re(Solve) MATHS BY INQUIRY

HANDFULS: Sequence Overview

Summary of learning goals

This task focuses on building students' counting skills, particularly their ability to subitise a collection. Students consider ways of structuring a collection so that the total can be quickly identified. They will see that some arrangements for numbers are more quickly identifiable than others. Opportunity to explore additional skills in skip counting, addition and partitioning may arise through the task.

Australian Curriculum: Mathematics (Foundation)

ACMNA001: Establish understanding of the language and processes of counting by naming numbers in sequences, initially to and from 20, moving from any starting point.
ACMNA002: Connect number names, numerals and quantities, including zero, initially up to 10 and then beyond.
ACMNA003: Subitise small collections of objects.

Summary of lessons

Who is this Sequence for?

This sequence is for students who have developed early counting skills, including one-to-one correspondence and cardinality. They should have confidence and accuracy when counting a collection of objects up to at least 20. It is also important that students have had some exposure to activities involving subitising. These opportunities should include, but are not limited to, recognising dot arrangements on dice, subitising flash cards and the use of ten frames.

Lesson 1: Handfuls

This task asks students to take a 'handful' of counters and to count how many they have. They are asked to organise their count in a way that makes it easy to see the total of the collection. Students participate in a gallery walk and consider the way that others in class have arranged their collection. The benefits of different arrangements are considered. Students are then provided the opportunity to re-organise their collection.

Reflection on this sequence

Rationale

Subitising is a fundamental aspect of developing students' sense of numbers. Children are able to instantly recognise numbers up to four or five, an ability known as perceptual subitising. Students can build on these smaller parts to recognise larger numbers, for example recognising six as two groups of three or seven as one group of three and another group of four. This development is known as conceptual subitising.

Conceptual subitising also works to develop a part-part-whole understanding of numbers, that is, that a number can be represented as the sum of smaller parts. Seven is three and four, but it can also be represented of as six and one or five and two. This understanding is foundational for fluency with operations.

reSolve Mathematics is Purposeful

This task is designed to build students' perceptual and conceptual subitising skills and to deepen their number sense. This is accomplished by encouraging students to move from counting by ones to visualising a collection. While subitising is an innate process it is also a skill that needs to be practiced, particularly in regards to conceptual subitising. Asking why some arrangements might be easier to subitise than others requires students to practice critical reflection on their own skills.

reSolve Tasks are Challenging Yet Accessible

This task draws on concepts that students are already familiar with, and incorporates commonly seen arrangements that are easily subitised such as dice, cards, ten frames etc. It also begins with an accessible common experience of estimating the count of their handful.

The task has a low floor, as counters can be simply counted in ones. Students can use some simple subitising patterns that can be perceptually subitised without necessarily moving to conceptual subitising. The high ceiling of the task allows students to consider multiple representations and the benefits of some arrangements over others. It also provides opportunity for building additional skills such as skip counting and considering some early place value concepts.

reSolve Classrooms have a Knowledge Building Culture

The lesson promotes sharing of strategies by setting aside time for silent observations and creating a gallery of student work. As students participate in the gallery walk, they consider the organisational strategies used by others. The opportunity to re-order their collection allows them to experiment with the thinking of others and adopt it as their own newly formed understanding.

Students are required to verbalise their reasoning for their solutions and are encouraged to share insights and responses. The lesson relies on collaboration through peer feedback and students' ability to work with others to develop ideas.

Acknowledgements