Early Years Maths

Early Years Foundation Stage:

In preschool and Reception note that the definition alter slightly in line with the characteristics of effective teaching within Early Years:

Skill it - through adult modelling and imitation, children will play and explore by giving things a go.

Apply it – children being able to say if something is right/wrong or good/bad and are actively learning where they are concentrating and willing to try out new things.

Deepen it- children use their learning in different circumstances and can change something using concrete materials to make it correct; demonstrating an ability in creating and thinking critically to make links.

The Early Years Foundation Stage provides our children with the fundamental starting blocks to mathematics and our curriculum reflects this by ensuring the children are provided with the opportunities to develop a deep understanding within mathematics with a 'can do' attitude. To support this deepened understanding the children will continuously be developing five key skills throughout all their learning objectives and continuous provision;

Subitising: instantly recognise small quantities.

Counting: regular opportunities to practise counting forward and back. This is broken into 5 principles:

- *The one-one principle: children assigning one number name to each object that is being counted. Children need to ensure they count each object only once ensuring they have counted every object.*
- *The stable-order principle: children understand when counting, the numbers have to be said in a certain order.*
- *The cardinal principle: children understand that the number name assigned to the final object in a group is the total number in that group.*
- *The abstraction principle: involves children understanding that anything can be counted including things that cannot be touched including sounds and movements e.g. jumps.*
- *The order-irrelevance principle: involves children understanding that the order we count a group of objects is irrelevant. There will still be the same number.*

Composition: recognise that all quantities are composed of smaller quantities.

Sorting and matching: notice similarities and differences as they match and sort objects in different contexts.

Compare and order: compare and order quantities and measures by noticing more than/fewer than and equal amounts.

Pre School				
Objective	**Skill it**	**Apply it**	**Deepen it**	**Mathematical talk**
Develop fast recognition of up to 3 objects, without having to count them individually ('subitising').	Point to small groups of two or three objects: "Look, there are two!" Occasionally ask children how many there are in a small set of two or three.	Able to correct someone or themselves if recognition is incorrect.	Child picks up equipment as part of their play independently and is able to subitise quickly and accurately.	Count One, two, three, four, five. More than, fewer than, circles, rectangles, triangles, cuboids, sides, corners, straight, flat, round, sharp corner, straight edge, pointy, curvy, off, on, under, on top, on, beside, next to, between, down, large, small, exactly, size, length, long, short, heavy, light, first, then, after, before, morning, afternoon, evening and night-time, earlier, later, too late, too soon, in a minute, yesterday, tomorrow
Recite numbers past 5.	Regularly say the counting sequence accurately.	Able to correct someone or themselves if recognition is incorrect.	In a variety of playful contexts, inside and outdoors, forwards and backwards, sometimes going to high numbers. For example: hide and seek, rocket-launch countdowns.	
Say one number for each item in order: 1,2,3,4,5.	Count things and then repeat the last number. For example: "1, 2, 3 – 3 cars". Point out the number of things whenever possible; so, rather than just 'chairs', 'apples' or 'children', say 'two chairs', 'three apples', 'four children'.	Recognise if someone has counted correctly or incorrectly and able to verbalise if something is incorrect.	Children to use this counting within their own independent play.	
Know that the last number reached when counting a small set of objects tells you how many	Ask children to get you a number of things, and emphasise the total number in your conversation with the child.	Children able to say yes or no to the number of objects they have in relation to what they have been asked. Some children may then self-correct/	Children independently show an adult remembering earlier conversations e.g 'I have 3 cars' may then go and find another set of 3 objects.	

there are in total ('cardinal principle').		some may need adult support e.g. you need 2 more cars. Now we have 4 cars		
Show 'finger numbers' up to 5	When counting shows on fingers. Adult models counting up to 5 on fingers.	Able to say if the number of fingers is right or wrong	Transfer this into counting other objects.	
Link numerals and amounts: for example, showing the right number of objects to match the numeral, up to 5.	Use small numbers to manage the learning environment. Suggestions: have a pot labelled '5 pencils' or a crate for '3 trucks'. Draw children's attention to these throughout the session and especially at tidy-up time: "How many pencils should be in this pot?" or "How many have we got?" etc.	Able to say if the number of objects is correct or incorrect and can change where needed.	Able to transfer knowledge of amount into different scenarios.	
Experiment with their own symbols and marks as well as numerals.	Encourage children in their own ways of recording (for example) how many balls they managed to throw through the hoop. Provide numerals nearby for reference.	Talk about the numerals they have written.	Use in play – independently	
Solve real world mathematical problems with numbers up to 5.	Discuss mathematical ideas throughout the day, inside and outdoors. Suggestions: - "I think Adam has got more crackers…"	'I have given Adam 4 crackers' – actually give child three crackers. Child should recognise if that is right or wrong.	Support children to solve problems using fingers, objects and marks: "There are four of you, but there aren't enough chairs…."	
Compare quantities using language: 'more than', 'fewer than'.	Draw children's attention to differences and changes in amounts, such as those in stories like 'The Enormous Turnip'. 'You have more than me'	Correctly say who has more or who has fewer.	Able to share objects out so one has more or one has fewer etc. can do this through visually seeing a bigger pile and then count after.	
Talk about and explore 2D and 3D shapes (for example, circles,	Encourage children to play freely with blocks, shapes, shape puzzles and shape-sorters.	What is the same and what is different?	When playing independently or in another environment, children to spot 2D and 3D shapes in those environments and	

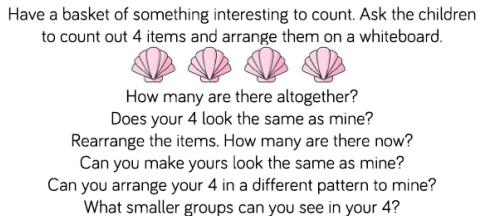
rectangles, triangles and cuboids) using informal and mathematical language: 'sides', 'corners'; 'straight', 'flat', 'round'.	Encourage children to talk informally about shape properties using words like 'sharp corner', 'pointy' or 'curvy'. Talk about shapes as you play with them: "We need a piece with a straight edge."		naming these without any adult intervention.	
Understand position through words alone – for example, "The bag is under the table," – with no pointing.	Discuss position in real contexts. Suggestions: how to shift the leaves off a path, or sweep water away down the drain.	Is the ball under the table? Children able to say yes/no and explain accurately where it is.	Children use in play.	
Describe a familiar route.	Use spatial words in play, including 'in', 'on', 'under', 'up', 'down', 'besides' and 'between'. Suggestion: "Let's put the troll under the bridge and the billy goat beside the stream."	Is the troll under the bridge? Children able to say yes/no and explain accurately where it is.	Children using this language in play.	
Discuss routes and locations, using words like 'in front of' and 'behind'.	Take children out to shops or the park: recall the route and the order of things seen on the way. - Adult model the vocabulary as they make any route.	Did they go the right way? Yes or no. Which way should they have gone?	Set up obstacle courses, interesting pathways and hiding places for children to play with freely. When appropriate, ask children to describe their route and give directions to each other. Provide complex train tracks, with loops and bridges, or water-flowing challenges with guttering that direct the flow to a water tray, for children to play freely with. Read children stories such as Rosie's walk.	

Make comparisons between objects relating to size, length, weight and capacity.	Provide experiences of size changes. "Can you make a puddle larger?", "When you squeeze a sponge, does it stay small?", "What happens when you stretch dough, or elastic?" Talk with children about their everyday ways of comparing size, length, weight and capacity. Model more specific techniques, such as lining up ends of lengths and straightening ribbons, discussing accuracy "is it exactly?"	Able to explain why something is larger or smaller in an age appropriate way.	See children using the modelled learning in their own play.	
Select shapes appropriately	Flat surfaces for building, a triangular prism for a roof etc. Provide a variety of construction materials like blocks and interlocking bricks. Provide den-making materials. Allow children to play freely with these materials, outdoors and inside. When appropriate, talk about the shapes and how their properties suit the purpose.	Will this be good to use on the bottom? Did that work? Discussion of why not or why it did.	If something isn't working within their construction, they adapt and alter what they are doing to find success.	
Combine shapes to make new ones - an arch, a bigger triangle etc.	Provide shapes that combine to make other shapes, such as pattern blocks and interlocking shapes, for children to play freely with. When appropriate, discuss the different designs that children make.	Explain what their design is and how they made it.	Able to find what they need to complete their design independently. Occasionally suggest challenges, so that children build increasingly more complex constructions.	

	Use tidy-up time to match blocks to silhouettes or fit things in containers, describing and naming shapes. Suggestion: "Where does this triangular one /cylinder /cuboid go?"			
Talk about and identify the patterns around them.	For example: stripes on clothes, designs on rugs and wallpaper. Use informal language like 'pointy', 'spotty', 'blobs' etc. Provide patterns from different cultures, such as fabrics.	Able to spot mistakes within the pattern.	Provide a range of natural and everyday objects and materials, as well as blocks and shapes, for children to play with freely and to make patterns with. When appropriate, encourage children to continue patterns.	
Extend and create ABAB patterns	Engage children in following and inventing movement and music patterns, such as clap, clap, stamp. Stick, leaf, stick, leaf.	Notice and correct an error in a repeating pattern.	Create their own pattern for someone to follow.	
Begin to describe a sequence of events, real or fictional, using words such as 'first', 'then...'	Talk about patterns of events, in cooking or getting dressed. Suggestions: - 'First', 'then', 'after', 'before' - "Every day we…" - "Every evening we…" Talk about the sequence of events in stories. Count down to forthcoming events on the calendar in terms of number of days or sleeps. Refer to the days of the week, and the day before or day after, 'yesterday' and 'tomorrow	When retelling a story or sequence of events children are able to correct themselves or correct someone else by saying where something is right/wrong.	When role playing with small world/dolls, children use the language freely and correctly to describe events that are happening in a sequence.	

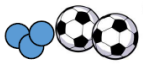
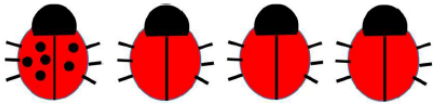
Reception				
Number				
Objective	**Skill it**	**Apply it**	**Deepen it**	**Mathematical talk**
Able to make comparisons between amounts.	Children shown smaller and larger counties to compare. Adults model this language. Show children amounts in quantity and size. E.g. more or less cake, size of each item, number of items in each group. Building blocks outside – challenge the children to make a shorter tower and a taller tower. How many crates/blocks did you use? Loose parts – one child grabs a handful as does another child. Does your friend hold more than you, fewer than you or the same amount?	Children given different groups of different sizes/quantities and they are able to explain which one is smaller or larger. Adult could make an error with the expectation of the child correcting them.	Recognise comparison in other day to day activities, such as snack time or when sharing. Children may link this to the idea of fairness.	Number, one, two, three to twenty and beyond, none, count on/up/to/from/down, before, after, more, less, many, few, fewer, fewest, smaller, smallest, equal to, the same as, odd, even, digit, numeral, compare, order, size, value, between, halfway between, number line, add, more, plus, make, sum, total, altogether, double, half, halve, equals, is the same (including equals sign), how many more to make…? How many more is…? How much more is…? Subtract, take
	- Subitise or count to find how many objects they have. - Encouraged to make their own collections. - Match number names we say to numerals and quantities. - Use own mark making to represent 1,2,3 e.g. scoring in their own game.	Use cards that show the number and a picture card set that represents the numbers. Show an example of matching card together. Is this true or false? What is wrong? How can we make this right?	Children create their own games and create a scoring system using their knowledge of representing 1, 2 and 3.	

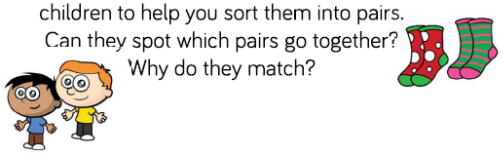
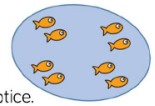
	- Have a number hunt inside and out. - Prepare dot card for children to call out 1, 2 and 3 depending on the number of dots they see. - Hickory dickory dock nursery rhyme. - Children could count the number of beats on a drum.			away, minus, share, share equally, group in pairs, equal groups of, divide, split, whole, equal, one half, number track, tens frame, number cards, number squares, numicon, count, work out, Subitise, compare, smaller, larger, zero, number bonds, if I add one more how many will there be? If I take one out how many will there be? How do you know? How can we check? Could there be zero? What do you notice when you try to make pairs with…. Can you arrange smallest to largest? How many do you have to start? How many do you have now? Why? Can you represent what
Comparing 1,2 and 3.	Children begin to recognise that as we count, each number is one more than the number before. Similarly as we count back, each number is one less than the previous number. - Use a range of representations to support understanding and encourage children to represent one more/ one less patterns as the count. - Use stories and number songs that count one more or one less. e.g. The Three little bears	Ask children to compare how far they can travel in 3 giant steps or in 1 or 2. In 1, 2 and 3 tip toes. 'I think we got further when we made 1 step' children should recognise that this is incorrect and correct the mistake.	With the children count how many items are in a hidden bag? Ask the children to watch as you add one more item to the hidden group. How many will there be now? What if you take one out? Drop stones on marbles into a bucket and children count how many sounds they hear. How many are there? What if we add one more? How do you know? How can we check?	
Composition of 1, 2 and 3. - Introduce that all numbers are made of smaller numbers.	Explore and notice the different compositions of 2 and 3 e.g. 1+1 = 2 1+1+1= 3 1+2=3 2+1=3. Use hands to make bunny ears – using two hands show me different ways to make 1, 2 and 3. Create the numbers using numicon. When children are playing with small world – ask the children how many animals they have in one field, how many have we got in the other?	If I have 1 and 1 there will be 3? – Children should recognise this is incorrect and say the correct answer. Encourage children to use fingers or equipment to show the correct answer.	Place 1, 2 or 3 items into a feely bag. Ask the children to feel inside the bag and try to count how many there are without looking. Count to check.	

Children count on and back to four. - Count objects, actions and sounds up to four to find how many. - Subitise sets of up to 4 objects to find how many. - Match number names to numerals and quantities. - Able to say which set has more or fewer items. - Use own mark marking to represent numbers to 4. - Final number they say is the quantity. - Children able to link the	Children could make their own collections of up to 4 items.  Set up a number hunt outside. In the pictures have 4 represented in different ways.	When counting children able to self-correct if a mistake has been made or highlight the mistake someone else has made. e.g. there are 4 items but they only count 3. Child may respond with 'there are 4! You didn't count this one.' Recount then with the child leading that.	With the children count how many items are in a hidden bag? Ask the children to watch as you add one more item to the hidden group. How many will there be now? What if you take one out?	we did using counters? Read, write, listen, join in, tell me, describe, work out.

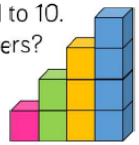
number symbol (numeral) with its cardinal number value (how many of something).				
Subitise up to 5 items. - Count forwards and backwards and backwards with 5. - Represent up to 5 objects. - Children able to link the number symbol (numeral) with its cardinal number value (how many of something).	- Use 5 frames to represent number. - Link in children's birthdays when counting forward. - Counting 5 on fingers. 'Show me five'. 'let's count back from 5' - Use 5 bean bags, fly swatters, numerals 1-5 and a bucket or hat. Arrange the numerals around the edge of an area. Hide a quantity of bean bags under the bucker to hat and then reveal. Children subitise how many and then run to swat the correct number.	Children able to show more than 1 way to show 5 using their fingers.	Provide children with 5 separate connecting blocks. Encourage them to join their blocks to build a tower and then to explore other shapes they could build with 5 blocks. How many different ways can they find to join their blocks? Have a feely bag filled with cubes. Ask the children to predict how many cubes you can collect in one handful. Grab a handful and then lay them down one by one so the children can see how many. Ask who else would like to try. Can they hold the same as you? Try again. Do they get the same amount each time?	

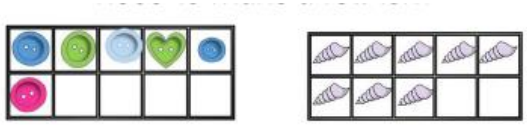
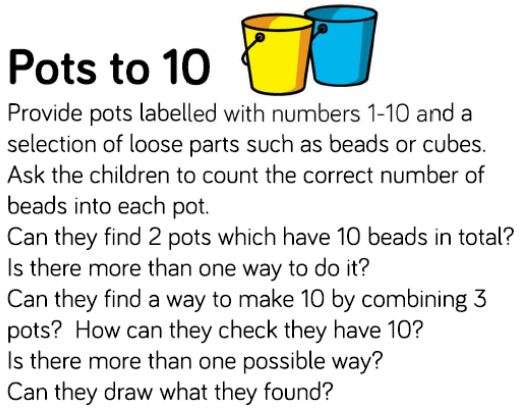
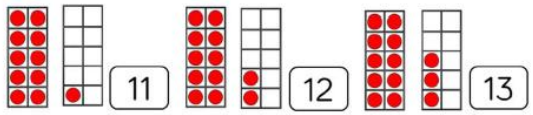
One more and one less. - Count, subitise and compare number.	Use five frames to represent number and predict how man there would be if you add one and subtract 1. Use songs and stories e.g. 5 current buns/five little ducks Ask children to make a number on a five frame.  Can you show me one more? One less? Use a 1-5 number track underneath the five frame. Can you point to the number you made? Can you point to one more and one less than your number?	Show/ say an incorrect way when showing one more or one less. Children should then pick up on the mistake and then correct what you have done.	Provide children with pictures of objects to arrange on the washing line in order. As the children order the pictures encourage them to use the language of one more and one less. What can you tell me about 3? Prompt the children to see that 3 is one more than 2 and also one less than 4. Hide one of the cards and ask the children to work out which number is missing. What strategies will they use to work out which number is missing?	
Introducing Zero - Know the number name zero. - '0' in relation to 'nothing there' and 'all gone'	Popular counting back songs like 5 little monkeys jumping on the bed. – Children could predict how many monkeys would be left on the bed after one falls off.  Encourage children to represent numbers including zero. 'Show me 3 fingers, show me 5 fingers, show me 0 fingers' 'Can you park zero cars in this space?'	Adult to say there are zero apples on the tree when there are more than zero. Children would then correct this mistake and could draw a tree showing zero apples.	Children independently recording zero in games they play that may involve scoring. Able to say there is zero and what zero means for that score.	
Comparing numbers to five - Continue to recognise that quantities can be more than,	Is it fair? Has everyone got the same? Use snack time to reinforce the language use of comparing. 'Hold up more than 3 fingers, fewer than, the same'.	Hold up the incorrect number of fingers e.g. I have more than 3 fingers showing but hold up less than 3. Children should then recognise this mistake	Whilst children are in their continuous hear the language being used independently – being able to comment on if something is fair or unfair due to the quantities they have.	

fewer/less than or the same as.	Provide opportunities to compare smaller quantities of large items with larger quantities of small items to help children make the distinction between size and quantity. E.g. 2 large balls take up more space than 3 small balls but there are more small balls.  Make towers using pebbles – who can make the tallest tower? How many pebbles are in each tower? Does your tower have more or less?	and give examples on how to make it correct.		
Composition of 4 and 5 - Explore and notice the different compositions of 4 and 5.	Encourage children to Subitise (instantly recognise these small quantities without counting) throughout this objective. e.g 5 can be made up of 1+1+1+1+1 or 3+2	Mistake made in composition of number and would want to see the child self-correct or child is able to correct someone ese and show how to make it correct.	**Exploring Possibilities**  Show the children an empty feely bag. Together, count 4 pebbles into the bag. Take out an unseen amount in your hand. Ask the children to discuss how many could be in your hand and how many could be left in the bag.	
Represent, count and compare 6, 7 and 8 in different ways. - Continue to apply counting principles. - Count out required number of objects from a larger group. - Order and compare	How many legs does a ladybird have? How many spots? Do you know any other creatures with 6 legs? Use counters to add 6 spots to the other ladybirds. Can you find more than one way to do it?   How many colours do you see in the rainbow? Can you paint a rainbow with 7 colours? Can you make rainbows using objects around the classroom? How many colours did you use?	When counting, miscount the number of objects etc – expect children to self-correct or correct others and prove how to do it correctly.	Children independently able to represent and count 6,7,8. They are confident in representing these in different ways and will do so independently in their play.	

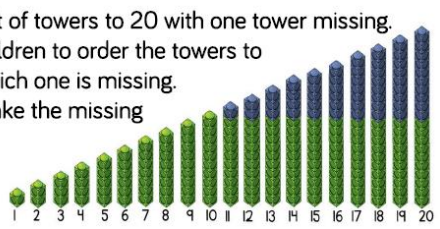
representation. - Continue to recognise one more/less as they count on/back to 8. - Children able to link the number symbol (numeral) with its cardinal number value (how many of something).	Encourage the children to think about where we see 6, 7, and 8 in everyday life and to make collections of 6, 7 and 8 objects in the classroom. Sort these items into 6, 7 and 8 How else could you show 6, 7, and 8?			
Making pairs - Begin to understand a pair is two. - Children to arrange small quantities into pairs. - Begin to notice some quantities will have odd one.	Have a basket of unsorted socks or wellies and ask the children to help you sort them into pairs. Can they spot which pairs go together? Why do they match?  Encourage children to investigate making pairs using different quantities of small world creatures, cubes or counters. Which quantities will make pairs and which will have one left out? Do they notice a pattern? Draw children's attention to when objects are grouped into twos and calling this a pair.	Have objects paired together with an odd one – 'All my objects are in a pair'. Children should recognise that one of the objects is on its own and not in a pair.	Children independently pair items together. They could go on a pair hunt for items and are able to independently pair items together. Recognising that pair is two. Able to clearly explain their pairing rules. Provide each child with a blue 'pool' and 8 fish. Ask them to arrange their fish into pairs. Ask the children what they notice. Ask the children to arrange their fish in a different way and to discuss the different compositions of 8 that they notice.  Encourage them to explore the composition of 6 and 7 in a similar way. You can vary the contexts. For example, cars in a car park, horses in a field, ladybirds on a log.	

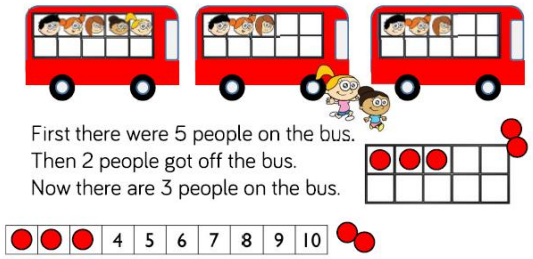
Combining two groups. - Combine two groups to find out how many altogether. - Children continue to practise subitising.	Tell your partner about the flowers. How many purple flowers can you see? How many blue flowers? How many flowers altogether?  Provide an assortment of 1-5 number shapes. Ask the children to choose a number shape. Next, find a friend and combine their shapes to see what number they can make altogether? Repeat by moving to different friends.	When combining two groups together.	Spread a set of dominoes out face down. Ask the children to pick a domino and tell their partner how many spots there are on each side. Can their partner tell them how many spots on the domino altogether? What if my domino has 6 spots? How many could be on each side? Can you draw a domino with 6 spots? Can you draw more than one? 	
9 and 10 - Apply counting principles when counting 9 and 10 (forwards and backwards) - Represent 9 and 10 in different ways. - Arrange 9 or 10 items into small groups - Notice that a 10 frame is full when there is 10	Show children a number card and ask them to show you the number using their fingers or other objects. Finding 9 and 10 using numicon. Ask children to count out 9 or 10 objects. Can they find different ways to arrange their objects? Show me 10 beads on a bead string. Show me 9. **Outdoors**  Ask the children to build a wall and set up 10 green bottles. Each time a bottle 'accidently falls' ask the children how many have fallen and how many are standing. Do they always have 10 in total?	Have number cards lined up. Hide one of the cards – can the children spot which one is missing? Ask the children to help you order a set of number cards up to 10. As you do this, make deliberate mistakes. Can the children spot these and correct you?	Within children's play, they independently use their knowledge of counting forward and back with 9 and 10. They represent 9 and 10 in the games they play in writing and using objects from their environment. This is done without support.	

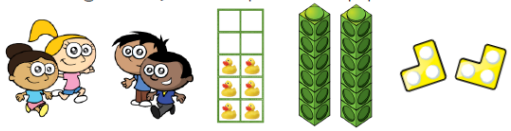
- Subitise 9 and 10 e.g. I know it is 9 because I see 3,3 and 3/ 4 and 5. - Children able to link the number symbol (numeral) with its cardinal number value (how many of something).				
Comparing numbers to 10. - Make comparisons by lining items up with 1-1 correspondence (match number to object) to compare directly or count each set. - Begin to compare/ord	Use cubes to build towers from 1 to 10. Can the children order the towers? What do they notice? Can they see that each number is one more than the number before?  Ask questions to make comparisons for a real purpose. Are more children having sandwiches or dinners? Which book shall we read today? Can you place a cube to vote for your favourite?  As you read the stories, compare the quantities in different parts of the story. E.g. in Cockatoos, are more birds hiding in the bathroom or in the attic? Grab a handful of buttons and count them out onto a tens frame. Children then take it	Using dominos, children find the domino with 7 spots. Find 6 for fewer but place as more than. Child to spot this mistake and order correctly.	During times in the day children can be using this language independently with numbers up to 10. E.g. voting on a class book/ comparing snack or toys with their peers. 'you have more than me. You have 8 and I have 5'.	

er 3 or more quantities.	in turns to grab some buttons and count them onto a tens frame. Use these to compare.			
Bonds to 10. - Explore number bonds to 10 using real objects in different contexts e.g. there are 10 apples.	Use tens frames of egg boxes. Partially filled – how many more do we need to make 10? Can also use bead strings/fingers.  Provide each child with a numicon piece. Ask them to find a partner who can complete the numicon piece to make 10. 10 hunt: draw a large tens frame on the ground outside. Hide 10 of the same object e.g. duck for children to find. As they children are finding them keep bringing them back to how many they already have and how many more they need to find.	With a tens frame, have 6 spaces filled in. Say to the children you need three more objects to complete the tens frame. Expectation of children to correct and say that 4 more are needed not three.	How many ways can they find to park 10 cars in 2 car parks? Encourage independency when doing this. 	
Building numbers beyond 10 - Build and identify numbers to 20 and beyond. - Use tens frames, bead strings, tower cubes.		Incorrectly match number to representation. Children should correct this mistake.	Provide black outlines of a cityscape for the children to fill using numicon. Independently they see which number fills each tower. They see if they can find more than one way of doing it. They could then go on to create their own cityscape for their peers to complete.	

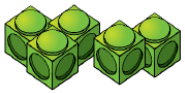
- Provide opportunities for children to recognise that numbers 1-9 repeat after every full 10.	Show the children 11 using the number shapes or 10 frame. What do the children notice? Can they see which number is represented? Now build 12. What's the same? What's different? Continue the pattern, ask the children to predict what numbers come next and how they could represent each number. What happens when they get to 20 and beyond?  Prepare some number card with numbers up to 20 (and beyond when necessary) show children the number card – they say the number then represent it using numicon. Children to have number card and pictorial cards representing number – play snap.			
Counting patterns beyond 10. - Count on beyond 10 - Count back beyond 10 - Count on and back from different starting points	Provide children with representations which clearly show full 10s and part of 10 e.g. 14 one full 10 and 4. Use of a number line and 100 square to support children. Play a game 'I count, you count' – blue is what the adult says, red is what the child says 4, 5, 6 7,8,9, 10, 11, 12, 13,14,15 etc. 12, 11, 10, 9, 8, 7 etc.	Tell the children you are going to make the number 17 on a tens frame. Fill in the incorrect number on the tens frame. Children should recognise the mistake and correct it.	**How Many is 100?** Prepare collections of objects, some with exactly 100, some with fewer and some with more. Challenge the children to guess which sets have exactly 100 items. Once they have made their guess, they can check by arranging the objects onto ten 10 frames. Are they surprised? They might also like to make their own collections of 100 Encourage the children to investigate 100 in different ways: How far can you travel in 100 steps? How long would a paper chain with 100 links be? How tall is a tower of 100 linking cubes? (Building the paper chain and tower in 10s, changing the colour after each set of 10, makes it easier to keep track of the ten 10s)	

	Provide a set of towers to 20 with one tower missing. Ask the children to order the towers to identify which one is missing. Can they make the missing tower?  Race to 20. Provide children with a number line and counter. Children take it in turns to roll a dice and move the number of spaces. Whoever gets to 20 first wins. Board games such as snakes and ladders can also support learning.			
Adding more - Use real objects to see quantity of a group can be changed by adding more. - Can use language of first, then, now. - Children may start by recounting objects to find total. Once confident encourage	Use tens frames, fingers to support children with number stories. First I had 5, then I added 2 more, now I have 7. Show me 5 fingers. Now show me 2 more. How many fingers now? How do you know there are 7? Did you count them all 1, 2, 3, 4, 5, 6, 7? Is there another way to count them? We know we have 5 on this hand? Can we count on? 6, 7? The children take turns to roll a 1-3 dice and collect 1, 2 or 3 cubes to add to their tower. If they are ready, encourage them to count on as they add their cubes. How high can they build their towers before they topple?	When adding more make a mistake when adding on. Children to correct the mistake.	Children to create their own first, now and then stories using small world to support them. You would be expecting to see the children doing this independently.	

children to count on. - Children able to link the number symbol (numeral) with its cardinal number value (how many of something).				
Taking away - Use real objects to see a quantity of a group can be change by taking items away. - Children able to count items to start and take away required amount practically. - Children able to Subitise or recount number left.	Use tens frames, fingers to support children with number stories. Ask the children to show you 5 fingers and then to show you 4. Prompt the children to notice that one less is the same as taking away one. Extend to taking away two fingers or 3 and noticing how many are left each time.  	When taking away make a mistake and encourage children to correct the mistake. They could prove this by showing it on a tens frame to support their explanation.	Children able to play independently: Pick a number card and count out the corresponding number using whatever they wish. One player covers their eyes whilst the second 'steals' some of the objects, hiding them in their hand. The first play has to work out how many object shave been stolen.	

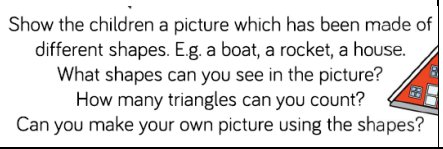
- Children able to link the number symbol (numeral) with its cardinal number value (how many of something).				
Doubling - Know double means twice as many. - Able to build doubles using mathematical equipment and real objects. - Able to build numbers using pair-wise patterns on 10s frames. - Children able to say doubles as they see them e.g. double 2 is 4.	Children given the opportunity to see doubles in mirrors/ in barrier games. Allow the children to explore different ways to build doubles using real objects and practical equipment.  Play match my quantity: The children sit opposite each other in pairs with a barrier between them and a collection of small items such as pebbles or cubes. One child sets out a quantity. They show their partner quickly and then hide again. Their partner matches the quantity. Then the barrier is removed. Check – is it a double? Which double have we made?	When playing the barrier game you could deliberately make an incorrect quantity and encourage the children to recognise the mistake and correct it.	Provide a ladybird or butterfly templates and ask the children to draw or us the tweezers to pick up objects to make doubles by adding the same number of objects (pompoms) to each side. How many different doubles can they make? Can they make one which is not a double and tell you why?	

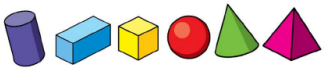
- Children able to sort and explain doubles.	Children take it in turns to roll 2 dice. The score a point each time they roll a double. The first to reach 3 points wins the game.			
Sharing and grouping - Able to share items equally. - Able to show how to share fairly. - Able to make equal groups.	Provide opportunities for the children to share items equally e.g. sharing cards before playing a game. Sharing a given number of counters. This could be achieved during snack time. Using small world – ask the children to make groups using the small world animals. Can they make groups of 2? What happens if they make groups of 3?	Able to recognise a mistake in sharing equally and explain why. Show the children a bowl of strawberries. Explain that you are going to share them into 2 equal groups so there will be half for you and half for your friend. Put a handful straight onto each plate without counting – make sure that one plate clearly has more strawberries than the other. Ask the children if it is fair? Prompt them to explain why this isn't fair and then ask them to show you how to share these strawberries fairly? What happens if another friend arrives? Expect children to say we need to share all the strawberries into three groups equally not 2.	When sharing equally and there are items left – children to independently share ideas on how to share or group these.  **Make Equal Groups** This time keep 12 items to share each time but vary the number of teddies and plates. Ask the children to explore sharing the 12 items into equal groups so that each teddy gets the same. If there are 2 teddies will they each get the same? How many are in each group? Are there any items left over? What about 3 teddies? 4 teddies? 5 teddies? Expect children to be doing this independently.	

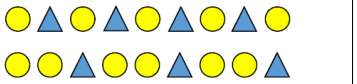
Even and odd - Children begin to understand that some quantities will be shared into 2 equal groups and some won't. - Children able to notice some quantities can be grouped into pairs and some will have one left over. - Able to build pair-wise patterns on a 10s frame.	Ask 5 children to come to the front. Can we group the children into pairs? Does anyone not have a partner? Why not? What could we do to solve this problem? Use of the language 'we have 1 left over because there are an odd number of children' Encourage the children to investigate whether small quantities are odd or even by sharing into 2 groups and by making pairs. Prompt them to recognise that sometimes there is one left over.  6 in 2 equal groups 6 in groups of 2 (pairs)	After pairing something successfully say that the quantity is odd. Children should correct this by saying 'no it is even because everyone is in an equal group.'	**Odd and Even**  Ask all the children to collect an odd number of cubes. Ask them to check each others and compare the different quantities. Are all the quantities odd? How could you check Now ask the children to collect one more cube and add it to their set. How many do you have now? Do you still have an odd number of cubes? Ask the children to continue adding one more cube and to discuss what they notice. What is the largest odd number you can build? How can you check that it is odd?	

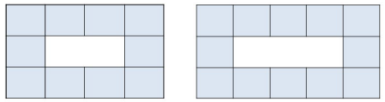
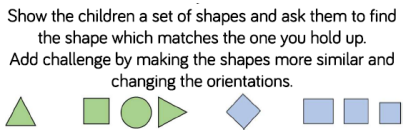
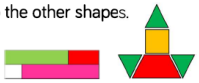
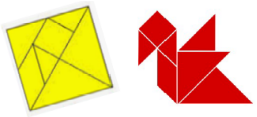
Reception				
Geometry				
Objective	**Skill it**	**Apply it**	**Deepen it**	**Mathematical talk**
Match and sort identical objects by recognising what is the same and different.	When given objects e.g. socks/wellies they match them together. Provide children with a selection of shapes that have been drawn	Able to recognise if a match or sort has been done incorrectly and are able to explain how to make it correct.	Children able to find something that matches the object given to them that is in a different environment or time.	Match, sort, same, different, group, cube, cuboid, pyramid, sphere, cone, cylinder, circle, triangle,

	around – children match to the correct outline. Children group by: colour, texture, size. Could be sorting blocks in construction or sorting beads into pots. - Read the story of Noah's Ark – talking about matching animals. - Snap card games - Button box	Can you find something that doesn't belong? Find the odd one out. - Adult join children in their play during constructions. Can we build towers that match? Do they look the same? Explain why not if needs be. Create an opportunity for the children to spot a mistake and correct it.	Provide children with objects already sorted and they have to come up with the rule on how it has been sorted. Any sensible rule is correct. - Give child one item with its pair being hidden outside for child to find.	rectangle, square, shape, flat, curved, straight, round, solid, corner, face, side, make, build, draw, over, under, underneath, above, below, top, bottom, side, on, in, outside, inside, in front, behind, front, back, before, after, beside, next to, middle, up, down, forward, backwards, sideways, close, far, though, towards, away from, side, roll, turn, what is the same? What is different, is the pattern correct?, what do you notice about the pattern?, can you make the same sound pattern? Can you make a different sound pattern? Which shapes can you build? Is there more than one way to build the shape? What shape can you make when joining two squares? Two triangles? Can you find a shape like this? Can
Recognise and copy repeating patterns.	Children shown patterns that include three full units of repeat AB AB AB to copy. Red brick, blue brick, red brick, blue brick, red brick, blue brick. Shown in a range of contexts and ways e.g. sounds, actions, colours, shapes and sizes. e.g. In and out the dusty bluebells. Children say patterns and create their own patterns.	Show the children patterns which have a deliberate mistake. What do they notice?  Ask the children to suggest ways to sort out the problem. They might swap the items around which means they will need to continue amending the pattern until the end of the line.	Children create their own patterns for others to follow – sharing the rule with others independently. **What's My Pattern?** Provide a range of different instruments such as drums, beaters, shakers and encourage the children to play and copy simple patterns. This could be made into a game with one child playing a pattern whilst the rest face the other way and listen. The listeners then try and work out which instrument was used and try to replicate the pattern.	
Triangles and circles. - Know that circles have 1 curved side. - Know that triangles have 3 straight sides	Children can build their own circles and triangles. Go on a shape hunt for circles and triangles in everyday objects. Mark make their own circles and triangles.	Miss name a shape in their play – children should correct and encourage them to explain why. Shape jigsaw boards – try and match a triangle with a circle hole. Child should recognise the mistake and correct this, explaining why it won't fit.	Children to use different resources (e.g. sticks, rope) to independently create their own triangles and circles in different sizes. Is it possible to make a circle out of sticks?	

	During all activities adults to highlight the feature of triangles and circles. Use 3D shapes to print triangles and circles using the flat faces.  			you build a larger/smaller triangle than this one? Is there more than one way to make this shape?
Spatial awareness - Use positional language	Language model by adults – next to, on, over, under, around, though, behind. Build life size journeys and explore these from different perspectives. Where shall we put the car? Where shall we but the horse? Use small world to create models. When doing this highlight positions of different objects. Language use during tidy up time. Share the story of 'Going on a bear hunt' when reading highlight the prepositional language being used.	Place something in small world incorrectly. Say clearly where you have placed the object. Child should pick up on the wrong positional language being used and either correct the language or place the object where the adult said it was in the first place.	Children create their own treasure hunts for their peers to follow. They give different clues which use prepositional language. Children should do this with increased independency.	

Shapes with 4 sides. - Name a square/rectangle - Know squares/ rectangles have straight sides and 4 corners. - Be taught that squares are special rectangles.	- Children given the opportunity to build their own squares and rectangles. - Go on a shape hunt for squares and rectangles.	Miss say a shape and the children should correct you. Explain why a shape is a square e.g. this is a square because it has 4 straight sides and 4 corners.	Ask the children to investigate which shapes they can make by combining squares, rectangles and triangles in different ways.  Can you build a small square, a medium square and a large square? You could draw outlines for the children to fill initially. Is there more than 1 way to make this shape? Use matchsticks to build squares and rectangles. What's the smallest size you can make? How many match sticks did you use?	
3D shapes - Explore and manipulate 3D shapes through block play and modelling. - Recognise which shapes stack, roll, and why. - Provided with opportunities to build and construct their own 3D shapes in different ways. - Introduced to the names of 3D shapes.	Hold up an object for example a crisp tube or a cereal box. Which of the 3-D shapes is this like? Why is it like this? What other items have this shape?  Show the children a collection of 3-D shapes. Choose one of the shapes. Ask the children to tell their partner as many things as they can about the shape. Can they find another shape like this? Can they find a different shape? How is it different?  Sort the shapes into groups. Ask: 'Why did you put these shapes together? How is this set different to this one? Is there another way we could sort them?' Go on a 3D shape hunt. Children make 3D shapes out of playdough. Conversations had whilst the children make them about the names and properties.	Miss name a shape and encourage children to correctly tell you the name.	Hide a shape from the children. Describe some of the properties to the children for them to guess what it is. Children independently use 3D shapes to support them in constructing what they wish. They problem solve independently when something isn't working in the way they want it to and are able to find a solution. Can you build a shelter to keep everyone dry?	

- Explore similarities and differences between 3D shapes in their play. - Compose and decompose shapes so that the children recognise a shape can have other shapes *within* it.	Can this shape roll? Can we stack this shape? Could we build a staircase out of the shapes we have here? Provide children with a range of 3D shapes. Find 2D shapes within 3D shapes to support the children when exploring similarities and differences.			
Pattern (needs 3 full units of repeat). - Introduce more complex patterns - Explore patterns which use items more than one in each repeat e.g. ABB/AAB/AABB - Able to describe, continue and copy patterns.	Provide opportunities for the children to describe, continue and copy patterns including movement pattern along a line or around a circle: stand, sit, stand, sit, stand, sit. Hands on heads, hands down, hands on head, hands down, hands on heads, hands down. Etc. Show the children an AB pattern and a similar AAB pattern and ask them to tell you what they notice. What is the same and what is different?  Repeat with a similar ABB pattern. What is different this time? 	Introduce patterns with a deliberate error. This could include an extra item, a missing item or a muddled unit of repeat. Can the children identify the mistake and put it right?	Show the children examples of fabric showing patterns from different cultures or traditions. Encourage the children to discuss the patters and recreate them. Children then independently design their own patters in a similar style.	

			Which Patterns Fit? Provide frames with a set number of spaces and cubes or counters in different colours. Ask the children to build patterns around the edge putting one item in each space. Ask them to try different patterns to investigate which will fit around the frame exactly and which won't.  Which of these patterns will fit exactly around the frames? AB, ABC, ABB, AAB, AABB, AABBC	
Spatial Reasoning - Use positional language. - Understand shapes can be combined and separated to make new shapes. - Combine shapes in different ways. - Fit shapes together and brake shapes apart – notice the new shapes created. - Understand places and	Regular opportunities for children to complete jigsaws and shape puzzles. Why did you choose this shape?  Show the children a set of shapes and ask them to find the shape which matches the one you hold up. Add challenge by making the shapes more similar and changing the orientations. Make a simple shape arrangement. Ask the children to match your arrangement exactly, thinking about which shapes to select and where to place them in relation to the other shapes. This can also be done on a larger scale outside.  Set up a small world scene and ask the children to describe	Why does this shape not fit? Provide some paper rectangles, squares and triangles. Encourage the children to predict which new shapes will be made if the shapes are folded or cut in different ways. Children encourage to explain their prediction and can then move on to investigating to see if they predicted correctly.	Investigate how many different ways a given shape can be built using smaller shapes independently. What shapes can you build? Can you make them in more than one way? **Tangrams**  Encourage the children to explore the different arrangements and shapes they can build using a tangram. Can they use some of the pieces to make a triangle? Can they join some of the pieces to build a square? Is there more than one way to do this?	

models can be replicated. - Look at replicated places and models from different positions. - Replicate simple constructions, models, places in stories. - Make maps and plans to represent places and use them.	where things are in relation to other things. Then ask them to move around and look at it from a different view point. Does it look the same? What do they notice? Show the children some different maps, lots of books have maps of the story setting. What can you see on the maps? Which map do they like best? Why do we need maps? Children draw their own map of the places in the story. Children could make a map of the classroom – what can you see on the map. Children will use positional language when drawing their map e.g. the door is next to the board. The toilet is in the make it room. Provide the children with a map of the outdoor area with an obstacle course. Children use the map to create the obstacle course to be able to use it.		**Design it**  Encourage the children to design their own picture using the pattern blocks. Can they create a template to help them remember their design? Can their friends use the template to recreate their design? Provide each child with a set of items the same as yours. Provide verbal instructions as you arrange your items for the children to follow. They can't see your items but do it through the positional language given. Compare the finished arrangements to see if they look the same. Do the same activities but the children are the leader. Challenge the children to solve problems on a large scale: the playground is a crocodile-infested swamp. How could we rescue teddy without putting our feet on the ground? Children given a treasure map to follow 'X marks the spot'!	
Patterns and relationships. - Children explore and investigate	Show the children a set of Cuisenaire rods. How many green rods measure the same as one blue block? What other	Show the children one rabbit. How many ears do you see? Add another rabbit? How many ears do you see because I see five?	Children independently using their knowledge of patterns and relationships between shapes and numbers in their play. This	

relationships between numbers and shapes. - Children able to copy, continue, and create patterns and symmetrical constructions.	relationships can they find? Can they find a block that is double the length of another block? How could they check?	Children should correct you hear. Continue to add rabbits each time and encourage the children to recognise 2 ears get added each time.	can come through in construction or model making.	

Reception				
Measurement				
Objective	**Skill it**	**Apply it**	**Deepen it**	**Mathematical talk**
Compare and order size, mass and capacity.	What could fit in the box? Which sized item fits where? Children could create homes for different sized bears. Sort items they find into different piles – large/small etc. Provide the children with a large bucket and a small bucket. Children to fill each bucket with sand and count how many scoops it takes.	Children able to explain why an item wouldn't fit in somewhere e.g. 'it is too short/long/tall'	- Children to be using comparison vocabulary when playing with peers and able to problem solve when something doesn't fit to find an appropriate size. - Guess my rule. - Get the children to secretly create their own rule for their peers to guess. - Add a set of balance scales to the playdough area. Children can then compare mass of different sized balls. Problem solve to try and use the scales to balance equal sized dough balls. - What else can we find that weighs the same as your ball of dough? - Baking cupcakes.	Short, tall, long, night, day, morning, afternoon, before, after, today, tomorrow, heavy, heavier than, heaviest, light, lighter than, lightest, longer, shorter, taller, wider, narrower, now, soon, before, then, next, after, yesterday, full, half, empty, holds, container, weigh, weighs, balance, scales, times, days of the week: Monday, Tuesday

			Provide a range of different sized and shaped containers and some pebbles. Ask the children to half-fill their containers with water. What happens to the water if they add pebbles to their container? How many pebbles will the need to make the containers overflow?	etc., seasons: spring, summer, autumn, winter, days, wee, month, year, weekend, birthday, holiday, bedtime, what else weights the same? What do we need to do first? What do I do next/after that/ then? How many minutes did you take? Who was the fastest? Did they take more minutes or less minutes than you? Which is the heaviest/lightest? How can we balance…? Who threw the furthest? How could we check? Who is the tallest person? How do you know?
Night and day - Talk about night and day - Order key events in daily routine - Use time language events happen. - Measure time in simple ways e.g. counting number of sleeps to important events.	Use visual timetable within the classroom that is referred to throughout the day. Use pictures to order familiar activities. Use stories and non-fiction books to introduce the idea of nocturnal animals and explain that as we go to sleep some animals are waking up. Put a calendar in the home corner for the children to mark their birthdays on. How many sleeps is it until…	How could you score more goals in the time you have? How can we work out who came first? Order something incorrectly for children to self-correct. They explain why they need to do something in the order they do.	Children independently using the visual time table within the classroom. Set up some mini goal posts. Ask the children to score as many goals as they can before the timer runs out. Each time they score a goal they can collect one bean bag and take it back to their bucket. At the end of the time ask each child to count their bean bags. How many goals did they score? Repeat the activity – if the children want to score more goals will they need to work more quickly or more slowly? Count up again – did they beat their score?	
Compare Mass - Make direct comparisons when estimating which object feels heaviest. Use balance	Bring in a heavy case or box and show the children it is hard to lift and carry because it is really heavy. Ask them if they have carried anything heavy. Discuss as a group what could be inside. Children be a human balance scale – place an item on one	Children able to discuss what could be inside a mysterious box because of its weight giving justified reasons for their choice. E.G I think it could be a rock because when I picked a rock up on the beach it was so heavy.	Provide a selection of wrapped parcels of various shapes and sizes. Children independently compare parcels to see which are heavier and lighter than others. They could group these parcels in different ways e.g. heavier/lighter. Are larger parcels always heavier? They are able to find the lightest/heaviest	

scales to check. - Recognise that the bigger item doesn't always mean the heaviest.	hand and then on the other. They tip to the side of the heavier. This could be done using buckets of water adding more in and taking some out to change the balance scales.		independently and use this vocabulary when sharing. Show fully and empty using different material. Provide children with different sizes tall/thin/narrow/wide/shallow to investigate the weight of these items.	
Length and height - Begin to use language to describe length and height. - Make direct comparisons - Use objects, blocks or cubes to measure items. Adults are mindful not to use the language of big.	Opportunities for comparing length and height will arise naturally during play. This could be they compare the height of their towers or the length of their roads. – Who has the longest scarf? Who can thread the longest string of beads? Children could draw around their footprint and find objects around the room that are longer than or shorter than their foot. With a group of children make comparisons by ordering their footprints in size order. Provide the children a mixture of measuring tools to explore e.g. tape measure, ruler, trundle wheels.	Children may be building in construction – adult uses this opportunity to deepen vocabulary use by modelling the correct vocabulary being used. After this – adult could incorrectly describe two blocks e.g.' this is the longer block'. Expect children to correct this language and use the resources to correctly describe.	Using dough: children independently use mathematical language relating to length as they play. Challenge: provide children with different amounts of dough, which amount can make the longest snake? The shortest snake? Why has this happened? 'Let's find something to measure these' – children independently find something suitable to measure e.g. blocks, cubes etc. Give each child a small object such as a bean bag or welly. In small groups or pairs, challenge the children to throw the object as far as they can. Who has thrown their item the furthest? How could we check?  Encourage the children to discuss and try different ways to find this out. For example they could count strides or heel-to-toe footsteps or use a trundle wheel. Prompt them to use the language of further, nearer and closer. Encourage them to record their distances using their own methods. Have another throw – did they manage to throw their item further this time?	
Time - Order and sequence	Ask children to see how many tasks they can complete in one	Children able to actively say the order of events with little support. They can recognise if	In own play children use stop watches/ hour glass to time activities they do with peers.	

important times in their day. - Recognise that regular events happen on the same day each week. - Describe and talk about specific events in their lives.	minute/ how many circles they can draw in a minute etc.	something in their day has been done in the wrong order. Can spot a change in the visual time table and then has a discussion around this change.		