I'm not a bot

Comprehend non examples

I firmly believe that prioritizing vocabulary instruction in math education is crucial. When teaching complex math concepts, we often use terminology students may not have encountered outside of the classroom. In my professional development sessions, I ask teachers if they've ever heard students discuss "place value" outside of class – unsurprisingly, the answer is always no! This highlights the importance of providing opportunities for students to practice and explore vocabulary in context. To achieve this, I recommend that teachers take a few minutes to brainstorm a list of key terms they'll be using during lessons, including those that may be unfamiliar to students. Once in the classroom, we should take time to explicitly unpack these words using tools like the Frayer Model, which helps define and contextualize vocabulary. By incorporating non-examples alongside examples, we can foster a deeper understanding of complex math concepts and encourage students to refine their definitions. I urge you to prioritize vocabulary instruction by including it in your lesson planning and exploring resources like Dr. Paul Swan and David Dunstan's book for a systematic approach. Dr. Ange Rogers offers a "Quality Place Value Assessment in Years 3-6 Mini Course". Brains organize knowledge through mental structures called schemas. As we learn new information, it gets connected to existing knowledge and experiences, forming a mental filing system. Providing examples alongside explanations helps learning by identifying key attributes and connecting new material to familiar concepts. Nonexamples offer contrast, helping students determine relevant attributes. Clearly label examples and nonexamples when teaching unfamiliar or difficult concepts. Practical strategies for using examples and nonexamples include starting with concrete examples and gradually moving to more abstract ones. Use a range of examples with varying attributes to avoid incorrect generalizations. Encourage learners to explore connections and differences among examples and nonexamples, generate their own, and distinguish between them. When instructing students, it's beneficial to present both exemplary and subpar projects to illustrate expectations. You could also have students discuss why certain projects fall short. When teaching problem-solving strategies, show various examples and counterexamples of the process, highlighting common pitfalls that students often encounter. To further reinforce understanding, consider dividing students into groups to identify key attributes that distinguish good from poor examples. Additionally, it's essential to be cautious when using this approach with students who may struggle due to neurodivergence or lack of background knowledge. In these cases, explicitly teaching the concept might yield better results. However, after establishing a solid foundation through explicit instruction, encouraging students to identify and analyze examples and counterexamples can help solidify their learning. For instructors seeking additional guidance on instructional practices, resources are available at the designated university websites, including Faculty Affairs, Human Resources, and MSU Denver Athletics. Explaining Concepts in Teaching: A Breakdown Teaching involves a significant amount of explanation, which was a surprising result given its importance in the classroom. Despite teaching being more than just giving explanations, it's a crucial component that often gets overlooked. Clear Teacher Explanations will be explored in four parts: Examples and Non-Examples, Concrete to Abstract, Dual Coding, Presence in the Classroom, Assessment for Learning. Key Strategies include using concrete examples, dual coding, and assessing student understanding. The Power of Concrete Examples Concrete examples are essential for teaching abstract concepts well. A typical mistake is starting with a general definition without context. Instead, begin with relatable examples that students can understand, such as exercising or experiencing thirst. By using these concrete examples, you create a link between the abstract concept and something students have experienced before. This helps them grasp the definition better. The Importance of Non-Examples Non-examples are just as important as examples in teaching. They help pupils recognize what doesn't fit into a particular category or concept, making it easier for them to understand what does. Concept boundaries can be tricky to navigate when teaching abstract ideas like condensation. To avoid misconceptions, use a variety of examples that share the core feature, but also include non-examples to highlight the concept's boundary. This is especially important when students tend to generalize from the examples given. For instance, using steam on a bathroom mirror, breath on a cold window, and water droplets on a saucepan lid as examples can help pupils understand the process of condensation. However, if these examples also include raindrops on a window, it may lead pupils to incorrectly believe that's an example of condensation too. To clarify this, explicitly introduce 'raindrops on a window' as a non-example. By doing so, you emphasize that it's not just about droplets, but about a gas turning into a liquid, which doesn't happen when raindrops hit a windowpane. Using contrasting examples and non-examples effectively can help illustrate the difference between core and surface features. Additionally, using a wide variety of examples is crucial when teaching abstract concepts like natural selection. For example, if you only use camels, polar bears, and poisonous frogs as examples for natural selection, pupils might think it only happens in animals. To truly sample from the breadth of the domain, include examples from different areas such as plants and bacteria. Determining how many examples are sufficient can be tricky, so it's essential to test pupils' understanding through application questions. After a few examples, ask if they can apply the concept correctly. If not, provide more examples until they succeed. Then, gradually increase the difficulty of the scenarios to ensure they fully grasp the concept. When planning your lessons, consider how you'll introduce the concept through concrete examples before moving to abstract generalizations. Think about non-examples that can help illustrate the concept's boundary and potential misconceptions that might arise from your sequence of examples/non-examples. Finally, don't hesitate to practice your explanations with someone else to gain valuable insights into teaching the concepts effectively. To answer the question on condensation: it's yes, oil molecules becoming liquid upon encountering a cool surface is an example of condensation. Condensation does not apply to all substances; therefore, additional examples/non-examples are needed. When trying to learn something deeper, exploring "examples" and "non-examples" can be a helpful approach. This technique can work for concrete objects like dogs or abstract concepts such as heresy or hypocrisy. It's also useful in understanding teachers' questions, especially when a definition is provided along with an example. On the other hand, providing a definition, an example, and a non-example can impress a teacher. Selecting good examples and non-examples requires care. A good opposite or something close to the definition but not fitting it well can be helpful. However, saying something is a "non-example" of a dog doesn't provide much clarity. Ask yourself what makes a thing a dog, what might seem like a dog but isn't, and why. Using examples and non-examples to clarify the meaning of words, such as "tactful," can be effective. A tactful statement is gentle on feelings, even if it's not positive. Another example is providing constructive feedback. Non-examples are those that don't fit this definition well, like very negative comments or overly positive ones. To understand the meaning behind linguistic and structural methods that involve figurative ideas, we can introduce techniques like oxymoron. For instance, many students have come across phrases like "O loving hate" from Romeo or "melancholy merriment" in Don Juan by Byron, or even Auden's "juicy bone." However, students often develop misconceptions about what an oxymoron is and its authorial intent, especially when they're grappling with juxtaposition or paradox. So, how can the Frayer model aid us in teaching oxymoron? The power of the 'non-example' While all the Frayer model is useful for vocabulary instruction, the 'non-example' is often overlooked in its power. In fact, many teachers and students see the non-example as anything that's not the example, which diminishes its pedagogical purpose. Most things will be a non-example of an oxymoron, so how can we use this effectively? When I teach my year 7s using the Frayer model, I often begin by starting with the 'non-example' first: We discuss "pretty ugly" and what it means, beginning at a literal level where students focus on the word "ugly," then evolving into a discussion of being "quite" ugly. Eventually, we guide them to think about syntax and the contrasting nature of the two words, although students often get there first! Then, I reveal the 'example': Students consider why "loving hate" is an oxymoron and not "pretty ugly." Some struggle and think that both are opposite words side by side, before remembering or being told that "pretty" is not the opposite of "ugly" in this context, which opens up a discussion about the context of language choices. This develops a greater appreciation of vocabulary. Next, I ask students to write their 'characteristics' section to solidify (but also check for any issues in understanding) how the oxymoron works. My year 7s came up with: "having two different ideas near each other" (close but could be juxtaposition), "having two opposites next to each other" (closer but could fall into the 'pretty ugly' trap), or "sort two things, maybe like opposites, beside each other" (better, not firmly understood perhaps). The next step: We require further explicit instruction on 'contradiction' and 'incongruous' – which is essential. Students need to understand the concept of the term to have any chance of understanding authorial intent and just feature-spotting the term in texts. Finally, we reveal our working definition, which I expect all students to use in its exact form due to all the work we've done so far to get this point. To apply this method, students need to analyze it in a text, and for this, I choose a short extract from Don Juan and explore Byron's "melancholy merriment" in relation to this stanza: