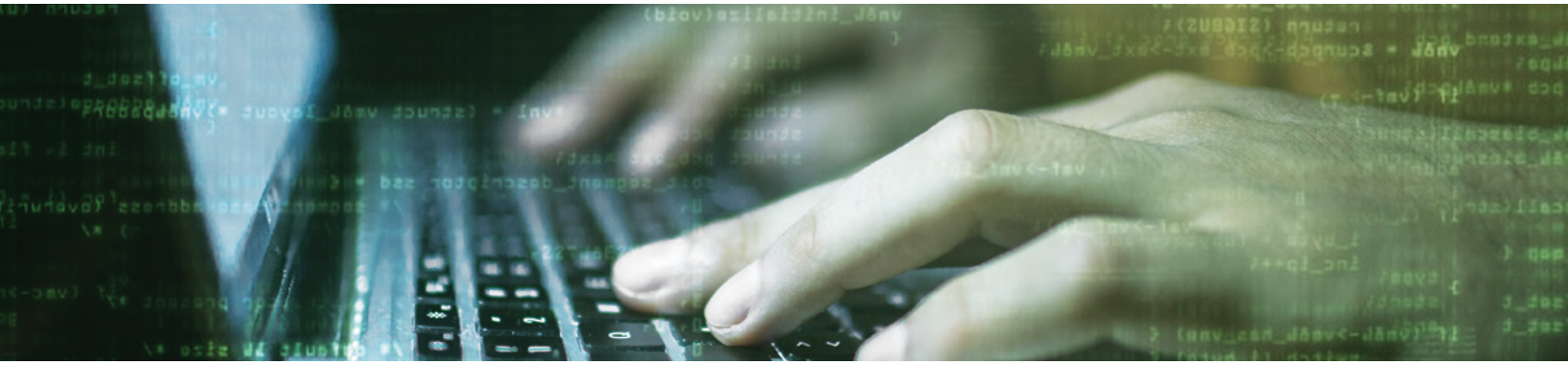
STEMJOBS℠
DO WHAT YOU LOVE.

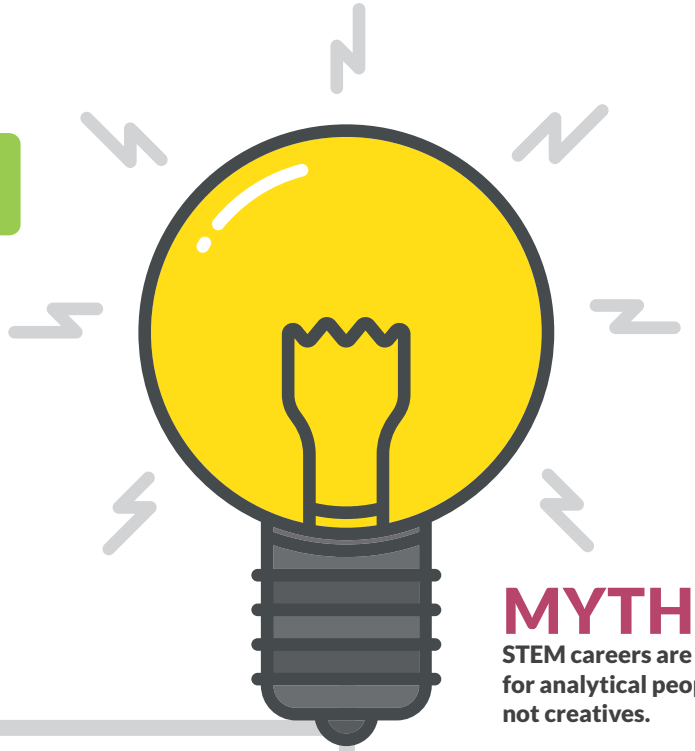


5-E CLASSROOM STEM ACTIVITY:
EXPLORING STEM CAREERS: INTELLIGENCE, JEWELRY, KINETICS, LAW

Ellen Egley
Director of STEM Jobs

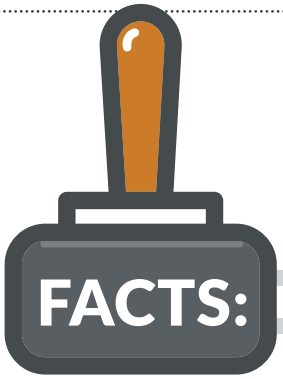
STEM MYTHS BUSTED

There are a lot of myths out there about STEM careers and the path students should take after high school. These myths are accepted as fact and feed into each other - causing students to miss out on opportunities to do what they love. Let's bust some common STEM myths.



MYTH 3:

STEM careers are for analytical people, not creatives.

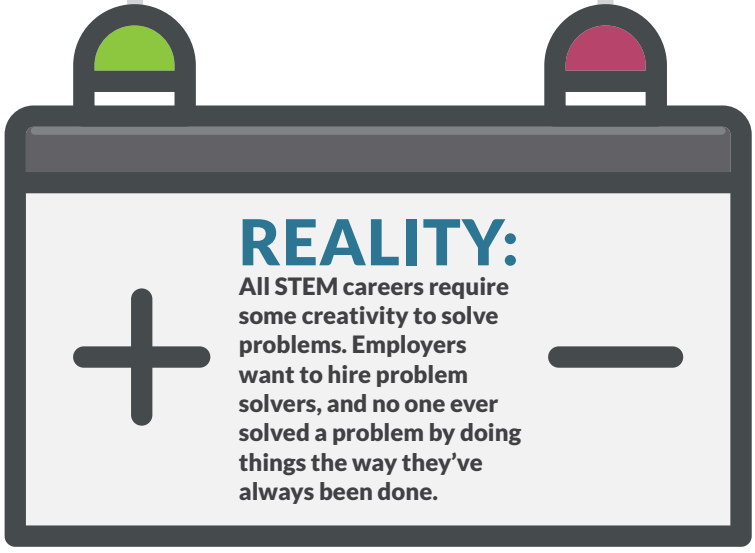


A. Every artistic production (play, ballet, musical, concert) requires STEM skills and professionals to be successful. Obvious things like sound, lighting, and special effects are STEM centric, but even backgrounds and costumes often have a huge STEM component to allow quick scene changes and transport the audience to another time and place.

B. Wearable tech requires creative software and hardware developers, along with programmers and designers to come up with new technology that people actually want to wear and that actually does something useful.

C. Architects, civil engineers, and others are needed to find creative solutions to design problems while protecting the environment and ensuring safety for the people using their buildings.

D. Science helps us understand the world around us and create new things—just ask a food scientist, software engineer, or materials scientist!



REALITY:

All STEM careers require some creativity to solve problems. Employers want to hire problem solvers, and no one ever solved a problem by doing things the way they've always been done.

5-E CLASSROOM STEM ACTIVITY: EXPLORING STEM CAREERS

Here are some ideas for how high school teachers could use this story as a launching point for integrated STEM learning. Our activities follow the 5-E Learning Cycle Model.

Part 1: Engage

1. Take an informal poll in your classroom:
   - **a.** How many of you feel like most STEM careers are well-suited for creative people versus analytical people?
   - **b.** How many of you know what you want to do as a career?
   - **c.** How many of you know the education path that trains you for that career and how much that path is likely to cost?
   - **d.** What conclusions can you draw from students' responses?
2. Have students read "STEM Myths Busted" in the Early Spring 18 issue of *STEM Jobs* magazine.
   - **a.** Did anything surprise them?
   - **b.** What are their thoughts about creativity and STEM?
   - **c.** Why is it important to have creative and artistic people in STEM careers?

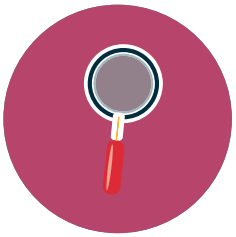
Part 2: Explore

1. Break students into pairs and assign each pair one of the job spreads that can be found in the magazine or online at edu.STEMjobs.com/teacher-resources. Teacher can determine whether to assign them randomly or based on student interest.
2. Tell students that each pair will choose one job from their assigned job spread to investigate further. Teacher will monitor selections to avoid duplications. Students will research:
   - **a. Duties and Responsibilities**
     - i. What can someone in this career expect to do each day?
     - ii. What skills are used?
   - **b. Education Required**
     - i. What type of training is required to be qualified for this career?
     - ii. If formal schooling is required:
       1. Which program provides the best training? (computer science, communication, civil engineering, etc.)
       2. What schools in your area offer this program?
       3. What is the tuition cost for the applicable program at three of these schools?
       4. What is the graduation rate at these three schools?
       5. What is the job placement rate at these three schools?
       6. How long does it take the average student to complete the program at each of these three schools?
   - **c. Salary**
     - i. What is the average entry-level salary?
     - ii. What is the median salary?
     - iii. How long will you have to work to recoup tuition costs if you earn the entry-level salary? The median salary?
   - **d. Job Prospects**
     - i. Is there job growth projected for this career?
     - ii. What companies in your area are hiring for this career?
       1. Do they pay for continuing education?
       2. Are there opportunities for advancement and growth?
       3. Do they offer benefits?
          - a. How much do employees pay for health insurance?
          - b. Is there a retirement offering, like a 401K?

Recommended resources can be found at edu.STEMjobs.com/teacher-resources.

Part 3: Explain

1. Students will create a PowerPoint or Google Slides presentation of their findings to share with the class. Both students in each pair should contribute to both the creation and delivery of the presentation. Pairs will be graded according to the rubric in the Evaluate section, which should be shared with students when the assignment is given.
2. At the culmination of the presentations, poll students again:
   - **a.** Did anyone discover a career they never knew existed?
   - **b.** Did anyone discover a career they would consider pursuing?
   - **c.** Which career had the lowest education cost?
   - **d.** Which career had the highest salary?



Part 4: Elaborate

Students will submit a formal writing assignment responding to the following prompt:

What career was the most appealing to you and why?
Was this a career you would have considered previously?
Why or why not?

Part 5: Evaluate

Group presentations and individual contributions will be scored according to the following rubric. Individual writing assignments can be graded as desired.

5	4	3	2	1
The presentation was clear, concise, and thorough. It provided precise information and explanations.		The presentation was informative. It answered most of the questions posed in the prompt in an understandable way.		The presentation was unclear and only provided a small portion of the required information.
The student contributed to the group's research, understanding, and presentation in meaningful ways.		The student contributed somewhat to the group's research and/or presentation.		The student did not contribute to the group's research or presentation.

Standards Addressed:

Common Core State Standards - English and Language Arts

CCSS.ELA-LITERACY.RST.11-12.7 Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., quantitative data, video, multimedia) in order to address a question or solve a problem.
CCSS.ELA-LITERACY.SL.11-12.1 Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grades 11-12 topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively.
CCSS.ELA-LITERACY.SL.11-12.2 Integrate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, orally) in order to make informed decisions and solve problems, evaluating the credibility and accuracy of each source and noting any discrepancies among the data.
CCSS.ELA-LITERACY.SL.11-12.5 Make strategic use of digital media (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence and to add interest.
CCSS.ELA-LITERACY.WHST.11-12.7 Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.
CCSS.ELA-LITERACY.WHST.11-12.9 Draw evidence from informational texts to support analysis, reflection, and research.
CCSS.ELA-LITERACY.WHST.11-12.10 Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.

National Career Development Guidelines

CM3.R1 Assess the impact of career information on your plans and refine plans so that they reflect accurate, current, and unbiased career information.
CM3.K2 Recognize that career information includes occupational, education and training, employment, and economic information and that there is a range of career information resources available.
CM3.A2 Demonstrate the ability to use different types of career information resources (i.e., occupational, educational, economic, and employment) to support career planning.
CM3.K5 Identify occupations that you might consider without regard to your gender, race, culture, or ability.

Texas Essential Knowledge and Skills for Career Development

CPI.1.A identify employment opportunities
CPI.8.A analyze the future employment outlook in the occupational area
CPI.8.C compare rewards and demands for various levels of employment in a variety of careers
CPI.9.A evaluate and compare employment options, including salaries and benefits
CPI.9.B compare rewards and demands for various levels of employment in a variety of careers
CPI.9.D determine continuing education opportunities that enhance career advancement and promote lifelong learning
CPII.9.A research and identify current or emerging occupations
CPII.9.B analyze future employment outlook
CPII.9.E identify the academic and technical entry requirements for employment in various high-skill, high-wage, or high-demand occupations
CPII.10.A evaluate and compare employment options such as salaries, benefits, and prerequisites
CPII.10.B compare rewards and demands for various levels of employment in a variety of careers
CPII.10.C determine continuing education opportunities that enhance career advancement and promote lifelong learning
CPII.10.D determine preparation requirements for levels of employment in a variety of careers