Ms. Mills's Conceptual Understanding Lesson on Division as Fractions

ESTABLISHING PURPOSE

1 **What are the key content standards I will focus on in this lesson?**

Virginia Mathematics Standards of Learning

4.2c. The student will identify the division statement that represents a fraction, with models and in context (VDOE, 2016).

Mathematical Process Standards:

- Mathematical communication
- Mathematical problem solving
- Mathematical representations

2 **What are the learning intentions (the goal and *why* of learning stated in student-friendly language) I will focus on in this lesson?**

- Content: I am learning to understand the connections among representations of fractions.
- Language: I am learning to understand the language that makes meaning of fraction notation.
- Social: I am learning to understand how to listen and respond to my peers' ideas in ways that move us all forward as learners.

3 **When will I introduce and reinforce the learning intention(s) so that students understand it, see the relevance, connect it to previous learning, and can clearly communicate it themselves?**

- Post the learning intentions.
- Engage in turn and talk after activating prior knowledge.
- Make connections during think-alouds, visualizing, conferences, and sharing.
- Use mathematician's journal notes and final reflection.

SUCCESS CRITERIA

4 **What evidence shows that students have mastered the learning intention(s)? What criteria will I use?**

I can statements:

- I can represent fractions using multiple representations.
- I can explain the connections among these representations.
- I can use these representations to prove fractions are equivalent.
- I can communicate my process, my representations, and my mistakes using fraction language: number of pieces (numerator), size of piece (denominator), and same size share (equivalent fractions).

5 How will I check students' understanding (assess learning) during instruction and make accommodations?

Formative Assessment Strategies:

- Open conference chart notes
- Mathematician's journal
- Bull's-eye self-evaluation

Differentiation Strategies:

- Differentiate the content by interest: anchor problem and extension problems.
- Differentiate the process by interest: choice of materials and partners or alone.

INSTRUCTION

6 What activities and tasks will move students forward in their learning?

- Fraction Graffiti activity
- Equalizing conservation problems with CRA representations
- Mathematician's journal reflection
- Bull's-eye self-evaluation

7 What resources (materials and sentence frames) are needed?

STAR anchor chart

Language frames

Mathematician's journals

Cubes

Cuisenaire rods

Fraction pieces

Graph paper

Open number lines and whiteboard markers

Colored pencils

Calculators

8 How will I organize and facilitate the learning? What questions will I ask? How will I initiate closure?

Instructional Strategies:

- STAR strategy with think-alouds and visualizing
- Anticipate, monitor, select, sequence, and connect students' CRA strategies
- Turn and talk

Scaffolding Questions:

- How could these cubes represent what we know?
- How will you know when each panda has an equal share?

Extending Questions:

- What if there were five pandas in the first zoo? How would this change the solution?
- What if there were nine pandas in the second zoo?

Connecting Questions:

- How are the representations similar? Where do you see $\frac{1}{4}$ and $\frac{2}{8}$ in each?
- How is doubling related to equivalence in this problem?
- What representations were efficient, flexible, or accurate? What representations were not? Why?
- How is 1 ton divided by 4 pandas related to $\frac{1}{4}$? And 2 tons divided by 8 pandas related to $\frac{2}{8}$?

Self-Reflection and Self-Evaluation for Closure:

- Mathematician's journal reflection
- Bull's-eye self-evaluation