Teaching Mathematics

EYFS and Year 1

At the Woodland Academy Trust we will be following the Mathematics Mastery scheme in EYFS and Year 1. Teachers will follow the six part lesson model:

Do Now, New Learning, Talk Task, Develop Learning, Independent Task and Plenary

Six Part Lesson Structure			
Part	Lesson Focus	Explanation	Further Information
1	Do Now	This is a quick task all pupils can access without any teacher input as an introduction to the mathematics lesson.	Teachers assess childrens fluency and mathematical understanding through careful observation of pupils within this session without any input.
2	New Learning	The New Learning segment introduces the main mathematical concepts for the day's lesson.	Teachers teach the new learning to all pupils.
3	Talk Task	The Talk Task segment of the lesson practises the new learning by talking about maths with key vocabulary	This section focuses on children developing their oracy skills, modelled within the new learning section and embedded in the talk task. When practising- teachers model how to use the correct mathematical language and the key element of using full sentences to embed the learning through both speaking and listening.
4	Develop Learning	The Develop Learning segment builds on the new learning and develops a deeper understanding of the maths concepts of that lesson.	This is the section where teachers assess those that require additional scaffolding to enable them to reach their target. A range of methods can be used to ensure that all pupils make progress: • Teacher focus group selected from AFL • Peer teaching- teacher to pair peers to enable this to happen effectively • Problem solving activities linked directly to the taught concept to ensure those that have understood have the opportunity to deepen their understanding
5	Independent Task	The Independent task practises learning independently through solving problems.	
6	Plenary	The Plenary segment recaps on the lesson, checking understanding and celebrating success. This must include a reasoning question linked to the lessons objective.	Teacher can use the plenary to complete AFL of learning that has taken place. Pupils are also expected to complete a self and/or peer assessment based on the success criteria of the lesson that has taken place.

*This model will be pursued with EYFS but for focus groups whilst the rest of the children are involved in child initiated play.

Teachers are expected to annotate plans from Mathematics Mastery and focus on delivering quality first teaching, with a clear focus on using manipulatives to support pupil understanding.

Year 2 and Key Stage 2

The Mathematics Mastery overviews will be used alongside the resources available for the White Rose Maths Hub. Teachers are expected to follow the four part lesson structure: Do Now, New Learning, Independent Task and Reasoning/Plenary.

Four Part Lesson Structure			
Part	Lesson Focus	Explanation	Further Information
1	Do Now	Focus on Fluency- number facts, table facts, flexibility and making connections: This is a quick task all pupils can access without any teacher input as an introduction to the mathematics lesson.	Teachers assess childrens fluency and mathematical understanding through careful observation of pupils within this session without any input. Children to develop their understanding of number facts and inverse calculation e.g if 10 + 8 =18 then 18-10 =8 if 3 x 5 = 15 then 15 ÷ 3 = 5 if 2 x 6 = 12 then 6 x 2 = 12
2	New Learning combined with developing learning	Procedural and conceptual understanding and beginning to make connections to prior knowledge: The New Learning segment introduces the main mathematical concepts for the day's lesson. Representation and structure- accessing the learning and developing coherence around the taught concepts: The Develop Learning segment builds on the new learning and develops a deeper understanding of the maths concepts of that lesson.	Teachers teach the new learning to all pupils.
3	Independent Task	The Independent task practises learning independently through solving problems.	This is the section where teachers assess those that require additional scaffolding to enable them to reach their target. A range of methods can be used to ensure that all pupils make progress: • Teacher focus group selected from AFL • Peer teaching- teacher to pair peers to enable this to happen effectively • Problem solving activities linked directly to the taught concept to ensure those that have understood have the opportunity to deepen their understanding
4	Plenary	The Plenary segment recaps on the lesson, checking understanding and celebrating success. This must include a reasoning question linked to the lessons objective.	Teacher can use the plenary to complete AFL of learning that has taken place. Pupils are also expected to complete a self and/or peer assessment based on the success criteria of the lesson that has taken place.

Teachers will be expected to use the new trust format for maths planning. The main focus should be on delivering high quality lessons with engaging and fun resources. Manipulatives should be used heavily to promote the conceptual understanding in mathematics (please see calculation policy to explain how to use manipulatives).

Long/Medium Term Overviews : Autumn

	SEPTEMBER				OCTOBER				NOVEMBER				DECEMBER		
WEEK BEGINNING	03/09/2018	10/09/2018	17/09/2018	24/09/2018	01/10/2018	########	########	########	29/10/2018	05/11/2018	12/11/2018	#######	26/11/2018	########	########
Reception	Unit 1: Early Mathematical experiences	Unit 1: Early Mathematical experiences	Unit 1: Early Mathematical experiences	Unit 2: Pattern and Early Number	Unit 2: Pattern and Early Number				Unit 3: Numbers within 6	Unit 3: Numbers within 6	Unit 4: Addition and subtraction within 6	Unit 5: Measures	unit 6: Shape and sorting	Unit 7: Calendar and Time	
Year 1	Unit 1: Numbers to 10	Unit 1: Numbers to 10	Unit 2: Addition and subtraction within 10	Unit 2: Addition and subtraction within 10	U3: Shape and patterns	U3: Shape and patterns			U4: Numbers to 20	U4: Numbers to 20	U5: Addition and subtraction within 20	U5: Addition and subtractio n within			
Year 2	Unit 1: Number within 100	Unit 1: Number within 100	Unit 2: Addition and subtraction of 2-digit numbers	Unit 2: Addition and subtraction of 2-digit numbers	Unit 3: Addition and subtraction word problems	Unit 3: Addition and subtraction word problems			Unit 4: Measures: Length	Unit 4: Measures: Length	Unit 5: Graphs	Unit 6: Multiplicai ton and division: 2, 5 and 10	Unit 6: Multiplicaito n and division: 2, 5 and 10	Unit 6: Multiplicait on and division: 2, 5 and 10	
Year 3	Unit 1: Number sense and exploring calculation strategies	Unit 1: Number sense and exploring calculation strategies	Unit 1: Number sense and exploring calculation strategies	Unit 2: Place Value	Unit 2: Place Value	Unit 3: Graphs			Unit 4: Addition and subtraction	Unit 4: Addition and subtraction	Unit 4: Addition and subtraction	Unit 5: Length and perimeter	Unit 5: Length and perimeter		
Year 4	Unit 1: Reasoning with 4-digit numbers	Unit 1: Reasoning with 4-digit numbers	Unit 2: Addition and subtraction	Unit 2: Addition and subtraction	Unit 2: Addition and subtraction				Unit 3: Multiplicatio n and division	Unit 3: Multiplicatio n and division	Unit 3: Multiplication and division	Unit 4: Interpreti ng and presenting data	Unit 4: Interpreting and presenting data		
Year 5	Unit 1: Reasoning with large whole numbers	Unit 1: Reasoning with large whole numbers	Unit 2: Problem solving with integer addition and	Unit 2: Problem solving with integer addition and	Unit 3: Line graphs and timetables	Unit 3: Line graphs and timetables			Unit 4: Multiplicatio n and division	Unit 4: Multiplicatio n and division	Unit 4: Multiplication and division	Unit 5: Perimeter and area			
Year 6	Unit 1: Integers & Decimals	Unit 1: Integers & Decimals	Unit 2: Multiplication and division	Unit 2: Multiplication and division	Unit 2: Multiplicatio n and				Unit 3: Calculation problems	Unit 3: Calculation problems	Unit 4: Fractions	Unit 4: Fractions	Unit 5: Missing angles and		

Long/Medium Term Overviews : Spring

	JANUARY				FEBRUARY				MARCH				
WEEK BEGINNING	7.1.19	14.1.19	21.1.19	28.1.19	4.2.19	11.2.19	18.2.19	25.2.19	4.3.19	11.3.19	18.3.19	25.3.19	1.4.19
Reception	Unit 8: Numbers within 10	Unit 8: Numbers with 10	Unit 9: Addition and subtraction within 10	Unit 10: Numbers within 15	Unit 10: Numbers within 15			Unit 11: Grouping and Sharing	Unit 11: Grouping and Sharing	Unit 12: Numbers within 20	Unit 12: Numbers within 20	Unit 13: Doubling and halving	
Year 1	U6: Time	U6: Time	U7: Exploring calculation strategies within 20	U8: Numbers to 50	U8: Numbers to 50			U9: Addition and subtraction within 20 (comparison)	U9: Addition and subtraction within 20 (comparison)	U10: Fractions	U11: Measures (1): Length and mass	U11: Measures (1): Length and mass	
Year 2	U7: Fractions	U7: Fractions	U8: Time	U8: Time	U9: Addition and subtraction of 2-digit numbers (regrouping and adjusting)	U9: Addition and subtraction of 2-digit numbers (regrouping and adjusting)		U10: Money	U10: Money	U11: Faces, shapes and patterns; lines and turns	U11: Faces, shapes and patterns; lines and turns	U11: Faces, shapes and patterns; lines and turns	
Year 3	U6: Multiplication and division	U6: Multiplication and division	U7: Deriving multiplication and division facts	U7: Deriving multiplication and division facts	U7: Deriving multiplication and division facts			U8: Time	U8: Time	U9: Fractions	U9: Fractions	U9: Fractions	
Year 4	Unit 5: Securing multiplication facts	Unit 6: Fractions	Unit 6: Fractions	Unit 6: Fractions	Unit 6:Fractions	Unit 7: Time		Unit 8: Decimals	Unit 8: Decimals	Unit 8: Decimals	Unit 9: Area and perimeter	Unit 9: Area and perimeter	
Year 5	Unit 6: Fractions and decimals	Unit 6: Fractions and decimals	Unit 6: Fractions and decimals	Unit 7: Angles	Unit 7: Angles			Unit 8: Fractions, decimals and percentages	Unit 8: Fractions, decimals and percentages	Unit 8: Fractions, decimals and percentages	Unit 9: Transformations	Unit 9 Transformations	
Year 6	Unit 6: Coordinates and shape	Unit 6: Coordinates and shape	Unit 7: Fractions	Unit 8: Decimals and measures	Unit 8: Decimals and measures	Unit 8: Decimals and measures		Unit 9: Percentages and statistics	Unit 9: Percentages and statistics	Unit 10: Proportion problems	Unit 10: Proportion problems		

Long/Medium Term Overviews : Summer

	APRIL			MAY				JUNE			
WEEK BEGINNING	22.4.19	29.4.19	6.5.19	13.5.19	20.5.19	27.5.19	3.6.19	10.6.19	17.6.19	24.6.19	1.7.19
Reception	Unit 14: Shape and pattern	Unit 15: Addition and subtraction within 20	Unit 15: Addition and subtraction within 20	Unit 16: Money			Unit 17: Measures	Unit 17: Measures	Unit 18: Depth of numbers within 20	Unit 18: Depth of numbers within 20	Unit 19: Numbers beyond 20
Year 1	U12: Number	U12: Numbers 50 to 100 and beyond	U13: Addition and subtraction (applying	U13: Addition and subtraction (applying strategies)	U14: Money		U14: Money	U15: Multiplication and division	U15: Mulitplication and division	U16: Measures (2): Capacity and volume	U16: Measures (2): Capacity and volume
Year 2	U12: Numbers within 1000	U13: Measures: Capacity and volume	U13: Measures: Capacity and volume	U14: Measures: Mass	U15: Exploring calculation strategies		U15: Exploring calculation strategies	U16: Multiplication and division: 3 and 4	U16: Multiplication and division: 3 and 4	U16: Multiplication and division: 3 and 4	
Year 3	U10: Angles and Shape	U10: Angles and Shape	U10: Angles and Shape	U11: Measures	U11: Measures		U11: Measures	U12: Securing multiplication and division	U13: Exploring calculation strategies and place value	U13: Exploring calculation strategies and place value	
Year 4	Unit 10: Solving measure and money problems	Unit 10: Solving measure and money problems	Unit 10: Solving measure and money problems	Unit 11: 2-D Shape and Symmetry	Unit 11: 2-D Shape and Symmetry		Unit 11: 2-D shape and symmetry	Unit 12: Position and Direction	Unit 13: Reasoning with patterns and sequences	Unit 13: Reasoning with patterns and sequences	Unit 14: 3D Shape
Year 5	Unit 10: converting units of measure	Unit 10: converting units of measure	Unit 11: Calculating with whole numbers and	Unit 11: Calculating with whole numbers and decimals	Unit 11: Calculating with whole numbers and decimals		Unit 12: 2-D and 3-D shape	Unit 12: 2-D and 3-D shape	Unit 13: volume	Unit 14: Problem solving	Unit 14: Problem solving
Year 6											

Daily planning:

In EYFS and Year 1 this will need to be clearly annotated on the Mathematics Mastery plans to ensure that teachers are catering and planning for all pupils in their classes.

Year 1 Unit 16: Measures: Capacity and volume

Lesson 1: Comparing capacity

Key learning: To directly compare the capacities of two containers

Lesson overview
Introduce and then apply the language of comparison for capacity.
Introduce direct comparison of the capacities of two objects
Explore direct comparison of the capacities of three or more objects.

! In order to accurately compare capacity, containers must always be filled to the top. For this reason, it is recommended that rice or small pasta are used instead of water. Using solids allows any spillage to be seen and more easily rectified.

! Pupils may assume that a taller container always has a greater capacity. They will require lots of experience of direct comparison to show them this is not always the case.

Key vocabulary
Compare, capacity, greater, smaller

Sentence structures
The ____ is empty.
The ____ is full.
The ____ holds more than the____.
The ____ holds less than the____.

Resources
Task sheets 1b (1) and (2) (if required),
rice or small pasta,
Funnels,
a large range of containers,
Jug.

By the end of this lesson ALL pupils must be able to:
compare the capacities of two containers using the terms 'has a greater capacity' and 'has a smaller capacity'.

Do Now

Recap measure

It has been a while since the previous measure unit (Unit 11). Spend five minutes discussing what pupils learnt about measure previously.

? ***When do we need to measure things? Why? What can we say about the masses of objects? What about their lengths?***

Transition: doubling numbers within ten (call and response)

New Learning

Introducing the language of comparison for capacity

Have two containers of obvious different capacities at the front of the class, e.g. a yoghurt pot and a bucket.
Invite a pupil to fill the bucket with water using the yoghurt pot and fill the yoghurt pot from the bucket.

? ***Which container holds more? Which container holds less?***

The bucket holds more than the yoghurt pot. The yoghurt pot holds less than the bucket.

Explain that the amount a container can hold is called its **capacity** and repeat the above sentences using this word, e.g. "The bucket has a greater **capacity**."
Ask pupils to name objects in the classroom that they think have greater or smaller capacities than the yoghurt pot.
Assess understanding of vocabulary.
Show pupils 4 containers; two that hold different amounts and two that hold the same amount (these do **not** have to be identical containers).

? ***Which container holds more? The yoghurt pot or the cup?***

The cup holds more than the yoghurt pot.

? ***How could we check which container has a greater capacity?***

Pupils may suggest filling a container with water and pouring it into the other container. Tell pupils that we will use rice/small pasta as it is easier to see.

Teach that there are two ways of comparing capacity. We can fill the container we think has a greater capacity and pour its contents into the smaller container. If there is any rice left in the first container, this shows that it has a greater capacity. Alternatively, we can fill what we think is the smaller container, pour it into the larger container and if the second container is not full, this shows it has a greater capacity. Include an example of two containers with the same capacity (but, if possible, different physical appearance) and explain that they have **equal capacity** or hold **as much as** each other.
Role play the Talk Task with another adult or pupil.

Transition: doubling numbers within ten (call and response)

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Competitions:

The Trust will encourage pupils to participate in local and national competitions such as The Young Mathematicians' Awards 2018/19 and the London Mayors 24 Challenge.

The Trust will also look to encourage children in increasing their fluency and conceptual thinking. This will be achieved through participating in challenges within their own schools using the Primary Maths Challenge.

Celebrations:

The Woodland Academy Trust will be participating in World Maths Day on 6th March 2019. Children will explore and engage with mathematic concepts and parents will be invited to share the learning experiences with their children.