## MATHEMATICS STAGE 1

**TEACHING AND LEARNING OVERVIEW**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| TERM:  | WEEK: 10 | STRAND:  Number and Algebra | SUB-STRAND: Fractions and Decimals | WORKING MATHEMATICALLY: MA –1WM, MA1 – 3WM. |
| OUTCOMES: MA1-7NA | **Represents and models halves, quarters and eighths.** |
| **CONTENT:**  | **Recognise and interpret common uses of halves, quarters and eighths of shapes and collections (ACMNA033)*** Recognise when objects and shapes have been shared into halves, quarters or eighths.
* Record equal parts of whole objects & shapes, & the relationship of the parts to the whole using picture &the fraction notation for half, quarters & eighths.
* Use fraction language in a variety of everyday contexts, eg the half hour, one – quarter of the class.
 |
| ASSESSMENT FOR LEARNING(PRE-ASSESSMENT) | * Dsicuss metalanguage from previous week.
* Students fold a Brenex square in half to form a rectangle and again to form quarter squares. They fold another Brenex square diagonally to make triangular quarters.
* Ask: What is the same about these two squares? (Can be folded into equal quarters)
* How do we know something has been divided into quarters?
 |
| WARM UP / DRILL | * Skip count by 2, 5 and 10.
* Doubling – Using a tub of plastic animal, sort into rows where each successive row has double the amount of the previous row. Ask questions of students, how many in this row? How many more will you need in the next row? How many will the next row contain?
 |
| TENS ACTIVITYNEWMAN’S PROBLEMINVESTIGATION  | * Pose students with a problem. If we wanted to share 3 pikelets between 2 people, how could we do it? How many pikelets would each person receive? Students draw and explain their responses. (Alternatively, alter the number of people and pikelets in the initial question (eg 5 people / 4 pikelets) Students discuss their results and mathematical thinking in solving problem.
 |
| QUALITY TEACHING ELEMENTS | **INTELLECTUAL QUALITY** | **QUALITY LEARNING ENVIRONMENT** | **SIGNIFICANCE** |
| * Deep knowledge
* Deep understanding
* Problematic knowledge
* Higher-order thinking
* Metalanguage
* Substantive communication
 | * Explicit quality criteria
* Engagement
* High expectations
* Social support
* Students’ self-regulation
* Student direction
 | * Background knowledge
* Cultural knowledge
* Knowledge integration
* Inclusivity
* Connectedness
* Narrative
 |
| RESOURCES | Tub of plastic animals, Brenex paper, coloured stripes of paper, scissors, glue, worksheets, rulers, lego, prepared stencil, bar ofchocolate, cakes and fruit |

|  |  |
| --- | --- |
| WHOLE CLASS INSTRUCTION / MODELLED ACTIVITIES | GUIDED & INDEPENDENT ACTIVITIES |
| * **Where there is an explicit division of a whole into equal parts, children are able to determine the fraction of the part/parts indicated by counting the number of parts in the whole.**

*Based on research by Grace Lopez-Charles – Assessment of Children’s Understanding of Rational Numbers –PhD Thesis.** **Metalanguage**

Circle, equal parts, half, halves, hexagon, out of, quarter, square, strategies, whole.Lesson 1 Children given opportunities to find halves, quarters and eighths of whole objects, collections of objects and regular shapes. Children are encouraged to describe what they do and what they find ensuring that all parts of a group make a whole.* **Lesson 2**

Students focus on reconstructing a circle from a single piece of the circle.* **Explicitly teach how to move template to form a circle.**
* [**www.resources.woodlands-junior.kent.sch.uk/maths**](http://www.resources.woodlands-junior.kent.sch.uk/maths)
* [**www.rainforestmaths.com**](http://www.rainforestmaths.com)

 | LEARNING SEQUENCEES1 | * Students fold paper shapes (rectangles, squares, circles ) in half and justify why the two parts are equal.
* Students fold paper strips into half and discuss what half of the strip is.
 |
| LEARNING SEQUENCES1 | Lesson 1* Provide students with a Brenex square. Students fold it diagonally to make quarters and then cut along the folded lines.
* Children are to draw a design on ‘one out of the four pieces’ and then draw pictures on ‘two more of the four pieces’. How many quarters are left?
* Children ‘take two of the four quarters’, make a new shape and paste onto card. The shape is cut out.
* Repeat with the other two quarters to form a different shape. Students are to paste the two new shapes onto a square card to make a placemat. Children write a statement on the back.
* Students fold another Brenex square into four square quarters.
* Students decorate three of the quarters.
* Students repeat the above to make another placemat.

 Lesson 2**Demonstration*** Teacher cuts fruit, chocolate, cupcake into half. One half is held up; this is one piece out of two. The notation is written Teacher as ½.
* The above is repeated using ¼’s and 1/8’s
* Students are shown half of a regular shape and are then asked to find, draw describe the other half.
* Making a cake out of paper.
* Children are given one half of a cake template; they are to draw around the piece and move the piece to form a whole cake, likewise they are given a quarter and an eighth of the cake to draw around to form a whole cake.

Investigation* I have 6 pikelets and I want to put jam on half of them. How could I make a model this using coloured paper? Are these pieces the same if displayed vertically, horizontally and diagonally.
* Show a rectangle piece of paper, fold and cut it in half. State that it is a chocolate bar that will be shared between two people.

Assessment* Ask students to find something in the room that is made up of equal parts; a wall divided by four windows; the whiteboard divided into three equal parts.
* Ask: Is something different about one or more of the parts? (eg. one window out of the four is open; two parts of the whiteboard has writing.)
* Students draw and record why the parts are different.
 |
| LEARNING SEQUENCEEarly S2 | * Creating circles from quarter pieces. Students are seated in a circle. A pile of quarter circles are place in the centre of the circle. What are these?
* Can we use these shapes to make circles? How many circles do you think we can make? The children have to estimate the number of circles. Children record their estimates. Students are asked how they came by their estimates. The quarters are counted and removed. The total is given to the studenteg.20 quarters. The students are asked to work out how many whole circles could be made from the 20 quarter pieces. Students are to record their answers in diagrams and number each quarter.
 |
| **EVALUATION & REFLECTION** | * Ask: If two more people came along, how could the halves be cut so that each person got an equal share? Students explain their suggestions.
* Ask: How could I share if four more people came along? Is everyone going to get a bigger or smaller piece than before?
* Ask: if I cut these pieces in half again, how many people altogether could get an equal share?

**Student Engagement: Resources:****Achievement of Outcomes: Follow-up:** |

* All assessment tasks should be written in **red** and planning should be based around developing the skills to complete that task.
* Assessment rubrics or marking scale should be considered.