**MATHEMATICS STAGE 1**

**TEACHING AND LEARNING OVERVIEW**

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| TERM:  | WEEK: 12 | STRAND: NUMBER & ALGEBRA | **SUB-STRAND:** FRACTIONS AND DECIMALS 2 | **WORKING MATHEMATICALLY:** MA1-1WM; 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)*** Use fraction language in a variety of everyday contexts, e.g. the half-hour, one-quarter of the class**.**
* Recognise when a collection has been shared into halves, quarters, or eighths.
* Record equal parts of a collection, and the relationship of the parts to the whole, using pictures and the fraction notation for half, quarter and eighth.

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| ASSESSMENT FOR LEARNING(PRE-ASSESSMENT) | * Were the students successful with last week’s sharing of collections into halves and quarters?
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| WARM UP / DRILL | * Have the class divide themselves into two groups (1/2 the class in each group), four groups (1/4 of the class in each group), eight groups (1/8 of the class in each group). Discuss along the way: how many students in total (the whole group), what to do with left overs if any, how to check that the groups are the same/equal, do you need to regroup into the whole before splitting to form another fraction.
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| TENS ACTIVITYNEWMAN’S PROBLEMINVESTIGATION  | From easy to more challenging (depending on your students):* One half of a flag is red and one half is blue. Draw what the flag might look like.
* A flag has four colours. Each colour covers one quarter of the flag. Draw what the flag might look like.
* Becky designed a new flag for her cubby house. She coloured ½ the area green, 2/8 yellow and ¼ blue. Show 2 different designs for her flag.
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| 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
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| RESOURCES | Collections of items (for discrete fractions), such as beads, cubes, counters, small toys, seeds, pencils, paper clips, lollies, popsticks, etc.Paper circles or squares to be used as denominators, or sub-units.Paper, whiteboards, pencils, markers, etc. for recording.Paper plates, paper circles or counters to represent pikelets in investigative activity.Interactive Games and Resources at:[www.resources.woodlands-junior.kent.sch.uk/maths](http://www.resources.woodlands-junior.kent.sch.uk/maths)[www.rainforestmaths.com](http://www.rainforestmaths.com)[www.harcourtschool.com/activity/cross\_the\_river/](http://www.harcourtschool.com/activity/cross_the_river/) “Teaching Fractions: A Primary Concern” at:[https://portalsrvs.det.nsw.edu.au/f5-w-687474703a2f2f6c72722e636c692e6465742e6e73772e6564752e6175$$/LRRDownloads/14375/1/TeachingFractions.pdf](https://portalsrvs.det.nsw.edu.au/f5-w-687474703a2f2f6c72722e636c692e6465742e6e73772e6564752e6175%24%24/LRRDownloads/14375/1/TeachingFractions.pdf) |

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| TEACHING AND LEARNING EXPERIENCES |
| WHOLE CLASS INSTRUCTION MODELLED ACTIVITIES | GUIDED & INDEPENDENT ACTIVITIES |
| **Students learn to:*** Question if parts of a collection of objects are equal.
* Explain why the parts are equal.
* Use fraction language in a variety of everyday contexts.
* Visualise fractions that are equal parts of a whole collection.
* **Language**: group, divide, quarters, part, part of, other part, equal, equal parts, about a half, more than a half, less than a half, one part out of two, two/four/eight equal parts, one half, one part out of four/eight, four equal parts, one quarter, one eighth.
* **Teaching:**
* At this Stage, fractions are used in two different ways:
* to describe equal parts of a whole, and
* to describe equal parts of a collection of objects.
* Explicitly teach that when sharing between two people, each person receives half of the total objects. Teach that each person must have an equal share. Repeat with four and eight people.
* Show children a range of shapes and collections that have been split evenly into parts (halves, quarters and eighths.) Ask children questions about the shapes/collections – such as: are the parts equal? How many parts are there? What fraction have they been cut into/shared into? How do you know? Can you show me how to do this on another shape/collection?
 | LEARNING SEQUENCERemediationES1  | * Practice sharing items between 2, 4 and 8 people.
* Use the language of fractions explicitly and ask questions to elicit understanding.
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| LEARNING SEQUENCES1 | * **Activity 1:**

Students learn to recognise the whole and sub-units made of discrete parts by describing and modelling halves, quarters and eighths of a collection.Investigation:1. You have 12 plain pikelets and a supply of plates. How you could share the pikelets between two people, Alice and Brian. What fraction of the pikelets does Alice get?
2. If two more people arrive, David and Eva, what fraction of the pikelets does Alice get now?
* **Assessment Criteria**

After investigating with the concrete materials above, students to record their findings using a sharing diagram for each step (1 and 2) to show that the student:* Demonstrates understanding of halves and quarters.
* Records halves and quarters as equal shares.
* Explains how the items were shared equally.
* **Activity 2:**

The teacher displays a diagram of a cake on the IWB. A small number of chocolate chips (counters, dots) are placed in one of the quarters. The students are presented with the following story:“Tommy cut his cake into quarters to share. He made sure everyone got the same number of chocolate chips on their piece of cake. Three people have taken their piece and Tommy’s piece is left on the plate.” Possible questions include:* How many pieces was the cake cut into?
* What is each piece called?
* How many chocolate chips can you see?
* How many choc chips were on the cake altogether?
* How did you work it out?
* Is there another way to cut the cake into halves/quarters?
* Students share, discuss, and record their strategies.
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| LEARNING SEQUENCEExtension Early S2 | * To extend the S1 learning sequence above (Activity 1):
1. I have 12 pikelets on the table. 3 pikelets are plain, 3 pikelets have strawberry jam, 3 pikelets have honey and the rest have butter.

How many have butter? How many different plates are needed if they each have the same number and type of pikelets? What fraction of the pikelets has butter?1. If the 3 pikelets with strawberry jam are eaten first, what fraction remains? How do you know?
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| **EVALUATION & REFLECTION** | * Are students able to model and describe halves, quarters and eighths of a collection of objects?
* Do they realise that the complete collection is the “whole”?
* Can they record equal parts of a whole and the relationship of the groups to the whole using pictures and diagrams?

**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.