

3 in a row

Curriculum Links

Y4: Investigate equivalent fractions used in contexts (VCMNA157)

Y5: Compare and order common unit fractions and locate and represent them on a number line (VCMNA187)

Y6: Compare fractions with related denominators and locate and represent them on a number line (VCMNA211)

Introduction

This game helps upper-primary students compare and order proper and improper fractions. Played in pairs, the game promotes mathematical reasoning as students will need to convince their partner where each fraction belongs on the number line. Paul Swan encourages teachers to give students opportunities to replay powerful maths games throughout the week to gain the most benefit from the big ideas explored. In this instance, they learn to order and compare fractions, recognise equivalence and see the benefits of simplifying fractions and using a number line to understand the magnitude of rational numbers.

Big Mathematical Idea

Benchmarks on number lines help us understand the relative magnitude of proper and improper fractions.

Organisation

- Break students into pairs with one ten-sided die, a whiteboard and a different coloured whiteboard marker for each person.
- Ask each pair to draw a number line with parameters 0-10

0

10

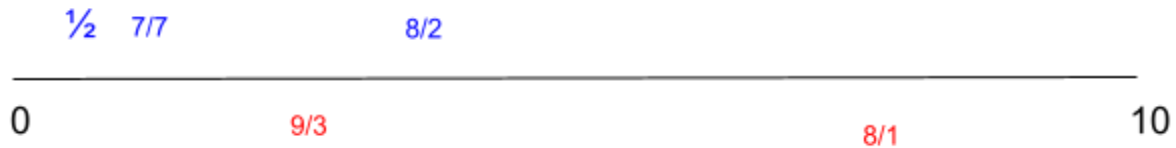
Objective: Be the first player to place three fractions in a row of your colour with no fractions of your opponent in between.

Instructions

1. Players take it in turns to roll the 10-sided die twice.
2. Player 1 makes a fraction (proper or improper) and writes it on the number line.
3. They must convince their opponent why it belongs in that position.
4. Once both players are convinced that the fraction is correctly placed on the line, Player 2 has their turn.
5. Continue taking turns until one player places three of their fractions in a row to win the game.

Note: If a player makes an equivalent fraction to their opponent they can bump their opponent's fraction off the board.

Example: What might blue try and roll to win the game?



Enabling Ideas

- Play the game 2v2
- Provide a concrete material like a fraction wall to help students recognise the relative magnitude of simple fractions.

Extending Idea

- Roll the die three times to create fractions with 3 digits (i.e. $\frac{3}{12}$). How will this change the parameters of the number line?

Key Questions

- What benchmarks could you use on the number line to help you order and compare fractions?
- Is $\frac{3}{4}$ larger than $\frac{2}{3}$? How might we calculate the relative magnitude of these fractions?
- What were some of the most convincing approaches that were used in your team?

Mathematical Language

- Regular and irregular fractions, equivalence, benchmarks,