FORD PARTNERSHIP FOR ADVANCED STUDIES
Next Generation Learning

# Pillars of Ford PAS

Ford PAS is dedicated to preparing all students to succeed as citizens, workers, and leaders in the 21st century global economy. To achieve this success, high school students must engage in learning that develops and uses both academic knowledge and the skills essential for success in college and career, and teachers must employ strategies that encourage the active, self-monitored learning that will yield these results. The hallmark of the Ford PAS approach is to integrate what and how students learn with what and how their teachers teach—because the two are inextricably linked. The "pillars" of Ford PAS are the key skills that students learn (together with essential academic knowledge) and the key teaching strategies that teachers employ throughout the curriculum.

| Learning Pillars | Teaching Pillars |
|---|---|
| Application of academic knowledge and skills | Academically rigorous |
| Problem-solving | Integration of academic and career-related knowledge and skills |
| Critical thinking | Inquiry-based |
| Teamwork | Project-based |
| Communication | Real-world |
| Creativity and innovation | Performance-based |
| Global awareness | Technology-rich |
| | Career-relevant |

This document describes the research-based principles embodied in the Ford PAS Learning and Teaching Pillars. Teachers learn to integrate the pillars into their practice through use of the more than 20 modules of the Ford PAS curriculum and on-going participation in Ford PAS professional development opportunities.

## Learning Pillars: 21st Century Skills

The Ford PAS Learning Pillars correspond to the essential skills identified by the Partnership for 21st Century Skills, which brings together the business community, education leaders, and policymakers to define a powerful vision for 21st century education. These skills complement and strengthen the knowledge and skills defined in national academic standards. Young people who acquire these skills are equipped to be lifelong learners in a rapidly changing, diverse, information-rich, and technology-driven world. The Ford PAS curriculum explicitly teaches students these skills and enables students to apply them in a variety of contexts.

***Application of academic knowledge and skills:*** The Ford PAS curriculum enables students to develop academic knowledge and skills in the context of investigating real-world problems. Some modules focus on a single academic subject, while others integrate multiple subjects. In either case, students both acquire essential academic knowledge and skills and develop flexibility in drawing on appropriate disciplinary knowledge and skills to address real-world challenges.

***Problem-solving:*** Throughout the Ford PAS curriculum, students encounter authentic, open-ended problems that require them to clarify and analyze the situation, propose and explore alternative solutions, and implement and evaluate the results. They learn how to use a variety of problem-solving strategies and tools in different domains.

***Critical thinking:*** The Ford PAS curriculum teaches students, and engages them in, the process of analyzing, synthesizing, and evaluating information. As they take part in this process, students learn how to make reasoned judgments based on evidence gained from observation, experience, reflection, reasoning, and dialogue. The curriculum encourages students to explore and take into account multiple perspectives and to develop habits of mind that support critical thinking, including curiosity, clarity, accuracy, thoroughness, fairness, open-mindedness, self-awareness, and persistence.

***Teamwork:*** The Ford PAS curriculum expects and encourages students to work together in teams to carry out investigations, synthesize data, and communicate results. The curriculum introduces students to a variety of skills—including giving and receiving feedback, negotiating, and facilitating meetings—that build their capacity to collaborate effectively with their teammates. Students also work independently, and individual contributions to team products are regularly assessed.

***Communication:*** The Ford PAS curriculum builds students' capacity to create effective oral, written, and multimedia communications for a wide range of purposes and audiences. Students learn strategies for understanding and evaluating complex communications and develop skills in crafting messages in a variety of forms and contexts.

***Creativity and innovation:*** Ford PAS modules encourage students to think creatively in response to a wide variety of challenges. Students learn strategies for generating new and useful ideas, and are encouraged to take risks, learn from failures as well as successes, and value diverse perspectives. They invent, try out, and revise designs and solutions, and bring to bear the knowledge and skills of different disciplines on the challenges they undertake.

***Global awareness:*** Throughout the Ford PAS curriculum, students tackle issues that cross borders and learn to consider the perspectives of people and communities around the world. They learn to work and communicate effectively with others who have different views. Students' projects address global challenges such as energy supplies and economic interdependence, and explore potential solutions that consider local cultures and conditions as well as global impact.

## Teaching Pillars: 21st Century Pedagogy

The Ford PAS Teaching Pillars are essential for facilitating learning experiences that embody the Learning Pillars and represent the ways that the Ford PAS curriculum structures and guides students' learning of essential knowledge and skills. A feature of the 21st Century Skills that constitute the Ford PAS Learning Pillars is that students must engage in them in order to learn them. For example; students must actually work in teams in order to learn to collaborate successfully, and they must communicate in various formats and media, with various audiences, and for various purposes to become effective communicators. Telling students how to think critically, without their actually having the experience of analyzing, synthesizing, and evaluating information, will not enable them to become critical thinkers themselves. Likewise, simply reading about how others have identified and solved problems will not build students' capacity to clarify and seek solutions to problems they encounter in

the real world. Yet students need access to strategies and tools that will help them develop these skills, and they need guidance and feedback as they gain expertise. Students also need contexts in which challenges and problems are structured to enable them to build on their existing knowledge and skills as they expand and deepen their understanding and develop facility with new skills. The Ford PAS Teaching Pillars provide contexts that scaffold and structure students' learning opportunities. These strategies, tools, and contexts constitute a 21st century pedagogy that helps teachers to facilitate student success.

***Academically rigorous:*** Ford PAS teachers have high expectations for all students and facilitate students' learning of essential knowledge, skills, and ways of thinking particular to the core academic disciplines, meeting state and national academic standards and the expectations of postsecondary education and the workplace.

***Integration of academic and career-related knowledge and skills:*** Ford PAS teachers engage students in hands-on problem-solving in genuine career-related contexts in fields such as business, engineering, manufacturing, and technology in order to develop academic knowledge and skills and essential skills such as critical thinking, teamwork, and communication required for success in postsecondary education and careers.

***Inquiry-based:*** Rather than starting with an introduction to facts, definitions, and terminology, teachers using Ford PAS modules begin by posing problems and issues and enable students to acquire information and develop skills in the context of investigating those problems and issues, often through hands-on learning experiences. When additional information and skill development or practice exercises (called "Skill Resources") accompany the modules, they are included to support—not replace—the inquiry-based learning experiences.

***Project-based:*** Ford PAS teachers engage and guide teams of students in carrying out in-depth, long-term investigations of significant questions and problems. Students' projects culminate in products and/or presentations through which they communicate about their investigations and their results. These products and presentations display evidence of the knowledge and skills students have acquired in the course of conducting their projects.

***Real-world:*** Ford PAS grounds learning in the real world in a variety of ways. Ford PAS teachers engage students in real-world situations—such as business and engineering challenges—that allow students to build knowledge and skills. Through the partnerships that are essential to the program, Ford PAS enables students to interact with people from business, higher education, and community organizations. Students venture onto college campuses, into businesses, and into the community as part of their learning, experiencing how their classroom learning will enable them to engage in future study and rewarding careers.

***Performance-based:*** All Ford PAS activities identify specific learning goals that correlate with national academic standards. The curriculum requires students to apply the knowledge, skills, and understandings that they acquire through the modules' learning experiences to carry out long-term projects and create end products that demonstrate their learning. Teachers assess students' progress toward meeting each learning goal, using a variety of assessment tools—including product assessments, peer assessments, student self-assessments, quizzes, and tests. Quizzes and tests pose open-ended questions that often have more than one

possible answer. When students answer these questions, they must make meaning of and articulate their new knowledge, rather than just recall and repeat facts.

***Technology-rich:*** Ford PAS prepares students to become adept users and consumers of a range of technology and media tools. Ford PAS teachers engage students in using technology in the ways that people in business and the professions use it: to conduct research, organize and analyze data, simulate complex systems, and communicate information and ideas. Students build mastery in using a variety of technology tools and learn how to appropriately use technology to enhance communication and streamline work. Students also become critical users of technology as they learn to evaluate both the use and content of different technologies and sources.

***Career-relevant:*** Ford PAS aims to prepare the future scientists, inventors, public servants, and entrepreneurs who will apply their passions and expertise to improving the world for their generation and those to come. Ford PAS teachers structure learning so that students understand a broad range of career paths, become aware of the knowledge and skills required to succeed in a variety of careers, and know what education and training are required for entry-level and more advanced positions.

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