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### The AP Science Program Needs Improvement

I am sure you have heard of, or even taken AP courses or exams before. Have you ever taken a second to question their validity? Advanced Placement classes offer high schoolers a college-level class, allowing students to experience a more rigorous class and to potentially earn college credits by scoring well on the AP exam in May. It has historically been a widely used method to measure a student's ability or knowledge in a certain subject, including many sciences, and it essentially rates students from 1-5 on their knowledge and abilities. However, some may argue that Advanced Placement courses and exams do not adequately measure all the necessary abilities learned in college-level courses. While it is true that students who perform well in class—not grade-based but based on teacher observations—tend to perform well on the AP exam (Chase), the exam and program overall are lacking in other aspects, such as their assessment of subject-specific skills, the unequal 'AP' experiences they provide, and the failure to address issues relating to the program's growing popularity. Despite their ubiquity, AP science courses and exams are an incomplete measurement of student knowledge.

Although it is undeniable that the Advanced Placement program teaches students important studying skills, they are unsuccessful in teaching adequate subject specific skills. Many students comment on how taking APs enhance important skills such as “learning to study on your own, developing self-discipline, and mastering challenging material” (Edwards). AP courses do cover challenging material in a fast-paced manner that requires studying outside of

school, honing general study skills. However, does the AP program foster the development of subject-specific skills—crucial skills that can only be learned through application, such as lab experience or equipment training—or does it fall short in teaching and assessing students on skills they will need if they pursue that field in the future? Unfortunately, the latter seems true. Due to the large amount of content needed to be covered in short, single-year AP courses, “AP still tends to be seen as a shallow, memorization-based program” (Edwards). AP teachers must balance content coverage, deeper understanding, and hands-on labs, and as a result, shallow content coverage is often prioritized over labs or assignments that would reinforce critical thinking or lab knowledge, leaving students with an incomplete set of skills going into college or their career. Because the AP program fails to adequately integrate these skills into its science curriculums, it fails to fully measure student ability. Still, some teachers have hope that College Board can help improve the AP program in this area. College Board has recently been trying to add a bigger emphasis on labs in the AP curriculum and incorporate more lab-related questions on the exam (Chase). Although the current AP program fails to teach and assess subject-related skills, by incorporating more lab-related topics into AP sciences, APs have the potential to become a better measure of student knowledge.

Additionally, the AP program fails to account for educational inequality, making it unfair to use as an evaluation of student competence. Quoting a *New York Times* article, a blog author writes, “Labs in resource-strapped urban schools often don’t have enough of even basic tools [...] for their students” (Edwards). Even if College Board calls for the inclusion of more labs into the curriculum of AP sciences, some schools may not have the resources for these important labs, leading to the common trend that more money generally translates into a better performance. If the AP program fails to consider or address the issue of some students not having access to

important skill-building resources, then it is failing to be a full measurement of student ability. Furthermore, the author of an article from Penn State University poses the question: “Is it fair that some teachers prepare students for real college courses, while the others give them a free-pass with an ‘AP’ title?” (Simran). Different teachers teach and grade differently, so an A in an AP class taught by one teacher might be worth a C in the same AP class taught by another teacher, therefore making it unreasonable to treat both as the same ‘AP-level’ course. Even though College Board offers non-mandatory summer teacher training sessions that tend to be very helpful, as well as a detailed document of skills and content that should be taught in each AP course (Chase), these methods are ineffective. Some teachers may choose not to attend the teacher training sessions, and as mentioned before, a course description detailing important labs or lesson plans that can help students develop important skills is not useful unless all students have access to the resources for these labs. Not all students are taught the same depth of content or skills in AP courses, so is the AP program really a good measurement of student ability? The inequality of what each student’s AP experience looks like illuminates the flaws in using the AP program to measure student knowledge.

Lastly, the growing popularity of APs also poses a few major problems, such as overloading on APs and self-studying. A combination of the increased number of available APs and the ubiquity of these tests has led to what some describe as “kind of an ‘arms race,’ where [when] certain students take more AP classes, others feel pressured to load up with more to compete” (Edwards). Even College Board itself markets APs as a necessity for students who want to get into selective universities, writing, “85% of selective colleges and universities report that a student’s AP experience favorably impacts admission decisions” (College Board). Yet, this pressure towards taking APs can be very misleading, causing many students to try to take as

many of them as possible in hopes that it will make them stand out to colleges. With their focus scattered among too many APs, often, their decision to overload will only lead to low scores on the exam (Edwards) or short-term knowledge that can get students a high score but will not last until college. Should a program that is 'college-level' promote this sort of learning-to-pass-a-test for the sole purpose of standing out? Should a program that intends to measure student knowledge accept their knowledge whether it is true deep understanding or memorized facts? If the AP program were to truly measure student competence accurately, the answer should be no. This growing pressure to take as many APs as possible also opens discussion about self-studying for science APs. Usually, self-studiers do not get to experience many of the labs associated with AP sciences, but if they know the content very well, should they still be eligible to receive college credits without the hands-on lab experience? Some argue that because college credits allow students to skip out of fundamental classes and take more advanced classes in college, self-studiers should not receive college credits for AP sciences if they plan on pursuing a path in science, as they will have gaps in their foundation that will hurt them in the future (Chase). Although it might be frustrating to some students whose school program does not permit them to take certain APs until later grades, overall, it is better to have a relatively full grasp of the content and associated skills of a subject, rather than a mostly full grasp with giant gaps in some areas. Still, students might not feel so pressured to self-study and 'get ahead' if not for the belief that the more APs one takes, the more one will stand out to colleges. The popularity of the AP program causes students to take APs for the sake of taking APs rather than for a full understanding of that topic, an issue that interferes with its ability to be an accurate measurement of student knowledge.

The AP program, particularly its science program, does not adequately assess student knowledge. Nonetheless, because of how widespread it is, it continues to remain the most common system of measuring student ability in certain subjects. There are many ways in which College Board is trying to improve APs and many more that College Board can employ, but at the end of the day, no method can ever be completely flawless.

## Works Cited

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