



## Ordering fractions teacher notes

Number and Algebra: Fractions and Decimals 95-104, 135-144

The ACER Maths team have taken the original PAT Teaching Resources Centre teaching activity, *Ordering fractions (Fractions and Decimals, 95-104, 135-144)* and have adapted it so that it can be used for remote learning.

You may use the resources we have provided directly with your own students, or you could use them as a model to create your own remote learning resources. You could furthermore adapt other PAT Teaching Resource Centre teaching activities in the same way.

This activity can be used with students that are already familiar with fraction notation and unit fraction representation and fractions which are multiples of unit fractions. Students should also have been introduced to equivalent fractions.

There is also an Ordering Fractions skills support video available for this topic in the PAT Teaching Resources Centre. You can find this by clicking on the Maths resources from the homepage, and then scrolling down to the 'Go to videos' at the bottom of the page.

### Accompanying components for this teaching activity:

- Student Ordering Fractions [Video 1](#) and [Video 2](#) (with accompanying scripts below)
- [Student Ordering Fractions Worksheet](#)

#### Script for Ordering Fractions Video 1

Today we will be doing an activity on ordering fractions.

Make sure that you have a copy of the worksheet for this in front of you.

**If you have a printer**, print out this worksheet.

**If you do not have a printer**, type your answers underneath each question. For questions where you need to colour in a grid, draw the grids in your exercise book or on a separate piece of paper beforehand, and then colour them in as needed. Remember, the grids don't have to be perfect. The important thing is that the squares are as similar as possible and that the grids are all the same size.



In your worksheet, look at question 1. For each grid, I'd like you to look at the fractions written underneath and colour in the number of squares that shows that fraction.

Each fraction is in tenths and the grids each have ten squares. The first fraction has been done for you. 1 square out of 10 has been coloured in because the fraction is one tenth.

Now, go ahead and colour in the other grids.

After you've coloured them in, please answer questions 1 to 6 in the worksheet. Then click on [Ordering Fractions Video 2](#) to watch the next video.

### Script for Ordering Fractions Video 2

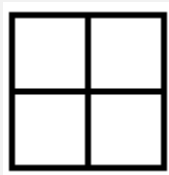
Now let's look at some fractions that have different denominators.

What about one-half and one-quarter?

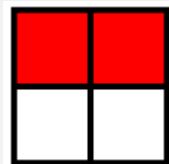
$$\frac{1}{2} \qquad \frac{1}{4}$$

Which is bigger? Can we compare the sizes of one-half and one-quarter in a similar way to how we compared the tenths previously?

We can use grids to compare them in the same way. Look at this grid:

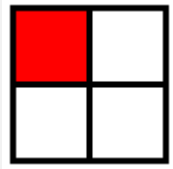


If we colour in one-half of this grid, it looks like this:



Two of the four squares are coloured.

If we colour in one-quarter of the grid, it looks like this:



There is only one square coloured out of the four squares.

We can compare the sizes of one-half and one-quarter by comparing how many squares we've coloured in. One-half is bigger than one-quarter. There are more coloured squares in one-half than in one-quarter.

Now it's your turn. There are 6 different fractions written in your worksheet: twelve-twelfths, one-half, one-third, five-sixths, two-thirds and one-sixth.

First, have a think about how big the fractions are compared to each other. Which fraction do you think is smallest? Which do you think is largest? There is space to write your answers in questions 7 and 8, and also to write down how you know which is smallest and largest.

After you've done that, have a go at writing the fractions in order from smallest to largest. Don't worry, you'll be able to check your order using grids in the same way as we have done with tenths and with quarters. This time there are twelve squares in each grid.

It's good to remember that when we used a grid with four squares to show one-half, we coloured in 2 out of the four squares. So we coloured in one-half and that was the same as two-quarters. One-half and two-quarters are equal. They're equivalent fractions – the same size.

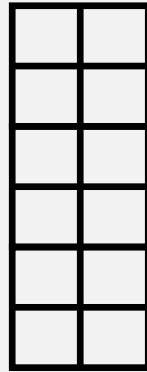
$$\frac{1}{2} = \frac{2}{4}$$

When you are doing the next few questions and comparing and ordering fractions with different denominators, you will have to think about which fractions are equivalent.

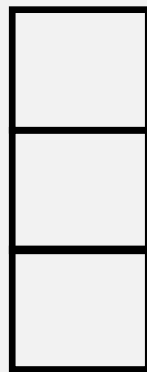
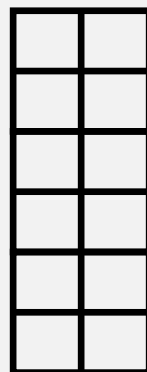
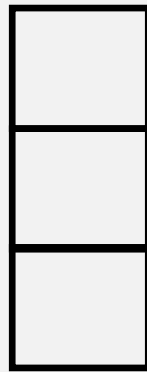
If you're not sure how to do this, a hint is to think about the twelve grids in the same number of parts as the denominator of the fraction you are colouring in.



So the twelve grid can look like this, where each equal part of the grid is one-twelfth of the grid:



It can also look like this, where each equal part of the grid is one-third of the grid:





Now, answer the rest of the questions in the worksheet. When you have finished, email it or take a photo of it and send it to your teacher.

Remember, if you get stuck, or if you need any help sending your answers back to your teacher, please ask an adult at home for help. Have fun!

### **Hints, feedback and discussion**

For questions 7 – 9, ask students to think about which is the smallest and which is the biggest. How do they know? They do not have the same denominators like the tenths in the previous part, so how are they able to compare them? If they're not sure, ask them to estimate. They will be able to check their own answers later.

For question 10, remind students that this time, the fractions do not all have the same denominator, so they will have to think about how to show each fraction on a grid with 12 squares.

For question 11, the students will need to compare how they ordered the fractions before and after colouring in the grids.

Question 12 will encourage students to think about which fractions are equivalent.

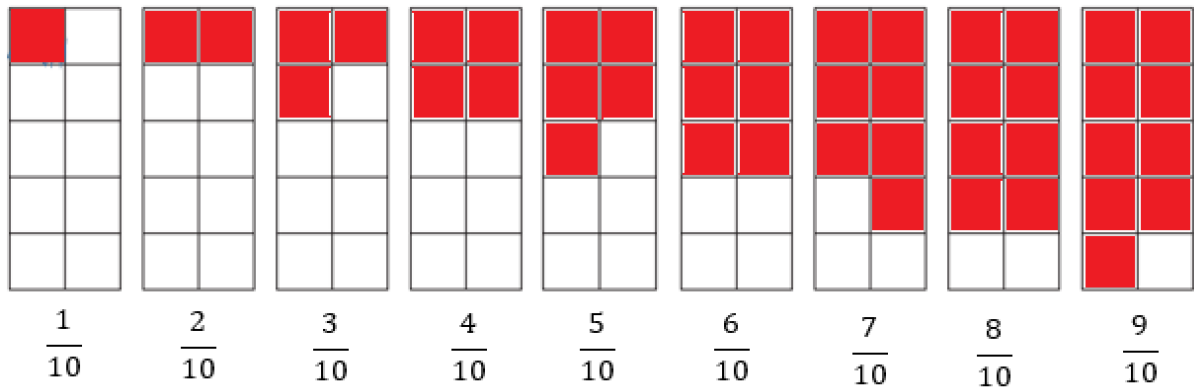
Then, they can use the coloured grids to help them complete the equivalent fractions statements in question 13.

The ideas explored in this activity are also found in example questions PAT Maths 4th Ed, Test 2, Q4; PAT Maths 4th Ed, Test 9, Q2; PAT Maths Plus, Test 7, Q11.



## Completed Ordering Fractions Worksheet

1. First, colour in each of the grids below according to the fraction beneath. The first one has been done for you.



Now answer questions 2 – 6 about the fractions you have just coloured in.

2. Which fraction is smallest?

$$\frac{1}{10}$$

3. Which fraction is largest?

$$\frac{9}{10}$$

4. Which fractions are bigger than  $\frac{7}{10}$ ?

$$\frac{8}{10} \text{ and } \frac{9}{10}$$

5. Which fraction is equivalent to  $\frac{1}{2}$ ?

$$\frac{5}{10}$$

6. Which of these fractions can be simplified? Write all the simplified fractions.

$$\frac{2}{10} \text{ is } \frac{1}{5}$$

$$\frac{4}{10} \text{ is } \frac{2}{5}$$

$$\frac{6}{10} \text{ is } \frac{3}{5}$$

$$\frac{8}{10} \text{ is } \frac{4}{5}$$



Now, look at these fractions for questions 7 – 10.

$$\frac{12}{12}$$

$$\frac{1}{2}$$

$$\frac{1}{3}$$

$$\frac{5}{6}$$

$$\frac{2}{3}$$

$$\frac{1}{6}$$

7. a. Which fraction is smallest?  $\frac{1}{6}$

b. How do you know? Example answers include:

- The denominator is smallest. And out of  $\frac{5}{6}$  and  $\frac{1}{6}$ ,  $\frac{1}{6}$  is smaller.
- I drew pictures that showed me it had less coloured in than the others.
- Three of the fractions have 1 as the denominators and  $\frac{1}{6}$  is smaller than the others.
- On a number line, it is closest to 0.

8. a. Which fraction is largest?  $\frac{12}{12}$

b. How do you know?

Example answers include:

- The numerator and denominator are the same.
- It is a whole.
- All the other fractions are parts of a whole or less than one.

9. Write the fractions in order from smallest to largest.

$$\frac{1}{6}$$

$$\frac{1}{3}$$

$$\frac{1}{2}$$

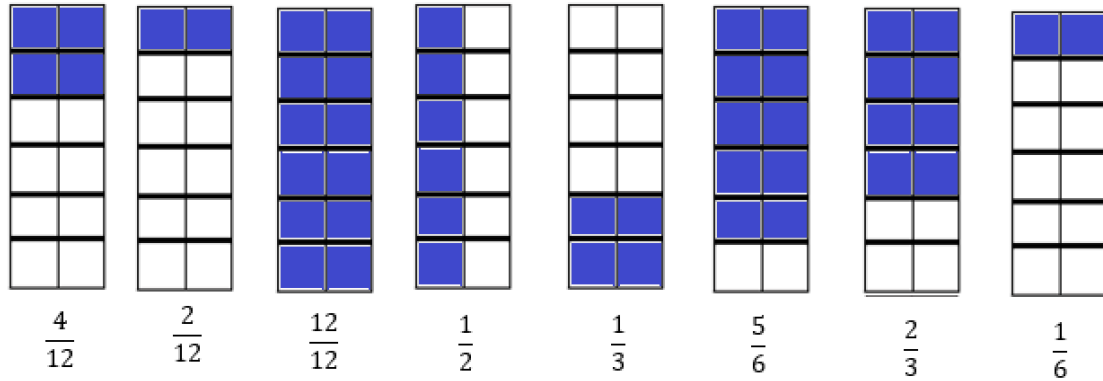
$$\frac{2}{3}$$

$$\frac{5}{6}$$

$$\frac{12}{12}$$



10. Now colour the fractions in the grids below.



11. Look back at your answers to Questions 7 and 8. Were you correct? If not, which fractions were different?

Answers will vary here. Either 'Yes' or 'No' and an individual response.

12. On your grids, which fractions have the same number of squares coloured in?

$$\frac{4}{12} \text{ and } \frac{1}{3} \qquad \frac{2}{12} \text{ and } \frac{1}{6}$$

13. Complete these equivalent fractions sentences for the fractions you have just coloured in.

$\frac{2}{12} = \frac{1}{6}$	$\frac{4}{12} = \frac{2}{6}$	$\frac{12}{12} = \frac{6}{6}$	$\frac{1}{2} = \frac{6}{12} = \frac{3}{6}$
$\frac{5}{6} = \frac{10}{12}$	$\frac{1}{3} = \frac{2}{6} = \frac{4}{12}$	$\frac{2}{3} = \frac{4}{6} = \frac{8}{12}$	$\frac{1}{6} = \frac{2}{12}$





14. How did you work out the equivalent fraction to  $\frac{2}{12}$ ?

Example answer: There are 2 squares coloured but if I split the rectangle into sixths there is only one sixth coloured.

15. How did you work out the equivalent fraction to  $\frac{1}{2}$ ?

Half the squares are coloured. That's 6 out of 12.

16. How did you work out the equivalent fraction to  $\frac{1}{3}$ ?

Example answer: When I split the grid into 3 equal parts there are 4 squares in each part. I colour 1 of the 3 parts, so that's 4 squares out of 12.

17. Write out these fractions in order, from smallest to largest.

$\frac{1}{6}$        $\frac{1}{3}$        $\frac{1}{2}$        $\frac{2}{3}$        $\frac{5}{6}$       1

18. Look back at your answers to Question 9. Did you write the fractions in the same order both times?

Answers will vary. Either 'Yes', or 'No' with an explanation. Common explanations include:

- I mixed up  $\frac{1}{3}$  and  $\frac{1}{2}$
- I thought  $\frac{2}{3}$  was bigger than  $\frac{5}{6}$
- I didn't know which was bigger,  $\frac{1}{2}$  or  $\frac{2}{3}$ .

19. Did you find it easier to order the fractions before or after finding the equivalent fractions? Why?

Answers will vary. Example answers include reference to specific fractions and being able to see the equivalent twelfths when they coloured in the grids.