

Symphony Subtraction (and Addition)

Companion Text: Night Symphony, written by Lara Binn, and illustrated by Valia Ovseyko

Subject Area & Grade Level: Mathematics, Kindergarten

Materials: Five different musical instruments with disparate sounds, such as: triangle, horn, tambourine, rattle/shaker, and washboard.

Objectives

After this lesson, students will be able to:

- Describe the additive and subtractive effects of different numbers of instruments on the sound of the whole set
- Model simple addition and subtraction operations with sums/differences up to 5
- Exhibit an increased ability to associate mathematical symbols with concrete objects

Activity

Read the story once through without stopping. Then, read the story a second time, asking students to point out the objects making sound on each page—the piano, the birdy, the sink, the baby, and the cat. When you get to Saturday Night, ask students if they know what a “symphony” is, and lead them to the understanding that a symphony is many instruments playing at once, coordinated by a person called the conductor. Explain that in this book, instead of instruments, the “symphony” is all the sounds from the other pages happening at once, and that the little boy is the conductor. Point to the set of sound words on the Saturday Night page one by one to see if students can recall the objects that made each sound.

Choose five students to make a line on the side of the room (so they can see both their peers and the board), and give each one an instrument. Tell the students that first you will be the conductor for this symphony of five instruments, and then other students will get a chance to be the conductor and to play the instruments. (If you are working with a group smaller than five students, you can all just play as many instruments as necessary at the same time.) Tell the “musicians” that when you point to them and put your hands up, they should start to gently play their instruments, and when you point to them and put your hands down, they should stop playing right away. Have the first student begin playing his or her instrument, then have each remaining student begin playing along with the others, so that the sound builds gradually. Then, one by one, have students stop playing so that the sound slowly decreases. Ask students to describe what it sounded like when more instruments were playing versus fewer instruments. Guide them into using the terms “added” and “subtracted”, as in, “Every time an instrument was added, the ‘symphony’ got louder,” or “Subtracting an instrument made the symphony quieter.”

Then, invite five different students to come up and take the instruments. Tell students that whoever has not had a turn to participate yet will now get a chance to conduct. Remind students that there are five instruments in total, and tell the conductors that they will get to decide how many instruments play at a time, and that they can make more than one instrument start or stop at once. Tell them also that you will write the “number sentence” up on the board (or paper, if you have a small group) that corresponds to what they choose to do. Demonstrate twice through as



follows before choosing a student conductor. Point to two students at once to start playing, then point to two more and have them start playing along with the first two. While the four of them are still playing, write, “ $2+2=4$ ” on the board, and read the number sentence out loud over the “symphony.” Then, have one of them stop playing, and write, “ $4-1=3$ ” under the first number sentence. While the three “musicians” are still playing softly (remind students to play quietly) call on the first conductor, and guide him/her through his/her choices. For instance, ask what the first number of the number sentence should be (“3,” because there are still three musicians playing”). Then, as the conductor adds or subtracts instruments, reflect those choices in the number sentences you write on the board.

This symphony game might be tricky to get going at first, but after a few rounds (rotate through students, giving them all a chance to be the conductor and play an instrument), you should be able to get most students to be able to say the starting and ending number of instruments by counting. In this way, the students are directly modeling number sentences. For an extra challenge at the end, you can write an appropriate number sentence on the board, and ask for a volunteer to demonstrate how it could be “conducted” with the 5-instrument symphony you’ve constructed. Try to have a roughly equal number of addition and subtraction sentences on the board when you are done, as well as a variety of sums and differences represented, including 0.

Reflection

After everyone is sitting back down and the instruments have been put away, ask students to name their favorite number sentence out of the collection on the board, and to tell why they like it. Many students will be able to remember a particularly funny or memorable musical selection and will associate it with its number sentence. Lastly, ask students how they made the choices they did when they were conducting. Paraphrase their responses and repeat them back, again using the words “add” and “subtract” to reinforce the mathematical terminology introduced in this lesson.

