Selston C of E
Infant & Nursery School

Mathematics Calculation Policy

2022-23

Opening hearts and minds through the grace and love of God

SELSTON C OF E INFANT AND NURSERY SCHOOL

MISSION STATEMENT

Opening hearts and minds through the grace and love of God

At Selston C of E Infant and Nursery School children always come first and we try to nourish, challenge, prepare and inspire them within a Christian ethos.

We believe in valuing all who contribute towards the successful running of our schools including children, parents, carers, governors, teaching and non-teaching staff.

This Mission Statement lies at the heart of our school's aims. It is the philosophical basis for all of the school's policies and through these, for everything that happens in and round our school. Our aspiration is for everyone at Selston to:
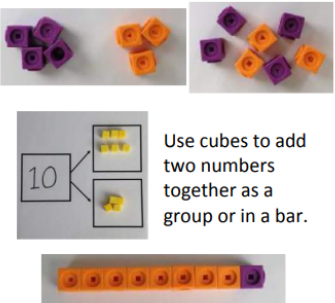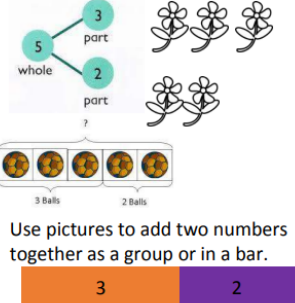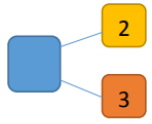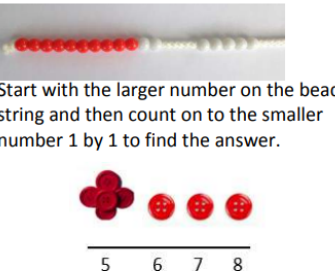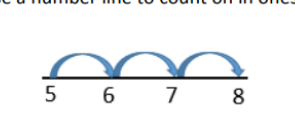
- feel happy, secure, safe and valued at school
- develop a growing awareness of their own inner self and spirituality, and of the power of the Christian faith to transform lives
- develop healthy relationships based on care, trust, compassion and forgiveness
- show acceptance for and understanding of others who may have different beliefs or needs
- strive for the highest standards of achievement, developing the confidence and skills to be independent, motivated and self-disciplined learners
- have a positive approach to life, contributing to the well-being of the community and building hope for the future
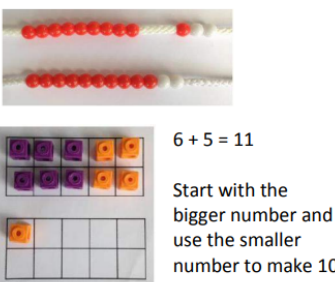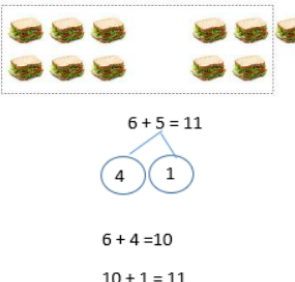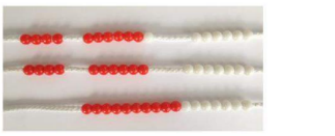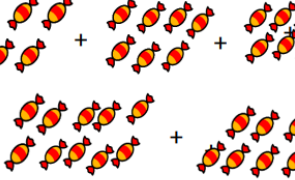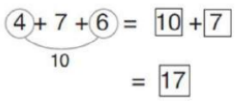
We hope that children will leave our school with open hearts and minds, ready to respond to the opportunities that lie before them and to experience the joy of life in all its fullness.
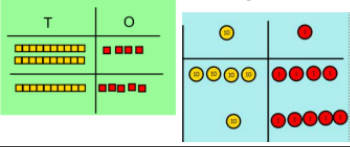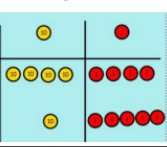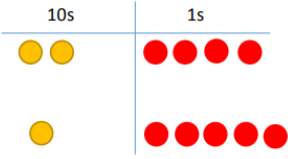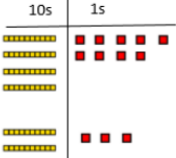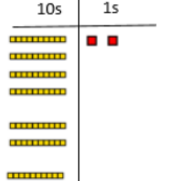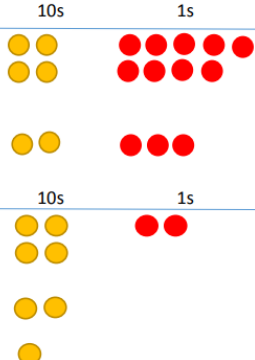
PROGRESSION THROUGH CALCULATION GUIDANCE – White Rose Mathematics Scheme

All Saints and Selston Infant and Nursery School Calculation Policy to indicate the progression through Addition, Subtraction, Multiplication and Division in Years 1 – 2.
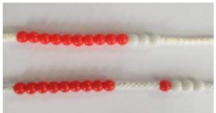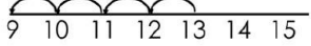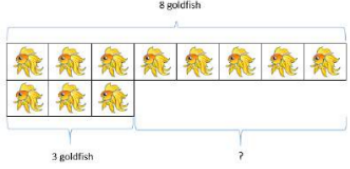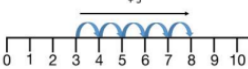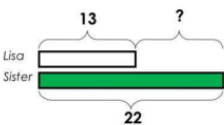
Addition:
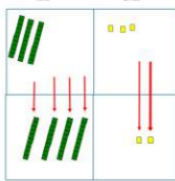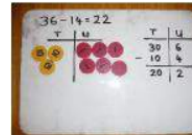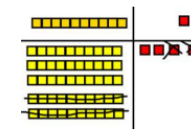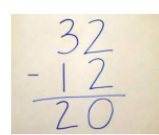
	Objective	Concrete	Pictorial	Abstract
Year 1	Number bonds of 5, 6, 7, 8, 9 and 10	Use cubes to add two numbers together as a group or in a bar.	Use pictures to add two numbers together as a group or in a bar. 3 Balls 2 Balls 3 / 2	2 + 3 = 5 3 + 2 = 5 5 = 3 + 2 5 = 2 + 3 2 / 3 Use the part-part-whole diagram as shown above to move into the abstract.
	Counting	Start with the larger number on the bead string and then count on to the smaller number 1 by 1 to find the answer. 5 6 7 8	Use a number line to count on in ones. 5 6 7 8	5 + 3 = 8

	Objective	Concrete	Pictorial	Abstract
Year 1	Regrouping to make 10	6 + 5 = 11 Start with the bigger number and use the smaller number to make 10.	6 + 5 = 11 4 1 6 + 4 = 10 10 + 1 = 11	6 + 5 = 11
Year 2	Adding 3 single digit numbers	4 + 7 + 6 = 17 Put 4 and 6 together to make 10. Add on 7. Following on from making 10, make 10 with 2 of the digits (if possible) then add on the third digit.	+ + + Add together three groups of objects. Draw a picture to recombine the groups to make 10.	4 + 7 + 6 = 10 + 7 10 = 17 Combine the two numbers that make 10 and then add on the remainder.
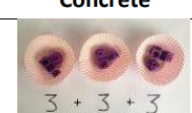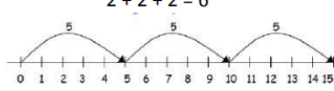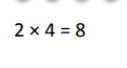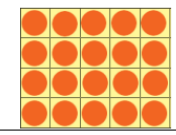
	Objective	Concrete	Pictorial	Abstract
Year 2	Column method without regrouping	Add together the ones first, then add the tens. Use the Base 10 blocks first before moving onto place value counters. 24 + 15 = 44 + 15 =	After physically using the base 10 blocks and place value counters, children can draw the counters to help them to solve additions. 10s 1s	24 + 15 = 39 24 + 15 39
	Column method with regrouping	Make both numbers on a place value grid. 10s 1s Add up the units and exchange 10 ones for 1 ten. 10s 1s	Using place value counters, children can draw the counters to help them to solve additions. 10s 1s 10s 1s	40 + 9 20 + 3 60 + 12 = 72

Subtraction:
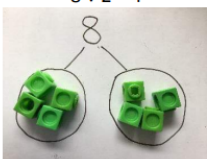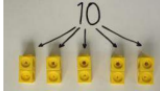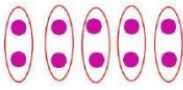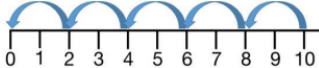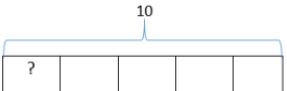
	Objective	Concrete	Pictorial	Abstract
Year 1	Taking away ones	Use physical objects, counters, cubes etc. to show how objects can be taken away. 4 – 2 = 2	Cross out drawn objects to show what has been taken away. 4 – 2 = 2	4 – 2 = 2
	Counting back	Make the larger number in your subtraction. Move the beads along your bead string as you count backwards in ones. 13 – 4 = 9	Count back on a number line or number track 9 10 11 12 13 14 15 Start at the bigger number and count back the smaller number, showing the jumps on the number line.	Put 13 in your head, count back 4. What number are you at? Use your fingers to help.
	Find the difference	Compare amounts and objects to find the difference. 8 goldfish 3 goldfish ? Use cubes to build towers or make bars to find the difference. Use basic bar models with items to find the difference.	Count on to find the difference. 0 1 2 3 4 5 6 7 8 9 10 Lisa is 13 years old. Her sister is 22 years old. Find the difference in age between them. 13 ? Lisa Sister 22 Draw bars to find the difference between 2 numbers.	Hannah has 8 goldfish. Helen has 3 goldfish. Find the difference between the number of goldfish the girls have.

	Objective	Concrete	Pictorial	Abstract
Year 2	Column method without regrouping	75 – 42 = 33 **Use Base 10 to make the bigger number then take the smaller number away.** Show how you partition numbers to subtract. Again make the larger number first.	Draw the Base 10 or place value counters alongside the written calculation to help to show working.	This will lead to a clear written column subtraction.

Multiplication

	Objective	Concrete	Pictorial	Abstract
Year 1/2	Repeated addition	Use different objects to add equal groups.	There are 3 plates. Each plate has 2 star biscuits on. How many biscuits are there? 2 + 2 + 2 = 6 5 + 5 + 5 = 15	Write addition sentences to describe objects and pictures. 2 + 2 + 2 = 6
	Arrays- showing commutative multiplication	Create arrays using counters/cubes to show multiplication sentences.	Draw arrays in different rotations to find **commutative** multiplication sentences. 4 × 2 = 8 2 × 4 = 8 2 × 4 = 8 4 × 2 = 8 Link arrays to area of rectangles.	Use an array to write multiplication sentences and reinforce repeated addition. 5 + 5 + 5 = 15 3 + 3 + 3 + 3 + 3 = 15 5 x 3 = 15 3 x 5 = 15

Division:

	Objective	Concrete	Pictorial	Abstract
Year 1/2	Sharing	I have 8 cubes, can you share them equally between two people?	Children use pictures or shapes to share quantities. 8 ÷ 2 = 4	Share 8 buns between two people. 8 ÷ 2 = 4
	Grouping	Divide quantities into equal groups. Use cubes, counters, objects or place value counters to aid understanding. 	Use a number line to show jumps in groups. The number of jumps equals the number of groups. 0 1 2 3 4 5 6 7 8 9 10 Think of the bar as a whole. Split it into the number of groups you are dividing by and work out how many would be within each group. 10 ? 10 ÷ 5 = ? 5 x ? = 10	10 ÷ 5 = 2 Divide 10 into 5 groups. How many are in each group?