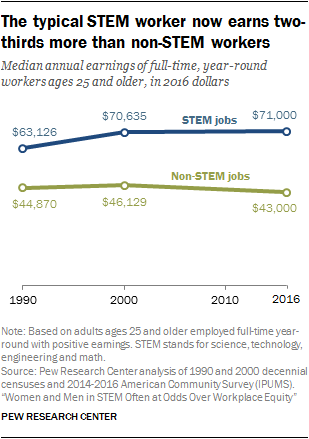
**Pop-Out Essential Question:** *Is there diversity in STEM and why does it matter?*



In this unit’s culminating project, your job is to design a product that makes it more comfortable for people to live in extreme climates. What you are doing is engineering!

Engineering is part of a larger category you may have heard of before called STEM – Science, Technology, Engineering, and Math. In the last 30 years, STEM jobs have grown 79% and they often pay a much higher salary than non-STEM jobs (see graph to right). With lots of jobs available and higher pay, you might think all kinds of people decide to work in STEM professions!

In this Pop-Out, you will explore who works in STEM fields and why this matters for the rest of society.

**Engage**

Innovations from STEM fields are all around you, affecting most aspects of your everyday life! How did these innovations come about and who did they come from?

1. Individually, think about when you’ve acted like an engineer, for example when you designed a solution to a problem:
   1. Do you think you’d come up with a better solution on your own, or if you had a chance to share ideas with others? Why?
   2. Let’s say you decide to work with a team. Do you think you’d come up with a better solution if your team was made up of people with identical backgrounds, perspectives, and experiences? Or, do you think your solution could be improved by working with people from different backgrounds, perspectives, and experiences? Why?
2. Diversity refers to difference. Do you think diversity is important in STEM fields? Why? Share your opinion, first with a partner and then with the class.

**Explore**

You’ve discussed ways in which diversity is good for STEM. Let’s explore how diverse STEM fields actually are. You will be given four Research Cards. Each contains a different graph of data that shows the groups of people represented in STEM. As a group, review each Research Card and use the graph analysis questions to help you understand each source of data. Fill in the graphic organizer with your notes below:

|  |  |  |
| --- | --- | --- |
| Research Card # | What is this graph about? | Discussion Questions |
| 1 |  | Is there a higher female-to-male ratio in non-STEM or STEM fields?  Are there more women or men majoring in STEM fields? |
| 2 |  | Are there more females or males in each STEM education level?  At what level of STEM education is there the most difference between the percentage of females and males? |
| 3 |  | Which racial group holds the largest percentage of STEM jobs and which racial group holds the lowest percentage?  Which STEM field has the most white people?  Which STEM field has the fewest underrepresented minorities (Black and Hispanic people)? |
| 4 |  | Which racial group is most represented (largest bar) and which racial group is least represented (smallest bar) at each Professor Rank Level?  At which Professor Rank is there the most difference between white representation and representation of other races? |

**Explain**

Now that you have seen the data, how would you explain the amount of diversity in STEM to another person? Individually, fill out the graphic organizer below to help you describe diversity in STEM, citing evidence from the graphs.

|  |  |
| --- | --- |
| Claim About Diversity in STEM | According to data, would you say there is a lack of diversity in STEM, lots of diversity in STEM, or is it too difficult to tell? |
| Evidence of Gender Diversity  (Describe what you saw in Graphs 1 and 2) |  |
| Evidence of Racial Diversity  (Describe what you saw in Graphs 3 and 4) |  |

**Elaborate**

To address this lack of gender and racial diversity in STEM, we need to better understand why it might be happening!

1. **Individually, read and annotate the article, “Why Are We Seeing a Lack of Diversity in STEM?”**
2. **With a partner, fill out the table below:**
   1. **First Row: Describe three possible reasons for the lack of gender and racial diversity in STEM.**
   2. **Second Row: Brainstorm at least one strategy to address each issue described in the article.**

|  |  |  |  |
| --- | --- | --- | --- |
| **Reasons For the Lack of Gender and Racial Diversity in STEM** |  |  |  |
| **Strategies to Bring More Women and Underrepresented Minorities into the STEM Field** |  |  |  |

1. **As a class, share ideas out and make a poster of potential strategies.**

**Evaluate and Reflect**

Individually, take a few minutes to think about what you learned in this Pop-Out. Then reflect on the questions below:

1. What do you think are some benefits to having a more diverse STEM workforce?
2. What do you think are the best ways to address the diversity issue?
3. Do you want to work in STEM when you get older (as a scientist, engineer, or mathematician)?
   1. Why or why not?
   2. If you were interested in STEM, what would help you feel more supported in pursuing this type of career?