



Fact Sheet



Cross Disciplinary Proficiencies in the American Diploma Project Benchmarks

American high school graduates must possess the knowledge, skills and cross disciplinary proficiencies necessary to succeed in an increasingly competitive, complex and ever-evolving world. Whether graduates immediately enter college, the workplace or both, they must not only have mastered core content, they must also be adept problem solvers and critical thinkers who can contribute and apply their knowledge in novel contexts and unforeseen situations. From working in a team to solve a problem to conducting research and making a presentation to selecting a mortgage or the right health care plan, all high school graduates must be well-informed thinkers and decision makers in order to flourish in the 21st century.

In the modern workplace, advances in technology have changed not only the nature of work, but also the distribution of jobs. Many of the growing number of technical, professional and managerial jobs will require at least some postsecondary education or training.¹ In fact, the Bureau of Labor Statistics predicts that at least two-thirds of all new jobs and virtually all high paying jobs will require at least some postsecondary education.² All high school graduates need to be prepared for this 21st century reality; a mid-20th century education will no longer do.

In 2004, Achieve, the Education Trust, and the Thomas B. Fordham Foundation released the American Diploma Project (ADP) benchmarks. Based on extensive research with employers and postsecondary faculty, the benchmarks identified what knowledge and skills high school graduates must possess in English and mathematics to be successful. While organized by traditional subject areas, cross-disciplinary proficiencies are infused throughout the ADP benchmarks. The proficiencies are embedded in—rather than separate from—the benchmarks because critical thinkers and problem solvers need both content knowledge and the ability to apply that knowledge to challenges in the classroom, the workplace and the community.

There are four cross disciplinary proficiencies—**Research and Evidence Gathering, Critical Thinking and Decision Making, Communications and Teamwork** and **Media and Technology**—embedded in the ADP

¹ *The New Division of Labor: How Computers Are Creating the Next Job Market*, Murnane and Levy (2004).

² *Standards for What? The Economic Roots of K-16 Reform* by Anthony P. Carnevale & Donna M. Desrochers
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benchmarks. These cross disciplinary proficiencies are described below, along with an example of how the proficiency is embedded in the English and mathematics content areas. The examples given are meant to illustrate how content and proficiencies are woven together in the ADP benchmarks but they are by no means an exhaustive list.

Research and Evidence Gathering Being able to conduct research and to utilize the research process to describe, summarize and synthesize information or to solve problems is a critical skill for today's high school graduates. Colleges and workplaces require young adults to sift through information and make choices on a wide range of issues. The ability to conduct an inquiry and examine information is key.

For example, in English, the benchmarks call on high school graduates to conduct research and write extended research essays that build on primary and secondary sources. Gathering relevant information from a variety of print and electronic sources, as well as from direct observation, interviews and surveys, are integral parts of that research process (ADP English benchmarks: Research). In mathematics, detecting patterns and departures from patterns as well as identifying and describing relationships are considered important skills for conducting and evaluating research. Explaining and applying quantitative information, including organizing and displaying data using appropriate methods (e.g., spreadsheets) and knowing how to compare data sets using graphs and summary statistics, are important skills in the research process. Converting verbal information into mathematical models by requiring students to identify and articulate mathematical relationships symbolically is also included in the benchmarks (ADP Mathematics benchmarks: Data Interpretation, Statistics and Probability and Algebra).

Critical Thinking and Decision Making Whether interpreting a graph or a piece of informational text, high school graduates must be able to employ abstract and concrete reasoning to make and assess logical inferences, conclusions and predictions. The ADP benchmarks help foster the ability to analyze evidence and data to build arguments and strategize about possible solutions. They also call on students to make sound decisions that acknowledge and evaluate probability, uncertainty and risk.

In the English benchmarks, for instance, students are expected to be able to differentiate among facts, opinions, evidence and inferences. The benchmarks expect students to identify false premises and evaluate the range and quality of evidence. Moreover, students are expected to assess inferences in order to read complex documents, consult reference materials and ultimately draw sound conclusions (ADP English benchmarks: Logic and Informational Text). In mathematics, the benchmarks highlight the ability to evaluate media reports by considering the data source, study design and data representation—a skill that requires analyzing inferences, conclusions and predictions. In addition, explaining the misleading uses of data and the distinction between correlation and causation when drawing conclusions or predictions that involve the use of reasoning skills are included. The benchmarks also expect students to interpret graphs and analyze the conclusions or predictions made from them as well as apply probability concepts to make informed decisions (ADP Mathematics benchmarks: Data Interpretation, Statistics and Probability and Algebra).

Communications and Teamwork Today's employers and postsecondary institutions need high school graduates with a diverse set of communications skills. The ability to listen critically, make oral presentations and write complex reports is key. The ADP benchmarks focus on developing the skills needed to articulate and translate ideas with precision and coherence. College classrooms and workplaces are also increasingly global meeting places where high school graduates must be able to work, learn and collaborate with individuals from diverse backgrounds. The ADP benchmarks call for students to respectfully listen and learn from others in

order to reach common goals, including reaching consensus and working productively in teams.

In English, clearly conveying ideas is emphasized in the benchmarks; students are expected to produce work-related texts like memos or project plans and translate technical language into non-technical English. In addition to creating and revising various types of written presentations, the benchmarks also expect students to be able to make oral and media presentations. Whatever the form of communication, the ADP benchmarks encourage students to think about audience and purpose, sharpening their perception of alternative approaches and perspectives and laying the groundwork for understanding how to work with others. The benchmarks also ask students to act with integrity when working in teams or interacting in classrooms with their peers (ADP English benchmarks: Communications, Writing and Media). In mathematics, the benchmarks expect students not only to solve problems but also to be able to explain how they arrived at their solutions and give examples to support their conclusions. The ADP benchmarks acknowledge the value of students understanding different viewpoints and perspectives through an emphasis on the relationship between various representations of problems and solutions (e.g., literal, symbolic, graphic). As students become adept at different problem-solving strategies promoted by the benchmarks, they are also more inclined to try different approaches and to value and respect the different problem-solving strategies employed by their classmates (ADP Mathematics benchmarks: Algebra, Geometry and Mathematical Reasoning).

Media and Technology Sophisticated college students and employees must continuously adapt to ever-evolving technology. The ADP benchmarks teach students how to harness the appropriate information and communications technologies to enhance comprehension, creativity and productivity. They also call on students to assess and employ a mix of media and formats to evaluate, create and distribute information.

For instance, the ADP benchmarks in English recognize that today's written communications are almost always produced with computer technology. Students, therefore, must determine how, when and whether to employ technologies (such as computer software, photographs and video) in lieu of, or in addition to, more traditional forms of written communication. Moreover, presenting written material using basic software programs and graphics (such as charts, ratios and tables) to convey information and ideas best understood visually is a requirement (ADP English benchmarks: Communications). In mathematics, the benchmarks explicitly reference the use of graphing calculators and spreadsheets to ensure students are able to expand their comprehension and productivity, freeing students to think creatively about problems and tackle challenging problems (ADP Mathematics benchmarks: Number Sense and Numerical Operation; Data Interpretation, Statistics and Probability).

Conclusion

Students must graduate from high school with not only a firm foundation in mathematics and English, but also with the ability to approach with confidence new and unfamiliar tasks and challenges in college, the workplace and life. Embedded within and throughout the American Diploma Project benchmarks are four cross disciplinary proficiencies—**Research and Evidence Gathering, Critical Thinking and Decision Making, Communications and Teamwork** and **Media and Technology**—that will enable high school graduates to meet these challenges. Whether completing a college assignment, leading a project team at work or making a complicated life decision, graduates who have been exposed to and learned from a curriculum based on the ADP benchmarks will possess both core content knowledge and the cross disciplinary proficiencies necessary for success. For more information, or to view the ADP benchmarks, go to: www.achieve.org/ADPBenchmarks.