Introducing Bounce Cards in Math Class

Lesson Overview:

In this lesson, students learn about productive dialogue through the use of Bounce Cards. Two students model a math conversation using a prepared script on multiplying and dividing fractions while others identify conversation stems used. This lesson was used as an introduction to bounce cards and a review of multiplying and dividing fractions, which had been previously taught.

Standards Addressed:

6.NS   Apply and extend previous understandings of multiplication and division to divide fractions by fractions.

Disciplinary Literacy Best Practices

Bounce Cards

Lesson Plan

Time required – One 50-minute Class Period

Disciplinary Vocabulary: fractions, multiplication, division, bar diagrams, operation

Materials Needed:

- o Bounce cards

- o Math Text Book

- o Script for Model Conversation

Assessment: Assessment of Group Dialogue

Engage

- o   The teacher will introduce the class to Bounce Cards as a strategy for dialogue and discuss the meaning of dialogue with the class.

- o   The teacher will explain to students that they will hear a script read by fellow students concerning multiplying and dividing fractions. While the script is being read, students will focus on their Bounce Cards listening for phrases they see on their Bounce Cards and record what they heard.

Explore:

- o   While the selected students read the script to the class, the other students will listen for Bounce Card phrases and record those for future discussion. Students will categorize phrases as "bounce", "Sum It Up", or "Inquire."

Explain:

- o   After the reading is finished, allow time for students to organize their thoughts. Through whole class discussion, the teacher will ask for Bounce Card phrases that were heard during the script reading and have students give examples of what they heard.

Teacher Reflections and Biographical Information

Something I would change in this lesson would not to let it last as long as it lasted. Something that went very well was allowing the students to be the ones that read the script to the class.

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Bounce Card

Bounce:

Take what your classmate(s) said and bounce an idea off of it. For example, you can start your sentences with:

"That reminds me of…"
"I agree, because…"
"True, another example is when…"
"That's a great point…"

Sum it up:

Rephrase what was just said in a shorter version. For example, you can start your sentences with:

"I hear you saying that…"
"So, if I understand you correctly…"
"I like how you said…"

Inquire:

Understand what your classmates mean by asking questions. For example, you can start your questions with:

"Can you tell me more about that?"
"I see your point, but what about…?"
"Have you thought about…?"

Himmele, P. & Himmele, W. (2011) Total Participation
Techniques: Making every student an active learner.
Alexandria, VA: ASCD

Productive Dialogue Model: Multiplication and Division of Fractions

Question: How will you use multiplication and division of fractions in everyday life?

T: I use fractions when I cook and I go by the recipe. I love to try new recipes.

S: I love to cook too. Can you tell me more about when you might multiply or divide fractions in cooking?

T: For example, when I bake cakes, I have to use 3 ½ cups of flour per cake. For church I need to make 3 cakes because a lot of people come. I have to multiply 3 ½ x 3 to find out how much flour to use.

S: True. Another example when I used multiplication of fractions was when I was baking cookies. The recipe called for ¾ cup of chocolate chips. I only wanted to make 2/3 of the recipe so I had to multiply ¾ and 2/3

T: Can you tell me more about how to know when to multiply and when to divide fractions? That always confuses me.

S: I agree. It is hard to tell when you should multiply and when you should divide. I have to read the problem a couple of times and really think about what it is asking me. Then I look for key words that help me know what to do.

T: Can you tell me more about that? I don't understand the key words.

S: Sure. When it comes to multiplying fractions and percentages, the magic word is "of". When a certain number is a part OF another number, you have to multiply. Like in the recipe to make the cookies, I needed to find 2/3 of ¾ cup of the chocolate chips so I had to multiply.

T: So if I understand you correctly, you multiply when you are finding part **of** another number.   That reminds me of the time my teacher was helping me with a division problem. She said to look for key words like one, each, and per. If I couldn't find any key words, she said to draw out the problem to try to decide whether to divide or multiply.

S: I agree. Sometimes I have to draw out the problem too. I like using the bar diagrams that we learned about.

T: Can you tell me more about the bar diagrams?

S: Sure. There was this problem about a baking contest. 2/3 of a pie remained and 8 people got slices of the remaining pie. The question was "How much pie does each person get?" I drew a bar and divided it into thirds. I shaded in 2/3 to represent the pie. The problem said that 8 people got a slice of the 2/3 so I divided the 2/3 into 8 pieces. From my picture, I knew each person would get one slice of pie and each slice was 1/12 of the whole pie.

T: I like how you drew out the picture and could tell from what you were drawing that you were dividing. If you had multiplied 2/3 and 8, you would have gotten 5 1/3 and that would not make sense.

S: That is a great point. It is always good to think about the answer you get and ask yourself, "Does this answer make sense?" If it doesn't you know you have done something wrong and you need to try another operation.

T: I agree because I often get answers wrong. When my teacher gives me back my test, I realize my answer makes no sense.

S: That has happened to me too. I think the most important point in solving a word problem is to read it carefully and be sure that you know what it is asking. Then you can tell if your answer makes sense.

T: I like how you brought up reading the problem carefully and knowing what it is asking you. I need to slow down on these word problems. They are difficult, but I can do them!