THE ST. MARY'S PARTNERSHIP

Task Design in Mathematics

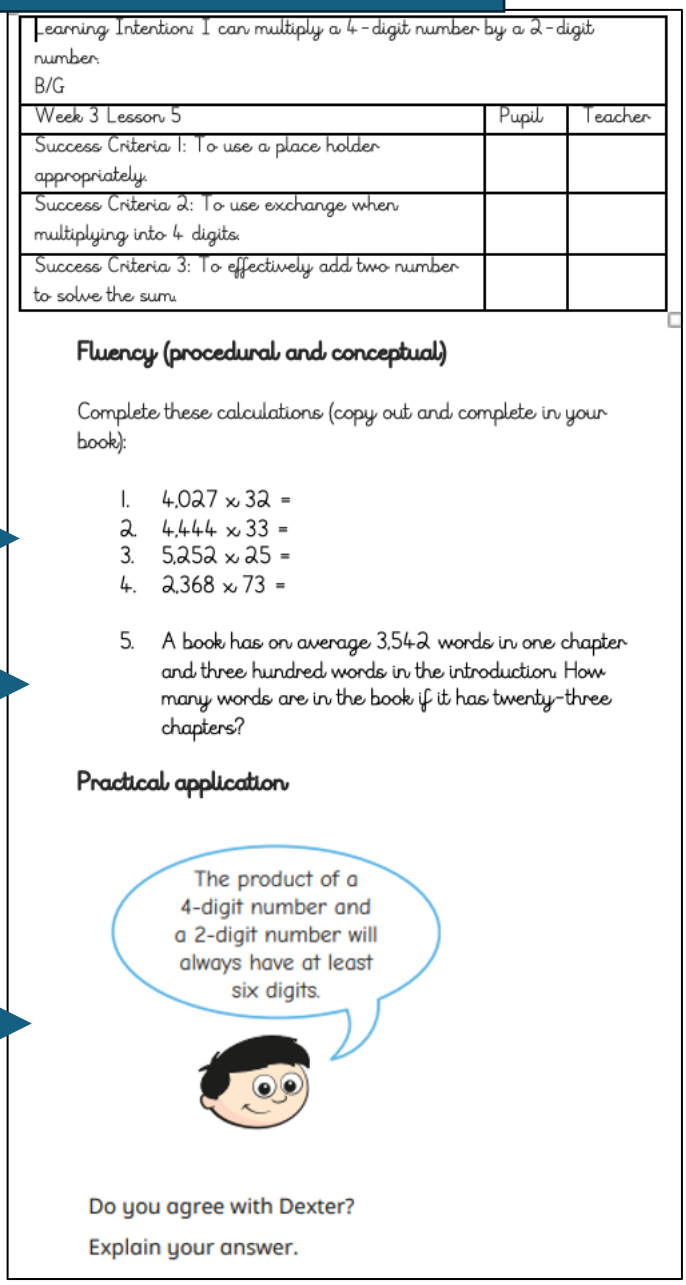
Procedural Fluency:
Focus on accurate, efficient calculations.
Example tasks: Solving equations, performing calculations, and finding direct answers.
Conceptual Fluency:
Build understanding of *why* procedures work and how they relate to mathematical concepts.
Example tasks: Drawing models, explaining reasoning, and making connections between ideas.

Example: Fractions
Context: A recipe requires 3/4 of a cup of sugar.
Procedural Fluency:
- "How much sugar is needed if you double the recipe?"
- "If the recipe is halved, how much sugar is required?"

Conceptual Fluency:
- "Why is doubling 3/4 equivalent to multiplying 3/4 by 2? Can you draw a bar model to show this?"
- "How can you explain halving 3/4 using a diagram?"

Example: Area and Perimeter
Context: Designing a school garden.
Problem-Solving:
- "You are designing a rectangular garden measuring 10m by 6m. A path 1.5m wide is added around the garden. What is the area of the path?"
- Extension: "If the path is to be paved at a cost of £12 per square meter, what will the total cost be?"

Reasoning:
- "Explain why finding the total area and subtracting the garden's area gives the area of the path."
- "What would happen to the total cost if the path width increased by 0.5m? Can you predict without recalculating?"



Learning Intention: I can multiply a 4-digit number by a 2-digit number.
B/G

Week 3 Lesson 5	Pupil	Teacher
Success Criteria 1: To use a place holder appropriately.		
Success Criteria 2: To use exchange when multiplying into 4 digits.		
Success Criteria 3: To effectively add two number to solve the sum.		

Fluency (procedural and conceptual)

Complete these calculations (copy out and complete in your book):

1. 4,027 x 32 =
2. 4,444 x 33 =
3. 5,252 x 25 =
4. 2,368 x 73 =

5. A book has on average 3,542 words in one chapter and three hundred words in the introduction. How many words are in the book if it has twenty-three chapters?

Practical application

The product of a 4-digit number and a 2-digit number will always have at least six digits.

Do you agree with Dexter?

Explain your answer.

Questions should engage students in exploring, thinking critically, and applying mathematical concepts to real-world scenarios, students need to justify their answers and reasoning through varied approaches.

1. Use a Structured Approach to Problem-Solving
Understand: Present a scenario where students need to identify relevant information. **Plan**: Encourage students to strategize before calculating. **Solve**: Perform calculations or construct a solution. **Reflect**: Include reasoning tasks to evaluate their approach and answer.

2. Incorporate Multiple Steps and Open-Ended Challenges
Practical problems should go beyond simple calculations, requiring students to: Analyse information, choose appropriate strategies and justify decisions.

3. Use Realistic and Engaging Contexts
Relate questions to everyday life, ensuring they are relevant to students. Include purposeful and realistic numbers.