Matching Decimals with Common Fractions

Overview

This activity is designed for small groups of students to explore and expand their knowledge of decimal equivalents of common fractions and decimal place value and is an ideal focus activity to start the session as it encourage students to talk to each other about numeracy.

It can be used as an introductory decimal activity that allows you to observe the existing knowledge of your students and the areas that will need further attention, or as a learning activity after students have been introduced to the meaning of decimals.

A possible variation invites all members of the class to circulate in order to find their pair.

This activity is best used *only* after students have explored visual representations of fractions (see '*Meaning of Fractions*', '*Matching Common Fractions*' and '*Comparing Fractions*' in the '*Fractions*' section.

Skills and Knowledge

- Decimal notation
- Decimal place value
- Equivalence of decimals and common fractions

Preparation and Materials

- Photocopy the Activity Sheet onto card (1 per pair or group of 4). [Cards can be laminated for greater durability but this is optional.]
- Place each set into a labelled envelope.
- Cut some blank pieces of card or paper for the extension activity.

Suggested Procedure

Arrange students into small groups or pairs.

Give each group an envelope containing one set of cards.

Introducing the activity

Ask students to tip the cards onto the table and spread them out so all members of the group can see and reach them.

Their task is to 'match' the cards by finding the pairs which go together.

Advise them that some of the cards might not have a match.

Circulate and observe the small groups of students as they do the task.

Extensions for quicker groups

If any groups finish before others, give them some of the blank cards and ask them to make a pair to go with the unmatched cards.

Debriefing the activity

If it was not possible to observe the progress of all groups, then on completion of the activity discuss results and ask questions such as:

- *Which pairs were the easiest to match?*
- *Why are these easier? Are they more familiar?*
- *Which were the hardest? Why?*

If there are obvious difficulties with fractions such as $\frac{3}{10}$ or $7\frac{1}{100}$, it will be clear that students need more learning related to the fundamental meaning of place value. See '*Exploring Decimal'* activities.

Common Fraction Equivalents

If there are difficulties with decimal equivalents of common fractions such as $\frac{1}{2}$ or $\frac{1}{4}$, then you can encourage learners to experiment with calculators. For example:

- *¼ means the same as one divided into four pieces → 1 ÷ 4*
- *Try this on the calculator!*
- *What do you get?*

To make the connections stronger it may be useful to begin with the most familiar and work from that. For example:

Because 50¢ is ½ of $1, the most familiar is likely to be 0.5 = ½

Then think of ¼ as half of ½ → 0.5 ÷ 2 → 0.25

Then ¾ is 3 x ¼ → 3 x 0.25 → 0.75

It is helpful for students to remember the decimal equivalents of common fractions, so they could be encouraged to learn them by heart. Since the numbers correspond to the percentage equivalents, this knowledge will also be helpful for percentage calculations.

Note: make sure students have also explored and understood visual representations of ½ , ¼ and ¾ using circles and other shapes before memorising these equivalents. See also 'Exploring Decimals and Hundredths'.

Extension

The use of the two cards, which do not have a 'match', will depend on the knowledge of the student group. The whole class could discuss them, or each small group could be given blank cards to create their own match.

Students who have done this already could be given more blank cards to create some entirely new pairs of fractions and decimals.

Variation for mixing students

In order to get students moving and talking to others they may not normally work with, you can give one card to each student and ask them to walk around until they find the person who has a card which matches theirs. They should then write their fractions on the board.

For this variation you need to make sure you have the correct number of cards for the group by removing some pairs. Make sure there will be a match for every person. If there are an odd number of students get two people to work as a pair or take a card yourself.

Encourage them to **say** what is on their card and decide together if they 'match' rather than just showing the cards without speaking.

If this mixing of students is a desired outcome, then there are two possibilities to proceed.

1. The groups can continue with this activity by deciding if they agree with all of the pairs on the board, then you distribute some fraction cards and blanks and ask them to work together to make pairs similar to those they have seen.

2. You could give out another small group activity for them to work on together before returning to their normal seats.

Variation for simplifying the activity

Some teachers and students prefer not to have 'unmatched' cards in the initial set so that they see a neat matching up of all the card pairs at the end.

This is less challenging, but perhaps more satisfying for students. In this case the 'unmatched' cards can be separated out initially and distributed as the extension afterwards.

Matching decimals with common fractions Activity Sheet 1

✂ Copy onto card and cut.

$\frac{1}{2}$	$\frac{1}{4}$	$\frac{1}{3}$
$3\frac{1}{4}$	0.3	$\frac{3}{10}$
$\frac{4}{10}$	$\frac{4}{100}$	$\frac{3}{4}$
$\frac{7}{100}$	3.25	0.33
0.4	0.04	0.75
0.5	7.5	0.25
$1\frac{3}{4}$		