FP Maths – Weekly Overview

For children in our focus provision, we use the Orchard maths framework which breaks down mathematical objectives into small steps. To support teachers to break down the learning for individual needs, we use learning trajectories website. Read below for more information about why we use these resources:

What is a Learning Trajectory?

Children follow natural developmental progressions in learning. Curriculum research has revealed sequences of activities that are effective in guiding children through these levels of thinking. These developmental paths are the basis for the learning trajectories.

Why are trajectories important?

Research shows that when teachers understand how children develop mathematics understanding, they are more effective in questioning, analyzing, and providing activities that further children's development than teachers who are unaware of the development process. Consequently, children have a much richer and more successful math experience in the primary grades.

Why use learning trajectories?

Learning trajectories allow teachers to build the mathematics of children – the thinking of children as it develops naturally. So, we know that all the goals and activities are within the developmental capacities of children. We know that each level provides a natural developmental building block to the next level. Finally, we know that the activities provide the mathematical building blocks for school success.

When are children "at" a level?

Children are at a certain level when most of their behaviors reflect the thinking – ideas and skills – of that level. Often, they show a few behaviors from the next (and previous) levels as they learn. Most levels are levels of thinking. However, some are merely "levels of attainment" and indicate a child has gained knowledge. For example, children must learn to name or write more numerals, but knowing more numerals does not require deeper or more complex thinking.

Can children work at more than one level at the same time?

Yes, although most children work mainly at one level or in transition between two levels (naturally, if they are tired or distracted, they may operate at a much lower level). Levels are not "absolute stages." They are "benchmarks" of complex growth that represent distinct ways of thinking.

Can children move within sub topics?

Yes, especially if there are separate "sub-topics." For example, we have combined many counting competencies into one "Counting" sequence with sub-topics, such as verbal counting skills. Some children learn to count to 100 at age 6 after learning to count objects to 10 or more, some may learn that verbal skill earlier. The sub-topic of verbal counting skills would still be followed.

How do these developmental levels support teaching and learning?

The levels help teachers, as well as curriculum developers, assess, teach, and sequence activities. Through planned teaching and also encouraging informal, incidental mathematics, teachers help children learn at an appropriate and deep level.

Should I plan to help children develop just the levels that correspond to my children's ages?

We should support children's learning and development based on their needs. While we list common ages associated with levels, there are many cases in which children will need support at lower or higher levels.

What is a sub-trajectory?

A subtrajectory is a group of levels that are loosely coupled with a larger trajectory. While present within the development of the larger trajectory, the dependence of building iteratively from one level to the next may not be essential. Thus, subtrajectory levels may appear 'out of order' in terms of the child's age and development.

Children are in focused key worker groups led by the teacher and receive daily maths teaching. During this taught session, children will get the chance to apply the learning to independent tasks. Children then have the opportunity to consolidate their learning through the use of carefully planned work boxes with a key worker as well as opportunities to apply learning through continuous provision (AM).

Below is an outline plan for the year. It is worth remembering that children all working at different levels on the Orchard tracker and that teaching and activities are differentiated to ensure that each individual child's needs are met. This is evident on weekly planning. Each trajectory is broken down underneath this planning and children will start on the trajectory that is matched to their needs.

Autumn 1	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6
Number focus	**Counting**	**Counting**	**Counting**	**Subitising**	**Subitising**	**Subitising**
Shape, space and measure focus	**2d shape**		**Composing 2d shape**		**Disembedding shapes**	
Autumn 2	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Number focus	**Comparing number**	**Comparing number**	**Comparing number**	**Adding and subtracting**	**Adding and subtracting**	**Adding and subtracting**
Shape, space and measure focus	**3d shapes**		**Composing 3d shapes**		**Spatial visualisation and imagery**	
Revision	**Based on ongoing teacher assessment**					

Spring 1	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6
Number focus	**Composing numbers**	**Composing numbers**	**Composing numbers**	**Patterns, structure, and algebraic thinking**	**Patterns, structure, and algebraic thinking**	**Patterns, structure, and algebraic thinking**
Shape, space and measure focus	**Spatial Orientation**		**Measurement: size & length**		**Measurement: mass**	
Revision	**Based on ongoing teacher assessment**					
Spring 2	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Number focus	**Counting**	**Counting**	**Counting**	**Subitising**	**Subitising**	**Subitising**

Shape, space and measure focus	**Measurement: capacity & volume**	**Measurement: time**	**Classification and data analysis**
Revision	**Based on ongoing teacher assessment**		

Summer 1	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6
Number focus	**Comparing number**	**Comparing number**	**Comparing number**	**Adding and subtracting**	**Adding and subtracting**	**Adding and subtracting**
Shape, space and measure focus	**2d shape**	**Composing 2d shape**	**Disembedding shapes**	**3d shapes**	**Composing 3d shapes**	**Spatial visualisation and imagery**
Revision	**Based on ongoing teacher assessment**					
Summer 2	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Number focus	**Composing numbers**	**Composing numbers**	**Composing numbers**	**Patterns, structure, and algebraic thinking**	**Patterns, structure, and algebraic thinking**	**Patterns, structure, and algebraic thinking**
Shape, space and measure focus	**Spatial Orientation**	**Measurement: size & length**	**Measurement: mass**	**Measurement: capacity & volume**	**Measurement: time**	**Classification and data analysis**
Revision	**Based on ongoing teacher assessment**					

Learning trajectories- a more detailed breakdown, including activities, can be found at: https://www.learningtrajectories.org/math/learning-trajectories

Counting	Number world sayer: foundations, Chanter, Reciter, Reciter 10, Corresponder, Counter (small numbers), Counter (10), Producer (small numbers), Counter and producer (10+), Counter backward from 10, Counter from N (N + 1, N – 1), Skip counter by 10s to 100, Counter to 100, Counter on using patterns, Skip counter, Counter on keeping track, Counter of quantative units/place value, Counter beyond 10, Number conserver, Counter forward and backwards 10s and 1s
Subitising	Number senser: Foundations, Very Small Number Recogniser, Maker of small collections, small collection namer, perceptual subitiser to 4, 5, conceptual subitiser to 5, conceptual subitiser to 5, 7, 10, 20, conceptual subitiser with place value, conceptual subitiser with place value and multiplicative thinking
Comparing number	Comparison senser: Foundations, early comparison corresponder, perceptual comparer, first-second ordinal counter, early comparer of similar items, early comparer of dissimilar items, matching comparer, counting comparer (same size), spatial extent estimator- small/big, counting compaper (5), mental number lines to 5, serial orderer to 5 (comparing number), ordinal counter, counting comparer (10), mental number line to 10, serial orderer to 6+, spatial extent estimator, place value comparer, mental number line to 100, scanning with intuitive quantification estimator, mental number line to 1000, benchmarks estimator, composition estimator
Adding/subtratcing	Arithmetic senser: foundations, preverbal +/-, small number +/-, find result +/-, make it N, find change +/-, counting strategies +/-, part-whole +/-, numbers in numbers +/-, deriver +/- (add/subtract), problem solver +/- (add/subtract), multidigit +/- (add/subtract)
Composing numbers	Actor on parts: foundations, parts combiner, inexact part-whole recogniser, composer to 4, then 5, composer to 7, composer to 10, composer to 20+, composer using tens and ones, deriver +/- (composing numbers), problem solver +/- (composing numbers), multidigit +/- (composing numbers)
Multiplication and division	Nonquantitative Sharer: Foundations, Beginning Grouper and Distributive Sharer, Grouper and Distributive Sharer, Concrete Modeler X/÷, Parts and Wholes X/÷, Skip Counter X/÷, Deriver X/÷, Array Quantifier / Problem Solver x/÷, Partitive Divisor
Fractions	Foundations: Early Proportional Thinker, Shape Equipartitioner, Half Recognizer, Unit Fraction Recognizer, Fraction Recognizer, Fraction Maker from Units, Fraction Maker, Fraction Repeater, Fraction Arithmetic +/-, Fraction Arithmetic X/÷, Fraction and Integer Sequencer
Patterns and algebraic thinking	Intuitive patterner: foundations, pattern recogiser, patterner AB, patterner, pattern translator and unit recogniser, numeric patterner, beginning arithmetic patterner, relational thinker +/-, relational thinker- symbolic +/-, relational thinker with multiplication, functional algebraic thinker.
2d shape	"Same Thing" Comparer: Foundations, Shape Matcher—Identical Orientations & Sizes, Shape Recognizer—Typical, Shape Matcher—More Shapes; Sizes & Orientations; Combinations, Shape Recognizer—Circles, Squares, and Triangles,

	Constructor of Shapes from Parts—Looks Like, Shape Recognizer—All Rectangles, Side Recognizer, Most Attributes, Comparer, Corner (Angle) Recognizer, Shape Recognizer—More Shapes, Shape Identifier, Angle Recognizer—More Contexts, Parts of Shapes Identifier, Congruence Superposer, Constructor of Shapes from Parts-Exact, Angle Representer, Congruence, Representer, Shape Class Identifier, Shape Property Identifier, Property Class Identifier, Angle Synthesizer
Composing 2d shapes	Separate Shapes Actor: Foundations, Piece Assembler, Picture Maker, Simple Decomposer, Shape Composer, Substitution Composer, Shape Decomposer (with Help), Shape Composite Repeater, Shape Decomposer with Imagery, Shape Composer—Units of Units, Shape Decomposer with Units of Units
Disembedding shapes	Intuitive Disembedder: Foundations, Simple Disembedder, Shapes-in-Shapes Disembedder, Secondary Structure Disembedder, Complete Disembedder
3d shape	3D Perceiver: Foundations, 3D Prototype Recognizer, 3D Shape Recognizer, 3D Face Counter, 3D Constructor of Shapes from Parts, 3D Shape Identifier, 3D Shape Class Identifier
Composing 3d shape	Separate Blocks Actor: Foundations, Stacker, Line Maker, Same Shape Stacker, Piece Assembler (3D), Picture Maker (3D), Shape Composer (3D), Substitution Composer and Shape Composite Repeater (3D), Shape Composer—Units of Units (3D)
Spatial visualisation and imagery	Intuitive Mover: Foundations, Concrete Slider, Flipper, Turner, Simple Slider and Turner, Beginning Slider, Flipper, Turner, Slider, Flipper, Turner, Diagonal Mover, Mental Mover

Spatial orientation	Foundations of Spatial Orientation, Path Integrator, Place Learner, Local-Self Framework User, Small Local Framework User, Local Framework User, Map User, Coordinate Plotter, Route Map Follower, Framework User
Measurement length:	Length Senser: Foundations, Length Quantity Recognizer, Length Direct Comparer, Length Indirect Comparer, Serial Orderer to 5 (Length), End-to-End Length Measurer, Serial Orderer to 6+ (Length), Length Unit Relater and Repeater, Length Measurer, Conceptual Ruler Measurer, Integrated Conceptual Path Measurer, Abstract Length Measurer
Measurement: Area	Area Senser: Foundations, Area Quantity Recognizer, Physical Coverer and Counter, Complete Coverer and Counter, Area Unit Relater and Repeater, Initial Composite Structurer, Area Row and Column Structurer, Array Structurer
Measurement: Volume	Volume Senser: Foundations, Volume Quantity Recognizer, Volume Filler, Volume Quantifier, Volume Unit Relater and Repeater, Initial Composite 3D Structurer, 3D Row and Column Structurer, 3D Array Structurer
Measurement: angle and turn	Angle and Turn Senser: Foundations, Intuitive Angle Builder, Implicit Angle User, Angle Matcher, Angle Size Comparer, Angle Measurer
Classification and data analysis	Foundations: Similarity Intuiter, Similar/Dissimilar Maker, Simple Sorter, Sorter by Similar Attributes, Consistent, Flexible Sorter, Data Case Viewer, Data Classifier, Multiple Attribute Classifier, Data Aggregator, Hierarchical Classifier, Data Representer