Sorting Decimals – a near thing?

Overview

This is an activity that asks students to arrange a collection of decimals numbers (cut into manipulable cards) according to whether they are nearest to 0, ½, or 1. Observing students undertaking this task provides valuable insight into their understanding of decimal place value. It can be used as a revision task or a learning task undertaken by small groups or pairs of students sharing their understanding of decimals. The two versions of the cards will allow for both uses.

It can be used after activities which explore the meaning of decimals, such as *Exploring the First and Second Place Decimal* activities or as an introductory activity to refresh the knowledge of a more advanced group.

Skills and Knowledge

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

Preparation and Materials

- Calculators (1 per student)
- Photocopy Activity Sheets 1 and 2 onto card (1 per pair or group of 4).
  - using different coloured card for each set of numbers is helpful
  - cards can also be laminated for greater durability but this is optional
- Cut the numbers and place each set into a labelled envelope.

Suggested Procedure

Arrange students into small groups or pairs.

Give each group a 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.

Pick out the three cards with '**near to 0**', '**near to ½**' and '**near to 1**' and space them out in order on the table.

They should then pick up the decimal number cards one by one and decide together which group each belongs in, explaining their reasons as they do it. For example:

A card with 0.88 would belong in the 'near to 1' group because it is close to 0.9 which is closer to 1 than ½.

0.56 would be nearest to ½ because it is just a bit more than 0.5.

Debriefing the activity

Circulate and observe students as they do the task.

If there are obvious errors or difficulties with some numbers it will be a cue for the need for more activities related to place value and rounding off.

On completion of the activity discuss results and ask questions such as:

- *Were any numbers trickier than others?*
- *Why were they harder to think about?*

Together analyse these numbers and to further reinforce the learning provide some similar examples, asking the small groups to decide where they would place them. Compare answers and discuss. Stress the importance of the first decimal place in deciding the value of a decimal number. Comparisons with money are always useful.

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The second set of numbers could be used in a follow up session or some time later as a chance to revisit the skills and knowledge.

Extension Activity

Ask the groups or pairs to sort each of the three sets of numbers in order from smallest to largest.

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A pair or small group activity.

✂   Copy onto card and cut.

0.97	0.4	0.96
0.49	1.04	1.01
0.12	0.52	0.08
0.21	0.10	0.55
0.60	0.54	0.109
0.79	0.35	0.90
0.139	0.7	0.801
Near 0	Near $\frac{1}{2}$	Near 1

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0.92	0.3	0.90
0.48	1.06	.101
0.13	0.54	0.08
0.31	0.20	0.65
0.40	0.91	0.108
0.78	0.45	0.90
0.146	0.7	0.805
Near 0	Near $\frac{1}{2}$	Near 1