Dyslexia Awareness Week - Numeracy

Lesson Plan

Subject: Numeracy	Duration: 5 lessons, 1 hour each lesson

Broad Aims:

In this series of lessons for Dyslexia Awareness Week, the children will be introduced to 3 different learning styles:- Visual (V), Auditory (A) and Kinaesthetic (K). They will be made aware of the learning style used for each activity and consequently encouraged to reflect on their preference of learning style and the impact of using this style on their understanding.

This series of numeracy lessons, will allow children to investigate multiplication through arrays, use music and games to recall their 2, 5 and 10 times tables and to understand the commutative properties of multiplication. Additionally, they will use arrays to be introduced to and investigate the concept of odd and even numbers.

Cross Curricula Links:

Physical Education
Music
Dyslexia Awareness Week

2014 National Curriculum:

Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers.

Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs.

Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot.

Key words:

Multiplication, off, even, array, multiple

Day	Learning Objective	Success Criteria	Starter	Main	Plenary	Resources
1	To use arrays to explore multiplication by 2 and by 5.	I can draw an array to show repeated addition. I can match a repeated addition calculation with its multiplication partner. I can build my two and 5 times tables using arrays.	**0 – 10 minutes (VAK)** Write a selection of addition calculations on the board. E.g 13 + 29 Ask the children to solve the problems. Explain to them that they can use any method they choose in order to solve the problems:-	**10 – 20 minutes** Pick three different methods used to solve the calculations from the starter activity and highlight to the children how everyone learns differently:- - Some people prefer to learn by seeing. Visual learners (V) may like to jot things down or doodle, they might like to use charts and diagrams. - Some people prefer to learn by listening. Auditory learners (A) may like to use songs to help them remember facts and may enjoy learning by talking to other people. - Some people prefer to learn by doing. Kinaesthetic learners (K) may like to use objects or movement to help them learn. Ask the children to think about the way they tackled the starter activity. What type of learner do they think they are? Children should record their choice. Explain to the children that throughout the week they will be given the opportunity to learn in different ways and by the end of the week they will be asked to reflect on their	**50 – 60 minutes (A)** On the board write the 2 and 5 times tables, drawing matching arrays for the first three facts. As a class chant the tables. In pairs chant the tables to each other. Ask the children to think about the learning styles used today.	4 pairs of socks Reference Sheet 1

			-Write notes. -Discuss with others. -Use base ten blocks. Reveal the answers and discuss the different methods which students used.	preferred learning style. **20- 30 minutes (V)** Show the children the pile of socks. What would be the easiest way to count them? Draw out that it would be easier to count them in pairs.  Pin the socks to the board in pairs to form an array. 4 rows of 2. Next to each row write 1 row of 2 = 2; 2 rows of 2 = 4 What mathematical sign could we replace the words rows of with? The multiplication sign. Explain that X means groups of or lots of. We could also write this as a repeated addition 2+2+2+2 = 8 Explain to the children that this diagram is called an array and we can use it to see and understand multiplication Give the repeated additions (Reference Sheet 1) and direct the children to draw an array for each one. The children should then replace the repeated addition with a multiplication calculation.	Which activity did the children find easier to understand and learn from? Ask the children to make a record.	
2	To investigate multiplication and show it is commutative.	I can begin to recall my 2 and 5 times tables. I can show that multiplication is commutative.	**0 – 10 minutes (K)** Times table loop cards (Reference Sheet 2).	**10 – 50 minutes (K)** Ask the children to look back at the arrays they created yesterday. Do any of the arrays look the same? Create the array 2 x 5 = 10 and 5 x 2 = 10 with base ten blocks. Demonstrate to the children that if we simply turn the arrays they look the same. The multiplications have the same answer Now create the array 4 x 2 = 8. Turn the array through 90 degrees. Draw this array on the board and write the new calculation for the array 2 x 4 = 8 Discuss with the children how, when the multiplied numbers have been swapped around they produce the same array and total. Do they think this will be the case with all multiplication? Let's investigate! Children should use base ten block to find matching pairs of arrays for the 2 and 5 times table.	**50 – 60 minutes (A)** Discuss with the children the results of the investigation. Explain to the children that the rule they have just proved is called the commutative rule of multiplication. In multiplication, when we swap the numbers around they still give the same answers and we can say that multiplication is **commutative**. Ask the children to think about the learning styles used today and log their thoughts.	Base ten blocks Reference Sheet 2

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3	To practise the 2 and 5 times tables.	I can recall my 2 times table. I can recall my 5 times table. I understand what a multiple is. I can recognise common multiples of 2 and 5.	**0 – 10 minutes (A K)** Ask the children to stand up. Call out the 2 x table. Miss out one of the numbers on purpose. When the children think that a number has been missed out they should sit down as quickly as possible. The last person standing is out. Repeat with 5's .	**10 – 20 minutes (A)** Introduce the children to the EducationCity 2 and 5 times table songs. As a class watch the songs with the children joining in. **20 – 50 minutes** Split the class into groups of 5. Children should work in groups to complete task 1 throughout the session and individual groups should be pulled out, in turn, to complete task 2. **Task 1 (A):-** In their groups children should write their own tables songs for the 2 and 5 times table. Practise performing the songs. **Task 2 multiplication corners game (K):-** Cut out the sorting cards game cards and follow the instructions on Reference Sheet 2.	**50 – 60 minutes** Explain to the children that the total of each array, the answer to the multiplication calculation, is called a multiple e.g. 1 x 2 = 2 2 x 2 = 4 3 x 2 = 6 2, 4, 6 are all **multiples** of the number 2. Ask the children if they noticed any similarities between the multiples of the two times tables. The numbers 10 and 20 are in both the 2 and 5 times table and are called **common multiples**. Which task did the children feel helped them remember their tables? What was the learning style it was aimed at? Children should make a record.	This session should take place in an outside area or hall. A selection of instruments. Reference Sheet 3 Stopwatch
4	To be able to recognise odd and even numbers.	I understand the difference between odd and even numbers. I can investigate and find odd and even numbers to 20. I can identify odd and even numbers.	**0 – 10 minutes (A)** Choose two groups to perform their times tables songs from yesterday and practise as a class.	**10 – 45 minutes** Is the number 8 in the 2 times table? Ask the children to make a two row array with 8 cubes. Explain drawing the array on the board that : - 8 is an even number. - even numbers can be made into two row arrays. - even numbers can be split or divided into two.	**45 – 60 minutes** Discuss with the children their observations about odd and even numbers. - Every other number is odd, starting with the number 1.	Base 10 blocks

				Is the number 9 odd or even? Demonstrate again using a visual representation of a two column array. Show that there is 1 block left over and that the number 9 is an odd number. Demonstrate how the array looks odd with the extra block.  Using 2 column arrays ask the children to find all the odd and even numbers up to 20. Children should choose to either simply draw the arrays (V) or use blocks to create the arrays (K).	- Odd numbers above 10 end with the digits 1, 3, 5, 7, 9. Ask the children to stand up. Call out random numbers. If the number is odd the children should sit down. Did they use diagrams of arrays (v) or the blocks (K) to investigate odd and even numbers? Which was their preferred learning style? Make a record.	
5	To be able to multiply by 10.	I can create arrays for 10 times table facts. I can recognise patterns in the 10 times table. I can apply the commutative law to find matching multiplication pairs for the 10 times table. I can begin to recall my 10 times table.	**0 – 15 minutes** As a class, play the Maths Activity Crazy Golf.	**15 – 45 minutes (V)** Using different colour crayons, direct the children to create arrays for the 10 times table, writing out the 10 times table up to 12 x 10. Discuss with the children any patterns they notice in the numbers of the 10 times table:- that each answer or multiple of ten ends in zero and the first digit is the number that they wish to multiply by. Ask the children to apply the commutative law and find the matching multiplication pairs for the 10 times table. More able children could be extended by multiplying larger numbers by 10.	**45 – 60 minutes (A)** As a class watch and sing along with the EducationCity 10 times table song and answer the questions on the activity. Review the learning styles used today and discuss the activities and learning styles from the week's lessons. Each child should reflect individually on their learning journey and decide which learning style they preferred. Is this different to their original choice on day 1? Create a tally chart of learning styles to see which style was the most popular.	

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Next Steps

Using applying:- Children solve practical real life problems using their knowledge of the 2,5 and 10 times tables.
Division:- Introduce division using arrays and explore division as the inverse of multiplication.

National Curriculum 2014 links: 004 Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts.