

Adding and subtracting with objects and on a number line

Subject: Maths	Lesson Title: Adding and subtracting with objects and on a number line
Date:	Time Span:
Year Group: Year 2	Group Size: 30

Desired Learning Outcomes

To understand adding as increasing in quantity and subtracting as decreasing in quantity

To know how to use a number line to assist with adding and subtracting

Key Language:

Add, plus, more, subtract, take away, minus, less, jump, units, tens and hundreds

Use of ICT:

Smartboard for introduction

Assessment (Make reference to each section of the lesson)

Intro – TA to check children who may / may not be able to use objects to add and subtract. Can children explain why teacher's deliberate mistakes are incorrect?

Main – Mark children's work as they complete it. Sit with any children who are struggling, bringing them back to the carpet if necessary. If still unsure by end of lesson sit with TA during plenary.

Plenary – Can children calculate the answer and explain what they are doing?

Use of Other Adults

TA to work with lower ability children during main part of lesson

TA to sit and continue working with children (of any ability) who struggled in plenary

Anticipated Misconceptions/Difficulties

Lower ability – not understanding that they need to find the number of objects in both numbers in the number sentence and add them together / find the number of objects at the beginning of a subtraction number sentence and remove the next number

Middle ability – when jumping skipping numbers, not landing on a number or counting the first number as a jump, not starting to count after the first jump

Higher ability – changing the units when adding multiples of 10 instead of changing the tens e.g. to calculate $45 + 20$, getting 47

Gifted and talented – using too many jumps e.g. to calculate $430 + 480$, only jumping one hundred at a time

Resources

Number lines for extension and model available from

<http://www.sparklebox.co.uk/2576-2580/sb2579.html#.UFmg1BgQmPo> (laminated and cut up)

Pupil whiteboards and pens

Introduction	Time
<p>TA to take children who are unsure how to use concrete objects e.g. cubes, counters to add and subtract</p> <p>TA to revise how to add and subtract using such concrete objects e.g. to calculate $4 + 2$ get 4 cubes, get two more and count how many there are / to calculate $4 - 2$ get 4 cubes, remove 2 and see how many are left</p> <p>Ask each child to do an example. Children who are confident can get started on their independent work and children who are unsure can go through more examples with TA (If all children can do this already have TA take G+T children)</p> <p>Teacher (with remainder of class)</p> <p>Model how to add and subtract on a number line by starting on the first number, then doing the number of jumps for the second number e.g. to calculate $4 + 2$, start on number four and do two jumps.</p> <p>Do another example making deliberate mistakes of missing out numbers when jumping or landing in between numbers. Ask children to explain why these are mistakes.</p> <p>Emphasise:</p> <ul style="list-style-type: none"> • need to land on a number (not between numbers) • not skip a number • make sure not to count the first number, only count after the first jump <p>(You may wish to have middle ability children start their work at this point)</p> <p>Revise how when you add and subtract multiples of ten, only the tens number changes e.g. in $45 + 20$, only the 4 changes, not the 5.</p> <p>Model how we can use a blank number line to calculate with 2-digit numbers, revising strategies from previous days (for subtracting it does not matter if children start at the beginning of the number line and jump forward, or start at the end and jump forward, as long as they are calculating correctly)</p> <p>Encourage children working on addition and subtraction of 2-digit numbers to use larger jumps e.g. to calculate $40 + 23$ they may do one jump of 20 and one jump of 20 and one jump of 3, as using larger jumps is quicker if children can do it accurately</p> <p>Repeat above model for adding and subtracting 3-digit numbers</p>	15 mins
<p>Main (including differentiated tasks)</p> <p>Lower ability – use concrete objects to add and subtract with numbers below 10</p> <p>Middle ability – use a number line with all numbers on it, to do jumps of 1</p> <p>Higher ability – use a blank number line to add and subtract 2-digit numbers</p> <p>Gifted and talented – use a blank number line to add and subtract 3-digit numbers</p> <p>Extension – children to make up their own addition and subtraction sentences to calculate on pupil whiteboards</p>	20 mins
<p>Plenary</p> <p>In ability partners give children 2 questions per pair, one for each partner (lower ability children to use cubes and middle ability children to use laminated number lines). Children need to talk to their partner, explaining why they are using the method that they are using e.g. using four jumps of ten to add 40 because there are 4 tens in forty</p>	10 mins