re(Solve) MATHS BY INQUIRY **How Many Birds?**

Y1

Summary of learning goals

- To build students' ability to unitise a group using skip counting strategies. For example, when skip counting by 5s, students shift from seeing five individual ones to seeing one group of five.

Australian Curriculum: Mathematics (Year 1)

ACMNA012: Develop confidence with number sequences to and from 100 by ones, from any starting point. Skip count by 2s, 5s and 10s, starting from zero.

Summary of lessons

Who is this sequence for?

- Students should be beginning to apply skip counting sequences when counting a collection of objects. They should have well-developed counting skills with one-to-one correspondence.
- Students should be able to count large collections (greater than 50) by 1s with accuracy and be familiar with reciting skip counting sequences, including 2s and 5s.
- Students should also have an understanding of sharing fairly, and creating and recognising equal groups.

Lesson 1: How Many Birds?

Students are presented with a picture of a large number of birds sitting on telegraph wires. They use their own strategies to work out how many birds are in the picture. Students are then encouraged to consider efficient counting strategies and to re-count the collection by grouping birds and using skip counting strategies.

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Reflection on this sequence

Rationale

Multiplicative thinking is the ability to think about, compare and work flexibly with multiplicative relationships. Due to its complexity, multiplicative thinking is developed through mathematical reasoning over an extended period. One important understanding on the path to multiplicative thinking is that of *unitising*. Unitising describes the cognitive process of recognising a group as a unit. For example, students recognise that five ones can be seen as a group; that is, one group of five. When students are able to view a large collection in terms of unitised chunks, the counting process is simplified. Although skip counting is an additive process of repeatedly adding equal-sized groups together, it introduces the idea that a group can be used as a unit.

The value of unitising extends beyond just counting. Understanding a unitised group is essential for students to fully understand place value, where 10 ones are regrouped as one group of 10, 10 tens are regrouped as 1 hundred and so on. Unitising is essential for working fluently with multiplication when students learn that the unitised group can be multiplied by the number of groups to give the total in a collection.

reSolve mathematics is purposeful

- This task focuses on the substantial mathematical idea of unitising to skip count a large collection.
- Skip counting is a skill used beyond the mathematics classroom; it is regularly used in everyday life.

reSolve tasks are inclusive and challenging

- This task activates students' prior knowledge of equal groups and counting sequences, extending this to skip counting a collection.
- Students are challenged to look beyond just skip counting by a familiar number, to exploring the picture and deciding the skip count group based on the arrangement of the objects in the picture.

reSolve classrooms have a knowledge-building culture

- It is anticipated that students will initially count in ones, which will make it difficult to keep track of the count and create a high chance of error. Seeing the variation of answers across the class motivates students to re-count and come to consensus.