

Ohio Core: Not Your Parent's High School Curriculum

It used to be that anyone could be a backyard mechanic. Remember how you could tune up your car, adjust the carburetor, and diagnose trouble just by listening to the purr or rumble of your engine?

Not anymore. Today's cars are loaded with high-tech electronics and computer components that baby-boomer parents and grandparents couldn't even have imagined as youngsters. Higher-level mathematics, science, engineering and technology skills are now the norm for today's automotive technicians and other skilled laborers.

Technology has gone mainstream. Our handheld calculators have more computing power than early space capsules. In fact, the computer technology in today's vehicles is nearly 1,000 times more powerful than what guided the Apollo moon mission. (Autoalliance.org).

Even Ohio's largest industry, agribusiness – what we used to call farming – is now dependent upon sophisticated satellite connections, computers and mathematics to figure acreage, tillage, fertilizer dispersal rates and a host of other calculations.

Our kids are wired to one another through MySpace or Facebook. They've even replaced talking for hours on the telephone with shooting text messages between cell phones in nanoseconds. E-mail is already passé with adolescents – YouTube is the newest medium of expressive communications.

Yet, for all the technological changes in our children's everyday lives, many parents don't realize that education must change to keep up.

For the reality is that education that was sufficient for parents isn't what today's students need. To compete and collaborate in a global marketplace, students will need advanced skills and knowledge that are far different from what adults learned in high school or college even 10 years ago.

Jobs and careers in the 21st century will demand even more technologically savvy students, creative and innovative thinkers, and young entrepreneurs who can communicate and collaborate across cultures, countries and continents.

Real-World Algebraic Problems

1. Will women ever get equal pay for equal work? By looking at data on median salaries of men and women over time, you can develop mathematical models to ask whether the median salaries will ever be the same during your lifetime. You can compare linear and exponential models, realize that different models will give different answers and develop a rationale for which model is more appropriate.
2. What kind of drug testing program should your school use? Your district is thinking about instituting a drug testing policy for athletes. Any drug test carries competing risks of false positives and false negatives, and more-accurate tests are usually more expensive. By analyzing the accuracy and cost of available drug tests and by considering perceptions of the extent of the drug problem with privacy concerns, you can propose a drug testing program that balances managing a problem, privacy concerns and cost.
3. Should you pay points to lower the interest rate of your new home's mortgage? You are ready to buy a house, and you are comparing mortgage rates. By comparing the mortgage payments at the two interest rates, you can determine the payback period for the cost of the points. Then by considering how long you are likely to own the house and hold the mortgage, you can make a reasoned judgment about whether to pay points for the lower rate.

To meet these demands, Ohio educators and legislators have reviewed and updated core education requirements and established the “Ohio Core” to ensure students will be ready to succeed in the world they will face.

Under the new requirements, today’s seventh-graders – the Class of 2014 – will need an additional year of math and lab-based science to get a diploma.

In addition, these revised standards are a bit more challenging than in years past.

- Students will complete 20 credits that include more rigorous courses like Algebra II or its equivalent.
- Financial literacy instruction must be provided to all students before they earn a diploma.
- Science will involve questioning that is open-ended with an inquiry-based laboratory experience, asking students to engage in science to solve real-life problems.
- And even though it’s still an elective, speaking a foreign language will be basic to anyone’s education as our U.S. population continues to become more diverse.

To help parents, students, teachers and school administrators understand what’s expected of our high school students, the Ohio Department of Education (ODE) created nine in-depth Web pages that explain the Ohio Core, provide answers to frequently asked questions, and give guidance to schools and districts about what courses should be offered. These can be found at www.ode.state.oh.us, keywords search: *Ohio Core*.

“The Ohio Core will give our high school students the kind of preparation they need to succeed in entry-level jobs, apprenticeships, military service and college,” said Stan Heffner, associate superintendent of the Center for Curriculum and Assessment at ODE.

“There’s an economic-workforce driver here, but there’s also the individual empowerment of Ohio students to believe in themselves, find how their learning is relevant to their lives, and have a core knowledge-base that allows them to find solutions to complex issues when they become adults,” Heffner said.

Ohio Core Requirements

Starting July 1, 2010, students who enter ninth grade will need to complete 20 units to graduate from high school, including:

English Language Arts – four units

Health – one-half unit

Mathematics – four units, including one unit of Algebra II or its equivalent;

Physical Education – one-half unit

Science – three units, including inquiry-based laboratory experience in these subject areas or their equivalents:

Physical Sciences – one unit

Life Sciences – one unit

Advanced Science – one unit

- Chemistry, physics, or other physical science;
- Advanced biology or other life science;
- Astronomy, physical geology, or other earth or space science.

Social Studies, three units, including both:

- **American History**, one-half unit
- **American Government**, one-half unit

Economics and Financial

Literacy: Each school will integrate the study of economics and financial literacy

Electives: Five units, any combination of foreign language, fine arts, business, career-technical education, family and consumer sciences, technology, agriculture

ODE mathematics expert Brad Findell agrees. “Not all students will need calculus or even pre-calculus, but we know geometry and introductory algebra are not enough,” Findell said. “That’s why we’re saying students need Algebra II or its equivalent, meaning a course where they use algebraic skills and reasoning to solve complex, real-world problems.” (See sidebar.)

Nancy Pistone, an ODE expert in the visual and performing arts curriculum, says students under Ohio’s Core Curriculum will be required to complete two semesters or its equivalent of the fine arts in any of grades 7-12.

“The fine arts requirement in the Core helps us begin to highlight the visual and performing arts as equal partners with other subjects,” Pistone said. “Whether they stand alone as design, drama, architecture, music, dance, sculpture, photography, painting and filmmaking courses – or are integrated with other disciplines – the modes of thought and dispositions the arts nurture will prepare students to meet economic, cultural, societal and personal challenges.”

Susan Zelman, superintendent of public instruction, said the Ohio Core isn’t just about adding up credits, but rather, about ensuring that our graduates are well-prepared to be successful, 21st-century global thinkers and competitors.

“The Ohio Core will go beyond isolated courses and subjects to drive education toward an integrated, holistic approach for each child’s pathway to the future,” Zelman said. “Great education molds great leaders, inventors and entrepreneurs. Through today’s educational requirements, Ohio will continue its rich tradition and history of innovation and creativity for generations to come.”

Please send your feedback and comments to dorothea.howe@ode.state.oh.us.