



Division - Halving

2.4.1

Word Wall: double, doubling, half, halving, 'end point', doubling, counting on, bridging

Introduction

Students will see the relationship between doubling and halving and learn the effectiveness of being able to halve numbers.

Resources

- Mini Whiteboards
- Whiteboard Pens
- Coloured Counters
- Dice
- Double and Half Game Board
- Doubles and Halves Bingo Cards
- Early Years FISH

Time / Classroom Organisation

Each activity process may be introduced in a small or whole group context. Allow 15---20 minutes for each part of this activity. Use every opportunity that arises to practice halving.

Australian Curriculum Year Two

Recognise, model, represent and order numbers to at least 1000 (ACMNA027)

Proficiency Strand:

Understanding – Identifying and describing the relationship between addition and subtraction and multiplication and division.

Understanding --- Connecting number calculations with counting sequences.

Reasoning – using known facts to derive strategies for unfamiliar calculations.

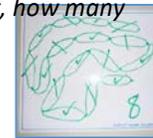
Reasoning--- Comparing and contrasting related models of operations.

Activity Process---Halving Stories

1. Explain to students that when we talk about halving – we are talking about putting a group of items into two groups.
2. Provide each student with a mini whiteboard and pen. Give students a halving story for them to answer. If students need they can draw a picture to help them answer the question. Possible Questions include:

If Tim had 20 m&m's and he ate half, how many m&m's would he have left?

If a butcher had 16 sausages and he sold half, how many sausages would he have left?



2. Now ask the students to write a halving story problem. Ask them to share their problem with a friend and have their friend solve it.
3. Discuss the outcome with students: if an uneven number was being halved. Discuss halving a unit of one and explain that we write half of a unit as .5.



Activity Process – Double/Half Board Game

1. This is a simple board game which requires students to double or halve a number.



2. Students roll the dice. Students move the required spaces on the game board. They then must complete the halving or doubling questions where they land. If they get the answer correct they stay where they are. If they get it wrong they go back 2 spaces.
3. The winner is the student that reaches then end point of the game board first.
4. If needed students can use a calculator to check the answers. Students will need to be shown that double is the same as $\times 2$ and half is the same as $\div 2$.



Activity Process – Doubles/Halves Bingo

1. In a small group give each student a bingo card.
2. The caller – calls out a doubles or half fact for the students to solve. If the students have the answers to the question on their game board they cover it with a counter.

2	4	8	3	10
18	5	9	6	1

3. The student who covers all the numbers on their game board first is the winner.

Variations & Extensions

1. Find your Double/Half

Resources: Blank cards, pens

Write some 1, 2 or 3 digit numbers on some cards. These will correspond to each other so that they are a double and a half (some numbers may overlap). Lay the cards out in the middle of a circle and each



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student has a turn to match pairs of cards to find the doubles / halves. This is differentiated and involves movement and quick thinking skills. Children can write the numbers as well. Once students are comfortable with the concept they can play concentration with the cards.

2. Double/Halving Loop Game

Resources: Downloadable at:
http://www.sparklebox.co.uk/md/addsub/_doubles.html

Print and laminate cards. Hand one card to each student. The students with the card that says 'go' starts the game by reading the question on their card. The student who cards bears the answers reads then answer and then the question on their card. The game continues around in a loop until all the cards have been read out.



Digital Resources

<http://www.year2maths.co.uk/counting/counting.htm>



<http://www.wmnet.org.uk/files/addsubtractv2.swf>



Contexts for Learning

Play:

Play shoot out/bang with halving. Two students stand out the front of the classroom. The teacher calls out a number to be halved and the first student to answer is the winner. Continue until all students in the class have had a go.

Investigation: <http://www.iboard.co.uk/activity/A-Handful-of-Coins-636>

Use the below game for students to work out the price of food items by halving the purchase Price.

Real life experience:

When opportunity arises to divide the class into two groups – use the language of half – and discuss strategies of how this can be done effectively.

Routines and Transitions:

As students transition hold up a 1 – 120 card and ask students to halve it.

Assessment

Provide students with a collection of objects. Ask students to count the collection and then divide the collection in half. Repeat for several numbers.

If students demonstrate an understanding of the concept through the use of materials, then ask them halving questions for them to solve through the use of mental computation.

For example:

What is half of 10, 20, 100, 50, 64?

Achievement Standard: Represent multiplication and division by grouping into sets.

Background Reading

The most effective way for students to learn the basic facts is to arrange the facts into clusters (Fuson 2003; Thornton, 1990). For example, the idea of using a double, or numbers close to a double, forms the basis of the strategy in the “use doubles” addition cluster. The other addition clusters involve “counting on” and “bridging to ten”. Between these three clusters, students can master all 100 basic addition facts. “Using addition” is the most effective thinking strategy for helping students to learn the basic subtraction facts. The idea of using a known multiplication fact involving ten, forms the basis of the strategy in the “use tens” multiplication cluster for the fives facts. The other multiplication clusters involve “doubling” for the twos, fours, and eights facts; “using a rule” to multiply by one or zero; and “building up or down” from a known fact for the sixes and nines facts. The majority of the remaining facts are covered by the turnarounds of the above. Just as subtraction is the inverse operation of addition, division is the inverse operation of multiplication. Because of this relationship between the two operations, “using multiplication” is the most effective thinking strategy for helping students to learn the basic division facts. Source: Calvin Irons, 2011. *The Expert Series*. Origo.

Year three NAPLAN Numeracy test links

Multiplication and division – number problems
 Multiplication and division – word problems

Links to Related MAGs

- 2.2.6 --- Multiplication – repeated addition
- 2.3.5 – Multiplication – arrays
- 2.3.6 – Fractions --- Collections
- 2.4.5 – Multiplication – Solving Problems
- 2.4.6 – Division
- 3.3.4 – Solving Problems – Multiplication and Division



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