

Multiplication and Division: Twins

Aim: Multiply and divide numbers mentally drawing upon known facts. I can multiply and divide mentally using doubling and halving.	Success Criteria: I can halve numbers by dividing them by two. I can double numbers by multiplying them by two. I can use partitioning and recombining to halve and double numbers up to four digits and numbers with decimals.	Resources: Lesson Pack Individual whiteboards and pens
	Key/New Words: Multiply, divide, halving, doubling, partitioning, recombining.	Preparation: Measures Loop Cards - one per class Differentiated Twins Activity Sheets - one per child

Prior Learning: It will be helpful if the children can halve and double whole numbers to 100, relate halving and doubling to multiplying and dividing by two, and can convert between measures.

Learning Sequence

	Measures Match: As a class, the children play the Measures Loop Cards game; matching the equivalent qualities from one card to another.	
	Twins in Training: Introduce the 'running problem' using the explanation on the Lesson Presentation . Ask the children how they would solve it, allowing them to discuss their ideas with a talk partner and feed back to the class.	
	Doubling: Remind children of how to double mentally by partitioning numbers and recombining. Children can use the abbreviation 'PCR' to remind them of the strategy - partition, calculate and recombine.	
	Halving: Remind children of how to halve mentally by partitioning numbers and recombining, using the 'PCR' strategy.	
	Doubling and Halving: Can the children work these halves and doubles out mentally, using PCR, without writing anything but the answer down on their whiteboards? Ask the children to move along the arrow and challenge themselves with the more difficult calculations. How far can they get before the calculation gets too tricky to do mentally?	
	Decimals: Explain how to double and halve measures with decimals by partitioning numbers and recombining, using the 'PCR' strategy.	
	Twins: Children complete the differentiated Twins Activity Sheets , multiplying and dividing mentally using doubling and halving. <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>Children use doubling and halving to solve the problems working with numbers up to 4 digits.</p> </div> <div style="text-align: center;"> <p>Children use doubling and halving to solve the problems working with 3 and 4-digit numbers including tenths.</p> </div> <div style="text-align: center;"> <p>Children use doubling and halving to solve the problems working with 3 and 4-digit numbers including tenths and hundredths.</p> </div> </div>	
	Speed Challenge: How quickly can the children halve and double the numbers on the slide?	

Masterit

Timeit: Children roll a dice four times or turn over four digit cards to generate a four-digit number. Start the timer and time how quickly they can double and halve the number.

Makeit: Children make their own loop card game (like Measures Match) to match up doubles or halves.