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## **Disciplinary Integration in the Fifth Grade *Everyday Mathematics* Textbook**

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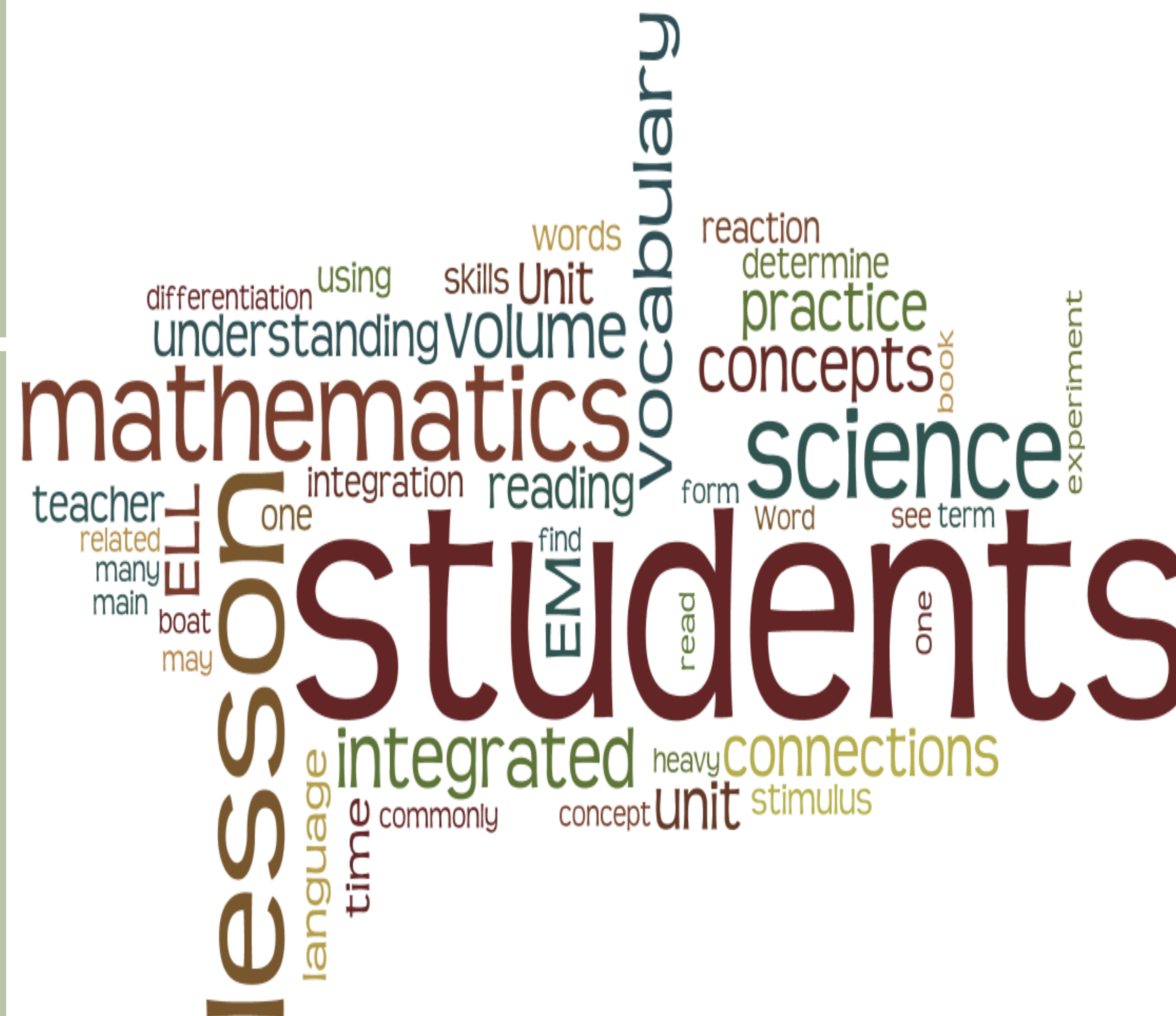
How is mathematics integrated in different content areas in a fifth grade math textbook?

- Czerniak, Weber, Sandmann, and Ahern (1995) found that due to the lack of a common definition of integration, there is no baseline for analyzing data.
- Kiray's (2012) Balanced Model utilized constructivist learning using seven levels of integration. Students who were taught an integrated lesson performed better when asked mathematics-science related questions.
- Kang and Pham (1995) and Chevalier, Pippen, and Stevens (2008) conclude that teaching mathematics as a language benefits ELL.

- Content-analyzed *5<sup>th</sup> Grade Everyday Mathematics* book focusing on quality, quantity, and type of integration.
- **Quality:** How does integration enhance the lesson?
- **Quantity:** How often are integration techniques used?
- **Type:** How are disciplines being integrated?

- **Mathematics and Science**
  - Kiray's (2012) Balanced model is the most commonly used mathematics and science integration technique.
  - The lessons are still very mathematics centered, with science concepts used only to enhance the mathematics skills.
  - Science concepts are rarely assessed.
- **Mathematics and ELL**
  - Every unit has at least one differentiation technique for ELL (e.g., Word Banks, Venn diagrams) and the lessons that do are usually very vocabulary heavy.
  - Integration techniques were found in student practice and instructional materials, not assessment.
- **Mathematics and Literacy**
  - As students progress through EM, a stronger emphasis is placed on mathematizing read-alouds.
  - Connecting mathematics and literature is another technique that improves ELL comprehension.

- Integration techniques were found in student practice, mathematics centered and science assisted, and help students make connections between subjects (see *Figure 1*)
- EM values mathematics over a balanced mathematics-science lesson. Assessing both disciplines improve student comprehension.
- Creating lessons that are accessible for ELL is highly valued. This was by far, the most common form of integration found throughout EM.
- There are some social studies and art connections presented in EM, but little research could be found to verify the effectiveness of these connections.



*Figure 1: Results and Data Analysis Word Cloud*