Addition and Subtraction: Add and Subtract 9

Aim:	**Success Criteria:**	**Resources:**
Add and subtract numbers using concrete objects, pictorial representations, and mentally. To add and subtract 9 from any 2-digit number.	I can add 9. I can subtract 9. I can spot a pattern. I can explain the pattern and use it to help me.	**Lesson Plan** Representations of tens and ones including: base ten blocks, number shapes, ten-frames or bundles of straws
	Key/New Words: Keeping track, explain, prove, reasoning, represent, patterns, continue a pattern, compensate, adjust.	**Preparation:** Differentiated **Space Race Game** – 1 per pair **Tens and Ones Mat** – as required **Diving into Mastery Activity Cards** – as required **0-9 Digit Cards**

Prior Learning: It will be helpful if children can add and subtract ten from a two-digit number.

Learning Sequence

	**Remember It:** Children turn over two digit cards and use them to make a two-digit number. They then add and subtract ten from this number, writing a mathematical calculation each time. They repeat this several times, discussing what they notice and making a rule or generalisation.	
	**Adding Ten:** Children watch ten being added to a number. They discuss what happens in the tens column and what happens in the ones column, then explain why this occurs.	
	**Adding Nine:** Children compare nine to ten. They then discuss how what they have noticed may help them to add nine. The subsequent slides take the children through the steps of adding ten and then taking one away as they have added one too many. It is important that the children can verbalise what is happening in each step and why.	
	**Practise:** The children complete a set of similar calculations on a whiteboard to practise the skill of adding nine and then discuss what they notice about the answers. Can the children add nine? Can children spot a pattern?	
	**Subtracting Ten:** Children watch ten being subtracted from a number. They discuss what happens in the tens column and what happens in the ones column and explain why this happens.	
	**Subtracting Nine:** The slides take the children through the steps of subtracting ten and then adding one back on as they have subtracted one too many. It is important that the children can verbalise what is happening in each step and why.	
	**Space Race:** Children play the **Space Race Game** explaining what they notice to their partner, using equipment and a **Tens and Ones Mat**. Can the children add and subtract nine? Can the children spot, explain and use the pattern to help?  Children play the game twice. The first time, they add nine each time and the second time, they subtract. They explain what they have noticed, using a **Tens and Ones Mat** and base ten equipment.  Children play the game twice. The first time, they add nine each time and the second time, they subtract. They identify the pattern and explain it, demonstrating what they have noticed, using a **Tens and Ones Mat** and base ten equipment.  Children play the game, adding or subtracting nine each time they land on a number. They continue a pattern, explaining what they have noticed and make a rule about adding and subtracting nine.	

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. **Can the children add and subtract nine? Can the children spot, explain and use the pattern to help?**

Children build fluency in adding and subtracting nine by discovering and using number patterns. Children use representations of tens and ones to support their learning.

Children demonstrate their reasoning skills by identifying correct statements and calculations. They explain how they reached their decision and provide evidence to support it. Children use representations of tens and ones to demonstrate their reasoning.

Children demonstrate their problem-solving skills by identifying numbers that could be reached by adding nine from a given starting point. They then investigate which starting point would lead them closest to zero if they continued to subtract nine. Children use representations of tens and ones to explore possibilities and demonstrate their reasoning.

Space Spotting: Spaceships will appear on the slides. If the numbers on the ships differ by nine, the children put their arms in the air to make the shape of a spaceship and they fold their arms if the numbers do not differ by nine.

Exploreit

Completeit: Choose a starting number and ask the children to take away nine repeatedly. Can they see a pattern in the numbers and use this to predict what the next number will be?

Rollit: Children choose a rule that will win the game, such as an even number, closest to 50, or a number between 20 and 40. They then roll two dice and create a two-digit number. They add or subtract nine. The person whose answer matches the criteria wins a point.

Learnit: Children will find this visually exciting a useful tool to support addition and subtraction skills.