

# Grandma's Soup

## Lesson 3: Develop Phase

### 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

- Developing fluency with forwards counting in a meaningful context

**ACMNA013:** Recognise, model, read, write and order numbers to at least 100. Order these numbers on a number line.

- Modelling numbers with a range of materials.
- identifying numbers that are represented on a number line and placing numbers on a number line

**ACMNA014:** Count collections to 100 by partitioning numbers using place value.

- Understanding partitioning of numbers and the importance of grouping in tens.

**ACMMG019:** Measure and compare the lengths and capacities of pairs of objects using uniform informal units.

### Lesson abstract

Students use the evidence they have gathered to have a last 'grab' of macaroni. From all the grabs in their group, they select the one closest to 100. They recount this selected grab using a variety of strategies and collectively decide on their most efficient strategy for counting numbers around 100. They gather pictorial evidence of both the count and the counting strategy to use as evidence in the Defend stage.

### Mathematical purpose (for students)

Some ways of counting are more efficient than others.

### Mathematical purpose (for teachers)

Counting in 1s and 2s is a strategy used to count small groups and to make groups for counting larger numbers. Grouping objects into 5s or 10s is a very good way to count large numbers and supports easy checking. Gathering evidence allows us to justify and explain our thinking clearly to others.

Lesson Length          60 - 90 minutes approximately (may be split into two sessions)

#### Vocabulary Encountered

- efficiently
- evidence
- groupings/groups
- skip counting

#### Lesson Materials

- ordered hand display from Discover phase
- completed number line from Devise phase
- completed recording sheets from Devise phase
- device for taking photographs
- macaroni (reuse from previous lesson)
- [Student Sheet 2 - Recording Sheet: Develop](#) (one per group)
- Evidence Triangle poster (optional, see *Mathematical Inquiry into Authentic Problems Teachers' Guide*)

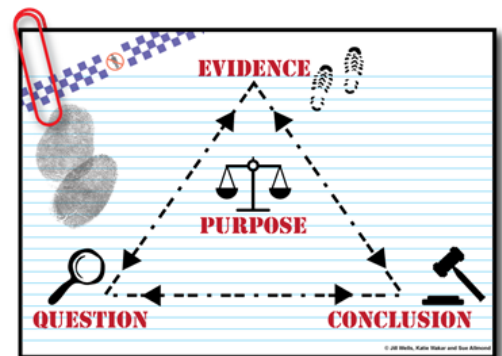
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# Improving Strategies to Grab 100

**Inquiry Question:** How can we grab 100 pieces of macaroni?

1. Explain to students that evidence is important to be able to both find and convince others of our answers, just like a detective. Optional: introduce the Evidence Triangle (right) as a way to remind us to be detectives and look for evidence (see the *Mathematical Inquiry into Authentic Problems Teachers' Guide* to download images of the Evidence Triangle and for more explanation of its use). For this age level, the focus is primarily on the using the word "evidence".



2. Refer to the Inquiry question. *We have been working on ways to grab 100 pieces of macaroni. Are we getting closer to 100? Does anyone have any evidence to show us how many your group grabbed yesterday? Can you explain how you know you are getting closer to 100?* Have students use their recording sheets to show evidence of their findings. Listen carefully for any possible misconceptions and use as possible teaching moments.

Prompt students to explain why and how they have reached their conclusions.

- Why is it close? How far away from 100 is it?
- How did you decide whether it was close? Can you show me on the number line?
- Is there anyone closer?
- Which was your closest grab?
- What did you do to try to change your total?

Possible responses:

**Sam:** I had 63 the first time and it was not close to 100. When I took a bigger handful, I got 141. It was too big. The last grab was 95. That is really close to 100. I just needed 5 more.

**Jess:** My number was 107 and that is not close to 100 because it is too many (misconception). I thought I would get closer if I used 2 handfuls but it went way over 100. I made my 2 handfuls smaller to see if I could get close to 100.

**Mario:** My first grab was 93 and it was the closest but not closer than Jess or Sam's grab. Jess only missed by 2 and I missed by more than 2.

Recording sheet: Devise stage

How many pieces of macaroni in my handful?

Name	Grab 1	Grab 2	Grab 3	Grab 4	Grab 5	Grab 6	Grab 7
Sam	63	141	95				
Jess	107	134	98				
Mario	93	108	88				

Number Line:

3. Guide students towards refining their method of grabbing 100 and counting efficiently. *Today, let's see if your group can grab even closer to 100. Maybe someone will grab exactly 100! Who can remember some of the successful strategies used yesterday? Who heard a strategy that they may like to use to get closer?*
4. Review the summary of efficient counting from the Devise phase and the need for checking the count and recording.

## Best Way to Count 100 Pieces of Macaroni

5. For the final attempt, each student will use the knowledge gained about the size of a handful of macaroni to grab as close as possible to 100 pieces. In their groups, have each student in turn make and count their grab. Have the group check all the counts before recording on [Student Sheet 2 - Recording Sheet: Develop](#).
6. After the totals are recorded, students use the number line to compare and to show whose grab is closest to 100. The handful of macaroni closest to 100 is retained. Macaroni in the other grabs is returned to the bowl. Each student is involved in:
  - Recording the total of each grab.
  - Determining which grab is closest to 100.
  - Recording the strategy used to get the grab closest to 100.
  - (Leave completion of the 'most efficient way to count' until the next lesson.)

Recording sheet: Develop stage

How many pieces of macaroni in my handful?

Name	Grab
Ampika	132
Sarah	70
Devan	85
Leticia	99

The closest number to 100 is  
**99**

The most efficient way to count my macaroni is

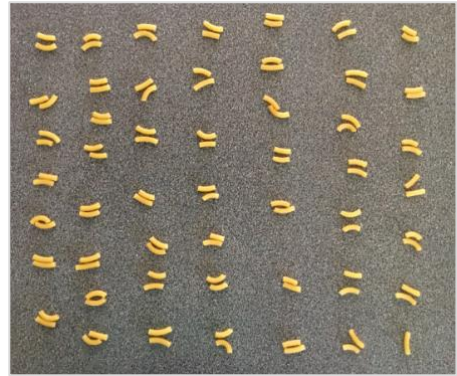
Number Line:

7. The retained grab becomes the final grab for the group. Ask each student to use a different counting strategy to count the final grab, and demonstrate to the group how the total was reached. If possible, photograph each different attempt as a record for the presentation in the next lesson (Defend phase). See examples below. The whole group is involved in:
  - Counting the final grab.
  - Gathering pictorial evidence of the various ways used to count the final grab.
  - (Next lesson they will compare these methods and explain the best.)
8. Conclude the lesson by introducing the task for next time. *Next lesson, your group is going to convince the rest of the class that your grab was 100 or close to 100, and decide what is the best way is to count 100 macaroni.*

## Examples of students' different ways to count 99 pieces of macaroni



99 pieces of macaroni



Counted in 2s to 98 and counting on 1 to 99



Counted in 1s to make lines of 10.  
Counted in 10s to 90 and ones from 90-99.



Counted in 5s to 95 and counted on to 99



Counted in 1s to make bundles of 20. Made bundles of 5 with the left-overs. Counted in 20s to 80, then 5s, then ones.

20, 40, 60, 80, 85, 90, 95...96,97,98,99



Counting in 1s to make a bundle of 50 and a bundle of 49. Counted from 50 in 1s but there weren't 2 bundles of 50.

Making groups of 5 to count left overs.



How many pieces of macaroni in our handfuls?

Name	Grab

The closest number to 100 is

Our best strategy for grabbing 100 macaroni is

The most efficient way to count the macaroni is

Number Line:

