



2024 National STEM Festival – Webinar

Da Vinci Science Center

STEAM Career Pathways for Youth

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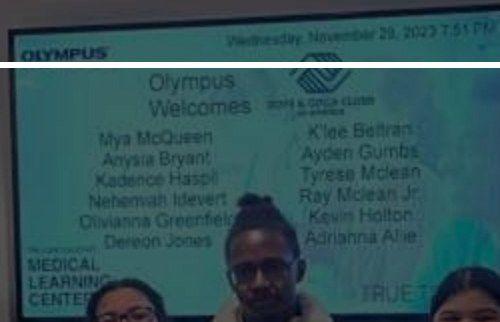
- Who are we?
 - Located in Allentown, PA
 - Science, Technology, Engineering, Arts, & Math (STEAM) by the Numbers
 - In-House, Outreach, Community Impact
 - Brand new, state-of-the-art science center opening in May 2024!



Career Pathways Program

- o *Branches of the Initiative:*
 - o Career Pathways Program
 - o Career Connection Days
 - o Career readiness integrated into other areas

- o *Why the Career Pathways Initiative?*
 - o To address the challenge of advancing educational attainment and employment opportunities for groups traditionally underrepresented in STEAM careers; STEM jobs and pay; STEAM skills are skills for life!




STEAM Career Pathways

Number	Areas
13.1	Career Awareness and Exploration
13.2	Employability Skills
13.3	Growth and Advancement
13.4	Personal Interests and Career Planning


- What impact can science centers/museums have on communities?
 - We are connectors and stakeholders – can leverage resources to support interactions with teachers, parents, and partners
- [PA Career Education & Work Standards](#) and [NGSS](#)
 - Not all states have workforce development standards that allow students to shape their career pathways from an early age
 - Provides building blocks that all piece together across subjects and ages
 - Need for student agency – voice and choice in how they learn

Materials & Resources


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Voluntary Model Curriculum (sample unit and lesson plans)




Learning Progressions




Pennsylvania Literacy



Early Learning: Pre-Kindergraten to Grade 3
OCDEL



POWER Library



Career Readiness

Career Readiness

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Are your students READY for their future?

Pennsylvania's economic future depends on having a well-educated and skilled workforce that is prepared to meet the current and projected demands of a global, knowledge-based 21st century economy.

- Do you have the classroom resources to help students achieve their goals?
- Are your students engaged in meaningful activities to support their career portfolios?
- What opportunities are available for you and your students to expand knowledge of the 21st century workplace?
- Do your students have a post-secondary pathway for success?

The Teacher in the Workplace (TIW) experience enables educators to make learning connections in the classroom to prepare students for postsecondary success.

Through the TIW model, teachers build stakeholder relationships that perpetuate future career connections and work-based learning experiences for both teachers and students. In addition, the implementation of curriculum aligned to industry needs feeds into the workforce pipeline with students who are career ready for postsecondary success.

Browse the SAS-showcase TIW grant recipients below to gain a better understanding of the process and value of TIW.

- ▾ Career Readiness Links
- Teacher in the Workplace Showcase
- Career Readiness Research

- [Career Readiness Indicator for Future Ready PA Index FAQs](#)
- [The Pennsylvania Career Ready Skills Continuum](#)
- [Classroom Resources](#)
- [Student Engagement Activities](#)
- [21st Century Workplace](#)
- [Post-Secondary Pathways](#)

For a deeper dive into NGSS and College & Career Readiness, check out the following resource!

<https://www.nextgenscience.org/get-know-standards>



THE STANDARDS ▾ INSTRUCTION AND ASSESSMENT ▾ PLANNING AND COMMUNICATION ▾

Get to Know the Standards

The Next Generation Science Standards are now available. Twenty-six states and their broad-based teams worked together with a 40-member writing team and partners throughout the country to develop the standards.

- [NGSS Front Matter](#)
- [NGSS Structure](#)
- [NGSS Appendices:](#)

- A. [Conceptual Shifts](#)
- B. [Responses to Public Drafts](#)
- C. [College and Career Readiness](#)
- D. [All Standards, All Students / Case Studies](#)
- E. [Disciplinary Core Idea Progressions](#)
- F. [Science and Engineering Practices](#)
- G. [Crosscutting Concepts](#)
- H. [Nature of Science](#)
- I. [Engineering Design in the NGSS](#)
- J. [Science, Technology, Society, and the Environment](#)
- K. [Model Course Mapping in Middle and High School](#)
- L. [Connections to CCSS-Mathematics](#)
- M. [Connections to CCSS-Literacy in Science and Technical Subjects](#)

RECENT N

> April 2024 NGSS

> March 2024 NGS:

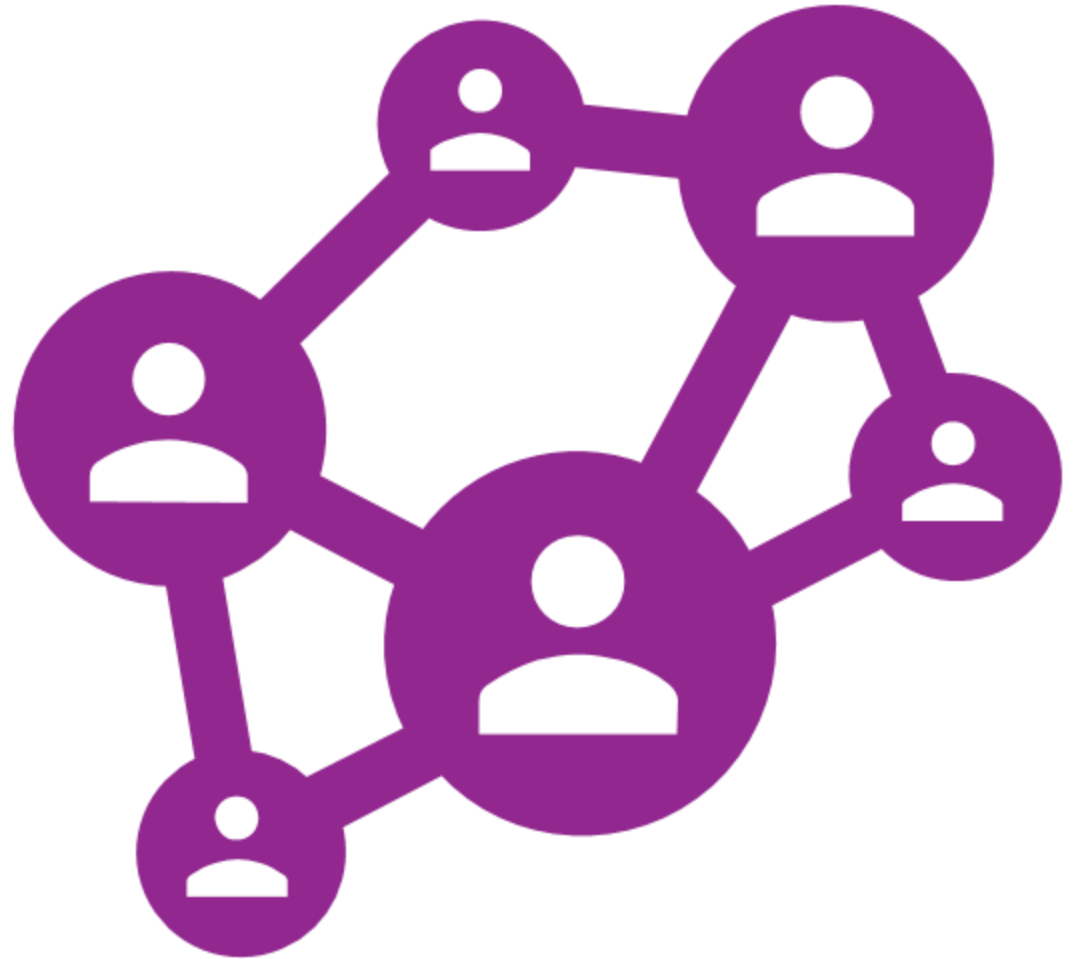
> February 2024 NC

> January 2024 NG

> December 2023 N

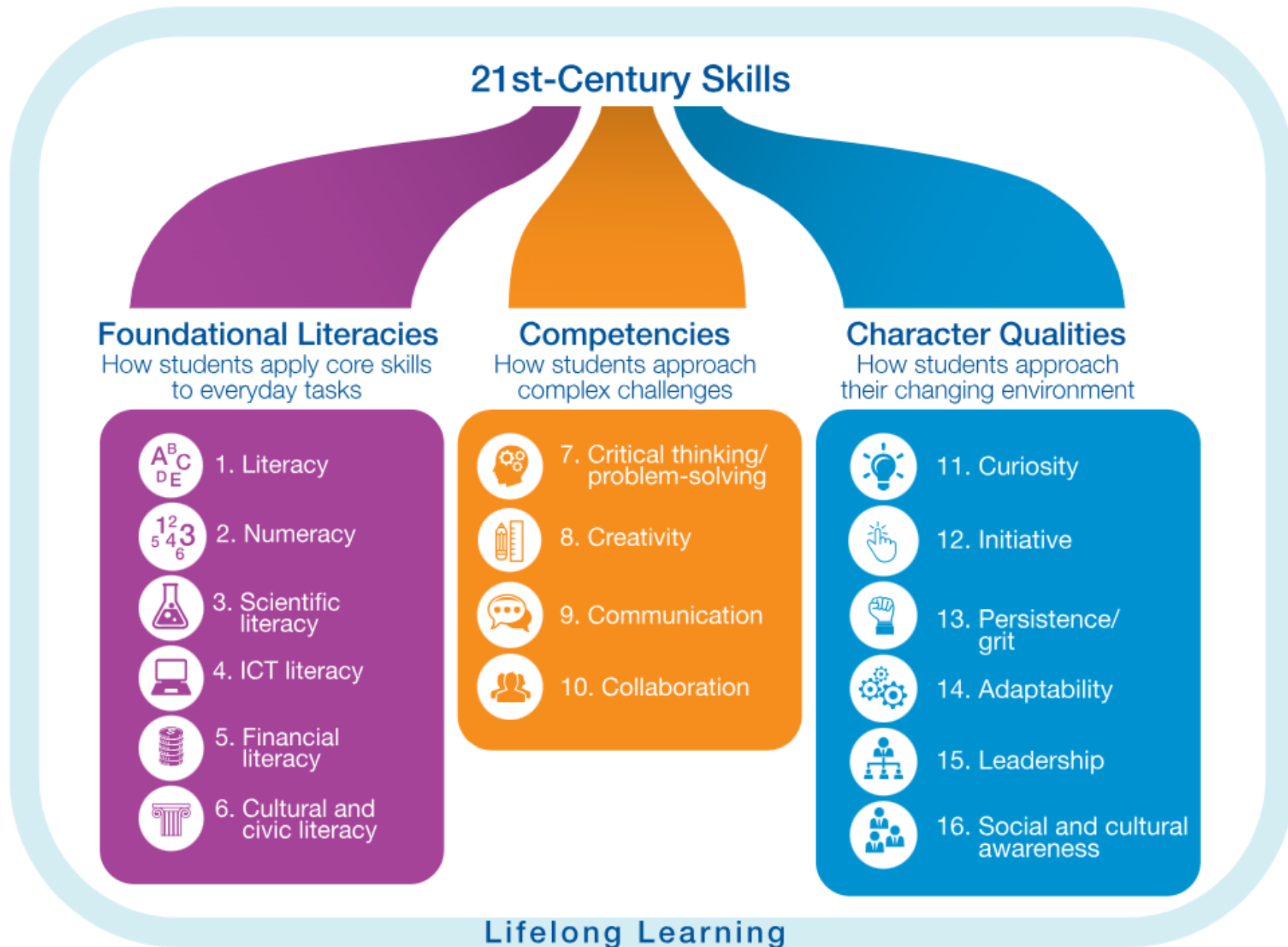
Discussion!

1. What interactions have you had (if any) with career education and work standards?
2. How would you like to interact with the standards or career readiness?



Can you name all the 21st-Century skills?

Question! What are some creative ways that we can integrate different 21st-Century skills into different subjects and into our lives outside of school?

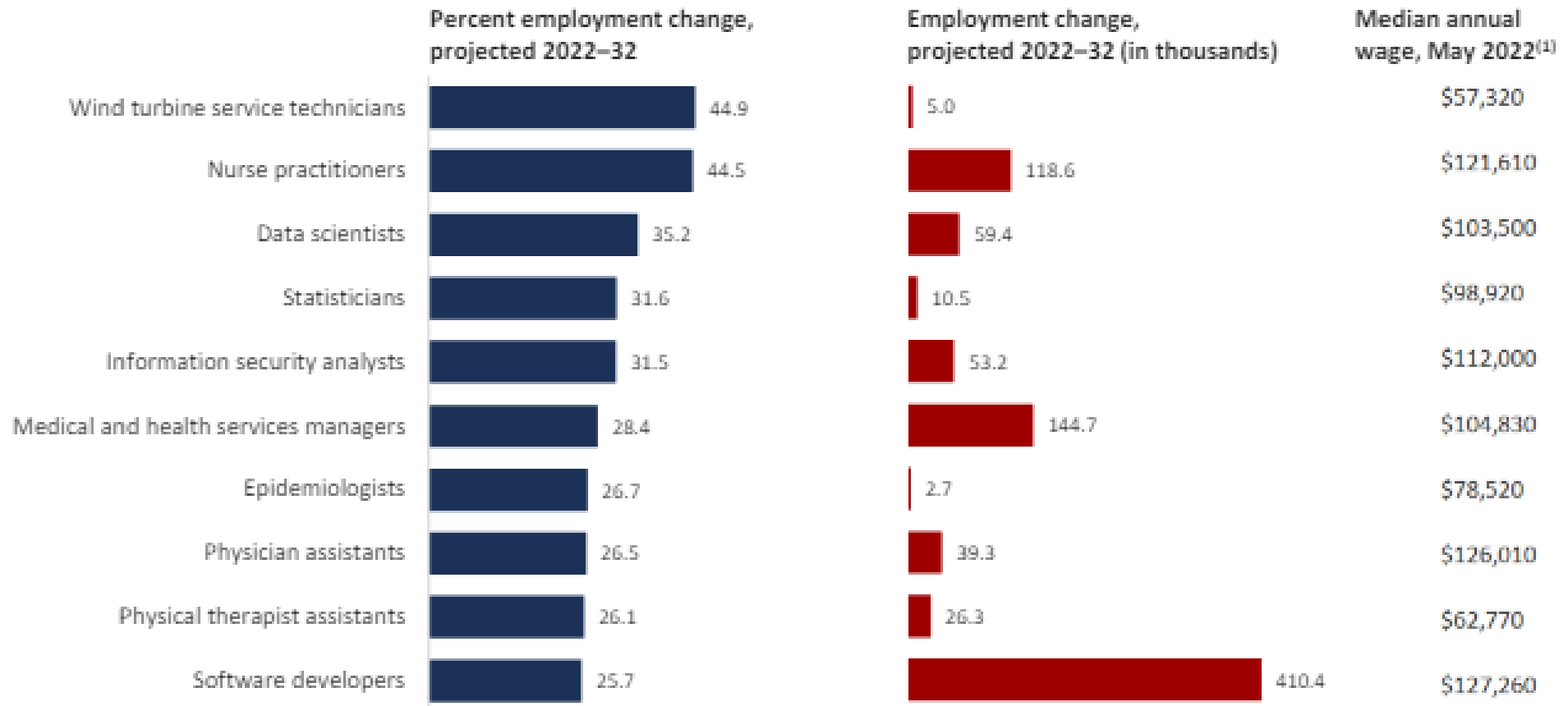


Emerging STEAM Fields

- Health care and social assistance sector – projected 2.1 million added jobs from 2022-2032
- Computer systems design and related services – projected 474,800 added jobs from 2022-2032
- Electrical equipment and component manufacturing industry – projected 52,700 added jobs from 2022-2032



Chart 7. Ten fastest growing occupations, projected 2022–32



Footnotes:

(1) Data are from the Occupational Employment and Wage Statistics (OEWS) program, U.S. Bureau of Labor Statistics. Wage data cover non-farm wage and salary workers and do not cover the self-employed, owners and partners in unincorporated firms, or household workers.

Source: U.S. Bureau of Labor Statistics



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Emerging STEAM Fields

What do you think is driving these careers?

High School Diploma or Equivalent

- Home Health & Personal Care Aids
- Solar Photovoltaic Installers
- Veterinary Assistants & Lab Animal Caretakers
- Forest Fire Inspectors & Prevention Specialists
- Industrial Machinery Mechanics

Bachelor's and/or Masters's Degree

- Nurse Practitioners
- Data Scientists
- Information Security Analysts
- Medical & Health Services Managers
- Software Developers
- Actuaries



Self-Assessment and Career Exploration Resources

- What's So Cool About Manufacturing – [Cool Careers](#)
 - Use the link above to explore information on cool careers in manufacturing, resources for families, and a "Truth or Myth" quiz to see what you know about manufacturing careers!

Search...

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Entry-Level Qualifications

Bachelor's degree

What Mechanical Engineers Do

Mechanical engineers design, build, and test all sorts of mechanical and thermal devices, including tools, engines and machines. There are 17 specializations in mechanical engineering, though many engineers fluctuate between specializations throughout their career.

Who Should Become a Mechanical Engineer?

This is an excellent career for creative people that have an interest in mathematics, physics and mechanical systems. Communication skills are important as you'll often be working in teams with engineers and researchers in related fields.

What is the Job Like?

Mechanical engineers generally work in offices run by engineering, research and development, and manufacturing companies, as well as the federal government. Engineers design, test and assemble product prototypes, as well as communicate proposals to vendors, clients and other professionals on the design team.

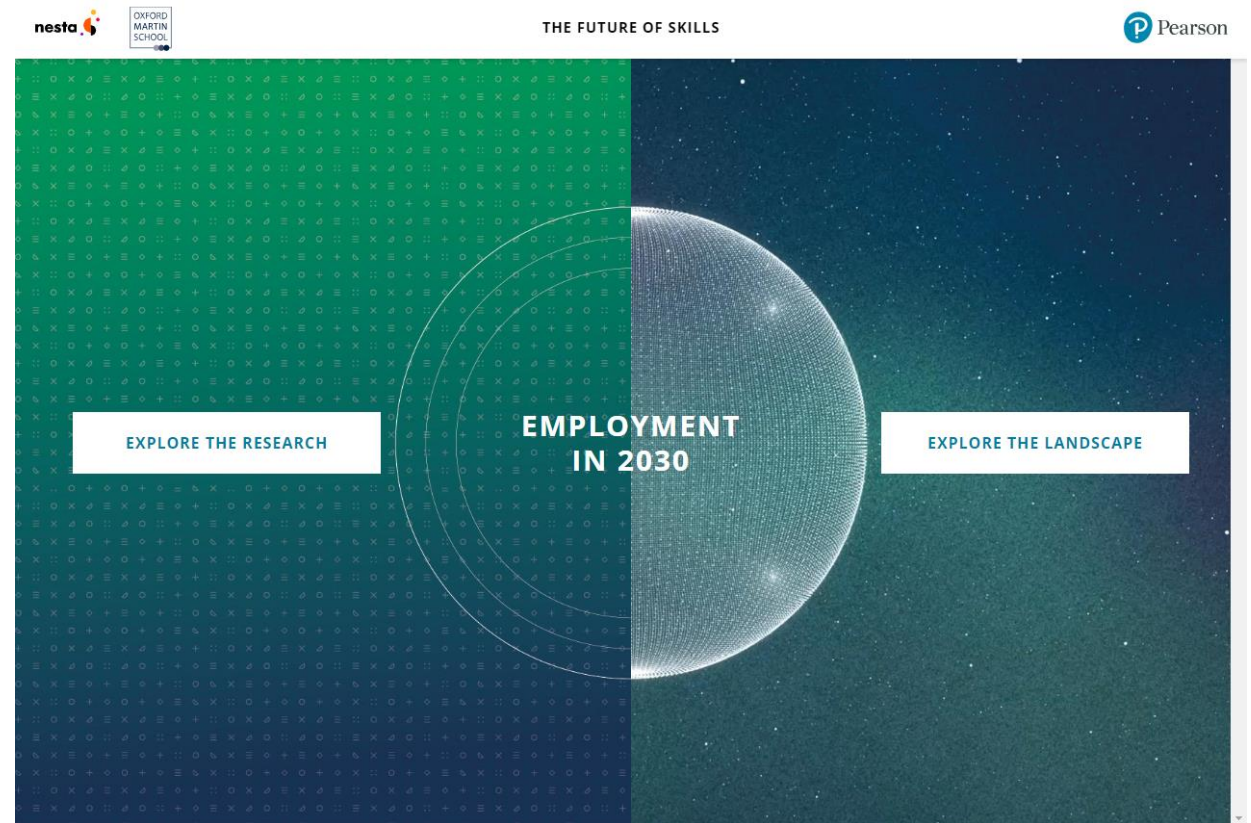
How Do I Become a Mechanical Engineer?

A bachelor's degree is required, with a graduate degree typically needed for managerial positions. Mechanical engineers are also required to pass both state and national examinations to obtain the title of Professional Engineer (PE).



Self-Assessment and Career Exploration Resources

- Pearson – [The Future of Skills](#)
 - Interactive tool that you can use to discover the skills you will need to succeed in different careers in 2030



Self-Assessment and Career Exploration Resources

- Career One Stop – [GetMyFuture](https://www.getmyfuture.gov)
 - Check out the link above to take an interest assessment, learn about careers, explore education and training options, & find and keep a job!

The screenshot shows the GetMyFuture website. At the top, there is a navigation bar with the logo for CareerOneStop and GetMyFuture, a login button, and a search bar. Below the navigation bar, there is a main header with the GetMyFuture logo and a quote: "Find a career that makes you happy every morning you wake up." attributed to Lonnie, a first-generation college graduate. The main content area is a grid of nine tiles, each with a title and a circular image of a person. The tiles are: "Find a career I like" (man in red shirt), "Finish high school" (woman in graduation cap), "Get work experience" (man in hard hat), "Write a resume" (woman with glasses), "Get a job" (man in plaid shirt), "Get training" (woman in chef's hat), "Work for myself" (man in white shirt), "Apply to college" (woman with glasses), and "Find job search help" (man in white shirt).

Self-Assessment and Career Exploration Resources

- Discovery Education – [STEM Careers Coalition](#)
 - Resources for educators, students, and families for STEM career exploration.
 - Videos, individual journeys, self-reflection guides



Change Your World with STEM

Problem-Solving Tools for Tomorrow's Changemakers

The all-new STEM Careers Coalition's mission is to empower educators to teach STEM effectively in the classroom, focusing on equity and access to quality education, and building the next generation of solution-seekers at no cost to schools.



Educators

subbbb
Inspire students with standards-aligned STEM classroom activities that are paired with inspiring real-world scenarios.

GET STARTED →



Students

Explore and ignite a sense of curiosity and possibility to play a part in the future of the STEM workforce.

GET STARTED →



Families

Support STEM learning beyond the classroom with resources designed for families.

GET STARTED →



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Building Experience

- Importance of volunteering and internships
 - high school is the ideal time to start taking part
- Financial literacy – several banks and other stakeholders offer financial literacy opportunities, curriculum
 - [PA Personal Finance Proposed Standards](#)
- Agency
- Pilot for a real job
 - Be open to feedback and make connections!

Number	Areas
17.1	Personal Finance Fundamentals
17.2	Income
17.3	Spending
17.4	Saving & Investing
17.5	Risk & Insurance
17.6	Credit



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How to Apply to Internships

Writing a Resume

- **Purpose:** Your resume will grab the attention of employers, show off your strongest skills and accomplishments, and highlight why you're a match for the position.
- **Components:**
 - Name & contact information
 - Headline and summary
 - Skills
 - Work experience
 - Education
 - Other information (awards, memberships/club involvement, etc.)
 - Use pre-made templates provided by Microsoft Word or Google Sheets for formatting
- **Tips:** Rough draft, edit, proofread!



How to Apply to Internships

Writing a Cover Letter

First Paragraph: State the reason for writing. Name the specific position or type of work for which you're applying. Mention how you learned of the opening.

Second Paragraph: Explain why you're interested in working for this employer and specify how you fit this position. Don't repeat the information on your resume. Include something special or unique about yourself that will benefit the employer. Remember, the reader will consider this an example of your writing skills.

Third Paragraph: Mention that your resume is enclosed and indicate your desire to meet with the employer. You may want to suggest alternate dates and times, or simply advise them of your flexibility to meet. Include day and evening contact information. Include a statement or question that will encourage the reader to respond. Be sure to communicate your plan to follow up. You might state that you'll be in the area on a certain date and would like to set up a meeting, or you'll call on a certain date to set up a meeting. Finally, thank the employer for his/her time.

- **Purpose:** to interest the employer in reading your resume

Components:

- Heading & greeting
- Three paragraphs
 - Explain why you're writing
 - Refer to your qualifications
 - Close with a suggested plan of action
- **Tips:** targeted letter for each position & always proofread



Internships

- Benefits: <https://www.hrm.oa.pa.gov/hire-sep/Pages/High-School-Internships.aspx>
 - "Providing safe and rewarding opportunities for high school students to help them better define career interests and goals, and to further develop their technical and professional skill sets"
 - Great opportunity to develop skills and experiences in a short-term, real-world work environment
- Showing proactiveness through experiences
 - Work with your supervisor to set goals and identify ways to demonstrate success
- U.S. Department of Labor – [Child Labor regulations](#) to keep young workers safe

Funding/Scholarship Resources

Build skills and credentials to advance your career.

Types of training

High school equivalency

Adult Basic Education

Short-term training

College

Certifications

Apprenticeships

Internships

Professional development

Do you need a license?

Pay for training

How much will it cost?

Find money for training

Financial aid

Scholarships

Make a budget

Find your path

What's right for me?

What's in demand?

Make a training plan

My skills are out of date

College for adults

Is education worth it?

- Talk with your school counselors
- Online resources to find scholarships/funding at both the local and national level
 - o <https://www.careeronestop.org/Toolkit/Training/find-scholarships.aspx>
- Visit [College Scorecard](#) to find information on the cost of US colleges and universities, financial aid opportunities, and more alternative pathways to a career



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Questions?

*Scan the QR code to get a copy of
all the links shared today!*

