

Number Sequences: Counting in 100s

New Zealand Curriculum This lesson plan could be used to support the teaching and learning of the following Achievement Objective(s) from the New Zealand Curriculum. Level 2: Number and Algebra Achievement Objective: Know the forward and backward counting sequences of whole numbers to at least 1000.		Whole Lesson Time <i>All timings are approximate.</i> 
Student-Friendly Learning Intention: To count forwards and backwards in groups of 100 from any number.	Resources: Lesson Pack Base ten equipment Small whiteboards and pens Small counters Assessment Resource - a success criteria marking sheet is included if you wish to assess this lesson.	Preparation: Counting in 100s Activity Sheet (Differentiated) - one per student 1000 number line - one per student (group task) 0-9 Digit Cards - one set per group Problem-Solving Cards - as required
Success Criteria: I can use place value to spot a pattern. I can work out the next numbers in a sequence. I can explain what happens to the ones digit, the tens digit and the hundreds digit. I can use the pattern to help me count on and back from any number.	Key/New Words: Number, even, odd, place value, forwards, backwards, teen, two-digit, multiple, groups of, hundred, thousand.	

Prior Learning

It will be helpful if students can skip count in tens from ten.

Learning Sequence

	Warm-up Number Patterns: Using the Lesson Presentation , students identify patterns in given number sequences. Firstly, they view patterns of ten and should be able to identify that the tens digit changes each time while the ones digit stays the same. Using this knowledge, students are introduced to sequences counting in hundreds on the subsequent slides. Can students identify patterns using place value? Can students explain what happens to the ones digit, the tens digit and the hundreds digit?	
	Guided Groups <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">  <p>In this group, students will count forwards in hundreds using number lines. Each student will need a 1000 Number Line and a set of 0-9 Digit Cards. Students choose two digit cards from 0-9 Digit Cards and organise them into a three-digit number with a zero in the ones place. Students find their number on the 1000 Number Line. Model placing a small counter on your number. Have students do the same. Ask students: "What is one hundred more than your number?" "How can you use the number line to help you?" Discuss strategies that could be used. Remind students that only the hundreds digit changes each time. Model jumping along the number line placing a counter on each number in the sequence. To extend this activity, students could also write their sequence of numbers on a whiteboard. Can students use place value to spot a pattern? Can students work out the next numbers in a sequence?</p> </div> <hr/> <div style="border: 1px solid black; padding: 5px;">  <p>In this group, students will count forwards and backwards in hundreds using number lines. Each student will need a 1000 Number Line and a set of 0-9 Digit Cards. Students choose two digit cards from 0-9 Digit Cards and organise them into a three-digit number with a zero in the ones place. Students find their number on the 1000 Number Line. Using the number line, students practise counting up in hundreds for five numbers. Ask them to write each number on a small whiteboard. Ask: "How could we keep counting past 1000? Which digit would change?" Students then repeat the activity with two new 0-9 Digit Cards, but this time count backwards in hundreds. If students create a three-digit number with a small hundreds digit, encourage them to reason why they will need to choose a different digit to create a five number sequence. Can students use place value to spot a pattern?</p> </div>	 Per Group

	<p>Can students work out the next numbers in a sequence? Can students explain what happens to the ones digit, the tens digit and the hundreds digit? Can students use the pattern to help me count on and back from any number?</p> <hr/>  In this group, students will count forwards and backwards in hundreds using place value. Ask students to skip count as a group in hundreds. Ask: "Which number changes when we count in groups of 100?" "Is this true for any three-digit number or must it be a multiple of ten?" Students use these rules to write a sequence of three numbers of three-digit numbers in the middle of a small whiteboard. Explain that you are going to read a story, every time the word small/little is said, students need to write the number that comes before the sequence on the board. Everytime big/large is said they write the next number in the sequence. Students pass the whiteboard to the person next to them after they have written a number. Story: Once there was a little town far away. The people in this town had a big problem, the largest problem you could imagine. Every day all the people worried a little bit more about the problem. It seemed to grow bigger and bigger as time passed. The people wondered how to fix the problem. The mayor asked for ideas to help, no matter how little they seemed. Everyone rushed to help from the very small to the very large. But it was no use. The problem still kept growing larger. One day the problem became so big the whole town disappeared! Never to be heard from again. Can students work out the next numbers in a sequence? Can students explain what happens to the ones digit, the tens digit and the hundreds digit? Can students use the pattern to help me count on and back from any number?	
	<p>Follow-up Activities</p>  This group will complete the one star Counting in 100s Activity Sheet by finding the number sequence when the first and last number are given. <hr/>  This group will complete the two star Counting in 100s Activity Sheet by finding the number sequence when only the first number is given. <hr/>  This group will complete the three star Counting in 100s Activity Sheet by finding and completing the number sequence when the first number is given. Other numbers in the maze are also more similar to the sequence numbers.	
	<p>Independent Activity Ideas</p> <p>Createit: Students create their own version of the activity sheet maze for a friend to find the sequence.</p> <p>Rollit: Students roll three dice to make a three-digit number. They then challenge a partner to find either the forwards or backwards sequence by counting in hundreds.</p> <p>Countit: Students practise creating sequences in hundreds from different numbers using Counting on in 100s.</p>	
	<p>Wrap-up</p> <p>What comes next?: Students use small whiteboards to write the next number in the sequences shown on the Lesson Presentation. Sequences are made by counting forwards and backwards in ones, tens or hundreds.</p>	

Disclaimer/s

We hope you find the information on our website and resources useful.

Animations

This resource has been designed with animations to make it as fun and engaging as possible. To view the content in the correct formatting, please view the PowerPoint in 'slide show mode'. This takes you from desktop to presentation mode. If you view the slides out of 'slide show mode', you may find that some of the text and images overlap each other and/or are difficult to read.

To enter slide show mode, go to the **slide show menu tab** and select either **from beginning** or **from current slide**.

You may wish to delete this slide before beginning the presentation.



Mathematics

Number Sequences

Counting in 100s



Learning Intention

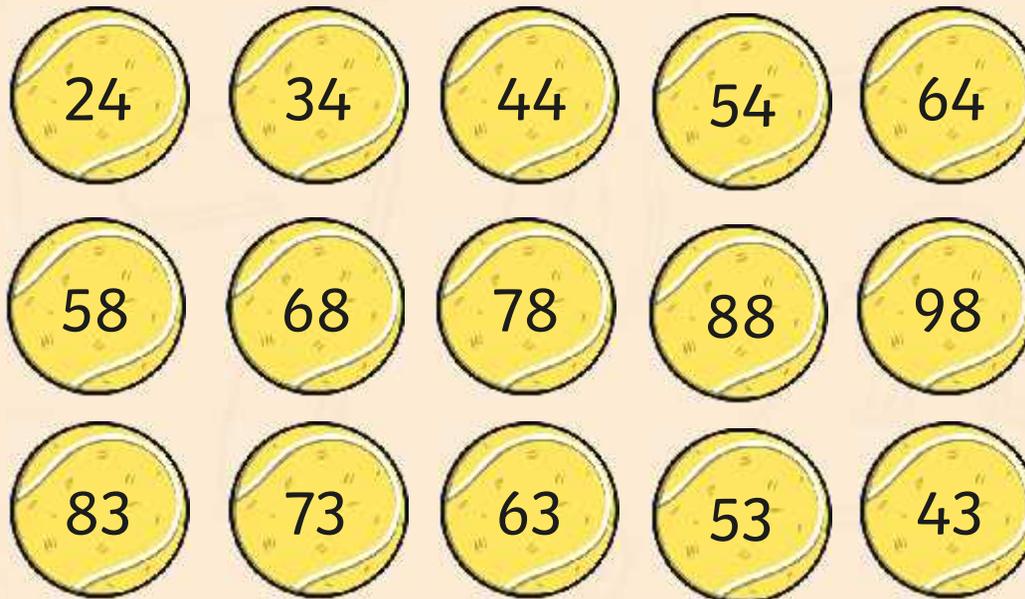
- To count forwards and backwards in groups of 100 from any number.

Success Criteria

- I can use place value to spot a pattern.
- I can work out the next numbers in a sequence.
- I can explain what happens to the ones digit, the tens digit and the hundreds digit.
- I can use the pattern to help me count on and back from any number.

Number Patterns

What do you notice about these number patterns?



The tens digit changes each time.
The patterns are counting in groups of 10.
The ones digit always stays the same.

Number Patterns

Using what you already know about number sequences what can you say about these patterns?



This pattern counts forwards in 100s.



This pattern counts backwards in 100s.

Only the hundreds digit changes each time.

Number Patterns

What do you notice about these number patterns?



This pattern counts forwards in 100s.



This pattern counts forwards in 10s.



This pattern counts backwards in 100s.



This pattern counts forwards in 1s.

What comes next?

What number comes next in the sequence?



What comes next?

What number comes next in the sequence?



What comes next?

What number comes next in the sequence?



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0

1

2

3

4

5

6

7

8

9

Counting in 100s

To count forwards and backwards in groups of 100 from any number.

Colour the counting in 100s sequence to hit the tennis balls between the players.



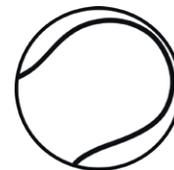
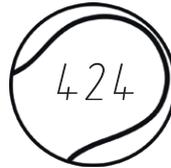
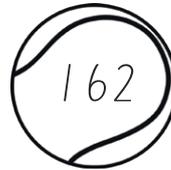
A collection of 20 tennis balls arranged in a path. One ball at the top left is yellow and contains the number 124. One ball at the bottom right is yellow and contains the number 924. The other 18 balls are white with black outlines and contain the following numbers: 263, 104, 162, 224, 324, 302, 986, 424, 386, 983, 524, 297, 729, 986, 287, 624, 723, 278, 736, 824, and 724.



Counting in 100s

To count forwards and backwards in groups of 100 from any number.

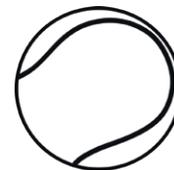
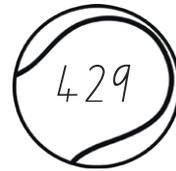
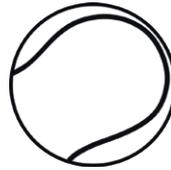
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Counting in 100s

To count forwards and backwards in groups of 100 from any number.

Colour the counting in 100s sequence to hit the tennis balls between the players.



Counting in 100s Answers

Colour the counting in 100s sequence to hit the tennis balls between the players.



A collection of 20 tennis balls arranged in a grid-like pattern. Each ball contains a number. The balls are colored yellow or white. The numbers are: 124, 263, 104, 224, 324, 162, 302, 986, 424, 386, 983, 524, 297, 729, 986, 287, 624, 723, 724, 278, 736, 824, 924.



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Counting in 100s Answers

Colour the counting in 100s sequence to hit the tennis balls between the players.



A collection of 20 tennis balls arranged in a grid-like pattern. Each ball contains a number. The numbers are: 124, 229, 104, 328, 224, 324, 302, 128, 424, 223, 524, 429, 386, 986, 624, 723, 729, 623, 724, 246, 824, 278, 736, 924.



1. 645

2. 272

3. 185

4. 639

5. 919



Scott is right. Only the 100s digit changes not the tens or ones.



784, 684, 584, 484, 384, 284, 184 or 184, 284, 384, 484, 584, 684, 784



912, 812, 712, 612, 512, 412 or 412, 512, 612, 712, 812, 912

535, 545, 555, 565, 575 or 575, 565, 555, 545, 535



Complete these sequences:



What should these sequences start with?



Complete these sequences:

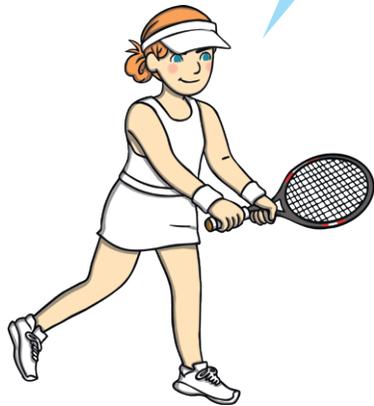


What should these sequences start with?





I think if we keep counting we will say the number 784.



Jules

I don't think we will say 784.

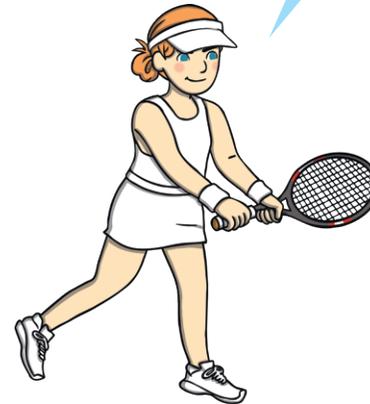


Scott

Who is right? How do you know?



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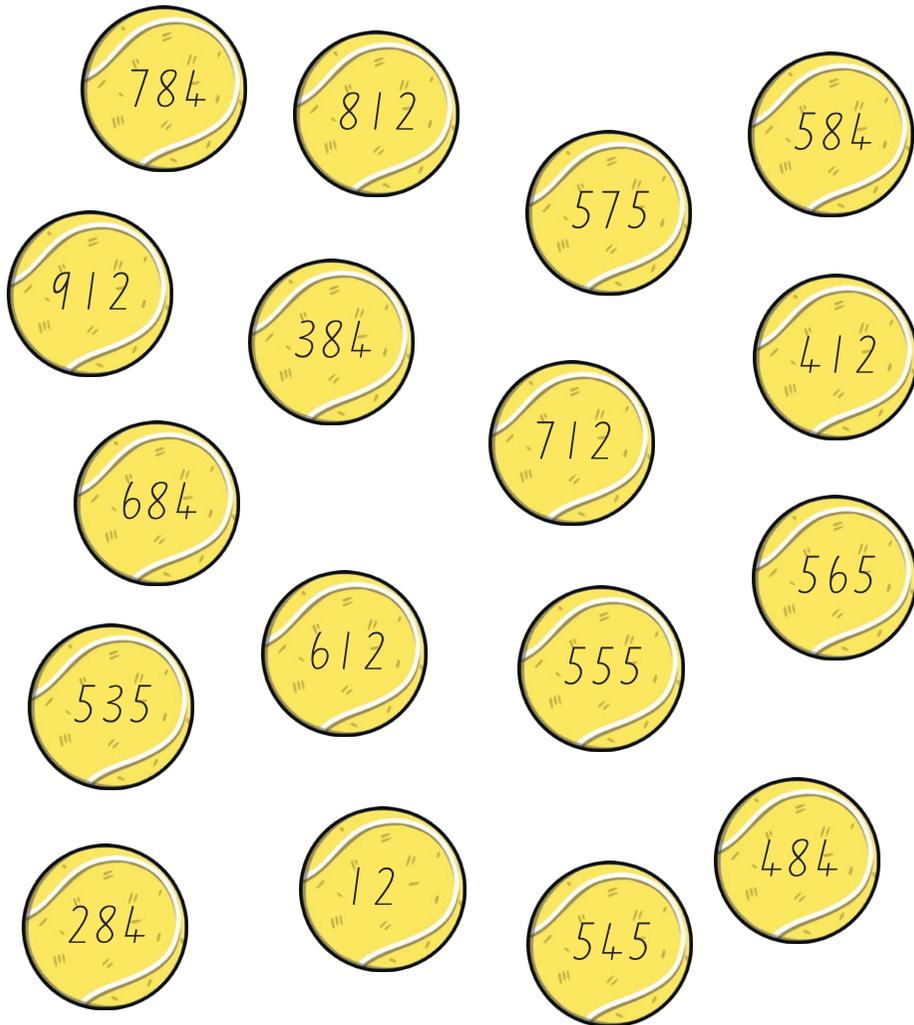
Scott

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Counting in 100s



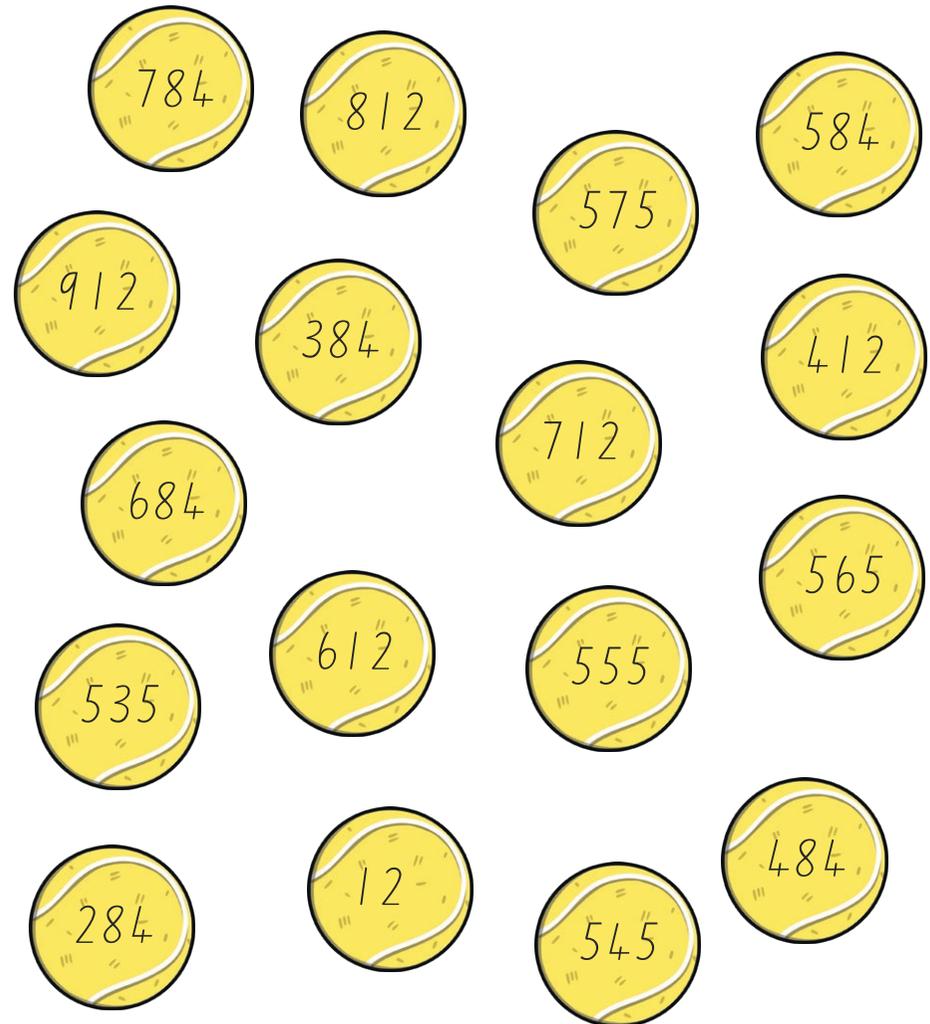
All of the tennis balls have been muddled up. Can you work out which numbers belong in each sequence.



Counting in 100s



All of the tennis balls have been muddled up. Can you work out which numbers belong in each sequence.



Count Forwards and Backwards by Tens From Any Number: Counting in 100s.

To count forwards and backwards in groups of 100 from any number.		
I can use place value to spot a pattern.		
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