

## Mathematics 2

### Week 1 Day 2

#### Lesson Plan Title

Estimating and Counting Sets: How Many in the Bag?

#### Lesson Summary

Working in small groups, students will estimate and then count a set of objects (between 21 and 50 objects). Students may use a variety of counting methods to determine the quantity.

#### Curriculum Outcomes

N01, N04, N06, N10

#### Assessment Of Learning or Assessment For Learning

Observation, Conversation, Product

- Were students able to give a reasonable estimate for the collection of objects?
- Did students' estimates become more accurate as the activity progressed?
- Were students able to organize their objects to make counting more efficient?
- Did their count match the number of objects in the bag? Was the final count accurate?
- Were they able to record the number symbolically?
- Did students count in a variety of ways (by 1s, 2s, 5s...)?
- Did students understand that when counting by 2s (or 5s) they need to take two (or five) objects at a time as they count?
- Do students understand that it is sometimes necessary to combine different types of counting in order to find the quantity of the set? – If given 47 counters, did they count by 5s to 45 then by 1s or 2s to 47?
- Were students able to record their counting results in a manner that was easily understood by others?
- Were students able to recreate their counting groups pictorially?

#### Communication/Vocabulary

- number words
- numeral
- skip counting
- estimate
- groups of

#### Technology

- none

#### Materials

- enough bags of objects for each group to count several bags – each bag should contain between 21-50 objects and should be labelled with a letter
- chart paper for recording (divided into fourths – one section for each bag completed)
- color daubers, stamps and stamp pads, or crayons/marker

## Mental Mathematics

Math Makes Sense Unit 3 Lesson 9 TR page 55 “Before” – Begin to review the “one more”, “two more” addition facts

### Development

#### Before

Activate prior knowledge by asking students to orally say the number sequence forward and backward by 1s to 100 and by 2s forward to 20.

Explain that each group of students will be provided with a bag of objects. Note that each bag has a letter on it. Tell students that they will look in the bag and estimate the number of objects in the bag. They will label one section of the chart paper with the letter on the bag. They will use that section of the chart paper for all of the recordings for that bag. Each student will record his/her estimate on the chart paper. Estimates should be recorded in a thought bubbles around the edge of section. Then, as a group, they will count the objects in the bag and record numerically the quantity of objects in the bag. This should be recorded in the center of the section of the chart paper. They should also draw a picture of the objects in the bag using a colour dauber, stamp pad, or marker. The picture should be drawn in the same section of the chart paper, and should represent how the students counted (by 1s, 2s, 5s, etc.). When all tasks (estimate, count, and drawing) are complete for the bag, students get another bag and repeat the tasks.

#### During

Students work with their group to complete the task. Groups may complete up to four bags.

Circulate and observe how students are organizing, counting and recording their sets. Record anecdotal notes as necessary.

- Were the students able to give a reasonable estimate for their collection of objects?
- Did students organize their objects to make counting more efficient?
- Did their count match the number of objects?
- Were they able to record the number symbolically?
- Did students count in a variety of ways such as grouping the objects by 2s or 5s or did they count by 1s?
- Did students understand that when counting by 2s (or 5s) they need to take two (or five objects) at a time as they count?
- Did students understand that it is sometimes necessary to combine different types of counting in order to find the quantity of the set? – If given 47 counters, did they count by 5s to 45 then by 1s or 2s to 47.
- Can all members of the groups explain or do the count?

#### After

Debrief the lesson and draw out key ideas about the lesson. Areas of focus for the discussion may include the following or other topics based upon observations.

Ask students to share their group’s recordings with the class.

- Were your estimates reasonable?
- Did your estimates change as you had more opportunities to estimate and count?
- Did you organize your objects to make counting more efficient?
- Did your count match the number of objects?
- Did your method of counting change from one turn to the next? Why or why not?
- How did you record the number symbolically?
- How did you count (by 1s, 2s or 5s) the objects in your set? Were there other ways you could have counted the

objects? Did you always count by the same number or did you count by different numbers?

- Explain how you counted by 2s (or 5s). (Did they take two (or five objects) at a time as they counted?)
- Was it sometimes necessary to combine different types of counting in order to find the quantity of the set? (If given 47 counters, did they count by 5s to 45 then by 1s or 2s to 47?)
- Can everyone in your group explain how you counted or can they do the count?
- What way do you like to use when counting?
- Which way of counting took a longer time?
- Are some ways of counting more efficient or quicker than others?
- What makes a method of counting efficient or quick?
- How did you decide the way you would count?
- Which bag held the most objects? Which bag held the fewest objects?
- Can we order the bags based on the number of cubes they held?

NOTE: Information gathered during the observation will be used to direct the after section of this lesson.

If many or all of the students were counting by 1s, and not grouping and counting by 2s or 5s, then the focus for the after section of the lesson would be on how to make counting more efficient by grouping objects and counting by those groups. Use the evidence that you observed to facilitate a discussion on how students counted the counters.

### **Differentiation**

- Provide bags containing fewer than 20 objects for groups that need that support.
- Provide a hundred chart to support students if they wish to skip count to find the total.
- Provide bags of objects with more than 50 counters for groups that organize and count the first bag with ease.
- Ask students to count the collection of objects in more than one way and to explain why the count is always the same.