	<p>Multiply and divide an integer up to 1000 by 10 (whole number answers) and understand the effect. Begin to multiply by 100.</p> <p>VOCABULARY units tens hundreds thousands zero digit place value place holder</p> <p>RESOURCES Large digit cards 0–9 with an extra zero Resource sheet 1.1</p>	<ul style="list-style-type: none">Ask individual children to give you a single-digit or two-digit number. Quickly respond with the number that is ten times bigger, e.g. 7 → 70 28 → 280. <p>Ask them to explain what you are doing to each number. Reverse the roles, with them responding to your starting numbers. Check that they understand how to multiply two-digit numbers by 10.</p> <ul style="list-style-type: none">Use a set of large digit cards. Ask three children to choose a card. Attach cards to the board to make a three-digit number. Discuss the value of each digit. <div><div>Q How can we make this number ten times bigger?</div></div> <p>Give one child a 0 card. Move each of the three digit cards one place to the left, emphasising the movement as you do it, and explaining that the value is increasing ten times. Put the 0 card into the units space, and explain that it is a place holder.</p> <p>Check that the children understand that when the zero is removed and the digits move to the right the value is decreased by ten times.</p> <p>Repeat this with other sets of three digits to show multiplying and dividing by 10. Develop to multiplying by 100.</p> <div><div>Q What happens to a number when we multiply it by 10, then by 10 again?</div></div> <ul style="list-style-type: none">Give pairs of children sets of ×10 cards (Resource sheet 1.1). They shuffle them and lay them face down to play the game of pairs; matching pairs of cards that are 10 times bigger/smaller.	<ul style="list-style-type: none">Ask children to hold up the game cards 194 and 1940. <div><div>Q What is the relationship between these numbers?</div></div> <p>Reinforce the fact that 194 × 10 is 1940 and 1940 ÷ 10 is 194.</p> <p>Repeat with other pairs of game cards.</p> <div><div>Q What happens to a number when we multiply it by 10, then divide it by 10?</div></div> <ul style="list-style-type: none">Draw a place value mat: <table><tr><td>Th</td><td>H</td><td>T</td><td>U</td></tr><tr><td>3</td><td>8</td><td>4</td><td>0</td></tr></table> <ul style="list-style-type: none">Show how the number is written when ten times bigger, and ten times smaller. <div><div>By the end of the lesson the children should be able to:</div><ul style="list-style-type: none">Multiply a three-digit number by 10;Divide a four-digit multiple of 10 by 10;Explain the movements of the digits for ×/÷ by 10.<p>(Refer to supplement of examples, section 6, page 6.)</p></div>	Th	H	T	U	3	8	4	0
Th	H	T	U									
3	8	4	0									

Planning sheet	Day Two	Unit 1 <i>Ordering and rounding numbers</i>	Term: <i>Spring</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 and use the vocabulary of comparing and ordering numbers.</p> <p>VOCABULARY mid-point difference</p> <p>RESOURCES Counting stick</p>	<ul style="list-style-type: none"> Use a counting stick to count in tens, hundreds. Identify the numbers on the ends of the stick and ask children what the middle number will be. Explain this is called the mid-point. Write number lines on board, such as: <div style="text-align: center;">  </div> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> Q How do we find the mid-point? </div> <p>Repeat using other pairs of two-digit numbers on number line for children to find the mid-point. Choose either both even numbers or both odd.</p> <p>Discuss the strategies children used. Ask them to describe the order of the two numbers and the mid-point.</p>	<p>Read and write vocabulary of comparing and ordering numbers using symbols correctly including $<$, $>$ and $=$.</p> <p>VOCABULARY equal to greater than less than</p> <p>RESOURCES Whiteboards Dice</p>	<ul style="list-style-type: none"> Write 4 single-digit numbers on the board. Ask the children for 4 four-digit numbers that could be made using the digits. Draw an empty number line on the board and take children through the following questions to order the numbers from smallest to largest. <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> Q Which is the smallest? How do you know? Q Which is the largest? How do you know? Q What do we look at to decide how to place the other numbers? </div> In pairs using whiteboards children practise putting 4 four-digit numbers on an empty number line. Choose children to put their largest and smallest number on an empty number line on board, e.g. <div style="text-align: center; margin-top: 10px;">  </div> Introduce symbol less than $<$ to replace the number line. Ask children to read out the number sentence made. Introduce symbol $>$ for greater than. Change the numbers over. Ask children to read out the new number sentence. Give children practice with pairs of four-digit numbers putting in the appropriate sign. In pairs, children roll a dice four times then use the four digits to complete different statements by filling in the boxes: <div style="text-align: center; margin-top: 10px;"> $\square \square > \square \square$ $\square \square < \square \square$ </div> Repeat with six numbers and statements: <div style="text-align: center; margin-top: 10px;"> $\square \square \square > \square \square \square$ $\square \square \square < \square \square \square$ </div> Collect responses and correct mistakes. 	<ul style="list-style-type: none"> Ask children to make sentences using symbol and numbers e.g. <div style="margin-left: 20px;"> (i) $<$, 93, 120; (ii) $>$, 47, 69. </div> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> Q What symbol could be used if numbers are the same? </div> Children record on whiteboards a calculation for each symbol given a starting number, e.g. 36. <div style="margin-left: 20px; margin-top: 10px;"> $36 = 17 + 19$ $36 > 16 + 19$ $36 < 19 + 19$ </div> <p>HOMEWORK – Give children the four single-digit numbers 3, 6, 8, 2. They use these to make 4 two-digit numbers, 4 three-digit numbers and 4 four-digit numbers. They have to place each set of four numbers in order, smallest first.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>By the end of the lesson the children should be able to:</p> <ul style="list-style-type: none"> Respond to oral or written questions such as which is greater, smaller, equal to?; Use symbols $<$, $>$ and $=$; Order four-digit numbers. <p>(Refer to supplement of examples, section 6, page 8.)</p> </div>

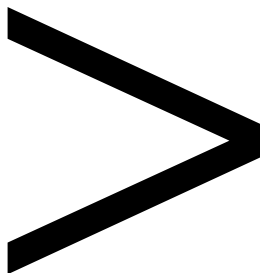
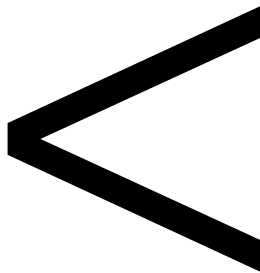
Planning sheet	Day Three	Unit 1 <i>Ordering and rounding numbers</i>	Term: <i>Spring</i>	Year Group: 4
Oral and Mental		Main Teaching		Plenary
Objectives and Vocabulary	Teaching Activities	Objectives and Vocabulary	Teaching Activities	Teaching Activities / Focus Questions
<p>Read and write whole numbers up to 10 000.</p> <p>Compare and order numbers.</p> <p>VOCABULARY greater than less than</p> <p>RESOURCES Large class set 0–9 cards Whiteboards Resource sheet 1.2</p>	<ul style="list-style-type: none"> Shuffle the 0–9 digit cards and get a child to pick four cards and make a four-digit number. Record the number on the board. With the class read the number aloud. Repeat until 4 four-digit numbers have been generated. <div>Q How do you decide which number is the largest, smallest?</div> <ul style="list-style-type: none"> With the class put the numbers in order. Use 0–9 cards to make 2 four-digit numbers. Children to read these aloud and decide which is bigger. <p>Use the > or < cards to place between numbers to make a number sentence: (Resource sheet 1.2)</p> <p>□ □ □ □ < □ □ □ □.</p> <p>Ask children to read sentence.</p> <ul style="list-style-type: none"> Repeat and ask children to discuss their methods. 	<p>Round any positive integer less than 1000 to nearest 10 or 100.</p> <p>VOCABULARY round up round down round to nearest 10 round to nearest 100</p> <p>RESOURCES OHT 1.1 Resource sheet 1.3</p>	<ul style="list-style-type: none"> Review homework, work through examples from selected children. Display OHT 1.1 and identify numbers 240, 245, 250 <p>Replace numbers with 560, 565, 570.</p>  <div>Q Where would 568 go? Is it nearer to 560 or 570?</div> <p>Repeat with other numbers if necessary.</p> <div>Q Which digit in the number helps us decide whether to round up or down?</div> <p>Explain that numbers ending in 5 are rounded up.</p> <ul style="list-style-type: none"> Draw a number line and use Round up/Round down cards (Resource sheet 1.3):  <p>Work through other examples.</p> <ul style="list-style-type: none"> Write a selection of three-digit numbers on board. Children to work in pairs, choosing a number and rounding it to the nearest ten. Record. <div>Q What happens when we round to nearest 100?</div> <p>Use number line and explain for example that 281 is rounded up.</p>  <p>Explain that numbers ending in 50 are rounded up. Give examples for children to place on chart.</p>	<ul style="list-style-type: none"> Write a three-digit number on the board e.g. 471. Ask children to round to nearest 10, 100. Ask children for other three-digit numbers and repeat the rounding with the class. <div>Q What digits did you use to help you decide whether to round up or down?</div> <ul style="list-style-type: none"> Write number on board e.g. 536. Hold up one of the <, >, = cards and ask children to form a number sentence using the number and a symbol. Repeat. <div>Q If a number is rounded to the nearest 100 to get 300. What could it be?</div> <div>By the end of the lesson the children should be able to:</div> <ul style="list-style-type: none"> Round any positive integer less than 1000 to nearest 10 or 100. <p>(Refer to supplement of examples, section 6, page 12.)</p>

×10 cards

Double set of cards to play 'Pairs'.
Cut into two cards.

218	2180	218	2180
346	3460	346	3460
194	1940	194	1940
207	2070	207	2070
463	4630	463	4630
270	2700	270	2700
149	1490	149	1490
281	2810	281	2810
200	2000	200	2000
643	6430	643	6430

Less Than/Greater Than/Equals Cards



Round Up/Round Down Cards

Round up



Round down



Ladder

