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Calculus flipped math

Flipping AP Calculus Class: A Teacher's Experience Bobby Barber, a mathematics teacher at Millville Senior High School in New Jersey, shares his experiences with Flipping his AP Calculus class. In this and the next post, he asks readers to reach out with questions, suggestions, and stories of their own through the comment button. A flipped class is one where traditional lecture and note-taking are done outside of class time, typically by having students watch video lessons. Students can re-watch parts of the video if they don't understand something without worrying about interrupting the teacher or disturbing the rest of the class. In this setup, students complete practice problems that would previously be done for homework in class with peer and teacher support. Bobby's decision to flip his AP Calculus class was influenced by his experience teaching integrated math classes (IMP) at a different school. He realized that he hated lecturing and wasn't getting to know his students well due to the traditional format. He also noticed that students were spending too much time on homework problems, leading to frustration and a negative attitude towards calculus. To address these issues, Bobby implemented a flipped classroom approach. Students watched video lessons at home and completed practice problems in class with peer support. This change allowed him to focus more on his students' understanding and provide individualized help when needed. Bobby's goal was to create an environment where students could learn and enjoy calculus without unnecessary stress. By flipping the traditional lecture format, he aimed to make calculus more accessible and engaging for his students. Many students lack access to computers/internet at home, a situation that has improved significantly but remains an issue in some cases. When I first started teaching, there was no experience with flipped classrooms at my school, and I worried about receiving adequate support from administration. Instead, I focused on implementing alternative strategies for improving my AP Calculus classes. I began by introducing changes to the curriculum, which showed promise. However, I still felt uncertain about maximizing student engagement. I decided to try a flipped classroom approach, starting with video-based lessons in class and having students take notes. This initial experiment was successful, leading me to extend it by assigning videos for homework. To address access issues, I created a system where students without computers/internet at home could watch the assigned videos on my computer during class. Problem sets were completed in class, allowing students to collaborate and seek help when needed. The results exceeded my expectations, prompting me to request permanent adoption of this approach from school administration. In contrast to some colleagues' experiences, our principal is supportive of innovative ideas that can benefit students. With their blessing, I implemented a flipped classroom model, which has yielded significant improvements in AP exam scores. By covering more material at a deeper level and incorporating exploratory sessions, I've been able to foster meaningful student interactions. One key advantage of a flipped classroom is the opportunity for daily communication with students, allowing me to understand their thought processes and personal lives. This close relationship enables me to tailor my teaching to individual needs, which ultimately contributes to better academic outcomes. The provided text appears to be an online resource for high school students and educators seeking video lessons on calculus. It includes topics such as differentiation, optimization, and implicit differentiation. The website also features packets, practice problems, and answers to support learning. Calculus is described as a powerful tool used in various fields like science, engineering, and finance to understand change, optimize functions, and analyze rates of change. According to the text, calculus may seem intimidating but it's actually accessible with the right approach. The website aims to provide students with a clear understanding of calculus and its applications in real-world scenarios. Examples mentioned include YouTube's video recommendations, shipping companies' optimization strategies, and hedge funds analyzing stock market trends. The content also touches on the importance of learning calculus for pursuing higher-level science and engineering courses or simply due to interest in mathematics. The website claims that with proper guidance and resources, anyone can learn calculus this semester. So, where do I start? If you're preparing for calculus, you'll need a few must-have tools. First, get a graphing calculator like the TI-89, which is my personal favorite. However, if your professor doesn't allow it, use a TI-84+ or computer software like Mathematica instead. Next, grab a textbook, preferably one required by your class. If not, consider obtaining James Stewart Calculus book (any edition), as it's the most widely used calculus text and contains great examples and practice problems. To get the most out of your learning experience, consider having someone teach you directly in person. But if that's not an option, there are many great calculus video series available online. As we approach some value a, the function f(x) equals L, provided that as we get sufficiently close to a from both sides without actually equaling a, we can make f(x) as close to L. This idea of closeness is crucial because it allows us to investigate functions without having to be defined and examine asymptotes, continuity, tangent lines, and more. The derivative measures how a function changes with respect to a variable, calculating the rate of change or slope. It helps explain velocity, acceleration, speed, and distance by finding the slope of the tangent line to a curve at a point. Integration reverses this process to calculate areas, volumes, probabilities, accumulation, displacement, and distance. - form the basis of calculus. As you progress in your studies, you'll learn various techniques, formulas, and theorems that deepen your understanding of the subject. In high school, you likely just glanced over your math textbook to finish exercises. That won't cut it anymore! You need to dive in and work through problems, read sections, and join a study group for support. Online resources can also help clarify tricky concepts by walking you through examples or explaining theorems. At the campus tutoring center, you'll discover that algebra is more crucial than calculus, you've forgotten more math than most people have learned, so reviewing algebra skills will be essential. Focus on fractions and factoring to simplify expressions in calculus. Calculus can be tricky, so don't waste brain power remembering how to simplify complex fractions when you should focus on integration. Review your basics to set yourself apart from peers. Functions play a massive role in calculus; know how to solve and find domains/ranges of polynomial, exponential, logarithmic, and rational functions. Reviewing these concepts ahead of time will save you hours of frustration and heartache. To pass calculus and avoid common pitfalls, get ahead, review algebra, join a study group, and never give up! Learning calculus offers unparalleled understanding and insights, along with notable bragging rights, despite requiring hard work at times. Mastering it unlocks numerous benefits, revealing hidden aspects to those who persevere. Believe in your ability to learn, as anyone can "do calculus." Taking the first step requires courage, but the rewards are substantial.