Old Town Infant School and Nursery

MATHS MEDIUM TERM PLANNING

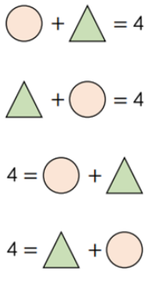
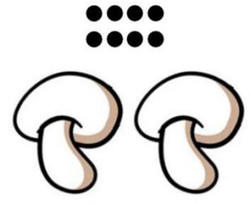
Coastal Learning PARTNERSHIP

Year 1 – Addition and Subtraction within 10 (Approximately 5 weeks)	
Objectives from Progression Document	**read, write and interpret mathematical statements involving addition (+) and equals (=) signs** **read, write and interpret mathematical statements involving subtraction (-) and equals (=) signs** **represent and use number bonds within 20** **represent and use subtraction facts related to number bonds within 20** **add and subtract one-digit and two-digit numbers to 20, including zero** **solve one-step problems that involve addition and subtraction**
Previous Learning	**Automatically recall number bonds to 5** **Automatically recall some number bonds to 10** **Understand different ways of making numbers up to 10** **Use visual representations such as part-part whole up to 10** **Solve real world mathematical problems with number up to ten**
Vocabulary	number line, add, plus, make, sum, total, near double, equals, is the same as (including equals sign), difference between, subtract, take away, minus, how many…?, how much…?
Key fact(s)	To know that equals means the same as To know that the equals sign can go in different positions, *e.g. a + b = c; c = a + b* To recall number bonds to and within 10 fluently To know that + represents adding two or more parts To know that – represents subtracting a part from the whole To know that when I subtract, I start with the whole number
Number facts for fluency	Fluency Bee Stage 2: Composition of 8 and 9 (subitise, composition and bonds)
DfE Ready to Progress Guidance Pages https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/897806/Maths_guidance_KS_1_and_2.pdf	1AS-1 Compose and partition numbers to 10 pages 23 - 28 1AS-2 Read, write and interpret additive equations pages 29 - 35 1NF-1 Fluently add and subtract within 10 pages 17 - 19
NCETM Ready to Progress Exemplification https://www.ncetm.org.uk/classroom-resources/exemplification-of-ready-to-progress-criteria/	1AS-1 Compose and Partition Numbers to 10 1AS-2 Read, write and interpret additive equations
Problem Solving and Reasoning Skills Objectives	identify what the question means use concrete objects or pictures to help work out the answer
Pre-assessment	EYFS addition – recall number bonds to 10; partitioning 10 in different ways

Old Town Infant School and Nursery

MATHS MEDIUM TERM PLANNING

Coastal Learning PARTNERSHIP

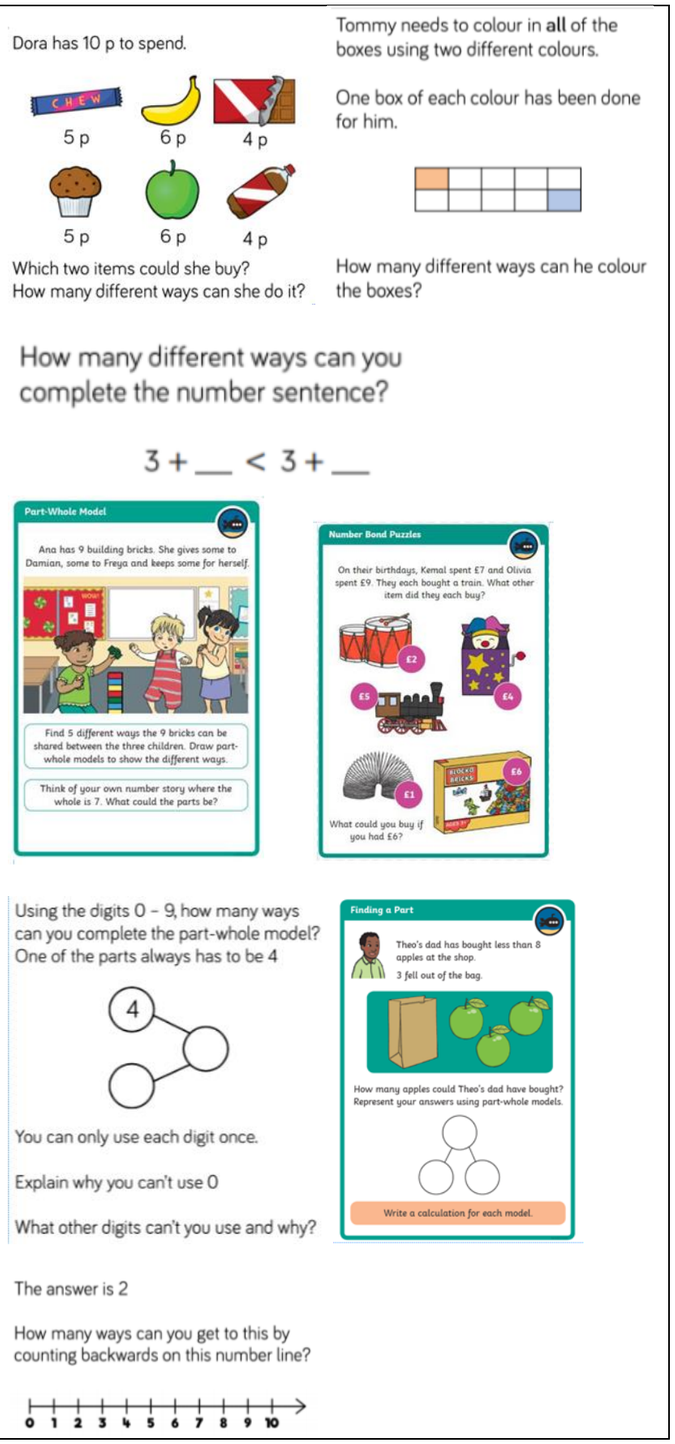
Sequence of Learning						
White Rose Small Steps	**Learning Intention**	**Key Questions**	**Sentence Stems**	**Comments**	**Problem-solving links**	**Extension and Greater Depth Opportunities**
Introducing parts and wholes (single object) (1AS 1)	**To understand that 2 parts make a whole by using single objects**	Where is the whole? Where are the parts? Is the whole greater than the part? Is the whole always greater? Can zero be a part? Can the parts be swapped around?	_____ is a part. _____is a part. The whole is _____ The whole is _____than the part. There is/are _____in each part.	Allow children to explore and notice different compositions; for example, 5 can be composed of 2 and 3 or 1 and 4 or 1 and 1 and 3. Encourage children to recognise that numbers can be composed of two or more parts. Encourage children to subitise (to recognise instantly how many objects there are without counting).	[The Brown Family (maths.org)](#) Deeper thinking, trial and improvement [Number Balance (maths.org)](#) Using number bonds in a different context [Ladybirds in the Garden (maths.org)](#) Exploring odd and even – number bonds to 5	There are 6 animals.  How many different ways can you sort the animals? Complete a part-whole model for each way. Can you partition the animals into more than 2 groups? 4 is the whole. How many **different** part-whole models can you draw to show this? Use different numbers for the parts every time. Are any the same? Why? Work in groups of up to 8 children. Can you split yourselves into different groups? Think of different ways to group yourselves: hair colour, eye colour, gender, shoe size etc. Complete a part-whole model for each way. Can you partition into more than 2 groups? Using the numbers 0 – 9, how many ways can you fill in the boxes to make the calculation correct? You can only use each number once.  How many different calculations are there? What do you notice?  What could the circle and the triangle be worth? All the dots have fallen off 2 toadstools.  How many different ways can you put them back on?
Part-whole model	To use the part-whole model to support addition	What can you see? Have you still got 5? What do you notice about the whole and the parts? What happens when you put the parts back together? How many different ways can you split the whole into two parts?	_____is a part. _____is a part. The whole is _____ _____is the whole._____ is a part. ____is a part.	The main teaching point is for children to see that a whole group of objects can be composed of two or more parts and that they can represent this using a part-whole model. The group can be split in a variety of different ways. Draw children's attention to the fact that the parts cannot be bigger than the whole group. Encourage them to describe what they do by saying full sentences aloud. Children should be comfortable describing the parts and wholes in a variety of ways, sometimes starting with the whole and at other times with a part. Children may assume that the whole is always at the top of the diagram, so expose them to the part-whole model in different orientations.		
Write number sentences (1AS 2)	**To use + to represent add or plus, and = to represent the same as**	How many were there at the start? Then how many more were added? What is the total? What does "=" mean? Which number tells you how many you had to start with? Which number shows what has been added? Which number shows the total?	_____ plus ____ is equal to _____. _____ is equal to _____plus _____.	In this small step, children learn that the addition symbol (+) can be used to represent combining two or more parts and the equals symbol (=) can be used to show the equivalence between the whole and the sum of the parts. At this stage, children consider a specific order to the number sentence (a + b = c). They focus on the language associated with this number sentence, for example 7 apples plus 3 apples is equal to 10 apples. Once understanding is established, children explore number sentences written in a different order, such as 4 = 1 + 3 "First, then, now" stories are a great way to link real-life situations to the number sentences and part-whole models.		
Fact families – addition facts (1NF 1) (1AS 2)	**To give 4 addition facts for part-whole models and bar models**	Which numbers are the parts? Which number is the whole? What is the same/different about the four addition sentences? What happens when the parts are the same? Can the parts change place? Can the	_____ plus_____ is equal to _____ _____ is equal to _____plus_____ _____ +_____ = _____=_____ + _____	Children recognise that the order of an addition sentence can be varied, and they begin to discover that addition is commutative. Spend time identifying the parts and the whole in a number sentence. Children may find number sentences such as 2 + 2 = 4 confusing. Do not avoid these examples, rather highlight them and discuss that when the two parts are the	[I'm Eight (maths.org)](#) Children explore different ways of making a number [Eggs in Baskets (maths.org)](#) Reasoning, trial and improvement, systematic	

Old Town Infant School and Nursery

MATHS MEDIUM TERM PLANNING

Coastal Learning PARTNERSHIP

		whole change place? Why/why not?		same, there are only two possible number sentences.	[One Big Triangle (maths.org)](#) Fun way of learning bonds to 10
Find number bonds for numbers within 10 (1NF 1) (1AS 1)	**To be able to use numbers to record number bonds within 10**	What is the whole? What are the parts? Does the whole always stay the same? How can you partition the whole? Do the parts stay the same or change? If 8 is the whole, what could the parts be?	_____ plus____ is equal to_____ _____ is equal to _____plus_____ _____ +_____ = _____ = _____ + _____	Starting with the whole, children break numbers into parts and explore how many different ways a number can be partitioned. Double-sided counters and ten frames are useful concrete resources, together with dot patterns. Children will see numbers made from dot patterns differently, for example some may see 6 as being made up of 5 and 1, while others may see it as being made up of two 3s. Throughout this step, continue to look at number sentences written with the symbols in different places and talk about the commutative nature of the calculations, for example 3 + 1 = 4 is the same as 1 + 3 = 4 Encourage children to find answers to additions by either subitising or counting on from a start number.	
Systematic methods for number bonds within 10 (1NF 1) (1AS 1)	**To be systematic in finding numbers bonds within 10**	How many are there? How many are there altogether? What happens if you turn over one counter? What happens if you turn over another counter? Can you write any of the bonds another way? How do you know that you have found them all?	There are ____ red counters and _____ yellow counters. There are _____ counters altogether. This means that ____ and ____ are a bond to _____ ____ + ____ = _____	Now that children have explored number bonds within 10, in this small step they start to work systematically to identify all the number bonds. It is important that children learn to work systematically to ensure that they organise their thinking and consider all the possibilities in a problem. Double-sided counters are extremely useful in this step, as children can clearly see the pattern formed when they work systematically to find number bonds.	
Number bonds to 10 (1NF 1) (1AS 1)	**To answer word problems involving number bonds to 10**	How many are there? How many more do you need to make 10? What number bond can you see? What is the same about 2 + 8 and 8 + 2? What is different? Can you write any of the bonds another way? How do you know that you have found them all?	There are _____ red counters and _____ yellow counters. There are_____ counters altogether. ____ + ____ = 10	In this small step, children move on from number bonds within 10 to number bonds to 10. Initially, allow children to explore finding the number bonds. As children become more comfortable in finding these bonds to 10, encourage them to use their earlier learning to work systematically to find all the number bonds.	
Addition – adding together (1NF 1) (1AS 2)	**To use 10 frames to support addition in simple word problems**	How many are there? How many are there in total? What are the parts? What is the whole? What is the addition sentence? What is plus ?	One part is ___ and the other part is ____ The whole is ____ ____plus ____ is equal to_____ ____ + _____ = _____	In this small step, children begin to formalise the idea of addition as bringing two or more parts together to create a whole. At this stage, the focus should be on bringing two parts together, rather than adding more, which will be covered explicitly in the next step. The use of "is equal to" rather than "makes" will support children in later learning. Ten frames, counters and Rekenreks are useful manipulatives to support this learning, and part-whole models can be used to represent additions.	[Pairs of Numbers (maths.org)](#) Adding pairs of numbers for specific total; justifying thinking [Two Dice (maths.org)](#) Finding different combinations.
Addition – adding more (1NF 1) (1AS 2)	**To add more to a given number**	How many are there? How many more are added? How many are there now? What is the total?	First there were ____ Then _____more were added. Now there are _____	The focus is on increasing one quantity by a given amount, while continuing to work within 10. "first, then, now" stories can help to build their understanding, moving	



Old Town Infant School and Nursery

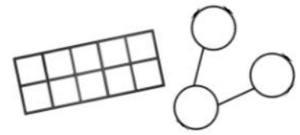
MATHS MEDIUM TERM PLANNING

Coastal Learning PARTNERSHIP

		What is the addition sentence? What is plus ?	____ + _____ = _____	towards representations such as ten frames and counters and Rekenreks when working in the abstract. A number line can also support children in finding how many there are. When working on a number line, they should start from the "first" number, and draw jumps to find the total.
Addition problems	To use addition bonds within 10 to solve simple addition problems	How many are there? How many more are added? How many are there now? How many are there in total? What is the addition sentence? What is plus ? How can you use bonds to help you?	The bond to ____ for ___ is ____ ____ plus ____ is equal to ____ ____ + ____ = _____	Children start to answer addition problems that are not isolated to a specific structure. The use of manipulatives and realistic situations can support children to understand what is happening. While concrete resources and visual representations are useful, children should move towards working in the abstract. This is an excellent opportunity to reinforce learning on number bonds, from earlier in the block. Children should start to use these bonds to find answers to additions rather than always relying on counting.
Finding a part (1NF 1) (1AS 1)	**To be able to calculate to find one part in a part-whole model**	What is the whole? What is one of the parts? What is the other part? How do you know? How can you use number bonds to help you? What is the addition sentence?	If the whole is ____ and ____ is a part, then the other part is ____ ____ plus ____ is ____ ____ is a part, ____ is a part and _____ is the whole.	The focus of this small step is on the knowledge and use of number bonds to identify missing parts, rather than formal subtraction and the subtraction symbol. Questions will be presented in the form 3 +___ = 5, rather than 5 − 3 = ____. They will be introduced to the subtraction symbol formally in the next step.
Subtraction – find a part, breaking apart (1NF 1) (1AS 2)	**To be able to find the missing part to make a whole**	What is the whole? What is one of the parts? What is the other part? How do you know? How can you use bonds to help you? What is the addition sentence? What is the subtraction sentence?	If the whole is ____ and ____ is a part, then the other part is ____ ____ minus ____ is ____ ____ − _____ = _____	Children are formally introduced to the subtraction symbol for the first time. The structure of all the questions is partitioning. They are still required to use their knowledge of number bonds to find parts, but represent them using the subtraction symbol. To begin, children focus on the meaning of the subtraction symbol rather than having to identify missing values. They are given a completed part-whole model and write the related subtractions using the numbers in the part-whole model to start to build their understanding. As children become more secure in this, and understand what the subtraction symbol represents, they then use it to answer missing number problems similar to the ones they saw in the previous step.
Fact families – the 8 facts (1NF 1) (1AS 2)	**To be able to give 4 addition and 4 subtraction facts for part-whole models and images**	What is the whole? What are the parts? What addition sentences can you write? What subtraction sentences can you write? Can you write any of them another way? How do you know that you have got them all? What is the same and what is different about the number sentences?	____ is a part, ____is a part and_____ is the whole. ____ +____ =____ ____ − ____ = ____ I have found all the facts, because …	They build on their knowledge of addition fact families to find all eight facts within a fact family. An example of such a fact family is: 3 + 5 = 8 8 = 3 + 5 5 + 3 = 8 8 = 5 + 3 8 − 5 = 3 3 = 8 − 5 8 − 3 = 5 5 = 8 − 3 Initially, the focus is on identifying the facts from a completed part-whole model or number sentence. Once children are secure in this, they can start to use questions in similar structures to those they have seen previously, to complete a calculation and find its related fact family Children may miss out some number sentences from their fact families.

There are 8 cubes.
Some are red and some are yellow.

How many different ways can you make a total of 8?



You should show your working out on a ten frame and a part-whole model.

Some cakes have been eaten.

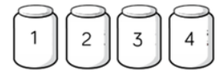
There are 2 cakes left.

How many cakes could there have been, and how many could have been eaten to be left with 2?

Explain your reasons.

Sid has two bean bags.

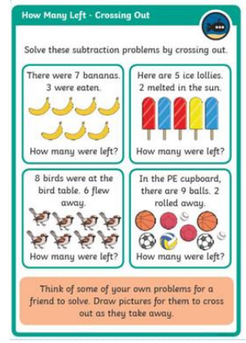
He is throwing them into jars.
The number on the jar shows how many points he gets for a beanbag landing in that jar.
One of his beanbags lands in jar 2



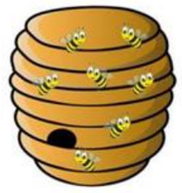
What is the highest score he can get by throwing the second bean bag and adding the scores?

What is the lowest score he can get by throwing the second beanbag and adding the scores?

Explain why he can't get a total of 9



How many calculations can you complete?



Amir has 5 counters in total.
Each of his counters are either in a bag or a cup.
How many different ways could the counters be split between the bag and the cup?

Write 8 number sentences to go with each.

Are any of the sets of number sentences the same? Why?

Why can't the digits 8 or 9 be used?

Two numbers have a difference of 4

The larger number is less than 10

What could the two numbers be?

Old Town Infant School and Nursery

MATHS MEDIUM TERM PLANNING

Coastal Learning PARTNERSHIP

				Encourage them to count to ensure that they have eight sentences	
Subtraction – take away/cross out (How many left?)	**To subtract by taking away and crossing out**	How many are there? How many were taken away? How many are left? How many were there at first? Then what happened? How many are there now? How can you show this in a part-whole model?	First there were ____ Then _____were taken away. Now there are _____	In this small step, children are introduced to the structure of subtraction that is "taking away". This is done within this step without the use of the subtraction symbol. Use of the subtraction symbol follows formally in the next small step. Children physically take things away to support their understanding. They can then move on to crossing out on diagrams and pictures. Children are required to find out how many are left. Although physically taking away can aid initial understanding, moving towards crossing out can help children to relate the numbers in the number sentences to the question and understand what each number represents.	
Subtraction – take away (How many left?)	**To take away and record findings in a number sentence**	How many were there at first? Then what happened? How many are there now? How many are left? How can you show this in a part-whole model? What is the subtraction sentence?	First there were ____ Then ____were taken away. Now there are ____ ____ – _____ = _____	In this small step, children formalise their learning from the previous step. They again focus on subtraction questions that require them to take away, but this time record their findings in a number sentence. The use of "first, then, now" stories can aid understanding and help children to relate the question to the number sentence. Initially, children simply form the subtraction sentences for a given scenario. Then they move on to questions where they need to work out how many are left.	
Subtraction on a number line	**To subtract by counting back**	What number do you need to start from? How many jumps back do you need to make? What number do you land on? What does that tell you? Why do you not say the number that you are starting on when you count? What is the subtraction sentence? Can you tell a story that matches the number line?	I need to start from ____ I need to make_____ jumps backwards. I land on _____ This means that ____ – ____ = _____	In this small step, children look at subtraction on a number line for the first time. Children use the method of "counting back" to find the answers to subtraction calculations. They start from the "first" number and then count back to find the answer. Encourage children to think about each number within a calculation, what it represents and how it is shown on the number line.	
Add or subtract 1 or 2	**To identify 1 or 2 more or less than a given number**	How many are there at first? Do you need to add or subtract? How do you know? How many do you need to add or subtract? What is 1 more/less than? What is 2 more/less than? What is the same about adding/subtracting 1 and adding/ subtracting 2? What is different?	1 more/less ____than is _____ 2 more/less ____ than is _____ To add 2, I can add 1 _____ times. To subtract 2, I can subtract 1 _____ times.	In this small step, children focus on adding 1 or 2 in a variety of different contexts. The children need to decide for whether the question is an addition or a subtraction. Encourage children to make connections between adding/ subtracting 1 and adding/subtracting 2. It is important that they recognise that adding 2 is the same as adding 1 twice, and similarly subtracting 2 is the same as subtracting 1 twice.	
Post-assessment	WRH end of block place value assessment – snip as feel appropriate