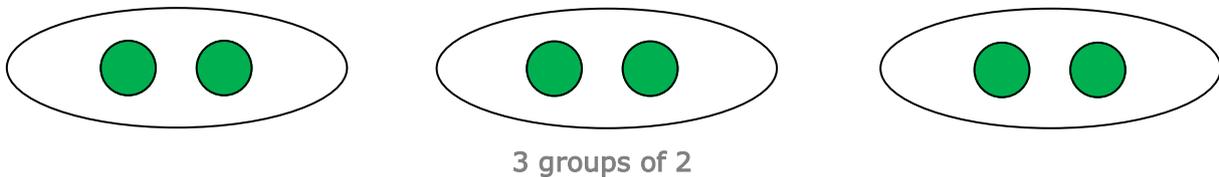


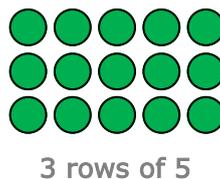
# INTRODUCING MULTIPLICATION

This is part of a series on the teaching of Early Years Mathematics. Previous articles have included various mental addition and subtraction strategies, along with the introduction of sharing / division. In Grade Two, students are introduced to the concept of multiplication. There are three ways that multiplication is generally presented to students at this level: 'groups', 'arrays' and 'repeated addition'. When multiplication is first introduced, it is usually referred to as 'groups of' or 'rows of', rather than 'multiplied by'.

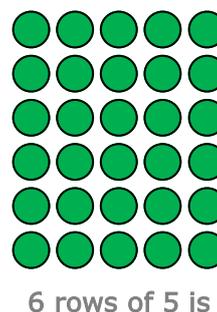
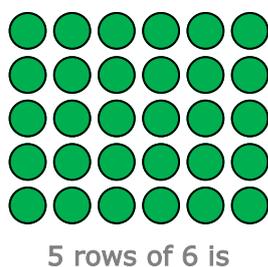
When multiplication is first taught using 'groups', students learn to '[visualise] a group of objects as a unit and [use] this to calculate the number of objects in several identical groups'. (Victoria Curriculum and Assessment Authority) An example of this may be three groups of two. Students use concrete materials, pictures or drawings, to represent three groups with two objects in each. They are taught that instead of having to count every item in each group, they can skip count by two, three times (2, 4, 6) to find the total: three groups of two is six.



Another way that multiplication can be presented to students is by using 'arrays'. An array can be defined as '[i]tems (such as objects, numbers, etc.) arranged in rows and columns.' (MathsIsFun, 2014) Therefore three rows of five would be shown as three rows with five objects in each row. Similar to 'groups', students can use the rows of dots to skip count and find the answer. In the example below, they can count by five, three times (5, 10, 15) in order to find the answer: three rows of five is fifteen.



Another advantage with using arrays is the opportunity to introduce students to the Commutative Law of multiplication. This says that 'you can swap numbers around and still get the same answer when you . . . multiply.' (MathsIsFun, 2014) This means that 'three rows of five' is the same as 'five rows of three'. Understanding this concept decreases that amount of number facts that students need to learn. For example, students may not be able to work out five rows of six, however, may be able to calculate six columns of five by skip counting by fives, six times.



# INTRODUCING MULTIPLICATION

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According to the Merriam Webster Dictionary, a simple definition for the term multiplication (as applied to mathematics) is 'the process of adding a number to itself a certain number of times.' As such, it makes sense that repeated addition is utilised with both 'groups' and 'arrays', to help solve simple multiplication problems. The problem '4 groups of 5' could be thought of and written as  $5+5+5+5=$ . As students are already familiar with addition, this format makes it easier for them to understand and to calculate the answer to this problem. Likewise, '3 rows of 2' could be written as  $2+2+2=$ . In both cases, students can utilise their knowledge of skip counting to help them calculate the answers.

4 groups of 5  
is the same as  
 $5 + 5 + 5 + 5$

In Grade Two, students use concrete materials, pictures and drawings, to represent and solve various problems through the use of 'groups', 'arrays' and 'repeated addition'. This introduces students to multiplication and helps them to gain an understanding of concepts such as 'visualising a group of objects as a unit' (Victoria Curriculum and Assessment Authority) and the Commutative Law of multiplication. This happens prior to them beginning to formally learn their 'Times Tables', which occurs at a Grade Three level.

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