

Number and Place Value:

Rounding Whole Numbers to 100 000

| | | |
|--|---|--|
| Aim: Round any whole number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 or 100 000. To round whole numbers to 100 000. | Success Criteria: I can identify the relevant values that come before and after the number I am rounding. I can identify which digit to focus on when rounding to different values. I can identify which digits to round up and which digits to round down. | Resources: Lesson Pack 0-6 dice - one per pair Coloured counters - approximately ten per child |
| | Key/New Words: Round, digit, place value, ten, hundred, thousand, ten thousand, hundred thousand. | Preparation: Differentiated Roll and Round Card - one per pair, cut out before the lesson Differentiated Roll and Round Activity Sheet - one per pair Round and Round Number Line - printed and laminated as required Diving into Mastery Activity Sheets - as required |

Prior Learning: It will be helpful if children have covered place value of numbers up to 1 000 000.

Learning Sequence

| | | |
|--|--|--|
| | Remember It: Children order amounts shown on the Lesson Presentation in descending order. | |
| | Rounding Numbers: Introduce the concept of rounding numbers, referring to the Lesson Presentation . | |
| | Find the Nearest: Use the Lesson Presentation to explain how to round numbers to different values. Share the examples shown on the Lesson Presentation and work through them. Click to explain that we first find the tens numbers (or hundreds numbers, or thousands numbers) either side of the number to be rounded. Can children identify the relevant values that come before and after the number they are rounding? Click to explain how to place the number on the number line, or how to find which digit to focus on when deciding to round up or down. Click again to show that we round down for one, two, three and four, and round up for five, six, seven, eight and nine. Click to show how to work through the examples shown on the Lesson Presentation . Children choose one of the numbers from the differentiated table on the Lesson Presentation . Can children round the number to required values by identifying which digits to round up and which to round down? Share the answers and address any misconceptions. | |
| | Build a Number: Children use all or some of the digits on the number cards shown on the Lesson Presentation to make numbers that round to the given values. Go through the answers and discuss any issues. Can children make numbers that round to given values? | |
| | <p>Roll and Round: Children play the game described on the Lesson Presentation. Children take turns to roll a number using the 0-6 dice, then draw a Roll and Round Card to find out the value to which they should round their number. Children try to find their rounded answer on the game board on the differentiated Roll and Round Activity Sheet, then cover the answer with their coloured counter. The winner is the player with most of their coloured counters of the board at the end of the game or time limit. Can children identify which digit to focus on when rounding to different amounts? Can children round numbers to given values?</p> <p> Round 4-digit numbers to the nearest 10, 100, 1000 using the Round and Round Number Line. Round to the nearest 10, 100, 1 000, 10 000 and 100 000 using the Round and Round Number Line to support rounding while using the three star version of the activity sheet. Round to any degree of accuracy. </p> | |

| | | |
|---|--|---|
|  | <p>Diving into Mastery: Schools using a mastery approach may prefer to use the following as an alternative activity. These sheets might not necessarily be used in a linear way. Some children might begin at the 'Deeper' section and in fact, others may 'dive straight in' to the 'Deepest' section if they have already mastered the skill and are applying this to show their depth of understanding.</p> <p> Children answer fluency questions, rounding to the nearest 10, 100 and 1 000 using visual representations.</p> <p> Children show a deepened understanding of rounding to the nearest 10, 100, 1 000 and 10 000.</p> <p> Children find all possibilities within open-ended reasoning challenges, set within the context of rounding. They are encouraged to provide evidence when justifying responses to rounding challenges.</p> |  |
|  | <p>Top Tips: Children work with a partner to devise their 'Top Tips' for rounding numbers to different values. Pairs share their tips with their group.</p> |  |

Exploreit

Roundit: Use these differentiated activity sheets to round to the nearest **10, 100** or **1000**.

Findit: Challenge children to find population data for different countries. Can they round the population figures to the nearest 10, 100 and 1000?

Learnit: Children will find this visually exciting [Knowledge Organiser](#) a useful tool for improving their knowledge of place value with numbers up to 1 000 000.



Maths

Number and Place Value

Rounding Whole Numbers to 100 000



Aim

- To round whole numbers to 100 000.

Success Criteria

- I can identify the relevant values that come before and after the number I am rounding.
- I can identify which digit to focus on when rounding to different values.
- I can identify which digits to round up and which digits to round down.

Remember It



Rewrite the numbers in descending order.



29 020

24 020

9 020

17 020

2 920

127 122

629 116

429 020

Write an additional number that could also be included.

?

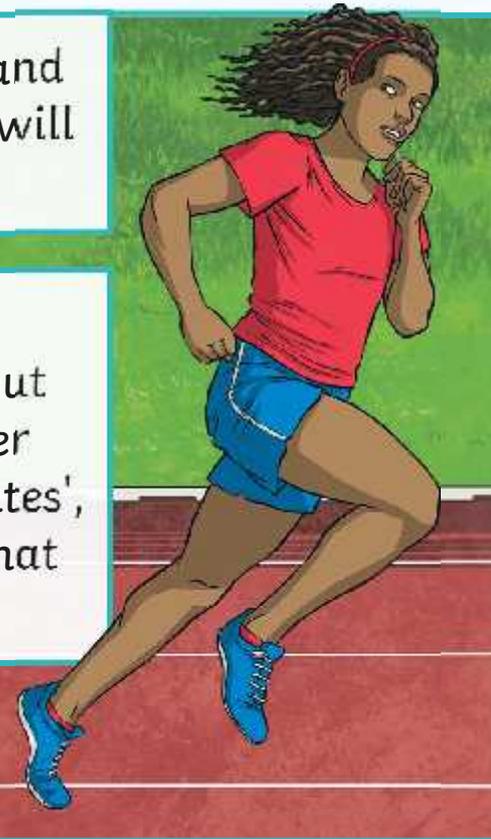
Rounding Numbers



Rounding is a way of making a number simpler, but still close to its original value.

Rounding makes it easier to describe and understand numbers. It can make calculations easier, as you will be working with simpler numbers.

We round numbers any time we are not exact about a number. For example, if we describe a distance as 'about a mile', we are rounding the exact distance to a simpler number. Or if we say an activity takes 'about 30 minutes', we are rounding the exact time to a simpler number that is easier to understand.



Find the Nearest



When we round a number, number lines can often be used to determine whether a number should be rounded up or down.

Here, 13 686 will be rounded to the nearest 10.

| Ten thousands | Thousands | Hundreds | Tens | Ones |
|---------------|-----------|----------|------|------|
| 1 | 3 | 6 | 8 | 6 |

The number line shows 10 equal increments from 13 680 to 13 690. Plotting 13 686 will help to find out if the number should be rounded up or down.



13 686 is closer to 13 690. To the nearest 10, 13 686 rounds up to 13 690.

Find the Nearest



When we round a number to the nearest 100, we focus on the hundreds, tens and ones columns.

Here, 13 686 will be rounded to the nearest 100.

| Ten thousands | Thousands | Hundreds | Tens | Ones |
|---------------|-----------|----------|------|------|
| 1 | 3 | 6 | 8 | 6 |

The number line shows 10 equal increments from 13 600 to 13 700. Plotting 13 686 will help to find out if the number should be rounded up or down.



13 686 is closer to 13 700. To the nearest 100, 13 686 rounds up to 13 700

Find the Nearest



When we round a number to the nearest 1000, we focus on the thousands, hundreds, tens and ones columns.

Here, 13 686 will be rounded to the nearest 1000.

| Ten thousands | Thousands | Hundreds | Tens | Ones |
|---------------|-----------|----------|------|------|
| 1 | 3 | 6 | 8 | 6 |

The number line shows 10 equal increments from 13 000 to 14 000. Plotting 13 686 will help to find out if the number should be rounded up or down.



13 686 is closer to 14 000. To the nearest 1000, 13 686 rounds up to 14 000.

Find the Nearest



When we round a number to the nearest 1 000, we focus on the ten thousands, thousands, hundreds, tens and ones columns.

Here, 13 686 will be rounded to the nearest 10 000.

| Ten thousands | Thousands | Hundreds | Tens | Ones |
|---------------|-----------|----------|------|------|
| 1 | 3 | 6 | 8 | 6 |

The number line shows 10 equal increments from 10 000 to 20 000. Plotting 13 686 will help to find out if the number should be rounded up or down.



13 686 is closer to 10 000. To the nearest 10 000, 13 686 rounds down to 10 000.

Find the Nearest



Choose one of the numbers from the table and round them to the different values. You can use the diagram below to help you.

| Round to the nearest 10 and 100 | Round to the nearest 10, 100 and 1000 | Round to the nearest 10, 100, 1000 and 10 000 |
|------------------------------------|--|---|
| 673 9834 | 5785 14 564 | 56 763 79 999 |



Find the Nearest



Let's check the answers:

| Round to the nearest 10 and 100 | Round to the nearest 10, 100 and 1000 | Round to the nearest 10, 100, 1000 and 10 000 |
|--|---|---|
| <p>673 670 and 700</p> <p>9834 9830 and 9800</p> | <p>5785 5790, 5800 and 6000</p> <p>14 564 14 560, 14 600 and 15 000</p> | <p>56 763 56 760, 56 800, 57 000 and 60 000</p> <p>79 999 80 000, 80 000, 80 000 and 80 000</p> |

Build a Number



6

7

1

3

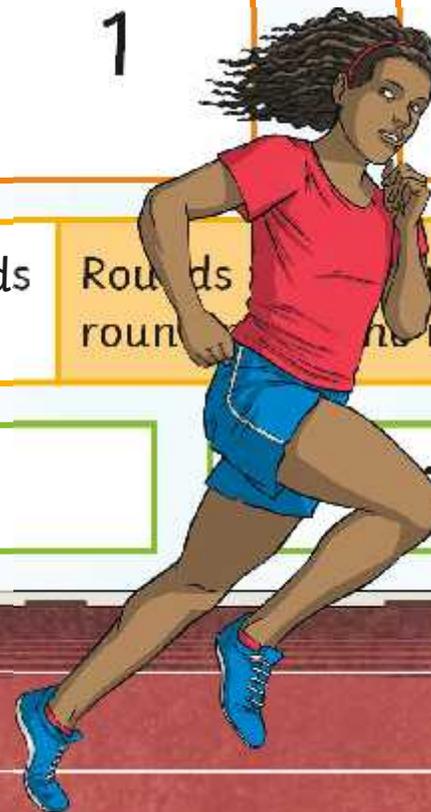
Using some or all of the digits in the cards above can you build a number that:

Rounds to the nearest 10?

67

71

73



Build a Number



6

7

1

3

Using some or all of the digits in the cards above can you build a number that:

Rounds near to the

617

613

631

637



Build a Number



6

7

1

3

Using some or all of the digits in the cards above can you build a number that:

Rounds near to the

3167

317



Roll and Round!



Play this game using your rounding skills.

Roll and Round
To round numbers up to 1000

Roll a 6-sided dice 5 times to make a five-digit number. Choose a card and round the number.

| | | | |
|--------|--------|--------|--------|
| 11 000 | 21 230 | 16 500 | 31 400 |
|--------|--------|--------|--------|

Roll and Round
To round numbers up to 1000

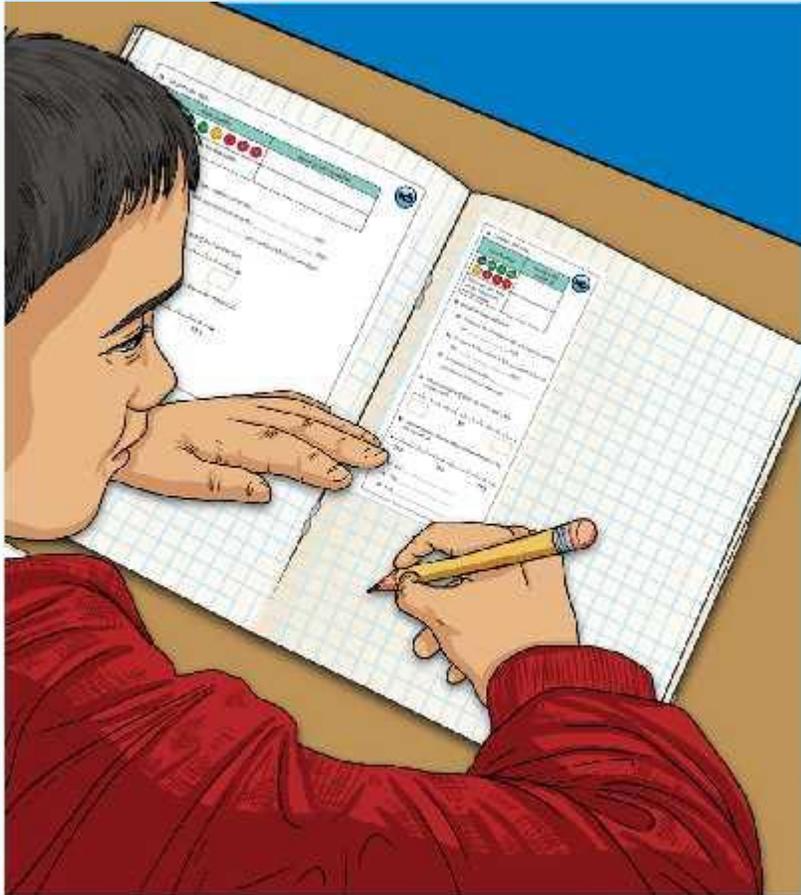
Roll a 6-sided dice 6 times to make a six-digit number. Choose a card and round the number.

| | | | |
|-------|-------|-------|-------|
| 1 000 | 1 230 | 6 500 | 1 400 |
| 4 500 | 2 000 | 1 260 | 1 500 |
| 1 220 | 1 240 | 3 000 | 1 600 |
| 2 500 | 0 | 1 260 | 4 000 |
| 6 500 | 1 250 | 1 200 | 1 330 |
| 1 210 | 1 300 | 1 260 | 1 210 |

1. Roll a dice 4, 5 or 6 times to give you the digits to make a number.
2. Take a **Roll and Round Card** to find out the value to which you should round your number.
3. Round your number to this value.
4. Look at the game board on the **Roll and Round Activity Sheet**. Can you find your rounded answer?
5. If so, you can cover it up with your coloured counter.
6. The winner is the player with most coloured counters on the board at the end of the game.

Diving into Mastery

Dive in by completing your own activity!



1) Complete the table.

| Start Number | Round to the nearest 10 |
|--|-------------------------|
| | |
| How many, four tens, six ten thousands, two hundred. | |

2) Complete these sentences:

a) To round to the nearest 10, you need to look at the _____ digit.

b) To round to the nearest 1 000, you need to look at the _____ digit.

c) To round to the nearest _____, you need to look to the ten digit.

3) Which multiples of 10 sit at either end of the number line?

4) Use the number line to help round each number to the nearest 10.

a) 161 _____

b) 166 _____

c) 168 _____

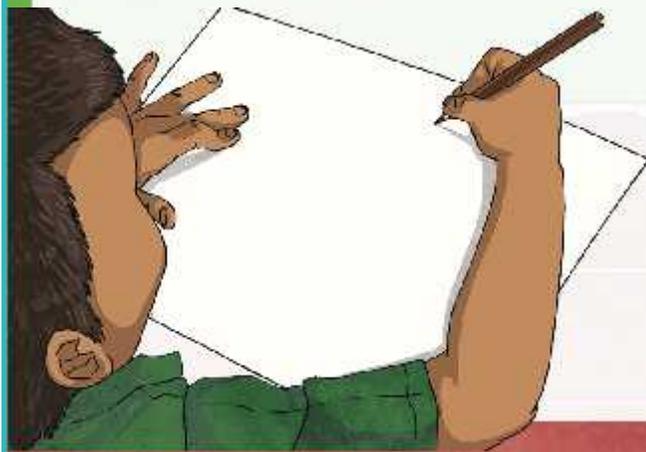
of 10 ones,
a round.

Top Tips



Can you and your partner make a short list of your top tips for rounding numbers to different values?

Think about the steps you followed today.



Which digits should you focus on?
How can you tell whether to round up or down?

Share your top tips with your group.
Have any of you included similar tips?

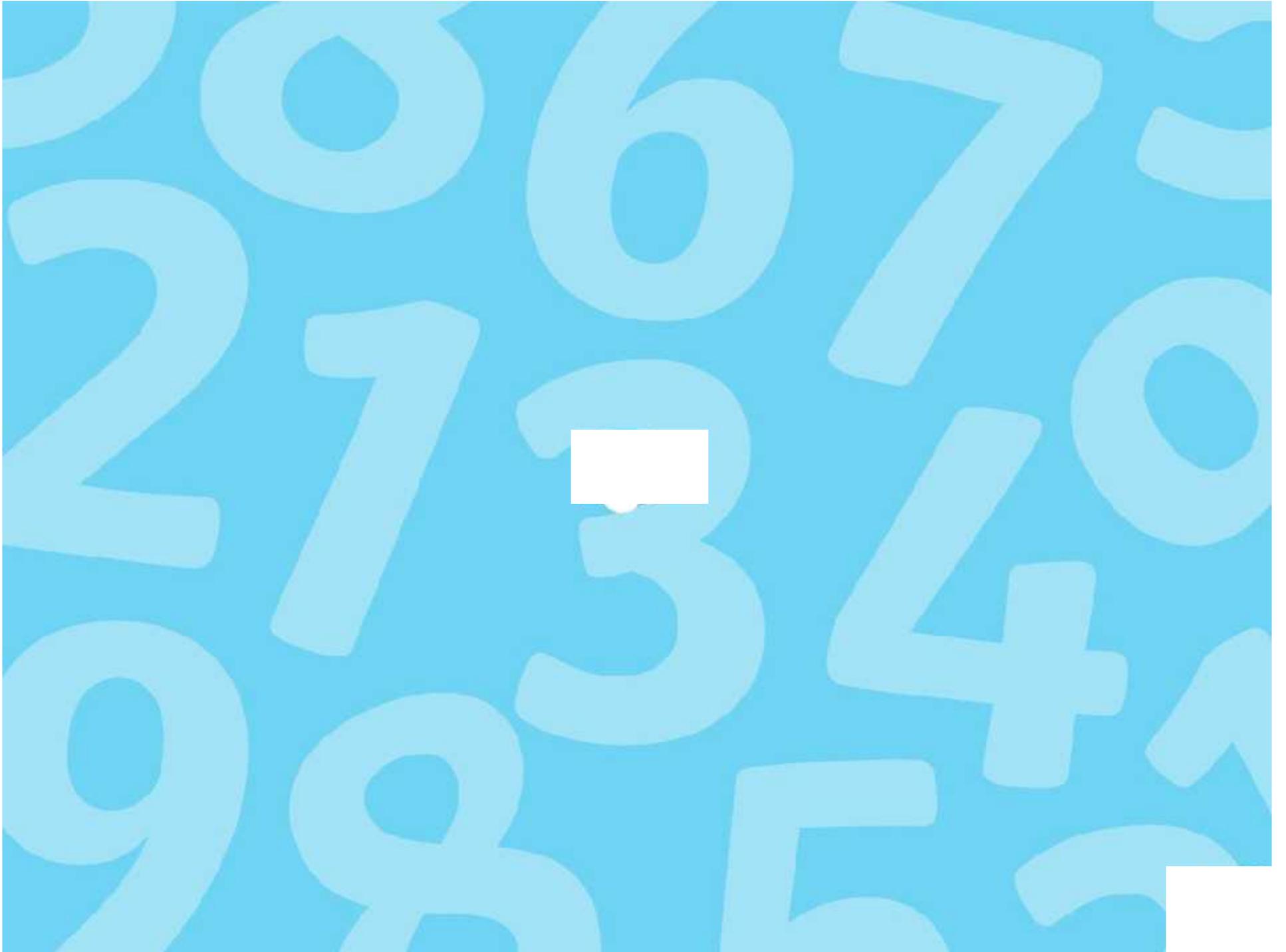
Aim



- To round whole numbers to 100 000.

Success Criteria

- I can identify the relevant values that come before and after the number I am rounding.
- I can identify which digit to focus on when rounding to different values.
- I can identify which digits to round up and which digits to round down.



| | | | | | | | | | |
|---|-----------|---------------|----------------|-----------------------|------------|----------|-----------------|-----------|-----------|
| Aim: To round whole numbers to 100 000. | | | | Date: | | | | | |
| | | | | Delivered By: | | | Support: | | |
| Success Criteria | Me | Friend | Teacher | T | PPA | S | I | AL | GP |
| I can identify the relevant values that come before and after the number I am rounding. | | | | Notes/Evidence | | | | | |
| I can identify which digit to focus on when rounding to different values. | | | | | | | | | |
| I can identify which digits to round up and which digits to round down. | | | | | | | | | |
| Next Steps | | | | | | | | | |
|) _____ | | | | | | | | | |
|) _____ | | | | | | | | | |

| | | | |
|------------|--------------------------------------|-----------|-----------------|
| T | Teacher | I | Independent |
| PPA | Planning, Preparation and Assessment | AL | Adult Led |
| S | Supply | GP | Guided Practice |

| | | | | | | | | | |
|---|-----------|---------------|----------------|-----------------------|------------|----------|-----------------|-----------|-----------|
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1)

| | Round to the nearest 10 | Round to the nearest 100 | Round to the nearest 1000 | Round to the nearest 10 000 |
|--------|-------------------------|--------------------------|---------------------------|-----------------------------|
| 52 254 | 52 250 | 52 300 | 52 000 | 50 000 |
| 12 989 | 12 990 | 13 000 | 13 000 | 10 000 |
| 75 348 | 75 350 | 75 300 | 75 000 | 80 000 |

2)

| | Round to the nearest 10 | Round to the nearest 100 | Round to the nearest 1000 | Round to the nearest 10 000 |
|------------------------|-------------------------|--------------------------|---------------------------|-----------------------------|
| 43 815 - 43 824 | 43 820 | 43 800 | 44 000 | 40 000 |
| 43 825 - 43 834 | 43 830 | 43 800 | 44 000 | 40 000 |
| 43 965 - 43 974 | 43 970 | 44 000 | 44 000 | 40 000 |

- 1) **Ben is correct. Rounded to the nearest 10, 85 995 is 86 000. Rounded to the nearest 100, it is 86 000. Rounded to the nearest 1000, it is 86 000. Rounded to the nearest 10 000, it is 90 000.**
- 2) a) **Possible answers include 85 000, 85 123 and 86 352. Answers must lie between 85 000 and 94 999.**
- b) **The fewest possible number of concert goers is 85 000. The greatest is 94 999.**



- 1) **There are many possible answers, for example 18 490 and 23 675 both round to 20 000. 34 980 and 27 516 both round to 30 000.**
- 2) **This is not possible. To be 10 000 when rounded to the nearest 10 000, both numbers would need to be between 9500 and 10499. As you have to use all of the digit cards, both numbers would need to be 5 digits and as you can only use each card once, it is impossible to make a two numbers with one ten thousand.**





1) Complete the table.

| | Round to the nearest 10 | Round to the nearest 100 | Round to the nearest 1000 | Round to the nearest 10 000 |
|--------|-------------------------|--------------------------|---------------------------|-----------------------------|
| 52 254 | | | | |
| 12 989 | | | | |
| 75 348 | | | | |

2) What could the starting number be for each row?

| | Round to the nearest 10 | Round to the nearest 100 | Round to the nearest 1000 | Round to the nearest 10 000 |
|--|-------------------------|--------------------------|---------------------------|-----------------------------|
| | 43 820 | 43 800 | 44 000 | 40 000 |
| | 43 830 | 43 800 | 44 000 | 40 000 |
| | 43 970 | 44 000 | 44 000 | 40 000 |

1) Mateo says that if he rounds 85 995 to the nearest 10, 100, 1000 and 10 000, he will get the same answer. Ben disagrees. Who do you agree with? Explain your answer and prove it!



2) Esther is looking at how many people went to see a concert. She says that, rounded to the nearest 10 000, the number of concert goers was 90 000.

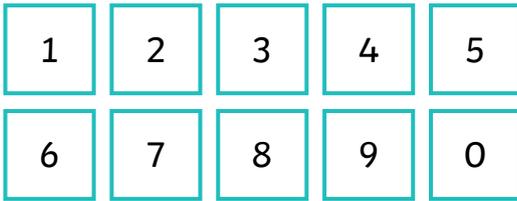
a) Exactly how many people could have attended? Can you give three different possible answers?



b) What are the fewest and greatest numbers of people that could have attended? How do you know?



- 1) Geri has some 0-9 digit cards. Using all the digit cards only once, she says that she can make two numbers that, when rounded to the nearest 10 000, are the same number. What could these numbers be?



- 2) Using all the digit cards only once, is it possible to make two numbers that, when rounded to the nearest 10 000, make 10 000? Explain your thinking.



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| 52 254 | | | | |
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1) Mateo says that if he rounds 85 995 to the nearest 10, 100, 1000 and 10 000, he will get the same answer. Ben disagrees. Who do you agree with?



Explain your answer and prove it!

2) Esther is looking at how many people went to see a concert. She says that, rounded to the nearest 10 000, the number of concert goers was 90 000.



a) Exactly how many people could have attended? Can you give three different possible answers?

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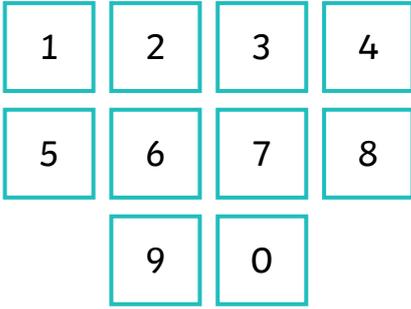
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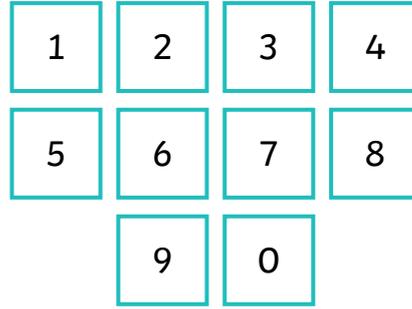
b) What are the fewest and greatest numbers of people that could have attended? How do you know?

- 1) Geri has some 0-9 digit cards. Using all the digit cards only once, she says that she can make two numbers that, when rounded to the nearest 10 000, are the same number. What could these numbers be?



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Roll and Round

To round numbers up to 100 000.



Roll a 6-sided dice 4 times to make a four-digit number. Choose a card and round the number you have made.

| | | | | | | |
|-------|-------|-------|-------|-------|-------|-------|
| 1 000 | 1 230 | 6 500 | 1 400 | 1 230 | 5 200 | 8 000 |
| 4 500 | 2 000 | 1 260 | 1 500 | 1 290 | 1 010 | 5 500 |
| 1 220 | 1 240 | 3 000 | 1 600 | 1 100 | 4 200 | 1 410 |
| 2 500 | 0 | 1 260 | 4 000 | 1 150 | 6 200 | 3 500 |
| 6 500 | 1 250 | 1 200 | 1 330 | 5 000 | 3 200 | 1 530 |
| 1 210 | 1 300 | 1 260 | 1 210 | 2 200 | 6 000 | 1 610 |

Roll and Round

To round numbers up to 100 000.



Roll a 6-sided dice 5 times to make a five-digit number. Choose a card and round the number you have made.

| | | | | | | |
|--------|--------|--------|--------|--------|--------|--------|
| 11 000 | 21 230 | 16 500 | 31 400 | 41 230 | 25 200 | 18 000 |
| 14 500 | 22 000 | 11 260 | 31 500 | 41 290 | 21 010 | 15 500 |
| 11 220 | 21 240 | 13 000 | 31 600 | 41 100 | 24 200 | 11 410 |
| 12 500 | 0 | 11 260 | 34 000 | 41 150 | 26 200 | 13 500 |
| 16 500 | 21 250 | 11 200 | 31 330 | 45 000 | 23 200 | 11 530 |
| 11 210 | 21 300 | 11 260 | 31 210 | 42 200 | 26 000 | 11 610 |

Roll and Round Cards

To round numbers up to 100 000.



Cut out these cards and use them to play the Roll and Round game with your partner.

Round to the nearest 10

Round to the nearest 100

Round to the nearest 1000

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To round numbers up to 100 000.



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Round to the nearest 10

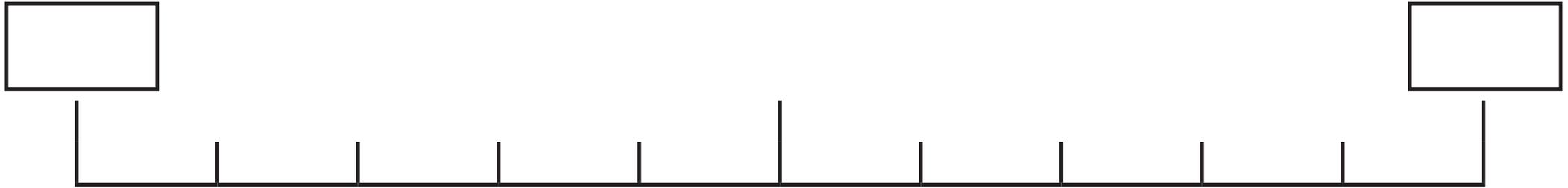
Round to the nearest 100

Round to the nearest 1000

Round to the nearest 10 000

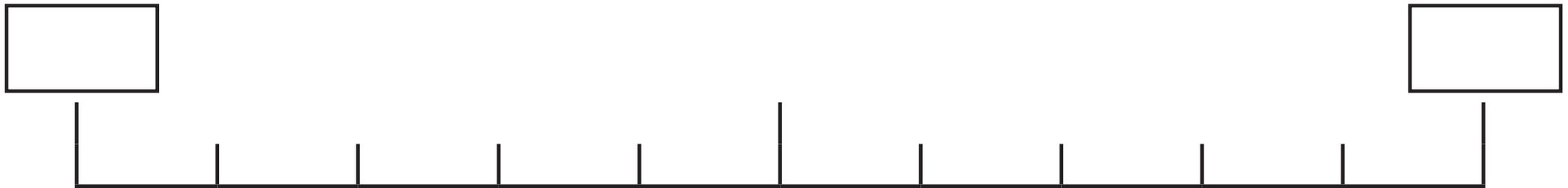
Round and Round Number Line

Use this number line to round numbers to the nearest 10, 100, 1000, 10 000 or 100 000.



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Place Value | Rounding Whole Numbers to 100 000

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