

Negative numbers

National Curriculum attainment target

- Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero

Lesson objectives

- Count backwards through zero with negative numbers
- Interpret negative numbers in context

Prerequisites for learning

Pupils need to:

- understand the number system
- count backwards from any two-digit number

Vocabulary

negative number, negative, positive

Success criteria

Pupils can:

- continue counting beyond zero
- use the pattern of positive numbers to count in negative numbers
- use number facts to work out differences between temperatures



Getting Started

- Choose an activity from Number – Number and place value.
- Choose a game or activity from *Fluency in Number Facts: Y5/Y6* – Number and place value.

Teach

Resources

mini whiteboard, pen and eraser (per child)

Collins
Connect
Year 5, Unit 5,
Week 1



- Ask: **What is a negative number?**

- Listen to children's ideas. Establish that when numbers get to zero they just carry on. Any number less than zero is called a negative number.



- Say: **Take turns to say alternate numbers and count back from 0 to -20.**

- Repeat for counting from -10 to -30.



- Write -34 on the board. Say: **Every time I clap my hands, count back from -34 in your heads. When I fold my arms I am finished.** Clap in a rhythmic way at an appropriate speed for your class. Fold your arms after about eight claps.



- Ask several children what number they have in their head before saying the correct number. Repeat from different starting numbers.



- Ask: **What are the similarities between positive and negative numbers?** Establish that the numbers follow the same pattern as positive numbers, although the values work in the opposite way.

- Display: Slide 1.



- Ask: **If I count back 9 from -7 what number will I land on?** Ask a pair to explain how they worked it out. Some children may say they counted back nine; others may say they used their number facts to work out the answer, e.g. 9 and 7 more is 16. Count back on the number line as a class.



- Ask: **If I count back 13 from -16 what number will I land on?** Ask some children for their answer and then jump back on the number line as a class.

- Repeat with other numbers. Expect children to use their understanding of number to work out the answers mentally.



- Display: The Thermometer tool.

- Set the temperature to 8 °C. Say: **One place where negative numbers are used is in measuring temperatures. Temperatures are measured in degrees Celsius.**

- Say: **When the weather gets colder the temperature goes down and can go into negative numbers when it is very cold.**



- Say: **Watch what is happening to the temperature now and tell me how much it has changed by.** Make the thermometer go down to -6°C .
- Ask some pairs to share their ideas. Establish that the temperature got colder and went down 14 degrees Celsius.
- Repeat for other changes in temperature.



- Say: **Write a positive and a negative temperature on your board.**
- Say: **Swap boards with your partner and work out the difference between their two temperatures.**
- Ask pairs to swap back and check their partner's answer.
- Repeat several times.

Individualised Learning

Refer to Activity 3 from the Learning activities on page 217.

Pupil Book 5B: – Page 8: Negative numbers

Progress Guide 5: – Extension, Year 5, Unit 5, Week 1, Lesson 3:
Race to zero

Resources: 0–9 dice (per pair); counter
(per child)

Plenary

Resources

large 0–9 dice (per class)

- Divide the class into two teams. Write Team A and Team B on the board and zero underneath each team name.
- Team A rolls the dice. Tell everyone in Team A to subtract the number from their current score in their heads.
- Ask three or four members of the team for their answer. Then write the new score on the board for each team.
- Repeat until one team scores -50 . They are the winners.



Homework Guide 5

Year 5, Unit 5, Week 1, Lesson 3:
Negative counting

Overcoming Barriers

- Children may find negative numbers challenging as it is an abstract concept. Give them plenty of counting opportunities supported by a number line so they have a visual image.