Cotmanhay Infant and Nursery School <u>Vocabulary Progression</u> – MATHS 2yrs – 7 yrs.

(Using guidelines from National Curriculum 2014, NCETM, EYFS statutory framework 2021, Development Matters 2021, WRM SOL).

This document lists the key vocabulary and mathematical phrases which we expect the majority of pupils at CINS will hear and be able to respond to meaningfully across the age ranges (receptive language). Children may use these words and phrases in their expressive language at the same time but competence may come at a later date.

Mathematical aspect	Key areas	Cubs 22-36m	Bears 30-50m	Reception 40-60m	Y1	Y2
Numbers and the Number system.	**Counting and number sequences.**	number count zero, one, two, three … count to three	zero to ten … how many? count up to … next number none subitise - see it, say it	zero to twenty… count on from/to count back from/to number pattern count on in ones, tens, twos	zero to one hundred count on in fives forwards, backwards multiples of odd even going up going backwards start from	zero to one hundred+ count on in 3s steps of sequence continue predict rule increasing decreasing start with
	Comparing and ordering numbers.	lots more same big little	same as different bigger smaller more fewer order size	compare most more than larger/largest smallest fewer/fewest/fewer first, second, third to tenth last amount	equal to greater than less than ten more/ten less last but one between	<, > = signs Halfway equivalent
	Identifying,	objects	numicon shapes	10 frame	represent	manipulatives

Mathematical aspect	Key areas	Cubs 22-36m	Bears 30-50m	Reception 40-60m	Y1	Y2
	representing and estimating numbers.	3 frame 5 frame	10 frame number line dice	rekenrek counters die dominoes part whole model number track	unifix bead strings count sticks bar model tens and ones sticks and bricks pegs/pegboards number line guess estimate	representations place value counters dienes cuisenaire rods multilink arrow cards number square equivalent to exact/exactly close to just over/under
	Reading and writing numbers.	marks 1,2,3,4,5	write numbers 0-5 read numbers 0-10	number symbol 0-20	numeral digit Number word 0-50	hyphen 0-100
	Understanding Place value.		group part, part, whole	'teen' numbers split	one-digit number two-digit numbers tens and ones tens part ones part partition 100 square	place value place value PV chart recombine columns rows grid 3-digit numbers

Mathematical aspect	Key areas	Cubs 22-36m	Bears 30-50m	Reception 40-60m	Y1	Y2
Number: Calculation	Number bonds	count	join two groups count how many altogether?	number bonds 0-5 part whole number pairs	number bonds 0-10, 0-20	number bonds 0-20 related facts to 100 number trios
	Addition	count altogether	put together and	addition/add more	total	plus sum

		makes	count on + sign/symbol	how many more than? turn it around missing number problem	partition recombine fang method exchange
Subtraction	gone	take away how many left? gone	subtract/subtraction less count back sign/symbol -	how many less than? difference missing number problem	difference between minus partition and recombine fang method exchange
Multiplication	pairs	groups of 2	sets of, lots of, groups of double facts odd even	equal groups unequal groups arrays row column count in multiples of 2 and 10 twice	repeated addition multiply multiplication multiplied by x sign/symbol times tables count in multiples of 5 and 3 multiplication facts arrange/rearrange **NB avoid term 'times'**
Division	1 for you, 1 for you, 1 for you …	share one each two each	fair share three each etc	equal share equal groups four each	divide divided by divided into ÷sign/symbol sharing method grouping method division facts
Fractions	half	whole	two halves parts one whole	equal parts of the whole shade one half ½	fractions steps of equivalent fractions ¾ 2/4 1/3 signs/symbols

Mathematical aspect	Key areas	Cubs 22-36m	Bears 30-50m	Reception 40-60m	Y1	Y2
					one quarter ¼ signs/symbols	Count in halves numerator denominator
	General terms	join in let's start again let's check slowly slow counting	count carefully to check check your counting	number sentence number story number facts maths fluency	systematic method work out in my head work backwards ma statement	calculate calculation operation commutativity inverse connects/links relationship equalities equation expression stem sentence work mentally written method simplify all combinations jotting

Mathematical aspect	Key areas	Cubs 22-36m	Bears 30-50m	Reception 40-60m	Y1	Y2
Measurement	Money	money how much?	pounds	coin penny pence pound price cost buy sell	notes value amount double pay spend total	pounds (£) pence (p) equivalent amount change half/halve bought sold dear/dearer cheap/cheaper most/least expensive

Length	stack put inside tall short big little small	order size bigger/little/smaller medium high/low long thick/thin	length longest shortest height width wide/narrow measure	longer/shorter higher/taller double/half guess/ estimate metre metre stick cm/centimetres	compere record ruler roughly
Mass/Weight	heavy	light too much enough	weigh balances heaviest lightest about the same too little not enough	weight heavy/light, heavier than, lighter than heaviest lightest	g/grams kg/kilograms half-kilogram scales
Capacity/ Volume	full empty	holds container	more than less than about the same half full nearly full nearly empty	liquid half capacity	volume quarter full ml/millilitres L/litres half-litre measuring jug
Temperature	hot cold	cool	freezing	hotter colder	temperature thermometer °C/degrees Celsius compare
Time	now soon at another time later next today home time birthday	first then after day quick slow holiday old new	days of the week morning afternoon evening night bedtime dinnertime playtime early	quicker than slower than fast/fastest/faster earlier before/after morning, afternoon and evening	intervals of time timer stop watch minutes seconds quarter past quarter to 5-minute clock digital

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			yesterday tomorrow	last time hour o'clock clock short/long hands watch quickest slowest	seasons: spring summer autumn winter month year weekend half past the hour clock face	analogue once twice names of months fortnight
Geometry	Properties of shapes	build blocks boxes shape the same round roll 'pointy' flat	curved choose join bigger match 'slopey' sides corners straight	sort solid draw rectangle square circle triangle star slide cuboid cube pyramid sphere cylinder cone	3-D shapes face edge point/pointed Vertices vertex 2-D shapes pentagon hexagon octagon	describe properties compare sides line symmetry in a vertical line fold line mirror line symmetrical surface triangular prism circular rectangular triangular
	Position, direction and movement	puzzles fit in over under in on behind	in front of on top of up/down next to inbetween	position turn above/below around outside inside front/back	sideways half turn whole turn quarter turn underneath centre middle	route/ journey direction movement three-quarter turn right angle flip rotate

Mathematical aspect	Key areas	Cubs	Bears	Reception	Y1	Y2
				before/after beside forwards backwards	corner to/from across	straight line clockwise anti-clockwise opposite apart edge left/right close/far/near along through
	Pattern	round up and down 'spotty' 'stripey'	pattern/s 'pointy' zig-zag what's next? same again?	repeating pattern design copy match continue ABAB pattern ABB pattern etc	create make	combinations sequences

Mathematical aspect	Key areas	Cubs 22-36m	Bears 30-50m	Reception 40-60m	Y1	Y2
Statistics	Interpreting, constructing and presenting data.		mark	Tally count	data vote how many? answer questions	statistics record sort tally chart simple pictograms block diagrams simple tables label total compare more than ask questions

Mathematical aspect	Cubs 22-36m	Bears 30-50m	Reception 40-60m	Y1	Y2
Problem solving – **Words** **Instructions** **Phrases**	Count Show me Give me	Sort Group Match Same Different Answer Right Pattern Show me what you did … Which one? Why? What next?	Talk about Show me how … Make a set… Draw List How did you work it out? What could we try next? Puzzle Always Never Work as a group Work on your own Be ready to chat and share	Explain your work/thinking. Number fact Solve problems How do you know? Show me using maths words, drawing/pictures, apparatus. Use your maths talk What objects could we use to help us answer this question? Convince me! Prove it! Why do you think that is? What is the same? What's different? What's stayed the same? What's changed? What comes next? True or false? Do you agree? Why? Sometimes/always/never What do you notice? Odd one out Can you spot a pattern? Spot the mistake. Can you explain the mistake that has been made? What do they need to do to get it right? Work with a partner.	Correct Error Explain reasoning Describe Investigate Estimate Identify Maths statement One step problem Two step problem **NB avoid term 'part'** What do we know? What are we trying to find out? What steps do we need to complete to answer this question? What should/could we do first? Next? Explain your method Choose an efficient method/strategy Work systematically It must be … It could be … It can't be … Why? Can you find another way/all the combinations? Can you record your ideas in a different way? What is the rule? Make up an example that satisfies the rule. What other questions could we ask?

Key principles.

The quality of spoken language and use of precise vocabulary are key elements in developing mathematical skills in CINS across all ages.

CTs/TAs need to model consistent and correct language and vocabulary. New vocabulary needs to be explained and practically demonstrated many times. Most children need to hear a new word in context 10 times before they will be able to use it for themselves correctly. Younger children need more scaffolding and support with mathematical talk.

Practising 'Maths talk' supports pupils with their verbal reasoning and the clarity of explanation of their thinking. It forms an important part of developing understanding of mathematical concepts and the ability to reason mathematically.

Pupils can't always find the right words to explain their answers/reasoning. Adults can phrase/model their thinking for them and encourage pupils to repeat whole stem sentences so that they develop the mathematical language to begin to construct their own sentences.

Teacher questions (open and closed) should be carefully thought about and phrased clearly and for the specific purpose of the learning you intend to develop. It is essential to listen carefully to responses and to unpick misconceptions.

Opportunities to talk about something other than 'the answer' are useful and removes the anxiety of being 'wrong'. Questions such as 'What do you notice?' or 'What do you think would happen if...?'

The beginning of group work and mini plenaries can be used to reinforce key objectives and maths language.
Talk partners help to get everyone engaged and supports confidence prior to sharing ideas with the class/group.

(See NCETM article – 19.04.2022 'Four ways to create better Mathematical talk in your classroom'.)

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