Mr. Southall's Application Lesson on Number Combinations

ESTABLISHING PURPOSE

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

Content Standards:

Virginia Mathematics Standards of Learning

K.4. The student will (a) recognize and describe with fluency part-whole relationships for numbers up to 5; and (b) investigate and describe part-whole relationships for numbers up to 10.

K.13. The student will identify, describe, extend, create, and transfer repeating patterns.

Standards for Mathematical Practice:

- Make sense of problems and persevere in solving them.
- Look for and express regularity in repeated reasoning.
- Look for and make use of structure.

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 the ways to decompose and compose numbers using benchmarks of fives and tens.
- Language: I am learning to apply the language of patterns to number combinations and number patterns.
- Social: I am learning to give and receive feedback about mathematical thinking.

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?**

- Advance organizer: anchor chart of benchmarks of 5 and 10
- Conference questions
- Catch and release mini-lesson with modeling
- Connecting questions

SUCCESS CRITERIA

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

I can statements:

- I can decompose and compose numbers to find all the combinations.
- I can use number patterns to find all the number combinations.
- I can record the combinations to show the number pattern.
- I can make suggestions and use suggestions to make revisions.

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

Formative Assessment Strategies:

- Conference/observation notes
- Show Me tasks during conferences
- Student work
- Bull's-eye self-evaluation

Differentiation Strategies:

- Differentiate the process by readiness and personal interest: purposeful pairings based on size of numbers and ongoing tasks
- Differentiate the process by situational interest: choice of materials
- Differentiate the content by readiness: tiered or parallel tasks
- Differentiate the content by situational interest: must-do and may-do tasks

INSTRUCTION

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

- Quick images: ten-frames
- Must-do task: Hamster Cage problem
- May-do tasks: Rug Pattern Challenge, Naming Shapes, Mystery Numbers, Back to the Hamster Cage problem
- Sharing craft

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

- Quick images: ten-frames
- Anchor chart of benchmarks of 5 and 10
- Math folders
- Hamster Cage and Back to the Hamster Cage problems
- Taped rectangles on the floor with connecting carpet squares
- Rug Pattern Challenge
- Naming Shapes
- Mystery Numbers
- Tiles
- Cubes
- Paper tiles
- Five-frames

- Ten-frames
- Number charts
- Number lines
- Markers
- Scissors
- Glue
- Two- and three-dimensional shape pieces

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

Instructional Strategies:

- Quick images: ten-frames
- Advance organizer: anchor chart of benchmarks of 5 and 10
- Acting out the Hamster Cage problem
- Must-do task: Hamster Cage problem
- May-do tasks: Rug Pattern Challenge, Naming Shapes, Mystery Numbers, Back to the Hamster Cage problem
- Catch and release: modeling mini-lesson
- Conferences
- Show Me tasks
- Sharing craft
- Bull's-eye self-evaluation
- Talk knee-to-knee, eye-to-eye

Scaffolding Questions:

- Describe what you see happening.
- How is this similar to what we acted out?
- How many hamsters are in each cage?
- How could we record that?
- What happens next?
- What kind of pattern is this?
- What is the pattern's rule?

Extending Questions:

- How will you know when you've found all the ways the hamsters could be in each cage? What would that look like?
- How could you record that more efficiently?
- How could you organize your recording to prove you found every combination?

- How are you using a pattern to problem solve?
- How could this pattern be growing and shrinking?

Connecting Questions:

- How are these representations similar?
- How do we know if _____ found every possible combination?
- How did they use a pattern to help them problem solve?

Self-Reflection and Self-Evaluation Questions:

- The green circle in the middle with the tooth-smiley face means "I've got it!"
- The yellow middle ring with the smiley face is "I need a little more time. I'm just starting to get it."
- The red outer ring with the straight face is "I'm stuck. I don't understand."