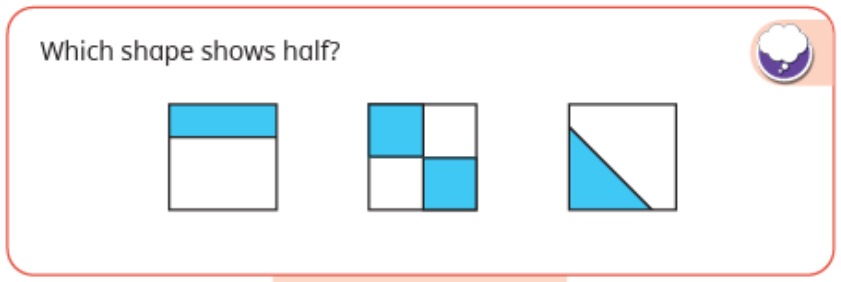
Dereham Church of England Infant and Nursery Academy- Mathematics

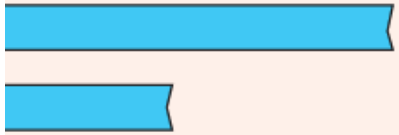
	Year group: 1	Area/topic: Mathematics- Fractions
	Recognise, find and name a half as one of two equal parts of an object, shape or quantity Recognise, find and name a quarter as one of four equal parts of an object, shape or quantity	

Prior learning	Future learning
Children will have been introduced to half past and quarter past times on a clock face. The children will have come across finding half when sharing a food item with a friend/sibling in a real life context.	Children will use this knowledge and will be introduced to the fractional notation of ½ and 1/4 this learning will be furthered and help support children to work in the abstract, recording multiplication and division calculations.

What pupils need to know or do to be secure	
Key knowledge and skills	Possible evidence

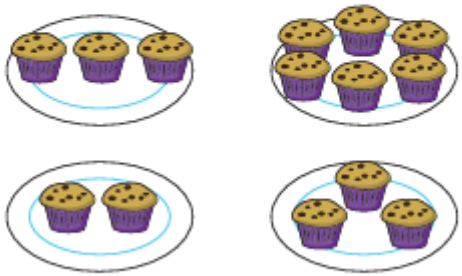
Recognise a half of an object or a shape	Read Peg + Cat: The Pizza Problem by Jennifer Oxley and Billy Aronson. Then show children different images of pizza cut into different size pieces, some showing a half and some not. Can the children identify the half and the whole images of pizza from the story? Give children cut-out shapes of pizza and ask them to help you sort the pizza into two groups: half and not half. Discuss how they know whether each one is or is not a half. Show children some everyday objects such as an apple, a cake and a biscuit. and which are not? Model when something has been cut in half and not in half. Can children identify which objects are cut in half Ask how many equal parts there are when something is cut in half. Give children a range of different paper shapes that have been cut in half. Ask them to find the other half to make a whole. How do they know that they have found the other half? Can they use a mirror to help? 

Find a half of an object or shape	Set up a cafe role-play area. Provide children with modelling clay and child-friendly knives. Ask them to make doughnuts, muffins, cake slices or pancakes for the cafe. Children take it in turns to role-play the customer and the cafe owner. The customers order what they would like from the cafe. Would they like half of a bun? Would they like more than one half? Using the knives, the cafe owners cut the 'food' items. • Draw a line to split each object in half.  • Find three different ways to split each shape in half.

Recognise a half of a quantity	Make a collection of ribbons or string of different lengths. The ribbons or pieces of string are in pairs where one is twice the length of the other, for example 12 cm and 6 cm.  Give one to each child and ask them to find the person to match the half to the whole. Encourage children to talk to each other about why one is half the length of the other. Do they always have only one match or can they find another? Go outside with a bag of balls and three hoops. Take out six balls. Share the balls equally between two hoops and ask children if the balls have been split in half. Repeat, but sharing the balls unequally between two hoops. Then share the balls between three hoops and ask if they have been split in half. Repeat with other totals. Put children into small groups of up to 10 and ask them to line up. Split the groups in different ways, some in half, some not in half. Ask children to explain which groups have been split in half and which have not. Can they explain why? What happens if there is an odd number of children in total?

- Here are 6 muffins.

Which plates show half of the muffins?



Is there more than one answer?

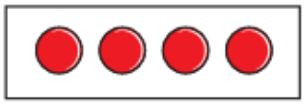
Ron and Kim have some counters.

Ron has half of the counters and Kim has half of the counters.

Draw Kim's counters.

Ron

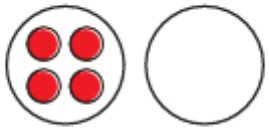
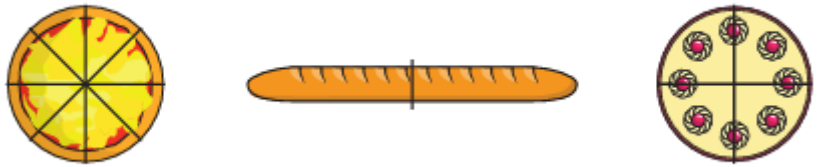
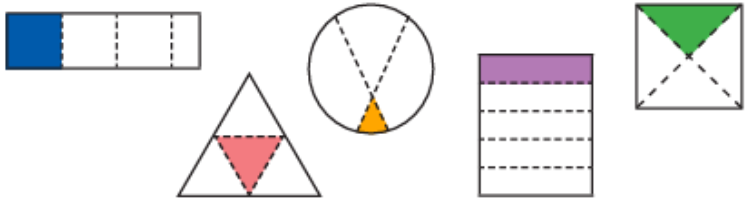
Kim



How many counters are there altogether?

What is half of the total?

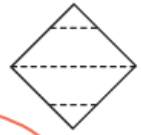
Find a half of a quantity	Give children an even number of pebbles or sticks. Provide them with two small hoops. Ask children to share the objects equally between the hoops. How many objects are there in each hoop? What is half of the amount? Set up a scene, for example where animals need to be put equally into two fields.  Ask children to complete the sentences to describe the scene. There are _____ animals altogether. There are _____ animals in each field. Half of _____ is _____ • The creatures need half the number of legs on each side. Draw the correct number of legs on each side. 6 legs in total 12 legs in total 10 legs in total 

Recognise a quarter of an object or shape	If 4 is half, what is the whole?  If 2 is half, what is the whole? If 8 is half, what is the whole? Show children everyday objects such as fruit. Ask how they can be cut into four equal parts. Explain to children that these are quarters, and all four parts need to be equal. • Which object has been cut into quarters?  • Which shapes show a quarter? 

Kim and Mo are talking about quarters.

My shape shows quarters, because it has four equal parts.

Kim



My shape shows quarters, because it has four parts.

Mo

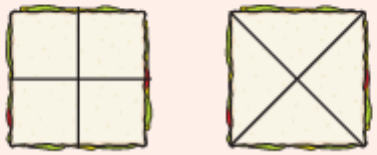
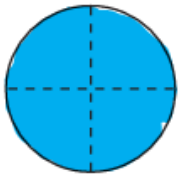
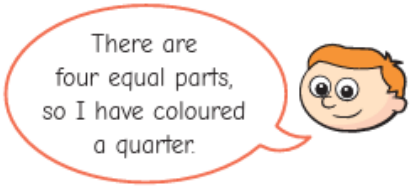
Are Kim and Mo correct?

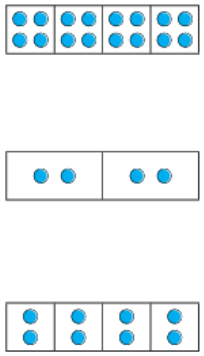
Explain your answer.

- The square shows halves

How can you change the square so that it shows quarters?

Is there more than one way?

Find a quarter of an object or shape	Provide children with sliced bread, sandwich fillings and child-friendly knives. In small groups, children make sandwiches for a picnic. All the sandwiches must be cut into quarters. Explore how children can cut the sandwiches so that the parts are all equal. Can they cut the sandwiches in more than one way?  Ron wants to colour the circle to show a quarter.   Do you agree with Ron? Explain your answer.

Recognise a quarter of a quantity	Go outside with a bag of balls and four hoops. Take out four balls. Demonstrate sharing the balls between the four hoops. Check that each hoop has a quarter, explaining that there must be an equal number in each hoop. Now take eight balls and share them unequally between the four hoops. Ask if this shows quarters. Repeat with other examples and non-examples of showing a quarter of a quantity. • Complete the sentence.  A quarter of 12 is _____ Match the statements to the bar models. There are 4 apples in a box. Half of the apples are red. The rest are green. There are 8 children in a classroom. A quarter of the children are wearing glasses. A quarter of the sweets in a bag are green. There are 4 green sweets. 
Find a quarter of a quantity	Ask children to collect eight pebbles. Provide them with four small hoops and ask children to share their pebbles between the hoops. Discuss whether the groups are equal and how many pebbles are in each hoop. Then ask what a quarter of

8 is. Repeat with other amounts. Are there some totals that could not be shared equally between four hoops?

On different tables, provide children with cut-out fish, where the total is always a multiple of 4, and four boxes to use as tanks.

Ask children to share the fish equally between the fou tanks and complete the sentences.

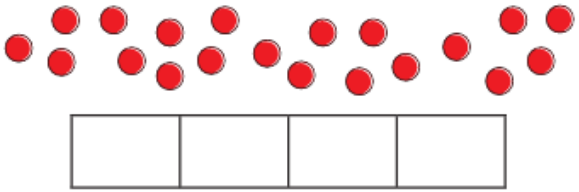
There are _____ fish in total.

There are _____ fish in each of the 4 tanks.

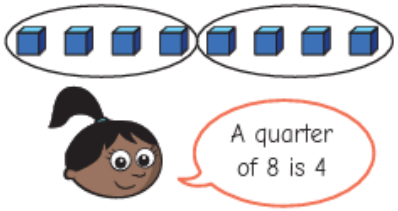
A quarter of _____ is _____

Repeat as they move around the different tables.

- Use the bar model to find a quarter of 20



Sam is finding a quarter of 8



Do you agree with Sam?

Explain your answer.

Key vocabulary
Whole, half, equal, equal parts, split, share, total, shaded, quarter,

Common misconceptions	Books linking to this area
Children may talk about a "bigger" or "smaller" half due to prior experiences of sharing, so it is important to reinforce that a half is one of two equal parts. Children may struggle to recognise halves when they are shown in non-standard ways. Children may think that if they split something into two parts, they have split it in half. They may not remember that the two parts must be equal. Children may not recognise that they can split some shapes/objects in half in a number of ways, instead only using horizontal or vertical divisions. Children may only recognise a half as half of an object or shape, rather than also referring to a number or quantity. Children may not recognise when the two halves appear different visually, for example three apples on a plate close together and three apples on another plate spread out. When finding missing totals, children may halve the amount rather than doubling it. For example, when asked to find the whole if 4 is half, they may give the answer 2 It may be necessary to reinforce the idea of equal parts, so that children do not think that a shape split into four unequal parts also represents quarters.	Peg + Cat: The Pizza Problem by Jennifer Oxley and Billy Aronson.

Memorable first hand experiences	Opportunities for communication
Opportunities to cut food items into half Use playdough to make food items for a café. When customers visit and order children have the opportunity to cut food items into halves, quarters Opportunities to explore sharing physical items into groups Children to create sandwiches for a picnic. Can they cut them into equal parts?	Ask key questions and discuss Discuss and answer stem sentences provided by White Rose Discuss/debate What's the same/what's different?

DCINA Reasonable adjustments for pupils with SEND

Communication and Interaction	Cognition and Learning
Use a range of visual aids Give clear instructions one at a time Repetition Provide simple instructions Pre teach vocabulary Use working wall where modelling is displayed Give children thinking time Model task	Check understanding regularly Allow rest breaks Give thinking time Colour code signs that could be confusing Work checklists Break down tasks into small steps Give opportunities for over-learning
Social, Emotional and Mental health	**Sensory and Physical**
Allow access to a quiet and calm space Give child a special role to increase self esteem Provide a visual support- what to do if you are stuck Provide a movement break Seat pupil by more confident peer Now and next board Sand timers Movement breaks Break down tasks into small steps	Consider carpet space position Reduce background noise Provide a range of manipulatives- dienes may be too small Appropriate seating Wobble boards Writing slope Enlarge text Variety of writing tools available