

The Equivalence Game

You need a set of 80 Equivalence Game cards made from the copymaster
 one or more classmates

Game

This is a card game for 2–4 players. The dealer shuffles the cards, gives each player 10, and places the remaining cards face down as a pick-up pile. Players use pairs of cards to make fractions:

 could become  or  ($\frac{3}{4}$ or $\frac{4}{3}$).

The aim is to get rid of all your cards. You do this by making either equivalent fractions or “runs” of fractions.



Equivalent fractions (all equal $\frac{3}{2}$)



Strings of fractions equal to 1 are not allowed.

A “run” is when three or more (non-equivalent) fractions are linked by a pattern:



A run of thirds



A run of sixths ($\frac{1}{2} = \frac{3}{6}$)



Another run of sixths ($\frac{2}{6}, \frac{3}{6}, \frac{4}{6}, \frac{5}{6}$).

- To start a string of equivalent fractions, a player must put down at least two fractions.
- To start a run, a player must put down at least three fractions linked by a pattern.
- Once cards are played, they are left in position on the table. Any player can add further fractions to them as long as they follow the pattern.
- If a player can't or doesn't want to put down any cards, they pick up two from the pile.
- A turn is either putting down fractions or picking up two cards, not both.
- A round ends when one player has used up all their cards or when no one can play and there are no more cards left to pick up.

Scoring

At the end of each round, the cards left in players' hands count against them. The player with the lowest total after an agreed number of rounds is the winner of the game.

There are two ways of working out the value of remaining cards: **method 1** and **method 2**.

Method 1 (easy)

Players add up the numbers on the cards.

Method 2 (interesting)

Players use the cards to make fractions and/or whole numbers and then add these together. The aim is to make the total as small as possible.

For example, if a player has these cards left: 1, 1, 2, 2, 3, 8,

$$\frac{1}{8} + \frac{1}{3} + \frac{2}{2} = \frac{3}{24} + \frac{8}{24} + 1 = 1\frac{11}{24}$$

$$\frac{1}{8} + \frac{1}{3} + \frac{2}{2}$$

Here is another arrangement that a player could make using the same cards as above:

$$\frac{1}{2} + \frac{2}{8} + 1 + 3 = \frac{2}{4} + \frac{1}{4} + 4 = 4\frac{3}{4}$$

$$\frac{1}{2} + \frac{2}{8} + 1 + 3$$

Each player must be able to say what their arrangement of fractions and/or whole numbers adds up to. If another player can show that their answer is wrong, a penalty of 3 is added to their total.

