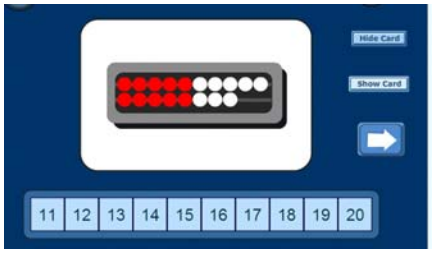
Numbers to Twenty on the Math Rack



The interactive white board tool for this lesson can be found on our website under Resources and Teacher Tools. (www.dreambox.com/teachertools)

Virtual manipulatives are a great way to engage students in communicating their mathematical thinking while offering opportunities for students to develop strategies and model their thinking. DreamBox's MathRack QuickImages are designed to ensure students look for and make use of the five- and ten-structures, and develop automaticity with basic math facts.

Sample Lesson

Objective: Students use multiple strategies to identify the number of beads on the math rack. This lesson is about the students looking for mathematical structure and using it to explain their strategies.

Instruction:

1. The teacher calls on a student to click on the card to show the math rack and instructs the other students to "look carefully and tell us how many beads you see." The student returns to her seat.

2. After the card flips back to the blank side, the teacher invites the students to share what they saw and how they figured out the total. "What did you see? Turn to your neighbor and tell what you think."

3. After a few moments of these paired discussions, start the whole group discussion.

4. Call on a student to explain what they saw and how they figured it out.
   Possible responses:
   - I saw 5 red and 5 white on top with 5 red on the bottom and 4 white on the bottom. (Student may have difficulty coming up with the total.)
   - Another student may agree but states that he saw 10 (either noticing the entire top row has ten or all ten red counters) and counted up from there.
   - I didn't have to count because I knew there were 5 red on the top and bottom that make 10 and five white and four white make 9 which is 19.
   - I know there are 20 in all, and only one is missing, so there are 19.

5. The student who answers moves up to the white board and clicks "show card" and explains his answer. That student finds the corresponding number at the bottom of the board and clicks the "next" button.

6. Repeat the activity above for more cards giving multiple children the opportunity to share their responses and strategies. If students are unable to recognize the number of

Adapted from: Fosnot & Dolk. "Addition and Subtraction Facts on the Horizon." Young Mathematicians at Work: Constructing Number Sense, Addition, and Subtraction (Portsmouth, NH: Heinemann) 106.

beads during the brief “flip” of the card, the teacher may “show card” and give students the opportunity to count the beads; however, the purpose of the activity is to lead students to looking for and using the structure, understanding base 10, and explaining strategies using this knowledge.

Adapted from: Fosnot & Dolk. “Addition and Subtraction Facts on the Horizon.” Young Mathematicians at Work: Constructing Number Sense, Addition, and Subtraction (Portsmouth, NH: Heinemann) 106.