



Multiplication-Repeat Addition

2.2.6

Word Wall: make to ten, repeating pattern, combine, multiply, groups of, array, calculate, how many, count, increase

Introduction

Students will represent multiplicative situations as repeated addition and explain reasoning.

Resources

- Early Years FISH
- *One is a snail ten is a crab* by April Pulley Sayre and Jeff Sayre. 2006. Candlewick Press: Somerville.
- Repeated addition -- how many legs? Cards
- Cuisenaire Rods
- Multiplication -- repeated addition apple trees

Time / Classroom Organisation

The story *One is a snail Ten is a crab* may be read as a whole class activity. The animals legs activity may be introduced to a small group as a 20 – 30 minute focused teaching and learning event. Use the animals legs cards regularly to represent multiplication as repeated addition.

Australian Curriculum---Year level: Two

Recognise and represent multiplication as repeated addition, groups and arrays ([ACMNA031](#))

Proficiency Strand:

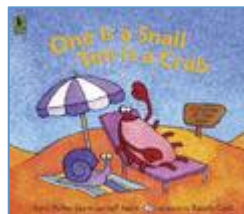
Understanding – connecting number calculations with counting sequences

Reasoning – using known facts to derive strategies for unfamiliar calculations

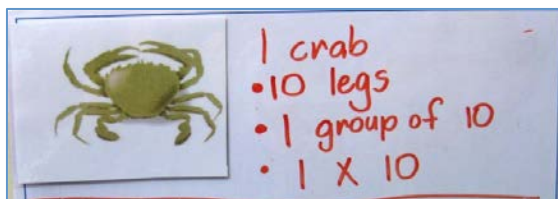


Activity Process--- One is a Snail

1. Read the book *One is a snail, Ten is a crab*.



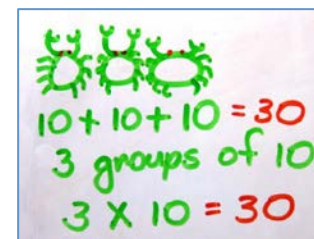
2. Place a crab picture in front of the group. *How many crabs can you see? How many legs can you see?* Establish that each crab has 10 legs. Write 1group of 10 next to the crab. *We can write this another way: 1x10.*



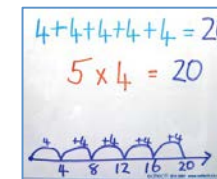
3. Place another crab next to the first one. *How many crabs do you see now? To find out how many legs, we write the number story 10 + 10. Another way of saying this is 2 groups of 10 or 2x10.* Skip count to determine how many legs.



4. Add another crab. Ask students to draw the three crabs on their own whiteboard each with 10 legs. Ask students to write the number story for how many legs altogether: $10+10+10$. *Another way of saying this is 3 groups of 10 or 3×10 .* Skip count to determine how many legs altogether. Write the answer next to the addition and the multiplication number stories.



5. Continue this process up to $10 \times 10 = 100$ crabs.
6. Repeat the process with repeated addition for 2 legs; 4 legs; 8 legs.
7. Place a collection of animal cards in front of the students. Ask each student to select cards to represent a repeated addition story, for example: *show me a story about five groups of four.*
8. As the student selects the cards, ask all the students to represent the number story – addition and multiplication – on their own whiteboard. Use skip counting on a number line to find the answer.



Catholic Education
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Variations & Extensions

1. Cuisenaire Rods

Resources: [Cuisenaire Rods](#)

Repeat the above activity process using cuisenaire rods, for example: $2+2+2+2$ is the same as 4 groups of 2. This can also be represented as 4×2 . Students use whiteboards to represent the addition and multiplication number stories..



Source: E deVries 2008.

2. Rate problems

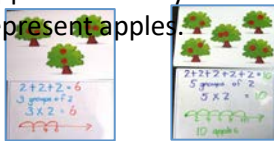
Present rate problems such as: *One ant has six legs, how many legs do three ants have? If each child has half a slice of bread each, how many slices are needed for four people?*

Source: *First steps in Mathematics – Number – Understand Operations*, 2010. Rigby: Port Melbourne. p 30

3. How many apples?

Resources: Multiplication --- repeated addition apple trees and counters, whiteboard for each student.

In groups, students are given a place mat with three, four or five apple trees. They are also given counters to represent apples.



The first student rolls a die and all the students place that number of apples (counters) on each tree. Each student is asked to describe their apple tree using an addition and a multiplication number story. Students record their findings.

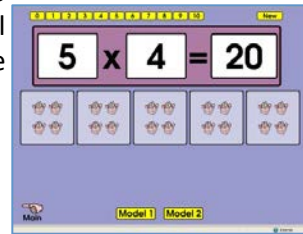
Source: <http://k6.boardofstudies.nsw.edu.au/files/maths>

Digital Resources

<http://www.ideal-resources.com.au/index.php>

Multiplying Monkeys shows the pictorial representation of the repeated addition.

Model 2 also shows the commutative property, for example 5×4 has the same value as 4×5



Contexts for Learning

Play:

Groups and Number cards – in groups of three or four, students sit in a circle. Multiple copies of the numeral cards 0---5 are placed in one pile, face down. The first student turns over a number card and all players take that number of counters from a pile. The first student skip counts the total number of counters all players have for that turn. Other players say if they agree with that total number and record their answers. Play continues until all players have had a turn.

Investigation:

Spotty Henry: Present the following story: *Henry is a spotted octopus with 8 legs. He has 2 spots on each leg. How many spots does Henry have?* Materials are provided for students to work out a way to solve and record the problem. Share strategies and representations with the group.

Source: http://k6.boardofstudies.nsw.edu.au/files/maths/maths_k6_ws.pdf

Real life experience:

When forming groups for activities, ask students to form groups of that number. Skip count to determine the total number of students.

Routines and Transitions:

Use the *Animal legs* activity as a transition, for example: *Find me 3×4 ; or $4+4+4$.*

Assessment

Observe students as they play the *How Many Apples?* game. Record students' explanations and reasoning. Are students able to describe and represent the additive ($2+2+2$) as well as the multiplicative (3 groups or 2 or 3×2) representations?

Achievement Standard: represent multiplication and division by grouping into sets

Background Reading

Students are usually introduced to multiplication as 'repeated addition'. This requires a big shift in thinking from addition or subtraction. To interpret $5+2$, students can show five blocks and two blocks and then think about what the + means. However, for 5×2 , the 5 and the 2 do not each refer to a number of blocks. One refers to a number of blocks, but the other refers to a number of sets of blocks.The notion that 5×2 refers to five groups of two requires careful development.

Source: *First steps in Mathematics – Number – Understand Operations*, 2010. Rigby: Port Melbourne. p 28.

Year three NAPLAN --- Numeracy test links

Repeated Addition

Links to related MAGs 2.1.1 – Number sequences – 1
2.3.2 – Number sequences – 2 2.3.5 – Multiplication – arrays
2.4.1 – Division --- halving



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