

Fraction Line

Aim

To develop fraction concepts, particular the concept of a fraction of a quantity. The idea is that students develop a sound understanding of the various types of fractions, a feel for the size of the fractions and a grasp of the relationships between common fractions, decimals and percentages.

Equipment

- Whiteboard
- Whiteboard marker
- Meter rule

Procedure

Draw a straight line on the board 120 cm long (use the ruler). Mark the ends with cross ticks.



Divide the class into two teams – left half and right half. Let the teams choose team names and put the team names up somewhere out of the way on the board.

Pick a fraction, e.g. $\frac{3}{8}$.

Pick a player from the first team to come and make a mark just above the line at the chosen fraction of the distance along the line from left to right. No measuring devices are allowed, but the rest of the team may help from their seats by telling the player to go further to the left or right. Also, the team may discuss the reasons for wishing to place the mark in a different position. The other team should not talk out loud or do anything to distract the first team.

When the first team has made their mark, pick a player from the other team to come and make a mark just below the line where they think it should be. The rest of the team can help in the same way.

The teacher then uses the ruler to mark the actual position, explaining how the position was determined (this is important!) for example along the lines of '*one eighth is $120 \div 8$, which is 15 cm, so three eighths is 45 cm along*'.

The team whose mark was closest to the actual position wins a point. If they are equal, both teams win a point. Keep a tally on the board under where you wrote the team names.

The teacher then picks a new fraction and repeats the exercise, except that the other team goes first.

Continue for the available time.

Start with simple fractions like $\frac{1}{4}$, $\frac{5}{8}$, etc., then go to more complex ones. Later in the game or in a later game, you might wish to use decimal fractions and percentages as well as common fractions and change the length of the line. With decimals and percentages, it could be worth using a 100 cm line initially. You could even do fractions > 1 or < 0 .

Tips

If teams spend unduly long deciding where to put their mark, it could be worth, once you think they've had enough time, counting down from 10 and not allowing them to put a mark after you get to zero.

Students tend to enjoy this game and to behave appropriately. If, however, some students make things difficult, it might be worth cutting it short with a promise to come back to it later when they are feeling more cooperative.