**MATHEMATICS STAGE 1**

**TEACHING AND LEARNING OVERVIEW**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| TERM: | WEEK: 9 | STRAND:Number and Algebra | **SUB-STRAND:**  Fractions and Decimals | **WORKING MATHEMATICALLY:**  MA1-1WM, MA1-3WM |
| OUTCOMES: MA1-7NA | | **Represents and models halves, quarters and eighths.**   * record equal parts of whole objects and shapes, and the relationship of the parts to the whole, using pictures and the fraction notation for half http://syllabus.bos.nsw.edu.au/js/_libs/mathjax/fonts/HTML-CSS/TeX/png/Size2/Regular/120/0028.pnghttp://syllabus.bos.nsw.edu.au/js/_libs/mathjax/fonts/HTML-CSS/TeX/png/Main/Regular/085/0031.pnghttp://syllabus.bos.nsw.edu.au/js/_libs/mathjax/fonts/HTML-CSS/TeX/png/Main/Regular/085/0032.pnghttp://syllabus.bos.nsw.edu.au/js/_libs/mathjax/fonts/HTML-CSS/TeX/png/Size2/Regular/120/0029.png, quarter http://syllabus.bos.nsw.edu.au/js/_libs/mathjax/fonts/HTML-CSS/TeX/png/Size2/Regular/120/0028.pnghttp://syllabus.bos.nsw.edu.au/js/_libs/mathjax/fonts/HTML-CSS/TeX/png/Main/Regular/085/0031.pnghttp://syllabus.bos.nsw.edu.au/js/_libs/mathjax/fonts/HTML-CSS/TeX/png/Main/Regular/085/0034.pnghttp://syllabus.bos.nsw.edu.au/js/_libs/mathjax/fonts/HTML-CSS/TeX/png/Size2/Regular/120/0029.pngand eighth * record equal parts of whole objects and shapes, and the relationship of the parts to the whole, using pictures and the fraction notation for half http://syllabus.bos.nsw.edu.au/js/_libs/mathjax/fonts/HTML-CSS/TeX/png/Size2/Regular/120/0028.pnghttp://syllabus.bos.nsw.edu.au/js/_libs/mathjax/fonts/HTML-CSS/TeX/png/Main/Regular/085/0031.pnghttp://syllabus.bos.nsw.edu.au/js/_libs/mathjax/fonts/HTML-CSS/TeX/png/Main/Regular/085/0032.pnghttp://syllabus.bos.nsw.edu.au/js/_libs/mathjax/fonts/HTML-CSS/TeX/png/Size2/Regular/120/0029.png, quarter http://syllabus.bos.nsw.edu.au/js/_libs/mathjax/fonts/HTML-CSS/TeX/png/Size2/Regular/120/0028.pnghttp://syllabus.bos.nsw.edu.au/js/_libs/mathjax/fonts/HTML-CSS/TeX/png/Main/Regular/085/0031.pnghttp://syllabus.bos.nsw.edu.au/js/_libs/mathjax/fonts/HTML-CSS/TeX/png/Main/Regular/085/0034.pnghttp://syllabus.bos.nsw.edu.au/js/_libs/mathjax/fonts/HTML-CSS/TeX/png/Size2/Regular/120/0029.pngand eighth | | |
| **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 and shapes, and the relationship of the parts to the whole, using pictures and the fraction for half, quarter and eighths.  \* Visualise fractions that are equal parts of a whole. Eg imagine where you would cut a rectangle before cutting it.  Record equal parts of whole objects & shapes & the relationship of the parts to the whole, using pictures & the fraction for ½, ¼ 1/8. | | |
| ASSESSMENT FOR LEARNING (PRE-ASSESSMENT) | | * Children are given a sheet of Brenex paper to model a half and a quarter. | | |
| WARM UP / DRILL | | * Using geoboards the children construction shapes eg. Squares, circles, rectangles, triangles, hexagons. * Counting by 2’s, 5’s and 10’s. | | |
| TENS ACTIVITYNEWMAN’S PROBLEMINVESTIGATION | | Children are given a problem; how would they share one of the pikelet between 2 people?How would they share the pikelet between 4 people? | | |
| 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 | | Geoboards, large teaching clock, individual clock faces, Brenex paper, Unifix blocks, Lego, licorice straps, | | |

|  |  |  |
| --- | --- | --- |
| CLASS INSTRUCTION / MODELLED ACTIVITIES | GUIDED & INDEPENDENT ACTIVITIES | |
| Students learn to:Develop an understanding of equivalence. The strategy is based upon halves as children understand this concept. By using this method, the children start splitting given objects into halves, halving again (quarters), halving again (eighths).Lesson 1 (Demonstration) Teacher cuts a piece of fruit into two pieces. The students are to match the halves to recreate the original shape. The children describe why the pieces are alike.   * Fractions refer to the relationship of the equal parts of a whole unit. * Children visualise dividing objects into halves, quarters and eighths.  Lesson 2Students are to explore dividing wholes into equal parts and are introduced to sharing diagrams. This activity aims to promote part-whole conceptual understanding and to assist students perform simple fractions mental computations through visualisation of a whole divided into equal parts.  * **Metalanguage**   About a half, equal parts, estimate, half, halves, less than a half, more than a half, quarter, eighths, whole.     * **Computer Games**   **http://resources. Woodlands-**  **junior.kent.sch.uk/maths/fractions/**  **maths-games.org/fraction-games.html**  [**http://www.abcya.com/fractions**](http://www.abcya.com/fractions)     * [www.smartkiddies.com.au](http://www.smartkiddies.com.au) * **iPad app**- Choosing the correct fraction of a pizza.   ‘Pizza 1’. (free app) | LEARNING SEQUENCE Remediation  ES1 | * Students given a clock with moveable hands. * Students move minute hand around the whole clock face to show one whole hour. * Students show on their clock face how far they would move the minute hand to show half way around the clock face. * Students discuss what they have discovered and what it is called ‘half past’. |
| LEARNING SEQUENCES1 | Explicit Teaching  * Provide children with a streamer. * Have students cut a piece of streamer they estimate to be ‘about one half’ the length of their desks. * Students use a new streamer to measure the whole length of their desk. Students find half of the desk and compare with their estimation. Was their estimation more than half or les   **Lesson One**   * Provide students with a Brenex square and have them fold it in half. * Ask: If we fold the paper in half again, how many equal parts will we have? Have children explain their responses. Ask them to check. Explain that the four equal sections are quarters? * Fold an A4 paper to make quarters. Ask: What are these equal parts called? * Compare with the quarters of the Brenex square .Ask: Why are these quarters bigger? Establish that the size of quarters depends on the size of the whole.    Lesson 2Organise students into pairs.  * Explain that each pair will have one licorice strap. Challenge students to think of a way of sharing the strap equally between the two students. Provide a range of materials, such as strips of paper, Unifix blocks, lego, etc. Have pairs to explain their strategy. * Children then have to work out how to divide the strap between four and eight using concrete materials provided.  Investigation  * Children are given a variety of shapes they have to hypothesis whether they think it is possible to divide the shapes equally. These hypotheses are recorded and   tested.  Assessment   * Model and describe a half, quarter and eighth of a whole object by folding a square, rectangle and a circle s than half? * Have students use Attribute blocks to trace and cut different shapes. * Discuss new shapes that can be made from fractional parts. Have students explore different possibilities before pasting onto page.   . |
| LEARNING SEQUENCEExtensionEarly S2 | * Children are to draw 3 circles. What would happen if we shared these pikelets among 4 people? Children draw their answers. |
| **EVALUATION & REFLECTION** | **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.