SHOES: Sequence Overview

Summary of learning goals

Students sort, classify and represent data. They make observations and simple inferences based on the data.

Australian Curriculum: Mathematics (Foundation)

ACMNA005: Sort and classify familiar objects and explain the basis for these classifications. Copy, continue and create patterns with objects and drawings.
ACMSP011: Answer yes/no questions to collect information and make simple inferences

Summary of lessons

Who is this Sequence for?

This sequence is for students in Foundation. It has been written as an introduction to statistics and so students do not need to have prior experience in data collection and reading data. Students should be able to count with one-to-one correspondence to at least 20.

Lesson 1: Shoes

This task gathers and represents the data on the shoes that students wear to school. The class works together to sort their shoes into different categories of their choosing. They then organise and represent this using a picture graph. Students then use the data in the graph to answer questions and make simple inferences.

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Reflection on this sequence

Rationale

This sequence focuses on developing the fundamental understanding of variation in data through a meaningful context.

> "A major objective of statistics education is to help students develop statistical thinking. Statistical thinking, in large part, must deal with this omnipresence of variability; statistical problem solving and decision making depend on understanding, explaining, and quantifying the variability in the data. It is this focus on variability in data that sets apart statistics from mathematics."
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> GAISE Report: A Pre-K–12 Curriculum Framework, Endorsed by the American Statistical Association

> "The focus on variability naturally gives statistics a particular content that sets it apart from mathematics, itself, and from other mathematical sciences, but there is more than just content that distinguishes statistical thinking from mathematics. Statistics requires a different kind of thinking, because data are not just numbers, they are numbers with a context. In mathematics, context obscures structure. In data analysis, context provides meaning."
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> Moore, D. and Cobb, G. (1997). "Mathematics, Statistics, and Teaching," American Mathematical Monthly, 104, 801–823.

reSolve Mathematics is Purposeful

- The lesson introduces the fundamental concept of variation in statistics
- The context of shoes is personally significant to students and enables students to meaningfully analyse the data and make inferences

reSolve Tasks are Challenging Yet Accessible

- The collaborative nature of this task provides access for all students
- Challenge is provided to students as they are asked to make inferences and draw conclusions of varying complexity based on the data presented

reSolve Classrooms Have a Knowledge Building Culture

- The task is completed as a class, allowing students to learn from others' contributions. This allows students to build on the collective knowledge on the class while also extending their individual understanding.