Tea Party
Lesson 3: Develop Phase

Australian Curriculum: Mathematics (Foundation Year)

ACMNA289: Compare, order and make correspondences between collections, initially to 20, and explain reasoning.

- Comparing and ordering items of like and unlike characteristics using the words 'more', 'less', 'same as' and 'not the same as' and giving reasons for these answers.
- Using objects which are personally and culturally relevant to students.

ACMNA003: Subitise small collections of objects

- Using subitising as the basis for ordering and comparing collections of numbers.

Lesson abstract

Students use their placemats from the previous lesson to determine how many of each item they will need for each guest at their tea party. They then see if there are enough items available for the whole class. The develop phase allows the students to use this information in preparation for the big event. There are repeated opportunities to count and recount and for students to check their counts with peers and the teacher.

Mathematical purpose (for students)

We will find out the number of items needed for all the guests at our tea party.

Mathematical purpose (for teachers)

Students use their placemats to draw what they need for all their guests, to count and test to see if they have enough items for guests at their tea party. They also count the number of items for the whole class, which brings in larger numbers. Verbal counting skills are strengthened by checking the count of objects needed and students learn the position of numbers in relation to other numbers. There is an opportunity to count to 20 and beyond, with teachers able to observe common counting errors. Planning is refined through iterative sharing and feedback, recounting in any order to confirm the total amount.

At the end of the Develop phase, students will be able to:

- connect number names, numerals and quantities, including zero, up to 20 (and possibly beyond);
- connect the number of people in a group to the number of objects they would need for a tea party.

Lesson Length 1 hour

Vocabulary Encountered

- test
- refine
- accuracy/accurate
- plan

Lesson Materials

- From previous lesson: placements, group lists, word wall
- Student workbooks
- Counting board/100 board

We value your feedback after these lessons via https://www.surveymonkey.com/r/CV2TXTT

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Counting for Your Group

Teacher Note

Use the ordered list of indicators below to check student progress (from Van de Walle, et al., 2014, p.132)

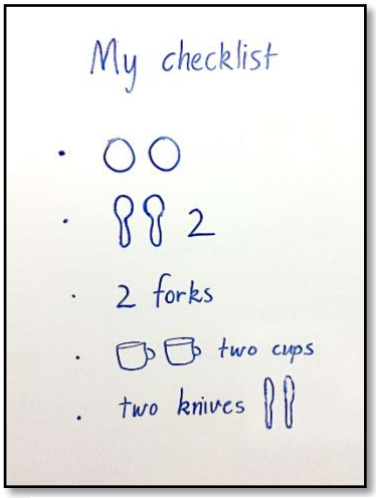
- The child can recite numbers.
- The child explicitly applies one-to-one correspondence (touches each item once as they count).
- The child accurately counts people and items in their representation
- The child counts meaningfully. (Confidently explains how they know there is the same number of items as guests.)

Practise subitising

1. Use photographs of student drawings to practice subitising as a warm up task during the beginning of lessons. These photos can be cropped if necessary, to include a small group of objects, then displayed digitally for all students to practise subitising e.g. 3 could include a plate, cup and spoon, or 5 could include 5 plates. Initially show for a short time, to encourage quick recognition, then show again.

Planning the tea party

2. Determine **the planning decisions** to be made (e.g. the number of guests at the party and the items needed for each guest as shown on each placemat).
    - Ask: *How will you show what you need for your whole group?*
    - You may wish to negotiate and/or articulate constraints in terms of food and drink items students wish to include.
3. **Students will plan their tea party by** matching the number of items they need to the number of people at their party using the information on their placemat (regarding *which* items to include). Gather a few ideas about how to represent this, with additional suggestions from the teacher. Students may decide (with help) to draw the whole table with the guests and items for each guest, or make separate drawings for each set of items (5 plates, 5 cups, 5 serviettes), or create a checklist of items they will need.
4. **Model different ways to plan by representing the number** of items needed for the tea party. For example, let's think how many cups I will need for me and Alicia to have a tea party. How many people are in my group? (2). How many cups will I need? I will draw two cups and write the number two so that I know how many cups I will need.
5. Ask students to start with one item from their placemat and to consider how many of this item would be required for everyone at their tea party to have one.



Model how to represent the items needed for your tea party. Discuss how some representations are labelled better than others. Is it easy to see what the first 2 circles represent (plates)? No, they have no label.

6. **Each student draws** their own representation of the items they will need for their tea party so that everyone has a table setting. Refer students to their placemats to make sure they have considered each item.
    - Students will need to check each other's drawings to ensure each person in the group has included the same items.
    - Students' representations can include labelled pictures, numerals and numbers in words, to connect number names to objects needed for the tea party.
    - There is a further opportunity to count all the items that will be needed.
7. **Circulate** and engage with students to discuss what they are drawing. Highlight opportunities to count and recount to confirm the number of items students propose. Compare different representations to consider bigger/smaller numbers, counting, and amounts that are the same or different. Ask students if anyone used the number zero in their efforts.

8. **Provide students** with opportunities to share their representations with peers to seek feedback. Explicitly teach how to give feedback such as, pointing to and counting objects to determine the count.
    - Verbal counting skills can be strengthened by checking the count of objects needed and they learn the position of numbers in relation to other numbers (The State of Queensland, 2006).
    - If peers find errors, model how a student can suggest changes to the author in order to improve their representation and the mathematics involved.
9. The develop phase may take more or less than 1 lesson depending on the iterations of sharing and revising. Continue this process if students are responding to feedback, but check that momentum is not lost.

Counting for the Class

Working out what we need altogether

Select two or three items that all groups are using, such as plates and cups. Now students will count the number needed for the class, to provide opportunities for higher counts.

10. **Tell students that we need to check** if we have enough of each item for the whole class to have a big tea party. Have students sit in a circle and count the number of students in the class. Count in a different direction to demonstrate that the total number does not change when students are counted in a different order.
11. **Connect** the number of students to the number of objects needed for the tea party. "There are 21 people in our class. We will need 21 cups. We will need 21 plates. We will need 21 serviettes".
12. **Ask students** to check if there are enough objects for everyone in the class to have a tea party.
    - Start with cups, for instance. Ask a student to count to check if there are enough for everyone.
    - Purposely present roadblocks by providing a lesser or a larger number of objects than is needed.
    - Errors in counting can provide key teaching opportunities.
13. **Ensure all students** can observe the counting process being used.
14. **Watch out for likely errors, and discuss.**
    - Students may take a cup from the stack and count it as they make a new stack. Students may miscount in this way.
    - Students spread cups out on the floor to count. Students may miscount in this way as they double count some cups or miss others entirely.
    - Students may choose to rearrange the stack of cups into a long line. Discuss why this is good. Encourage arrangements which enable checking.

Review

15. **Check for understanding.** Review counting, such as the number of cups a particular group will need. Compare to the number of cups a different group needs. Ask students to explain how they know the amount of cups each group needs. Which group needs more cups? How do you know? Ask if any groups recorded zero number of items. Why not?
16. **Extending prompt:** Ask students to predict how many objects in total will be on the table at each tea party. Ask students to make predictions and explain how they came to that number, then count.

References

The State of Queensland (Queensland Studies Authority) (2006). *Early years curriculum materials: Developing early mathematical understandings*. Retrieved from https://www.qcaa.qld.edu.au/downloads/p_10/ey_lt_maths_understandings.pdf

Van de Walle, J. A., Karp, K. S., & Bay-Williams, J. M. (2014). *Elementary and middle school mathematics. Teaching developmentally* (8th int'l ed.). Essex UK: Pearson.