Heather Primary Calculation Policy

This calculation policy has been created to meet the expectations of the new national curriculum and is linked with the White Rose Scheme of Work and Calculation Policy. Most importantly, it is designed to meet the needs of our children at Heather Primary School.

With our focus on 'Mastery in Maths' for all, we believe that the development in skill from concrete to pictorial and then abstract gives our children a deep understanding of the four operations.

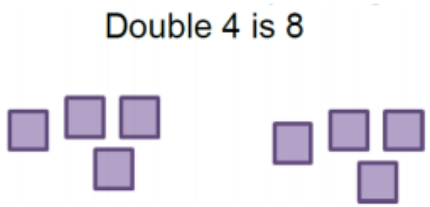
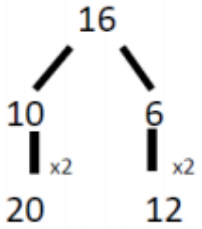
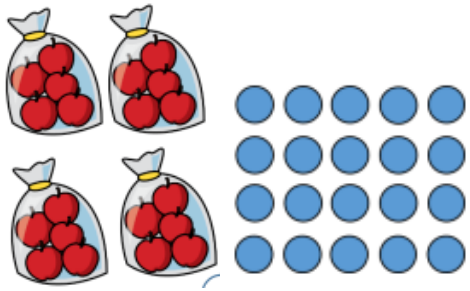
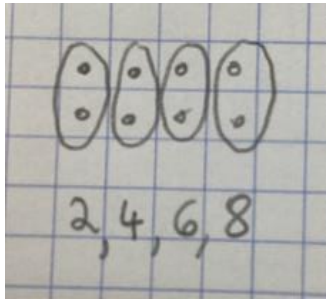
Multiplication

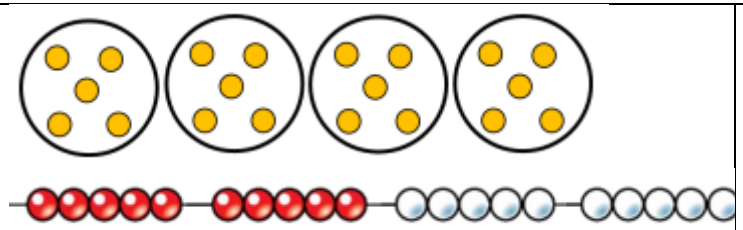
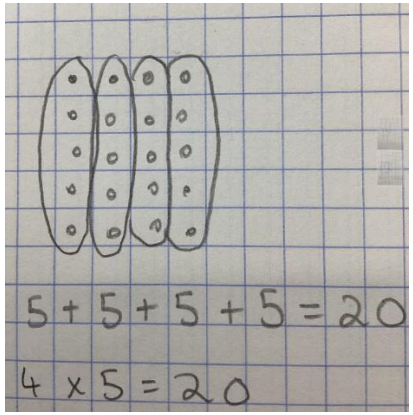
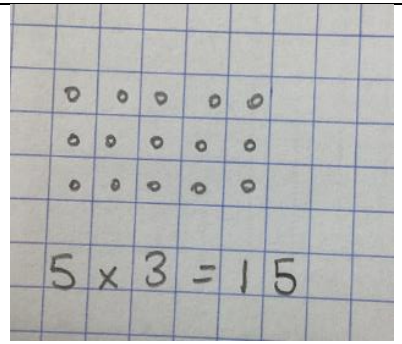
Progression in Multiplication Overview

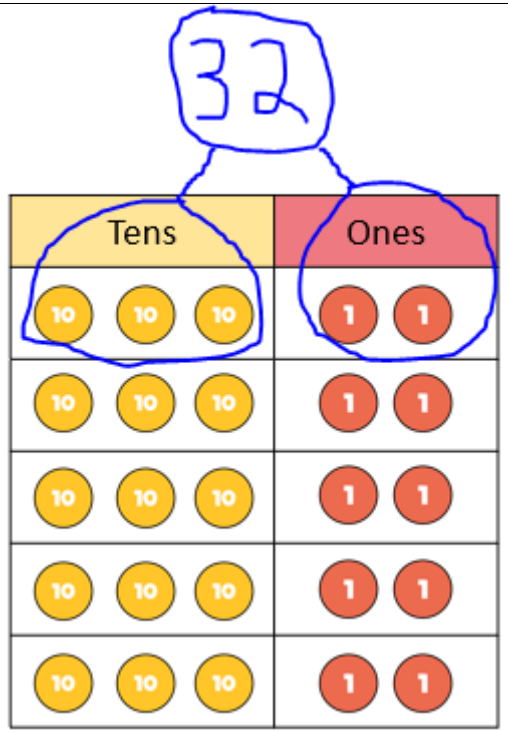
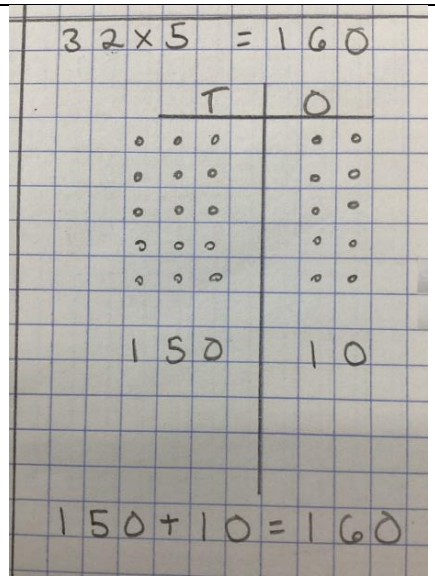
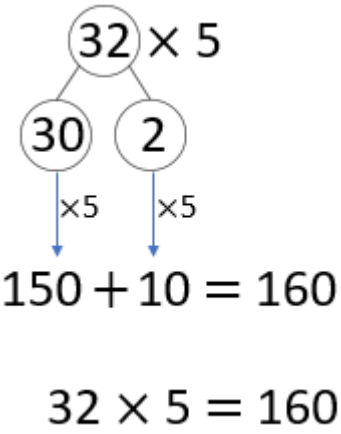
EYFS	Y1	Y2	Y3	Y4	Y5	Y6
Explore double facts.	Solve one-step problems involving multiplication by calculating the answer using concrete, pictorial representations with the support of the teacher.	Solve problems involving multiplication using materials, arrays, repeated addition, mental methods	Multiply a 2 digit number by a 1 digit number progressing to formal written methods within the multiplication tables they know.	Multiply 2 digit and 3 digit numbers by a 1 digit number using formal written layout	Multiply numbers up to 4 digits by a 1 or 2 digit number using a formal written method	Multiply numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication
		Recall and use multiplication facts from the 10x, 5x and 2x table	Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables	Recall multiplication and division facts for multiplication tables up to 12 × 12	Identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers	Identify common factors, common multiples and prime numbers

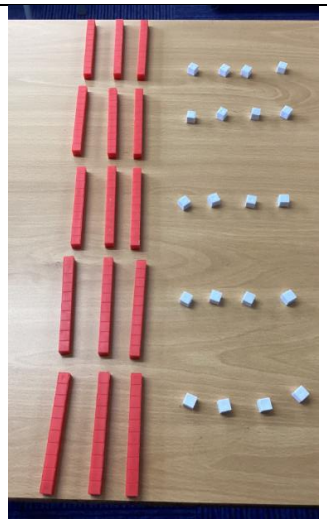
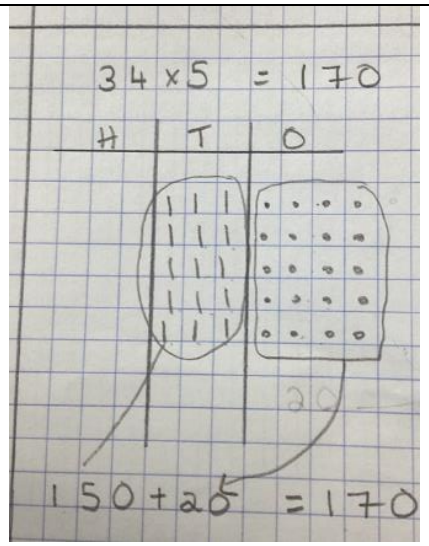
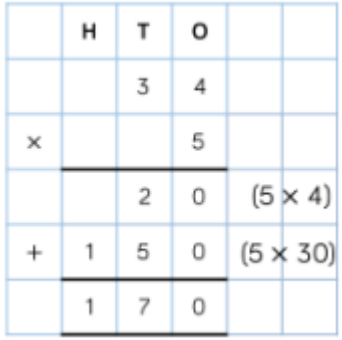
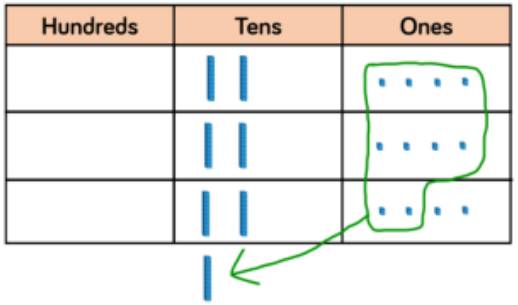
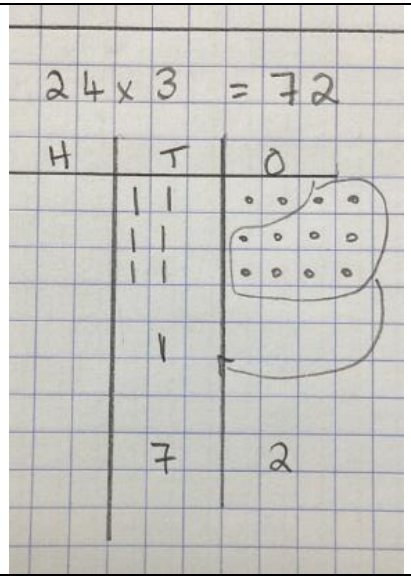
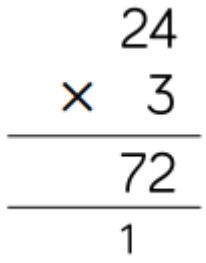
				Recognise and use factor pairs	Establish whether a number up to 100 is prime and recall prime numbers up to 19	
				Multiply together three numbers		
				Use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1		

Vocabulary: lots of, groups of, times, multiply, double, array, repeated addition, product, factor, prime number

Objective	Concrete	Pictorial	Abstract
Explore doubles	Use practical activities – eg. hand, mirrors, lego, cubes  	Draw pictures to show doubles  	For larger numbers, use a part part whole model to double parts before recombining.  20 + 12 = 32
Solve one-step problems involving multiplication by calculating the answer using concrete, pictorial representations with the support of the teacher. **Counting in multiples**	 	 	Count in multiples of a number aloud. Write sequences with multiples of numbers. 2, 4, 6, 8, 10 5, 10, 15, 20, 25 , 30

Solve one-step problems involving multiplication by calculating the answer using concrete, pictorial representations with the support of the teacher. **Repeated addition**			$5+5+5+5=20$ $4\times5=20$ $5\times4=20$
Solve one-step problems involving multiplication by calculating the answer using concrete, pictorial representations with the support of the teacher. **Arrays**	  Children make an array using counters. Use these to help children understand the commutative law – eg. 5 x 3 = 15 3 x 5 = 15		5 x 4 = 20 5 x 3 = 15

Multiply a 2 digit or 3 digit number by a 1 digit number **Part part whole**			

Multiply a 2 digit or 3 digit number by a 1 digit number **Expanded method**			
Multiply a 2 digit or 3 digit number by a 1 digit number **Formal method**			

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Explain to children that we always start with the ones, just like with addition and subtraction in case we need to exchange.</td>
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<tr><td>×</td><td></td><td></td><td>5</td><td></td></tr>
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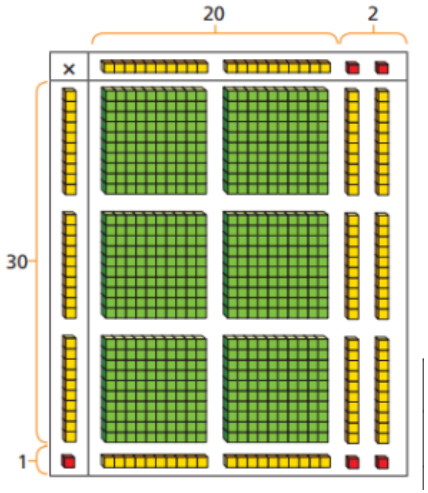
<td>Multiply a 2 digit number by a 2 digit number</td>
<td> 
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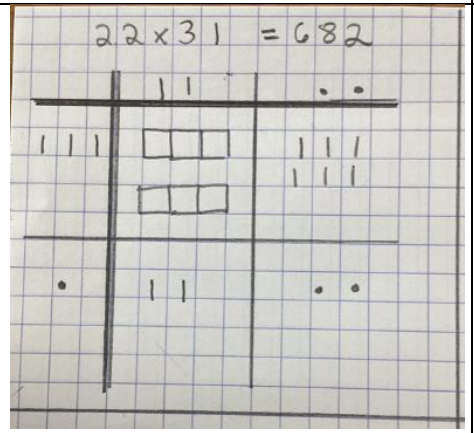
<td> 
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			When moving to a formal written method, explain to children that we always start with the ones, just like with addition and subtraction.