True Leaders in Equity 4-H STEM Equity Challenge Quick Guide

"Science progresses best when observations force us to alter our preconceptions." –Vera Rubin

What's the Challenge?

Be a global citizen by exploring and demonstrating an issue of equity in STEM.

Why does it matter?

Many of the top issues facing society today, both in the U.S., and worldwide (i.e., health care, food security, economy, education, health care, crime, poverty), can be traced back to issues of equity. Youth are a huge part of driving change in the world. In fact, historically, youth have played a pivotal role in many issues (cue Civil Rights Movement, Vietnam Protests, Indigenous Water Rights...). Having a mindset of being responsible for people, places, and things around the world and believing that your actions impact others, is being a global citizen. You can be a global citizen too, and we need you to be! When it comes to STEM (science, technology, engineering, and mathematics), there are many issues that you can explore—from environmental and climate justice, to cultural approaches to wildlife management, to the lack of diversity in STEM fields. What issue do you want to learn about?

Background

Equality is when each individual of a society or a group receives the same resource or treatment regardless of what may be needed to achieve a desired outcome. Equity is when an individual or group receives the unique resources and opportunities needed to reduce or eliminate the barriers. The goal with equity is to make things more fair for everyone. Most people want things to be fair. But many people disagree about what fair looks like. What does equity look like to you? What you think matters. STEM is a powerful way to explore the topic of equity because STEM is so much a part of our everyday experience. STEM is about curiosity, understanding the world we live in, and finding solutions to problems. Each of our own cultural perspectives are important to consider in STEM so that we can find solutions to help ourselves and others.

How do I do it?

- 1. **Pick a topic.** Find something that interests you, from your own cultural perspective, and discover what you can about it. If you can't think of an idea yourself, here are a few ideas
 - *Environment and climate justice*. Environment and climate are civil rights issues not just because they disproportionately affect communities of color and lower

income¹, but because anything that one person does affects others—it's the mindset of not caring that does the damage to the environment for everyone.

- Explore any environment and climate justice topic, and show what others can do to change their own thinking to be more mindful and just with our environment.
- Take a <u>carbon capture challenge</u> and measure the carbon captured by the trees in your area. Then challenge others to do the same!
- Find out what the biggest environmental threat is in your area. Then come up with one solution to it, and try it out!
- Cultural approaches to wildlife management. What's the best way to conserve and manage wildlife in the United States? And who gets to dictate a nation-wide approach? There are efforts now to <u>weave Indigenous knowledge into wildlife</u> <u>management</u>. In some places around the country, <u>land is being returned</u> to Native nations in the name of conservation. What are some <u>general ways of thinking</u> about wildlife conservation around the world?
 - Explore any one of these topics, and show what others can do to change their own thinking regarding wildlife conservation.
 - Try out one of these methods yourself! For instance, if there's a non-native invasive species in your area (buckthorn, garlic mustard, milfoil), can you try an <u>indigenous approach</u> to a solution? What type of approach is important to you?
- Lack of diversity in STEM fields. Diversity in STEM matters because it produces better results!² Discover more about why this is true, or what can be done to get more women and minorities into STEM fields.
- 2. Learn! Spend some time learning about the topic you picked by following these steps.
 - Read, watch a video, or talk to experts.
 - Spend time thinking about your own cultural perspective on the issue. What's important to you regarding this topic? Why?
 - What are others' cultural perspectives on the issue?
 - As you're learning about your topic, be sure to research solutions to the issue—ways others can take action.
- 3. **Pick a format.** How do you want to pull together what you learned? Following are some examples. Use this <u>rubric</u> to keep you focused.
 - Create a video documenting your journey of exploration about the topic.
 - Develop a demonstration of an experiment that you could teach others to try at home.

¹ NAACP. (2022). Environmental & Climate Justice. <u>https://naacp.org/know-issues/environmental-climate-justice</u> Valverde, M. (2019, May 14). Beto O'Rourke says race is No.1 indicator for location of toxic facilities. Is it true? Politifact. <u>https://www.politifact.com/factchecks/2019/may/14/beto-orourke/beto-orourkes-climate-change-plan-says-race-no1-in/</u>

² Gibbs, K. (2014, September 10). Diversity in STEM: What it is and why it matters. Scientific American. https://blogs.scientificamerican.com/voices/diversity-in-stem-what-it-is-and-why-it-matters/

- Prepare a presentation that teaches others about the topic. Be sure to include a call to action that others can take to be part of the solution to the issue.
- Create a lesson plan that others could use to teach about the topic!
- 4. **Reflect on and capture your learning.** It's both helpful for others and vital for you as a learner to think about what you got out of the experience. If you take your performance to a 4-H judging experience like the county fair, the judge will want to know what you learned from the experience. Write a short paragraph about what you learned. Not sure what to write? Start by answering the following questions.
 - Why did you choose this topic?
 - What did this topic teach you about equity?
 - Overall, what did you learn from doing this project?
 - Based on what you learned in your STEM equity challenge, why do you think equity is important to consider in STEM?
 - What do you hope others get out of your product (presentation, video, etc.)?
 - What would you do differently next time?
- 5. **Share your work!** Sharing your work with others is another important part of the learning process because it helps you process, express, and validate what you learned. Following are some ideas for how you can share your work.
 - Enter your project into a local contest, such as a county fair.
 - Visit with a local professional in the STEM field to get feedback on your project.
 - Share what you learned with friends or family to spark a dialog about equity and what it means to them.
 - Share what you're doing through social media.

What's next?

What else do you want to know about this topic? About equity? Here are some ideas for how you could take the learning further.

- Try another equity challenge project (Writing, Photography, Performing Arts).
- Use either the <u>Writing</u> or <u>Photography</u> challenge to add creative text or a visual as a way to express what you learned or feel about equity in STEM.
- Explore your topic from another angle, perhaps by trying to answer other questions the project brought up for you.
- Try exploring equity in STEM through another STEM project.
- Take your project to the next level by trying another format—for instance, if you created a video, try writing a lesson plan around it; if you developed a demonstration, make it a video.
- Notice the quote at the beginning of this challenge guide. Find your own quotes on STEM that speak to you of equity.