

Big Ideas in Number Resource Information

Big Ideas in Number Focus Area: **Multiplicative Thinking**

Name of Game or Activity: Confidence with number

Instructions:

This can be done in a circle or a class group (sitting together on the floor), or to add difficulty, in students' seats.

Each student "numbers off" sequentially from 1- however many there are in the class.

If you are working in groups of 4 and there are not enough students to make complete groups of four, use as many as you need and give them 2 numbers each, so that there are complete groups.

Decide on a slow and steady beat to start with, and once all students are tapping this, have them number off in time with the beat – ie call out in turn "one, two, three, four" etc.

Once you have got around the class, you go through again, only this time, all the numbers except multiples of four have to keep silent, and just keep the beat (so what you will hear is multiples of four being called out) .

The idea is to get through the class with all the multiples called out accurately, in time. Then you can either increase the speed, or get the students to renumber themselves and "mix it up".

(if you want to increase the fun factor, perhaps you can add balloons!)

BliN Micro Content

Cyclical pattern of 100-10-1 is repeated from ones to thousands	
Cyclical pattern of 100-10-1 is repeated beyond 100s to millions	
Ten times multiplicative relationship exists between places	
The multiplicative relationship extends to numbers less than one, that is to the right of the decimal point	
There is symmetry in the place value number system based around the ones place so that the patter in naming wholes is reflected in naming decimals	
Double count by representing one group (e.g. hold up 4 fingers) and counting repetitions of that group, simultaneously keeping track of the number of groups and the number in each group	
The multiplicative relationship between quantities is expressed as 'times as many' and 'how many times larger or smaller' a number is than another number	
Numbers move a place each time they are multiplied or divided by 10	
Basic number facts to 10x10 are recalled and patterns in number facts are investigated	
Number facts can be extended by powers of 10	

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Multiplicative situations can be represented as equal-groups problems, comparison problems, combinations (Cartesian) problems and area/array problems	
The multiplicative situation is understood (factor X factor = multiple) with the meanings of the terms clearly understood.	
Multiplication arrays are used to visualise and represent multiplication situations	
Division and multiplication are known as the inverse of one another	
The commutative property of multiplication is understood and can be shown to be linked to arrays	
Partition division involves finding the size of each group and quotient division involves finding the number of groups and can be also expressed in terms of factors and multiple	
Quotient division can be considered in terms of fractions so that a quantity can be split by 'halving', 'thirding', 'fifthing' etc.	
Prime and composite numbers can be linked to multiplicative arrays – prime numbers can be made only with a single row array	
Distributive property of multiplication over addition is applied and shown by a multiplicative array	
Multiplicative arrays are linked to the concepts of area and volume	
Measurement units have the same multiplicative relationship as the Base 10 system	
Cartesian products can be represented symbolically and in tree diagrams	