



EYFS Maths Skills Progression: Composition of Numbers

| Progression of Skills | Possible Misconceptions | Pedagogical Guidance |
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| Fast recognition of up to three objects and can name the quantity, without having to count them individually. | Children may think that they need to count each individual object. | <p>The ability to instantly recognise small quantities without needing to count them is called perceptual subitising.</p> <p>Encourage children to develop their perceptual subitising skills by providing them with multiple and varied opportunities to identify groups of up to three objects. For example, groups of different foods at snack time or groups of different-coloured building blocks.</p> <p>Explain to the children that they do not need to check the number of small groups of up to three objects by counting. The children can see the number in the small groups.</p> |
| Through play, show an understanding of parts and wholes by gathering objects together and separating them into smaller groups. | | <p>Provide the children with play opportunities that enable them to practically separate a group of objects into different parts. For example, separating farm animals into different fields or small world minibeasts onto leaves.</p> |
| Understand cardinality (when counting, the last number said is the number that the group contains), either through subitising or counting. | Children may recount the whole set of objects rather than recognising that the last number said is the total. | <p>When counting a group of objects during daily routines or play, emphasise the final number you say. Then, say how many there are in total. For example, when counting a set of toy cars say, "One, two, three, we have three cars."</p> |
| Using concrete objects, children find different combinations of three (for example one and one and one, two and one, or three and zero), recognising that the total is still the same. | Children may not recognise that the total is still three when three objects are split into smaller groups. | <p>Provide opportunities for children to arrange three objects in different ways to explore that the total remains the same. Ensure that these include opportunities to explore zero. For example, provide three fish bowl cut-outs and three small world fish. Encourage children to explore how the fish can be arranged in different ways between the three bowls.</p> |
| Understand that numbers can be made up of two or more parts and can find different compositions for up to five using concrete objects. | Children may not understand that numbers can be composed of more than two parts. | <p>Provide opportunities for children to explore splitting numbers into smaller parts or groups. Use part-whole models to practically explore splitting a number into two parts - ideal for exploring number bonds to five.</p> <p>You could also set up practical play activities that encourage children to separate a group of objects into more than two parts. You could set up a teddy bears' picnic with three teddies, three plates and role-play food.</p> |



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| <p>Subitise smaller parts within a whole group of up to five objects.</p> | <p>Children may think that they need to count each individual object when they see a group of up to five objects.</p> | <p>Spend time exploring one number at a time with children so they can gain an understanding of what numbers to five are made up of. For example, when teaching the number four, explore all the different parts that can make the number four. Show the children a group of four objects, such as beanbags or pom-poms, in different arrangements. You could choose to place two beanbags close together and then two beanbags apart. Say to the children, "I wonder what you can tell me about the beanbags." The children could also explore how they can move and rearrange the four objects.</p> |
| <p>Children can solve real world problems with numbers up to five by exploring different compositions.</p> | | <p>Set up simple problems for the children to solve, such as during snack time or when working out how many children can play in different areas of the setting.</p> <p>Encourage children to use full sentences to explain their answers when solving problems involving composition.</p> |
| <p>Understand the language of 'parts' and 'whole'.</p> | | <p>Model using the term 'parts' in the correct context when playing with the children.</p> <p>You could provide children with real or play food. Provide some whole pieces of food and some foods that are split into parts. For example, part of a cake or a melon.</p> <p>Model using part-whole models, clearly emphasising the terms 'parts' and 'whole' when talking about what they can see.</p> |
| <p>Understand that the 'whole' is made up of the 'parts'.</p> | <p>Children may not recognise that the 'parts' can be combined to make a 'whole'.</p> | <p>Provide opportunities for children to separate a whole into parts. Children could break up a bunch of bananas at snack time into individual ones, recognising they had a whole bunch but now they have parts of the bunch. The children could then place all the bananas back together to make the whole bunch.</p> |
| <p>Children can use conceptual subitising to say the total of a group. They subitise smaller groups of objects within a larger group and combine.</p> | <p>Children can subitise the parts of a group but then count them all to find the total of the whole.</p> | <p>Spend time exploring the parts within a whole using concrete objects. Encourage children to look at the parts and subitise the groups within the whole.</p> <p>Model your thought process when exploring groups, showing the children the parts that you see and then saying how many you have altogether.</p> <p>You could catch some shells from a water tray in a net. As you tip them onto the floor, model saying the groups you can see and then how many you have altogether.</p> <p>Play board games with two dice to encourage children to say the whole by quickly scanning the two parts.</p> |



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| <p>Children can say the 'hidden number' when they can see only part of a group of up to five objects.</p> | | <p>Play games with the children where they see a whole group then hide some objects. You could hide objects in your hand or in a box.</p> |
| <p>Children are able to explore different compositions of numbers up to ten using concrete objects.</p> | | <p>Provide multiple and varied opportunities for children to explore the composition of numbers to ten.</p> <p>Invite children to explore each number in turn to begin to spot number patterns. For example, explore the number six using different objects. Children could be given different-coloured cubes and challenged to work out how many different ways they can make a tower of six cubes using different combinations of colours. For instance, two red and four yellow cubes.</p> |
| <p>Arrange small quantities into pairs and notice that some quantities will have an odd one left over with no partner.</p> | <p>Children may not understand that a 'pair' is made of two objects. They may associate a different meaning to the word 'pair'.</p> | <p>Invite children to play matching games - finding two objects that match to create a pair. Develop this further by making pairs of small world toys for a story, such as Noah's Ark. Which animals are in pairs? Which animals are not in pairs? Link this idea to larger groups which can be shared into equal groups to encourage exploration of odd and even numbers.</p> |
| <p>Use visual models to explore different compositions to ten.</p> | <p>Children may not recognise that different representations show the same composition of a number.</p> | <p>Ensure that children are exposed to the number ten represented in different ways with a variety of visual models.</p> <p>You could show the number ten in a variety of ways, such as using fingers on two hands, dots on two dice, bar modelling, bead strings, etc.</p> |
| <p>Children can see the two parts within a whole of up to ten pictures or objects.</p> | | <p>Provide a range of practical activities for children to explore splitting a 'whole' set of objects into different parts. For example, there are seven cakes on a plate. Four have cherries and three do not.</p> <p>You could use this opportunity to explore doubling and halving with the children.</p> |



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| <p>Children are able to say the missing number from number bonds within ten, using concrete objects or their fingers.</p> | | <p>Play games which require the children to work out a missing number with up to ten objects. For example, you could draw a large picture of a tree and place six real leaves on it. Pretend the wind blows off four of the leaves (which you hide). The children can see the remaining two leaves. Can they tell you how many blew off if there were six to begin with? Repeat with different amounts being blown off.</p> |
| <p>Children can use their knowledge of the composition of numbers in practical situations and to solve problems.</p> | | <p>Play practical games which encourage children to solve problems based on the composition of numbers. For example, throwing beanbags into a hoop. Pose problems to the children. You could say, "We had five beanbags, three landed in the hoop. How many are not in the hoop?"</p> |
| <p>Have a deep understanding of numbers to ten, including odds and evens.</p> | <p>Children can name odd and even numbers but may not understand their composition.</p> | <p>Allow children the time to explore and work out which numbers to ten are odd and which are even. They could use socks or number shapes initially. You could place number shapes in a feely bag. The children try to find the odd number shapes by feeling for the ones with the odd bit sticking out at the top.</p> <p>You can then encourage the children to begin to practise visualising the representations of the numbers in their head to work out odds or evens. For example, you could ask if number three is an odd or even number. Can the children imagine having three socks, would it make pairs or would there be an odd one out? If there is an odd one, then it is an odd number.</p> <p>Also provide children with opportunities to explore doubles within ten and explore how numbers within ten can be distributed equally.</p> |
| <p>Children are able to use their understanding of number bonds to recall number bonds to five, including subtraction facts.</p> | | <p>Explore different ways of presenting number bonds, including subtraction facts. For example, using five small world birds; there are four birds in a tree, then another one joined. Now, there are five. One bird flew away, five take away one is four.</p> |
| <p>Children can automatically recall all number bonds to five and some to ten, including double facts.</p> | | <p>Play quick-fire games with the children. You say a number to five/ten and they shout out the number bond or the double. The children could also be shown a number card and race to find the number card showing the double.</p> |