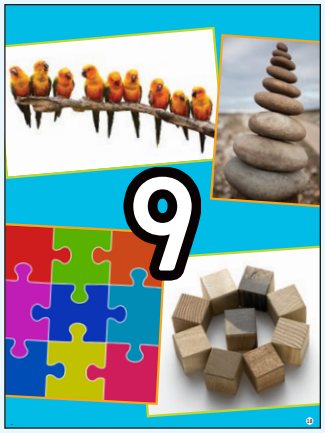
Math Talk 18: Representing 9

Use with *Place Value and Representing Numbers Card 8: Representing Concretely and Pictorially 1–10.*



Math Background for Representing Numbers Concretely, Pictorially, and Symbolically

Numbers can be represented concretely, pictorially, and symbolically. Children need opportunities to represent numbers in many ways, using concrete materials, drawing pictures, using models such as 5- and 10-frames, and writing numerals. They should learn that a numeral is another way to represent a quantity. Representing numbers in different ways helps children understand the meaning of number and helps them see that quantity is not related to the attributes of the objects, such as size, shape, or material.

What to Do

Before: Have children count from 1 to 10. Then encourage them to count to 10 starting at different numbers, such as 3 and 5. Have them represent numbers from 1 to 8 using their fingers. **What comes after 8?**

During: Display ***Representing 9*** on p. 18 of Math Talks. **What do you see?** Have children elaborate on what they see. **Is there anything else on the page that shows 9?** (*the numeral 9*)

Point to the puzzle pieces. **You said that you saw 9 puzzle pieces. Show me how you saw 9. Does everyone agree?** (e.g., *No. I saw 1.*) **Show us how you saw 1.** (e.g., *I saw 1 whole puzzle put together.*) **How many puzzle pieces are there?**

Point to the birds. **You saw 3 birds, 3 birds, and 3 birds. Show me. Are there still 9 birds altogether?**

Point to the wooden blocks. **You saw 9 blocks of wood. How do you know there are 9 blocks? How did you make sure you didn't lose count? Show me.** Point to a different starting point. **Now start at this block. How many blocks are there now?**

Point to the rocks. **You saw big rocks on the bottom and small rocks on the top. What do you think would happen if the smallest rock was on the bottom? Would there still be the same number of rocks?**

Ask children to identify what is the same about the photos. **In which different ways do the photos show 9? How would you show 9 if you took photos?**

After: Have children represent numbers with cubes. Show a cube train with 5 cubes. **How many cubes are in my cube train? How do you know? How can I make my cube train have 7 cubes?** (*add 2 cubes*) **How do you know I have 7 cubes? How can you use the cube train to build a train with 9 cubes?**

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