

Decimals

Strand: Number
Strand unit: Operations

Curriculum Objectives

- 513** Express tenths, hundredths and thousandths in both fractional and decimal form.
515 Compare and order fractions and decimals.
516.3 Solve problems involving operations with decimals.

Looking back: What the 4th class programme covered



1. Expressing tenths and hundredths as fractions and decimals.
2. Identifying the place value of decimal numbers up to 2 places.
3. Ordering decimals on the number line.
4. Adding and subtracting whole numbers and decimals up to 2 places.
5. Solving problems involving decimals.

Maths skills used in this topic

1. **Applying and problem-solving:** Applying the concept of decimal numbers and the processes of converting between decimals and fractions in a variety of contexts.
2. **Integrating and connecting:** Recognising mathematics in the environment.
3. **Reasoning:** Investigating patterns using decimals and fractions.

Concrete materials

Place mat templates, calculators

Vocabulary

Decimal, tenths, hundredths, thousandths, fraction, half, quarter, eighths, tenths, fifths, twentieths, equivalent, mixed number, notation board



Teaching points

1. Revise tenths and hundredths in fractional and decimal form.
2. Introducing the thousandth in decimal form, 0.001 and fractional form, $\frac{1}{1000}$.
3. Solving problems with decimals up to 3 decimal places.

Oral and mental activities



Fans:

What is the value of 0.1 in cents, 0.2, 0.3, 0.8, etc? What is the value of 0.01 in cents? Vary the questions.

This number is equal to $\frac{7}{10}$. (0.7)

This number is equal to $\frac{21}{5}$. (2.2)

Repeat with similar fractions and ask the children show them as decimals. Call out fraction numbers and ask children to show them as decimals, $\frac{1}{5}$, $\frac{1}{10}$, $\frac{1}{4}$, etc.

Target board 8:

What is the value of each digit after the decimal point (express as a fraction and as money)?

Topic suggestions

1. Use number lines as much as possible to check children's understanding of decimal concepts.
2. Find instances of the use of decimal points in everyday life, e.g. in financial sections of newspapers, in sport, on household bills.
3. Discuss the pricing of items in shops: Why are items sold for €0.99 instead of €1?
4. Use decimal fractions to describe quantities around the classroom, e.g. what decimal fraction of people have black hair? What decimal fraction of the teachers in the school are male/female? What decimal fraction of our day do we spend doing maths?
5. Use coins for decimal activities. What decimal fraction of €1/€2/€5 is 1c, 10c, 20c, 50c?

Activity A

1. This number is equal to $\frac{7}{10}$. (0.7)
2. This number is equal to 2.2. ($2\frac{1}{5}$)
3. This number is equal to $5\frac{5}{10}$. (5.5)
4. This number is equal to 7.1. ($7\frac{1}{10}$)
5. This shape is 0.75 shaded in.
6. This number is the same as 5.25. ($5\frac{1}{4}$)
7. This number is two times 1.11. (2.22)
8. This shape is 0.25 shaded.
9. This number is equal to 3.6. ($3\frac{2}{5}$)
10. This number is 0.1 less than 2. (1.9)
11. This number has a 7 in the units place and a 1 in the hundredths place. ($7\frac{1}{100}$)

Differentiation

Lower attainers:

Photocopiable has extra activities on key concepts introduced in this unit.



Higher attainers:

Photocopiable has conversion and computational activities, and word problems involving decimals and fractions.

Decimals - Alternative Questions

1. Write each of these decimals in expanded form.

(a) 0.6 (b) 0.763 (c) 0.039
 (d) 0.003 (e) 0.302 (f) 1.448
 (g) 2.003 (h) 5.308 (i) 5.249

2. Write each decimal as a fraction.

(a) 0.002 (b) 0.057 (c) 0.134
 (d) 0.996 (e) 0.763 (f) 0.814
 (g) 0.116 (h) 1.240 (i) 4.003

3. Write each of the following as a decimal number.

(a) $\frac{1}{10}$ (b) $\frac{6}{10}$ (c) $\frac{1}{100}$
 (d) $\frac{1}{100}$ (e) $\frac{1}{100}$ (f) $\frac{1}{100}$
 (g) $\frac{1}{100}$ (h) $\frac{1}{100}$ (i) $\frac{1}{100}$

4. Calculate the following.

(a) $0.963 + 0.45 =$
 (b) $0.06 + 0.23 + 0.006 =$
 (c) $2.668 - 0.912 =$
 (d) $5.689 - 0.56 =$
 (e) $5 + 0.1 + 0.033 =$
 (f) $6 - 0.442 =$
 (g) $10 + 0.005 + 0.56 + 0.031 =$
 (h) $3 - 0.009 =$

5. (a) What is the sum of 3, 0.7 and 0.003?
 (b) What is the difference between 5 and 0.015?
 (c) From the sum of 9 and 1.368 take 0.1.
 (d) To the sum of 2.36 and 0.009 add the difference between 3.06 and 1.049.

Page 130: Decimals

Decimals - Early Finishers

1. Write each of the following as a decimal number.

(a) $\frac{1}{10}$ (b) $\frac{1}{10}$ (c) $\frac{1}{10}$
 (d) $\frac{1}{100}$ (e) $\frac{1}{100}$ (f) $\frac{1}{100}$
 (g) $\frac{1}{100}$ (h) $\frac{1}{100}$ (i) $\frac{1}{100}$

2. Calculate the following.

(a) $6 + 0.45 + 0.002 =$
 (b) $5 - 0.126 =$
 (c) $3.14 + 0.117 + 0.021 =$
 (d) $17 - 2.689 =$
 (e) $0.134 + 2 + 1.689 + 0.003 =$
 (f) $76.002 - 0.416 =$
 (g) $0.009 + 12 + 1.472 + 0.014 =$

3. Calculate the following.

(a) A shoe box with a pair of shoes inside weighs 2.095 kg. The shoes weigh 1.902 kg. How heavy is the box?
 (b) A table lamp weighs 1.605 kg. How much would three such lamps weigh?
 (c) A mini-marathon is 18 km long. Anand has travelled 7.835 km. How far has she yet to go?
 (d) Carry weight is 0.005 kg. Each weight is 0.27 kg. What is their total weight?
 (e) Sam's school bag is 6.112 kg in weight. Sam's bag is 0.5 kg lighter. What is the weight of Sam's bag?
 (f) Mike cycles 0.005 km to work every day. Enda cycles 0.5 km further than Mike. What is the length of Enda's cycle to work?
 (g) A jug holds $\frac{3}{4}$ litres of water. A cup holds 0.5 litres less than the jug. How much water can the cup hold?
 (h) What is the difference in weight between a 5 kg bag of sugar and a 5 kg spoon of sugar?

Page 131: Decimals

Linkage

Place Value: Place value of decimal numbers up to 3 places

Measures: Length – Fractional and decimal quantities of length

Measures: Weight – Fractional and decimal quantities of weight

Measures: Capacity – Fractional and decimal quantities of capacity

Measures: Money – Expressing cent using decimal point

Integration

PE: Express distances as a decimal fraction of a kilometre

SESE Science: Use decimal fractions for quantities involved in experiments

English: Use decimal fractions in oral language, e.g. instead of using 15 minutes use 0.25 of an hour

SESE Geography: Use of decimals in human environments, e.g. shops

Maths at home/parental involvement

1. Examine mobile phone and landline telephone bills for examples of decimals up to 3 decimal places.
2. Examine other household bills for examples of decimals being rounded to the nearest cent.
3. Look at www.xe.com for examples of currency values using decimal points.

Notes