

Dereham Church of England Infant and Nursery Academy- Mathematics

	Year group: 1	Area/topic: Mathematics- Multiplication and division
		Count, read and write numbers to 100 in numerals; count in multiples of 2s, 5s and 10s Solve one-step problems involving multiplication and division by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher

Prior learning	Future learning
Children have prior knowledge of doubles. They also have previously counted in multiples of 2, 5 and 10 during maths meetings.	Children will further this learning particularly in year 2 where the multiplication sign will be introduced.

What pupils need to know or do to be secure	
Key knowledge and skills	Possible evidence
Count in 2s	Show an estimation jar. Ask children to estimate how many objects are inside. Empty the jar and ask them to count the objects in 2s to check. Read Eggs and Legs by Michael Dahl. Pause partway through the book and ask children to draw a picture predicting what the legs could be doing on the next page. How many legs will there be? How many eggs will there be?

Count in 10s

Put children into groups of 10 and give each child 2 cubes. Ask each group to show you an even number of cubes. Each child can either hold out zero or two cubes. Get children to count the number of cubes individually. Then ask how many cubes each person has got. Then get children to count the number of cubes in 2s.

Complete a range of number lines by counting in 2s.

Give each child a 50-bead string and explain that they are going to use it to count in tens. Ask how they can use the bead string to count forwards and backwards in 10s.

Read *Toasty Toes* by Michael Dahl. Give children examples from the book, for example "Fifty toes wiggle in the water." Ask how many children there will be.

Answer questions about ten frames.

Complete a range of number tracks

Count in 5s

Choose a group of five children to come to the front of the class. Ask the children to show two hands, one hand or no hands. Each child can choose to hold up both their hands, one hand or no hands. The rest of the class say how many fingers they can see altogether. As a further challenge, say a multiple of 5 and ask children to work together to show that number of fingers.

Recognise equal groups

Continue to count in 5s on a number grid. Ask the children to identify the patterns that they can see.

Read *Starry Arms* by Michael Dahl. Ask children what they notice about the starfish. How many starfish are there? How many arms are there altogether? Ask children to make their own *Starry Arms* page

Get children to collect some stones or pebbles. Ask children to put them in equal or unequal groups. How many different equal groups can they make?

Give children 12 counters. Can they show you equal and unequal groups? How many different equal groups can they make? What happens if they have 13 or 15 counters?

In pairs, children take turns to roll two dice. The first player to identify equal groups and correctly shout "equal" gets a point. The winner is the first player to reach 5 points.

Show a range of images of groups. Ask the children if they are equal or unequal.

Ask two children to show a total of three hands. Ask how many fingers there are altogether and record the addition. $5 + 5 + 5 =$ Repeat with different numbers of hands.

Add equal groups

Ask children to line up some bikes or scooters. As a class, count how many bikes/scooters there are. Ask how many wheels there are altogether. Encourage children to write the number sentence to match the bikes.

Hide some pictures of ladybirds around the playground. Each ladybird must have 2, 5 or 10 spots. When each child has found a ladybird, they need to find other children who have a ladybird with the same number of spots. They then add their equal groups together to find the total number of spots.

Use cubes and a range of containers such as bun trays, egg boxes and paint pallets. Allow children to explore using the cubes and discuss all the different ways to fill the containers.

There are ?? rows/columns.

There are ?? cubes in each row/column.

Draw an array to match the story. There are 5 trees. There are 2 birds in each tree. Write a number sentence to match your array.

Make arrays

Show children some arrays. Ask them to complete the questions below:

Count the rows and complete the sentences to describe each array.

There are ____ rows of ____

There are ____ altogether.

Make doubles

Count the columns and complete the sentences to describe each array.

There are _____ columns of _____

There are _____ altogether.

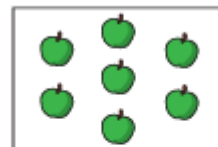
What do you notice?

Show children a number of counters up to 10 on ten frames. Ask children to make the double with double-sided counters on two ten frames.

Hide lots of number pieces outside. Children work in pairs to find two number pieces that are the same to make a double. The winners are the pair who find the most doubles. Children could be challenged to write their doubles as number sentences.

Read *Minnie's Diner* by Dayle Ann Dodds, where all the food orders are doubled. Set up a double cafe in the classroom. Encourage children to make up their own double diner menus. If you get 8 specials, what have you doubled?

- Complete the sentences to match the picture.



There are _____ equal groups.

There are _____ in each group.

There are _____ apples altogether.

_____ + _____ = _____

Double _____ is _____

Jo doubles some conkers.

Here are the conkers **after** she has doubled them.



Tiny

Jo started with 8 conkers and ended with 16 conkers.

Jo started with 4 conkers and ended with 8 conkers.



Max

Who do you agree with?

Explain your answer.

Take children into the playground. As a class, count how many children there are. Ask children to get into groups of three. Are all the groups equal? What other equal groups can they get into?

Provide children with 20 counters or cubes. Ask them to put them into equal groups. How many different sets of

Make equal groups- grouping

equal groups can they make? Repeat with other numbers of counters or cubes.

Show children a picture of a gingerbread person and explain that each one needs three buttons. Give the children 15 buttons and ask how many gingerbread people they can give buttons to. What if they had 18/21/24 buttons?

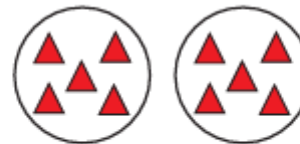
- Circle groups of 2 mittens and complete the sentence.



There are _____ groups of 2 mittens.

If you had 10 mittens, how many equal groups of 2 mittens could you make?

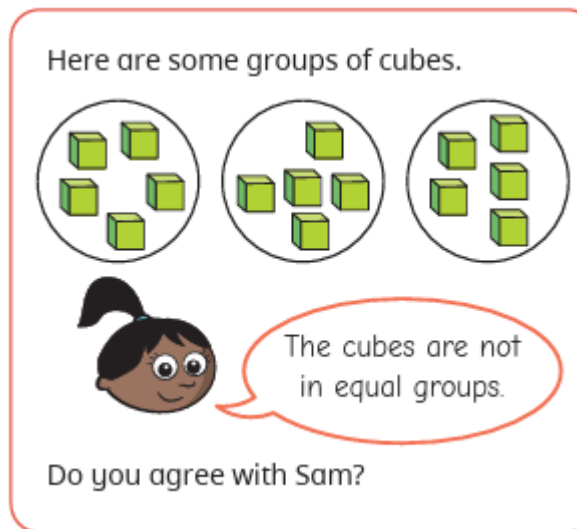
- Complete the sentences to match the pictures|



There are _____ altogether.

There are _____ equal groups of _____

Make equal groups- sharing



Take children outside to collect 12 sticks or pebbles. Ask them to share their items equally between 3 hoops. Can they share them equally between 2/4/6 hoops? Can they share them equally between 5/7 hoops? Repeat for other numbers.

Provide modelling clay to represent cupcakes and counters to represent sweets. Children can then explore different ways of decorating the cupcakes. Tell children to make 3 cupcakes. Give them 15 sweets to share equally between the 3 cupcakes. Ask how many sweets there are on each cupcake. Repeat for different numbers of cupcakes and sweets.

- Share the muffins equally between the 2 plates.



Complete the sentences.

There are _____ muffins.

They are shared equally between _____ plates.

There are _____ muffins on each plate|

Dan shares 20 cookies equally between his friends.

How many friends could Dan share his cookies between?



Key vocabulary

Pair, equal, groups, not equal, altogether, in total, groups of, before, after, rows, columns, array, double, sharing

Common misconceptions

Books linking to this area

Make sure children understand that a pair is two objects, and those objects do not need to look exactly the same.

Children may confuse teen numbers and multiples of 10, for example 13 and 30

Children may still rely on counting individual objects, for example counters, rather than using representations such as full ten frames to count in 10s.

Children may not recognise the relationship between two 5s making a 10. The use of five and ten frames can help children to understand that a full row makes 5 and two 5s make 10

If objects are arranged differently, children may not think that the groups are equal.

Children may be less confident with more unfamiliar representations.

Children may confuse the number of groups with the amount in each group, for example 2 groups of 5 rather than 5 groups of 2

Children may confuse the language of column and row.

Children may not arrange the rows or columns evenly, or leave a gap in the middle of the array.

Children may not recognise that any objects or pictures can be an array.

Children may think that double 4 is 44, because they see the digit twice.

Eggs and Legs by Michael Dahl.

Toasty Toes by Michael Dahl

Starry Arms by Michael Dahl

Minnie's Diner by Dayle Ann Dodds

Memorable first hand experiences	Opportunities for communication
When counting in 2s have a range of pairs of socks for children to physically count Physically group items into equal and not equal groups Go outside and count the number of bikes in the bike shelter, then count how many wheels are in the bike shelter When looking at arrays physically sort items into egg boxes, muffin trays, cupcake tins etc Set up a double café in the classroom	Ask key questions and discuss Share possible sentences stems and explore

DCINA Reasonable adjustments for pupils with SEND

Communication and Interaction 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	Cognition and Learning 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 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	Sensory and Physical 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