Fraction wall

ACiQ v9.0

Teaching strategies for thinking about fractions

Best for

- Year level: 4–5
- Fraction construct: Operators

Overview

Description	This activity is designed to support students to develop understanding of the **fractions as operators** fractional construct, which is foundational in students' development of thinking about fractions. Through the activity, students can be supported to understand that: • fractions represent a part of a whole • there are multiple valid representations of the same fraction.
Learning focus	**Australian Curriculum: Years 4 and 5 Mathematics**
	Number • find equivalent representations of fractions using related denominators and make connections between fractions and decimal notation (AC9M4N03) • count by fractions including mixed numerals; locate and represent these fractions as numbers on number lines (AC9M4N04) • compare and order fractions with the same and related denominators including mixed numerals, applying knowledge of factors and multiples; represent these fractions on a number line (AC9M5N03)
	General capability: Numeracy learning progression
	Number sense and algebra progression: Interpreting fractions • equivalence of fractions — creates equivalent fractions by dividing the same-sized whole into different parts (P5) • equivalence of fractions — uses partitioning to establish relationships between fractions (P5) • fractions as numbers — justifies where to place fractions on a number line (P6)
Teacher preparation	• Decide on the number of groups into which students will be organised. • Assemble the required resources for each group: – one die labelled $\frac{*}{2}, \frac{*}{3}, \frac{*}{4}, \frac{*}{6}, \frac{*}{8}$, and $\frac{*}{12}$ – one die labelled 1, 2, 2, 3, 3, 4 – one copy of the Fraction wall worksheet per student – pens or pencils to colour the wall, for each student.
	Resource
	Fraction wall template Print a copy for each player.

Suggested implementation

1. Before beginning, establish the following rules with students:
    a. Students may only colour whole bricks of the wall, i.e. they cannot colour in a fraction of a brick to 'make' the correct fraction
    b. Agree as a group on how to treat improper fractions, e.g. students may decide that when an improper fraction is rolled that student must pass their turn, or that students are able to colour in more than a full row.
2. Provide students with the following instructions:
    a. Students take turns within their group.
    b. On their turn, each student will:
        i. roll the dice to make a fraction, e.g. if you roll $\frac{*}{3}$ and 2 then the fraction is $\frac{2}{3}$
        ii. colour in the fraction that is rolled for one line, e.g. colour $\frac{2}{3}$ of one line (or students may choose to colour another equivalent fraction, e.g. $\frac{4}{6}$)

            or

        iii. pass, if the fraction rolled cannot be coloured.
    c. Continue taking turns until one group member has their whole wall covered. This student is the winner.
3. Allow time for students to complete their fraction wall before having a whole class discussion. Consider using the following questions to lead a discussion:
    a. Was there a 'right' way to colour in your wall?
    b. Did you end up in a position where you wished you had chosen to colour your wall differently?
    c. Which fractions were the hardest to colour? Why?
    d. If you were to play again, would you use a different strategy?

Variations

1. If you do not have a fraction die, you could use two different-coloured dice and establish that one will represent the denominator and the other the numerator
2. Complete the activity as a whole class, with the teacher rolling the dice for each turn. Students may either take turns colouring in the fraction rolled, or all students may colour their walls on each roll. In the second option, students must still make strategic decisions about which equivalent fraction to colour in, so they will not all finish at the same time.

References

Inspired by Australian Association of Mathematics Teachers. (n.d.). *Fraction wall game*. Top drawer teachers: Resources for teachers of Mathematics. https://topdrawer.aamt.edu.au/Fractions/Activities/Fraction-wall-game