

Fractions and number lines

National Curriculum attainment target

- Extend the use of the number line to connect fractions, numbers and measures

Lesson objective

- Use the number line to connect fractions and numbers

Prerequisites for learning

Pupils need to:

- understand unit and non-unit fractions

Vocabulary

unit, non-unit, fraction, equivalent, divided, numerator, denominator

Success criteria

Pupils can:

- look at intervals on the number line
- decide what fraction(s) the number line has been divided into
- write the fraction on the number line



Getting Started

- Choose an activity from Number – Fractions.

**Collins
Connect**
Year 4, Unit 6,
Week 2

Teach

Resources

long narrow strip of paper to represent a number line (per class)

↑ Write $\frac{2}{4}$ and $\frac{1}{2}$ on the middle interval.



↓ Use a long narrow strip of paper to represent the number line. Fold it into quarters in front of the children. Mark the folds with a pen so they are clearly visible and then write the fractions.



- Say: **Fractions can be ordered just like whole numbers and be written on a number line.**
- Display: Slide 1. Say: **Talk to your partner about what fractions I could write at the intervals on this number line.** Share some children's ideas. Establish that the number line is divided into four parts so each part is a quarter. 0, $\frac{1}{4}$, $\frac{2}{4}$, $\frac{3}{4}$, 1 go on the intervals.
- Ask: **On any fraction number line, how can we work out what the missing fractions are?** Share some children's ideas. Establish that, on the number line, we can look at how many equal sections it is divided into and that will tell us the fraction.
- Display: Slide 2. Write 0 and 1 at either end of the number line.
- Ask: **What fractions would go on this number line?** Discuss and write them on the number line as a class. Ensure children are clear that the number line is divided into six equal sections.
- Rub out the 0 and 1 and change them to 4 and 5.
- Ask: **What fractions would go between four and five on this number line?**
- Invite a child to write their suggestions on the board. Discuss as a class. Establish that fractions can come between any numbers.
- Say: **When we write a whole number and a fraction together, they are called mixed numbers.**
- Display: Slide 3. Say: **The number lines we have looked at so far have had fractions that have the same denominator. On this number line, you can see that the intervals are not equally spaced so that shows us that these fractions will have different denominators.**
- Ask: **How do you think we can work out what the fractions are?** Share children's ideas.



- Say: **We need to look at each interval and see what fraction of the whole number line it is.** Point to the quarter interval. Say: **Ignore the other lines. What fraction of the number line is it from 0 to here?**
- Listen to children's responses. Display: Slide 4. This will either confirm their answers or make it easier for them to see the fraction. Record the fractions on the number line.
- Point to the thirds interval.
- Ask: **What fraction of the number line is this interval marking?**
- Listen to children's responses. Display: Slide 5.
- Repeat for sixths.

Individualised Learning

Refer to Activity 1 from the Learning activities on page 248.

Pupil Book 4B: – Page 20: Fractions and number lines
Progress Guide 4: – Support: Year 4, Unit 6, Week 2, Lesson 1:
 Make a number line
 Resources: scissors

Plenary

Resources

counting stick (per class), 4 × sticky notes (per class)

- Write 0 and 1 on two of the sticky notes. Stick 0 to the beginning of the counting stick and 1 at the end.
- Count how many intervals there are in between. Establish that each section is a tenth.
- Hold up the counting stick. Say: **Let's count in tenths.** Point to the intervals as you count as a class.
- Repeat several times, varying the speed.
- Change the sticky notes to two different whole numbers.
- Count again in mixed numbers.



Homework Guide 4

Year 4, Unit 6, Week 2, Lesson 1:
 Fraction number lines

Overcoming Barriers

- If children find it hard to understand what fractions should go on the number line, it is because they do not have a secure understanding of fractions. If they do not have this, they will not see the relationship between the fractions and their place on the number line. Spend more time consolidating children's understanding of fractions.