

Lesson Sequences 2021/22

This plan for a sequence of lessons should ensure clear progression in **composite knowledge** *through* **component knowledge**.

Date: Sept 2021	Class: Year 2	Subject/topic: Mathematics – Addition (bridging 10)
Prior knowledge: <i>how does this lesson fit in with a sequence of lessons-what components have previously been taught?</i> <ul style="list-style-type: none"> • Number Bonds to 10. • Augmentation – when a quantity is increased by another (adding on). • Aggregation - combining 2 or more quantities. • Addition of 2 numbers to 10. 		
Composite learning: <ul style="list-style-type: none"> • By the end of this sequence of lessons, pupils will know about the addition of three or more single-digit numbers in the context of both aggregation and augmentation • By the end of this sequence of lessons, pupils will understand the importance of the laws of commutativity and associativity in the context of adding three or more numbers • By the end of this sequence of lessons, pupils will be able to apply written and mental strategies for the addition of three or more addends, using partitioning, commutativity and associativity. 		

	Learning objective(s) [components]:	Outline of Learning Sequence: <i>Consider the role of the teacher, children's steps in learning and adaptive teaching</i>	Resources:	Evaluation:
Lesson 1	Addition of three addends can be described by an aggregation story with three parts.	<ul style="list-style-type: none"> • Teacher to demonstrate practical & pictorial contexts of aggregation of 3 parts to 10. • Introduce general representations using three tens frames and part-part-part whole models to support connection between concrete, pictorial and abstract. • Children practise with different representations and written equations. 	Tens frames Counters Visual representations of 3 numbers adding to 10 or less.	Review augmentation with (x,x,x). All others achieved LO.
Lesson 2	Addition of three addends can be described by an augmentation story with a 'first..., then..., then..., now...' structure.	<ul style="list-style-type: none"> • Children act out augmentation stories of 3 addends to 10. • Children connect practical representations with tens frames as story is told. • Teacher to model use of part-part-part-whole and writing of equation, check children can make the links between pictorial and abstract. • Model augmentation on a number line. • Children practise with blank number lines, either from scratch or choosing correct equation/ representation. 	Tens frames Counters Blank number lines Visual representations of 3 numbers adding to 10 or less.	All achieved LO either written or acting (verbally).

Lesson 3	The order in which addends (parts) are added or grouped does not change the sum (associative and commutative laws).	<ul style="list-style-type: none"> Introduce - 'When we add three numbers, the total will be the same whichever pair we add first.' And demonstrate with practical items (aggregation). Demonstrate with augmentation story, swapping "thens" and "first", use a pictorial representation. NOTE – it is harder to understand changing order in augmentation than aggregation. Transfer representations to part-part-part-whole structures and number lines and ask children to identify what is the same and different. 	Blank number lines Visual representations of 3 numbers adding to 10 or less (augmentation and aggregation).	Issues with how to use blank number lines – revert to pre labelled ones. HAPs needed more challenge.
Lesson 4	When we are adding three numbers, we choose the most efficient order in which to add them, including identifying two addends that make ten (combining).	<ul style="list-style-type: none"> Explore different ways of calculating the sum of three addends. Make sure connection between context, pictorial and abstract is explicit by use of questioning and modelling. Use tens frames, part-part-part-whole to build towards missing number sentences. Promote depth using magic squares Move on to totals greater than 10 in contexts, pictures, tens frames building to "we can look for pairs of addends which sum to 10". Practise with written equations and choosing which can use a "make 10" strategy. Use stem sentences " _ plus _ is equal to ten, then ten plus _ is equal to _" 	Tens frames Counters Visual representations of 3 numbers bridging 10 or less.	LO achieved independently by all except (X,X,X,X) who achieved with my support and use of tens frames.
Lesson 5	We can add two numbers which bridge the tens boundary by using a 'make ten' strategy.	<ul style="list-style-type: none"> Teacher uses a real life context that children model on tens frames for the sum of 2 addends bridging 10, where partitioning of one number is used to make 10 ie $7 + 5 = 7 + 3 + 2$. Model stem sentence 'First I partition the ____: ____ plus ____ is equal to ____' • 'Then ____ plus ____ is equal to ten...' • '...and ten plus ____ is equal to ____.' Working in pairs children explore other examples using tens frames and stem sentences. Build towards missing number equations. Some children will continue using concrete resources, encourage them to visualise the partitioning. Some children can find answers in as many ways as possible. To promote depth use < > 	Tens frames Counters Missing number sentences Blank number lines	<p>X,X,X,X still working within 10 with TA support.</p> <p>LO achieved by everyone else and stem sentence completed either written or verbally. HAPs successfully completed missing number questions and finding all possibility questions.</p> <p>Did not get time to introduce < and >.</p>