ESTABLISHING PURPOSE

1

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

Indiana Academic Standards

> 3.C.5. Multiply and divide within 100 using strategies, such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$, one knows $40 \div 5 = 8$), or properties of operations.

> 3.AT.3. Solve two-step real-world problems using the four operations of addition, subtraction, multiplication, and division (e.g., by using drawings and equations with a symbol for the unknown number to represent the problem).

Standards for Mathematical Practice:

- Construct viable arguments and critique the reasoning of others.
- 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 how strategies for multiplying and dividing small numbers can be transferred and revised to multiply and divide large numbers.
- Language: I am learning how mathematical properties can be used to describe and defend multiplication and division strategies.
- Social: I am learning to appreciate the contributions of each learner and the connections among others' reasoning and my own.

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?

- Align with transfer essential questions
- Introduce learning intentions and success criteria after activating prior knowledge about partial products
- Complete an observation checklist with success criteria
- Use colored sticky notes to document individual evidence

SUCCESS CRITERIA

4

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

I can statements:

- I can visually represent partial products in an array.
- I can decompose and compose products in multidigit multiplication using partial products.

- I can apply the distributive, commutative, and associative properties to multiplication of large numbers.
- I can transfer and revise efficient strategies for multiplication and division of large numbers.

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

Formative Assessment Strategies:

- Observation/conference checklist with a list of anticipated strategies, success criteria, and planned questions
- Student work
- Sticky note evidence in math binders

Differentiation Strategies:

- Differentiate the content and product by readiness: open question
- Differentiate the process by situational interest: choose to work alone, with a partner, or in a small group. Choose materials.

INSTRUCTION

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

- Partial products number talk
- Auditorium task
- Two Truths and a Lie practice problems
- Sticky note evidence in math binders

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

Partial products number talk

Auditorium task

Two Truths and a Lie equations

Anchor charts of multiplication and division strategies

Graph paper

Open number lines and whiteboard markers

Colored pencils

Calculators

Colored tiles

Array cards

Student-made multiples number charts

Mathematical toolboxes

Colored sticky notes

Math binders

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

Instructional Strategies:

- Think-pair-share
- Number talk
- Bansho

Scaffolding Questions:

- How could you represent the size of each class using arrays and equations?
- How does rotating this array affect your solution?
- Why are these small arrays equal to this one large array? How could you represent this equality?
- How are you using partial products?

Extending Questions:

- How are you using other multiplication strategies from our anchor chart (making friendly numbers, skip counting, repeated addition)?
- Where do you see the associative property? Commutative property? Distributive property?
- How are you thinking about both multiplication and division in this problem?

Connecting Questions:

- What do you notice is the same across all the strategies and representations?
- How is _____ different from _____?
- How can we use what we know about multiplying and dividing small numbers to multiply and divide large numbers?
- How can we apply the properties (associative, commutative, and distributive) to problems with large numbers?

Self-Reflection and Self-Evaluation for Closure:

- Sticky note evidence in math binder