Number and Place Value Prior Assessment Questions 5 and 6:

Q5: I can round to the nearest 10,000 1,000 and 100

Q6: I can work out the possibilities of a number before it was rounded

NPV2: round any whole number to a required degree of accuracy

Teacher Input Ideas:

For children that need to review rounding with accuracy:

Show the children three examples of population sizes. Look at how large the number is. To apply previously taught skills these could be written in words and the children could write the amounts in digits on whiteboards. Additionally, they could order the amounts and compare the sizes.

Introduce rounding and discuss that rounding is often used to approximate the amount, especially with larger amounts. Look at population sizes and discuss that if we are going to compare different population sizes, rounding them helps people to compare quickly. For example: when rounding to the nearest million, Paraguay is rounded to 7 million and Costa Rica to 5 million. Show rounding to different amounts such as tens, hundreds, thousands and discuss why people may round to these different marks. You may want to look at a few similar population sizes and discuss that if we only rounded to the nearest million that it would not give us an accurate comparison, therefore we may need to round to the nearest thousand or hundred. Encourage the children to think of different times they have rounded – example: money, time, points.

Some children may demonstrate an error when recording the amounts. For example, children often know that they need to round up or down to the nearest amount however may not include all digits. For example: 34567 to nearest hundred, some children may write 600. They often concentrate on the hundred and tens digits only. Children need to understand why rounding is important and that we can't just write 600 as that changes the total amount completely.

For children who need to find possibilities of the amount before it was rounded:

Place a rounded amount on the board. On cards or slips of paper write different amounts that can have been rounded and ones that can't. In groups or pairs, children to select which ones can be rounded and which ones can't to make the amount on the board. Then discuss with the children, what if I rounded to the nearest ten, does that change some of these answers? What if I round to the nearest hundred? Look at different possibilities for different examples of rounding to the nearest.

Practice Activities

Purple Practice: Most suited for children that made errors in **Question 5 of the Place Value Prior Assessment task** and would benefit from rounding up to 7 digit amounts.

This activity provides the opportunity for the children to explore rounding to the nearest ten, hundred, thousand, ten thousand and hundred thousand, in a simpler layout to the yellow task.

Green Practice: Most suited for children that **made errors in Question 6** and would benefit from exploring examples of numbers before an amount was rounded.

The children should give an example of what the number could have been before being rounded. Encourage the children to give examples of numbers that could have been round **up and down**. The last question also encourages this as they may think it is an error but it is to encourage giving 2 different examples: one of when it has been rounded up to the nearest ten and one when it has been rounded down to the nearest ten. The sheet does get trickier as the children work down the page, therefore for children who made errors in question 5 and 6 may want to complete the first 4 or 5 questions only.

Yellow Practice most suited for children **who made some errors in Question 5** of the prior assessment or **would benefit from consolidating rounding numbers up to ten million.**

The information is presented in a table and the children are required to round population sizes to the nearest ten, thousand, ten thousand, hundred thousand, and million. This also requires the children to think about rounding when they already have a zero in the appropriate place and to explore rounding up and down when they have a 5 digit.

Mastery 1: children are to explore how many numbers can be rounded to the nearest ten and show their understanding through reasoning, explaining and proving. Some children may need to write down and explore the possibilities to help them to prove that they are right. Look out for errors from children who count on from 15 to 24 and may not include the number 15 or 20, resulting in an answer of 9.

They should then explore the numbers that can be rounded to 100 and should notice a pattern. This should then help them to explain, without recording down a thousand options, how many different numbers can be rounded to 1000.

Mastery 2: This activity requires the children to use examples and mathematical vocabulary and understanding of rounding, to find examples of when Ben is correct and when Sophie is correct. Encourage the children to explain how both Sophie and Ben are correct using their knowledge of rounding to both ten and one hundred and to support their view with examples of the amounts that both children started with.

Answers

Purple

1a) 330 b) 5460 c) 10950

2a) 6700 b) 10900 c) 80700

3a) 162000 b) 10000 c) 768000

4a) 260000 b) 10000 c) 70000

5a) 500000 b) 900000 c) 100000

Green there are a variety of examples that can be given. Below are the amounts that the number can be between.

1a) 29,500 to 30,499 1b) 25,000 to 34,499

2a) 99,500 to 100,499 2b) 95,000 to 104,499

3a) 119,500 to 20,499 3b) 115,000 to 124,499

4a) 54,500 to 55,499 4b) 54,950 to 55,049

5a) 110, 500 to 111,449 5b) 110,950 to 111,049

6a) 11,950 to 12,049 6a) 11,995 to 12, 004

7a) 123,650 to 123,749 7b) 123,695 to 123,704

8a) 8,748,050 to 8,748,149 8b) 8,748, 095 to 8,748, 104

9a) 2445 to 2454 9b) 2445 to 2454

Yellow:

	Hong Kong 7,346,700	**Croatia** 4,190,669	**New Zealand** 4,769,190	**Mauritius** 1,233,747	**Slovenia** 2,064,241	**Fiji** 869,458
Nearest million	7000000	4000000	5000000	1000000	2000000	1000000
Nearest hundreds of thousand	7300000	4200000	4800000	1200000	2100000	900000
Nearest ten thousand	7350000	4190,000	4770000	1230000	2060000	870000
Nearest thousands	7347000	4191000	4769000	1234000	2064000	869000
Nearest hundreds	7346700	4190700	4769200	1233700	2064200	869500
Nearest ten	7346700	4190670	4769190	1233750	2064240	869450

Mastery:

1: there are 10 possibilities for rounding numbers to the nearest ten. Children need to include the number 15 and count through, including 20, all the way to 24.

There are 100 possibilities for rounding to the nearest 100 and 1000 possibilities for rounding to the nearest 1000.

2: the children's answers should show that for Sophie to round to £180 her amount of money will be between £175 and £184. Therefore, for Ben to have more money he would have to have anything above £184 and that would be rounded to £200 when rounded to the nearest one hundred.

However, Ben could have £150 or more and this also would be rounded to £200 when rounded to the nearest hundred. So, if Ben had £164 for example, Sophie would have more money than Ben.

You are looking for the children to explain themselves in full sentences with examples of amounts to prove their points of view.

BRICKWORK Mathematics

Purple Practice

Lo: I can round to the nearest 10,000 1,000 and 100.

Explore rounding the amounts to these different nearest amounts.

1. Round these to the nearest ten.

327 5461 10954

2. Round these to the nearest hundred.

6713 10929 80650

3. Round these to the nearest thousand.

161897 9828 768212

4. Round these to the nearest ten thousand.

263261 7654 69635

5. Round these to the nearest one hundred thousand.

526371 882165 50123

BRICKWORK Mathematics

Green Practice

LO: I can work out the possibilities of a number before it was rounded.

Look at each rounded amount in the blocks. Find one example for each statement of the number it could have been before it was rounded. Look at the example below to help you.

30,000

Nearest thousand **30,432**
Nearest ten thousand

100,000

Nearest thousand
Nearest ten thousand

120,000

Nearest thousand
Nearest ten thousand

55,000

Nearest thousand
Nearest hundred

111,000

Nearest thousand
Nearest hundred

12,000

Nearest hundred
Nearest ten

123,700

Nearest hundred
Nearest ten

8,748, 100

Nearest hundred
Nearest ten

2450

Nearest ten
Nearest ten

Challenge:

Choose a five, six or seven-digit number. Write it down. Round it to the nearest ten, hundred or thousand etc. Now tell your partner the rounded amount.

Encourage your partner to ask questions about how it is rounded to work out the original number. Such as:

- Is it rounded to the nearest thousand? Is it rounded to the nearest ten?
- Did you round up or down?
- Is your number a multiple of 3? Is it an odd or even number?
- Is it less or more than...?

BRICKWORK mathematics

Yellow Practice

LO: I can round up to 7 digit amounts with accuracy.

Round the population sizes of the countries in the table.

	Hong Kong 7,346,700	Paraguay 6,953,646	Norway 5,258,317	Costa Rica 4,890,379	New Zealand 4,769,190	Fiji 869,458
Nearest million						
Nearest hundreds of thousand						
Nearest ten thousand						
Nearest thousands						
Nearest hundreds						
Nearest ten						

Challenge: Can you apply any other skills? Try these:

- Can you order these amounts?
- Can you write these amounts in words?
- What is value of different digits?

BRICKWORK Mathematics

Mastery

Rounding

A number has been rounded to the nearest 10 and the answer is 20. How many possible answers could the number have been? Prove how you know this.

Try this with another two-digit number such as 40, 70. Are the possibilities the same?

What if a number is rounded to the nearest 100? How many different possibilities are there? How do you know?

What if I rounded something to the nearest 1000, how many possibilities will there be? How can you prove this to a friend without writing all the options down?

BRICKWORK Mathematics

Mastery: rounding

Reasoning

Ben and Sophie are brother and sister. They both have been saving their pocket money. Ben rounds his to the nearest £100 and approximately has £200. Sophie rounds hers to the nearest £10 and approximately has £180.

Who do you think has more and why? Can you find examples where Ben has more than Sophie and where Sophie has more than Ben?

I think Ben has the most amount of money because …

I think Sophie has the most amount of money because …