

Duelling decimals

Game 12

Use decimal notation for fractions and compare decimal fractions.

Mathematical understanding and skills

- Use decimal notation for fractions with denominators of 10 and 100.
- Compare two decimals to hundredths by reasoning about their size. Recognise that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols $>$, $+$ and $<$, and justify the conclusions, e.g. by using a visual model.

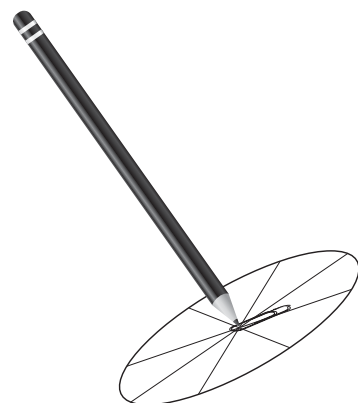
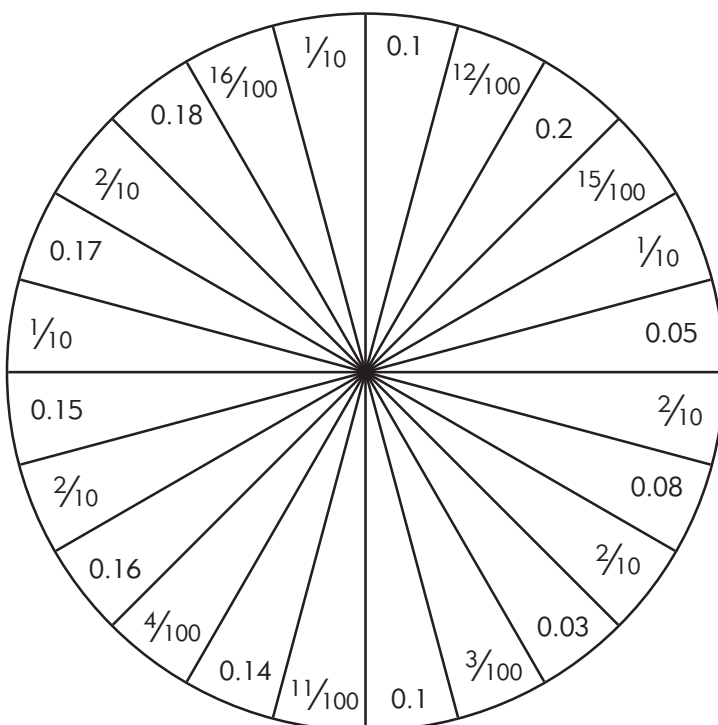
Maths vocabulary

- denominator
- mixed number
- numerator

Materials

For each pair of students:

- 'Duelling decimals' game board (page 56)
- Game rules
- Two coloured markers
- Choice of spinners: Spinners A and B (more support) or Spinner C (Challenge)



To use the spinner, place a pencil tip through a paperclip.

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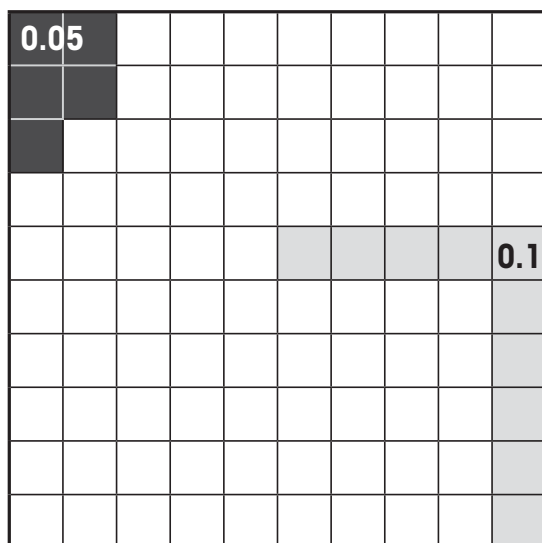


Explaining the game

Number of players: 2

Object: Colour the greatest total amount of the 'whole.'

1. Player 1 spins.
 - If a fraction is spun, uses the decimal notation for the fraction.
 - Colours a polygon (not necessarily a rectangle) in one of the four corners of the 10-by-10 grid that represents the decimal number.
 - Labels the polygon with the portion of the grid it represents.
2. Player 2 spins.
 - Starts another polygon in the opposite corner with a different colour.
 - Labels the polygon with the portion of the grid it represents.
3. The players record the results of this round in a table and circle the larger decimal fraction. See example below.
4. The players continue taking turns spinning and drawing polygons. Each added polygon:
 - Must share a side or part of a side of one of the player's own polygons. (Only touching at one corner does not count.)
 - May only use squares that have not already been used.
 - May touch a side of the other player's polygon(s).
5. Play stops when a player cannot fit a polygon on the board.
6. The winner is the player who wins the most rounds.



Recording table example	
Player 1	Player 2
0.05	0.1
0.2	0.11
0.04	0.16

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Differentiation

More support

- Focus first on decimals. Play the game with Spinner A.
- Warm-up with fractions and decimals in hundredths (Spinner B).



Challenge

- Use Spinner C, which includes some fractions in simplest form.



Deepening the understanding

Ask the class

What is the decimal fraction for $\frac{7}{10}$?

What is the decimal fraction for $\frac{7}{100}$?

Which is larger?

Use a model to justify your answer (money, 100 grid, number line etc.).

Which number is greater?

0.4 or 0.04 Explain how you know.

0.5 or 0.47

$\frac{6}{10}$ or 0.58

After a student shares an idea, ask the class if they agree or disagree and why.

Mathematical capabilities

Reason abstractly and quantitatively.

Model with mathematics.

Reason abstractly and quantitatively.

Understanding, fluency and reasoning.

Construct viable arguments and critique the reasoning of others.