

Teddy Bear Game

This game-based assessment tool is played between teacher and child. The simple and sequential series of tasks allow teachers to examine a range of quantitative reasoning skills, including: knowing number names, one-to-one correspondence, cardinality, comparison of sets, numeral recognition and understanding, and joining sets problems.

Connecting to the CCSSM: K.CC.1, K.CC.2, K.CC.4, K.CC.5, K.CC.7, K.OA.1, K.OA.2, MP.1, MP.2, MP.4, MP.6, MP.7, MP.8

Materials and Preparation

- Teddy bear counters and basket
- Placemats (one for each player)
- Dot cards (See 0–10 dot cards for Teddy Bear Game)
- Numeral cards (no dots)

Activity

- The game is played between teacher and child. Variations of the game increase its difficulty, but they have similar formats.
- To set up the game, ensure that both the teacher and child have a placemat. Put the counters in a basket and put dot or numeral cards face down in a pile between players.

1. Object Counting, Cardinality, and Comparisons (use dot cards from 1 to 5 or 6 to 10, depending on the child's ability)

- The teacher explains, “To play this game, you flip over a card and take the same number of bears as there are dots on your card.” The teacher may want to go first to



model how to play. When it is the child's turn, he or she may either count out dots and find an equivalent set of bears or match bears to dots without counting. Once the child has his or her bears, ask, "How many bears do you have?" (Assesses one-to-one correspondence, object counting, number names, and cardinality.)

- After the teacher and child have each taken a turn, ask, "Who has more bears? Do you have more, or do I, or do we both have the same number?" Ask "How can you tell?" if the child's method of comparison isn't clear. (Assesses comparison of sets.)
- Put the bears back into the basket and play again.

2. Numeral Recognition (use numeral cards from 1 to 5 or 6 to 10, depending on the child's ability)

In this version, numeral cards are used rather than dot cards. When the child turns over the card be sure to ask, "What number is that?" The game continues as described above. After identifying what number is on the card, the child takes that many bears from the basket and the teacher confirms by asking, "How many bears do you have?" (Assesses numeral recognition, object counting, number name consistency, and cardinality.)

3. Combined Set Strategies (use dot cards or numeral cards, depending on the child's ability)

This version of the game is simply a continuation of version 1 or 2. Rather than clearing the bears away after each turn, a new card is turned over and the child takes that many bears. The teacher then asks, "How many teddy bears do you have *all together*?" Children may count all, count on, use a retrieval strategy, or a compensation strategy based on known facts.

Comparing quantities with larger sets will be more challenging, so the teacher may choose to end the task here or ask some children, "Who has more bears?" and "How do you know?" (Assesses comparing quantities and adding-to problem solving.)

4. Joining Sets (use dot cards or numeral cards, depending on the child's ability)

In this final version of the game, each player turns over two cards and takes as many bears as there are dots on both cards. Take note of the strategies children use to construct the combined set. Do they count out each card separately? Do they count how many bears they need all together by counting dots, using their fingers, counting all, counting on, or using a retrieval strategy?

Supporting Their Thinking

There are several levels of quantification to assess for in young children:

- Global quantification: The child takes a handful of bears that seems to match the quantity of dots, but does not attempt to count them.
- One-to-one correspondence: The child puts one bear on every dot to match the quantity.
- Counting: The child counts the number of dots, then counts out the same number of bears. The act of counting involves several aspects. Even when the child attempts to count there are many possible errors, such as incorrect number name sequence or incorrect one-to-one correspondence between the number name and dots or bears. Even when children count confidently and correctly with smaller sets, they may make several errors with larger quantities.
- Comparisons: As they did with single sets, children may use a global response to compare sets (i.e., one set is larger because it “looks” bigger), they may align bears in both sets in a one-to-one fashion (matching strategy), or they may count the number of bears in each set (counting strategy).
- Cardinality: The child can state how many bears he or she has after counting. For smaller sets, children recognize the quantity (subitize) without counting. Larger sets require counting.

Variations

- The game is based as an assessment tool, but it can also be used as a game played by two children to support early counting, cardinality, comparisons, and joining sets. Consider using different counters and different arrangements of dots on the dot cards for variety.

Reference

"Preschoolers' Number Sense" by Sally Moomaw, Victoria Carr, Mary Boat, and David Barnett. *Teaching Children Mathematics*, February 2010, p. 332.

