TECH QUEST

ACTIVITY: BE THE VOICE OF SCIENCE

For Grades 5-8

TECH Quest is a series of hands-on, challenge-driven STEM learning experiences that encourage young people to investigate real-world problems, explore solutions, and develop their own ideas using technology. Along the way, they build STEM knowledge, strengthen critical thinking and creativity, and develop skills they can apply beyond the activity.

Each activity is a ready-to-use resource for afterschool and summer program educators looking to bring engaging, youth-centered STEM challenges into their learning environments.



STEM NEXT
OPPORTUNITY FUND

TECH QUEST

Be the Voice of Science

In this lesson, youth will understand how science communication helps others learn about scientific topics by creating a science communication piece using Keynote to explain a complex scientific idea clearly and creatively.



Big idea: Informal science knowledge

Essential Question: How can we help others understand and get excited about science?

Key Details

Grade Range	5th-8th
Time Requirement	120-140 minutes (Times are suggested and approximate. Use student engagement and interest to determine the pace of the activity)
Next Generation Science Standards (NGSS)	5.ESS3.C: Obtain and combine information about ways individual communities use scientific ideas to protect the Earth's resources and environment.
Learning Objectives	1. Practice explaining complex ideas in simple ways. 2. Develop research skills 3. Explore how visuals, voice, and storytelling make science interesting. 4. Build communication and digital creation skills.

Preparation

Materials	• Laptop or tablet
	• Paper
	• Pencil
	• Student Research Log (one per youth)
	• Two Truths and a Lie Game app (video)
	• YouTube Science Channels
	  ○ Grades 3-5
	  ■ SciShowKids
	  ■ Crash Course Kids
	  ○ Grades 5-9
	  ■ Nat Geo Kids-Weird But True
	  ■ SpanglerScienceTV
	  ■ Be Smart
	  ■ Learn With NASA
	  ■ Mark Rober
	  ■ AsapSCIENCE

Technologies	• Freeform (vision board, planning and collaboration tool) • Keynote (slide presentation or infographic) • iMovie (video) • Garage Band (song) • Swift Playground (coding connection)
Setup	• Gather and copy all materials • Preview several videos from the suggestions in the Materials section. Select several videos that would be of interest to the youth in your group.
Presentation	Keynote format | Google Slides format

Facilitation

Overview:

In this activity, youth will explore and evaluate how science communication helps people understand complex ideas and discoveries. After research, they will use Apple technology tools to create a short,

engaging science communication piece that explains a scientific concept clearly and creatively.

Engage:

1. Ask youth: Where do you learn about science outside of school? Do you visit museums? Watch videos? What makes these activities interesting and fun?

2. Have youth watch a few of the videos from the list of YouTube Channels. Show a short clip (2-4 minutes) from a few of the channels. Have youth discuss what they liked about each clip and what caught their attention. Ask: What did you notice about how they explained the topic? How did visuals, voice, or words help you understand? What type of visuals did you like?

3. Have youth brainstorm a topic that they would love to learn more about and then explain to others. Some examples could include but are not limited to; What are the Northern Lights? How do the seasons change? What are microplastics and why should I care? Share ideas via the Apple Freeform app.

4. Once all ideas have been shared, have youth decide on 2-3 topics to research further. Divide youth into working groups based on their chosen topic. Create a new freeform page for each topic. The number of topics and groups will depend on the number of youth in your group.

Investigate:

1. Have youth work in their groups to answer the important guiding questions for the project. Below are some example guiding questions but you and the youth in your program may develop more that are specific to your environment.

2. What is the big idea or topic we're exploring, and why is it important in our world today?

3. What do we already know, and what do we need to find out to better understand this topic?

4. How does this topic connect to our lives, our community, or our future?

5. What reliable sources, experts, or tools can help us gather useful information?

6. Groups should further research and gather facts about their chosen topic. Encourage use of the internet, books, or other resources. Youth should record their findings on the Student Research Log. Stress to youth that

they are looking for general information not in-depth analysis. They should look for important definitions, fun or surprising facts, and interesting stories. Allow 20-30 minutes.

Act:

1. Once youth have gathered their information, have them plan what type of communication piece they will create to educate others about their topic in a fun and interesting way (video, infographic, slide deck, song). Use the information recorded in the Student Research Log and the Freeform page to plan their project. Allow 10-20 minutes to plan.

   Note: It might be helpful to show some examples of an infographic or pamphlet to youth to stir ideas. (Environmental Infographics, Fireworks Infographic, AI Infographic)

   Note: Depending on staff capacity, students' experience with the Apple digital tools, and the size of the group, you may direct youth to create a project using just one of the Apple tools.

2. Allow youth time to create their piece. This should take between 20-60 minutes. The time allotted will depend on the engagement of the youth and the time you have in programming.

3. Once all pieces are complete, have each group share their work. As each groups shares their project, have the other youth provide feedback using the sentences starters:

   a. I like how you explained….

   b. One thing you did that helped me understand is….

   c. One interesting thing was…..

Wrap-up:

Lead a short wrap-up discussion. Ask youth: What was the most interesting thing you learned while researching? What was challenging about explaining a science topic to someone else? What makes someone a good science communicator? Why is being a science communicator important? To be a good science communicator, what skills do you need besides science knowledge?

Extension

Coding Connection:

- Youth will use Apple's Swift Playgrounds to design and code a digital version of Two Truths and a Lie, featuring science facts from the Voice of Science Project. Using their coding skills, students will create an interactive game where players identify the false statement among three science-related facts. A supporting video will guide the process, and additional resources are available through Apple Education.

Career Connection:

- As an added challenge, ask youth to include as many careers associated with the topic they are presenting. They could also include any famous people associated with their topic.
- Show short bios or videos of science communicators (e.g., Bill Nye, Emily Graslie, Hank Green, NASA social media team).
- Challenge students to create a short "Career Spotlight" poster or mini video about a science communication job.
- They can include:
    - Job title
    - What the person does daily
    - Science area they communicate about
    - Why it's important