

ODDS AND EVENS: Sequence Overview

Summary of learning goals

This sequence focuses on developing students' understanding of the properties of odd and even numbers. They explore the results of adding and subtracting odd and even numbers and use these results to make generalisations. The primary generalisation that forms through the sequence is that adding an odd number of odds will always produce an odd total. Students apply this generalisation to solve problems and to explore patterns.

Australian Curriculum: Mathematics (Year 4)

ACMNA071: Investigate and use the properties of odd and even numbers.

ACMNA083: Find unknown quantities in number sentences involving addition and subtraction and identify equivalent number sentences involving addition and subtraction.

Summary of lessons

Who is this Sequence for?

This sequence has been designed for Year 4 students. It requires them to have an understanding of what makes a number even or odd. They need to see even numbers as numbers divisible by 2 with no remainder and odd numbers as those with a remainder of 1 when divided by 2. The tasks require students to employ their mental computation skills.

We value your feedback after these lessons via <link to be advised>

Lesson 1: Number Maze

The task presents students with a number maze. As they move through the maze they need to total the numbers on the path they follow. The challenge is to complete the maze with an odd total. By exploring possible solutions to the maze, the students form generalisations about the results of adding odd and even numbers. They see that an odd number of odds in the sum is required to get an odd total.

Lesson 2: 10 to 1

This task challenges students to use addition, subtraction and the numbers 10 down to 1 to make a total of 27 and a total of 12. They will see that it is only possible to create an odd total with these numbers. Students look at the largest and smallest positive totals for the problem. They also look at how they can modify the task to create even totals.

Reflection on this sequence

Rationale

An important aspect of algebra is that of generalising number and arithmetic structures. This sequence focuses on forming generalisations when performing additive calculations with odd and even numbers. Students explore addition and subtraction with differing amounts of odd and even numbers to determine if their sum will be odd or even. Students' understanding and the ability to form a generalisation is reliant on understanding odd numbers as those numbers that, when divided by two, have a remainder of 1 and then even numbers as those that can be evenly divided by two.

reSolve Mathematics is Purposeful

This sequence encourages students to experiment, form hypotheses, and then test and prove their theories. It draws on prior knowledge but introduces new contexts for study. It is a rigorous examination of a simple set of concepts with practical applications to number sense.

reSolve Tasks are Challenging Yet Accessible

Both tasks in this sequence begin with students being given an unstructured problem and then allowed time to interact with the problem on their own terms and to experiment with its possibilities. As the sequence focuses on finding and testing hypotheses, a range of approaches to suit student skill levels are provided. The lessons focus on students sharing and working together to recognise patterns in their collective data, and are structured so that all students can make a valuable contribution.

reSolve Classrooms Have a Knowledge Building Culture

This sequence relies on the class to collect and analyse data as a group. Independently, students will struggle to collect enough data to draw generalisable conclusions. The focus here is independent exploration and then collective discussion and analysis in which each student provides their own particular examples.