TECH QUEST

ACTIVITY: AI FOR GOOD

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

AI for Good

In this lesson, students will explore how Artificial Intelligence (AI) is used in technology and apply creative problem-solving to design an AI-powered idea that makes a positive impact in their school or community.

Big idea: Artificial intelligence

Essential Question: How can we use Artificial Intelligence (AI) to make a positive impact in our community?

Key Details

Grade Range	5th–8th
Time Requirement	120 minutes (Times are suggested and approximate. Use student engagement and interest to determine the pace of the activity)
Next Generation Science Standards (NGSS)	MS-ETS1-1.: Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.
Learning Objectives	1. Define Artificial Intelligence and identify examples in daily life. 2. Practice explaining complex ideas in simple ways. 3. Develop research skills. 4. Build communication and digital creation skills. 5. Design and present an idea for using AI to help their community.

Preparation	
Materials	• Laptop or tablet • Paper • Pencil • Video: AI: What is Machine Learning? (stop after 2:35)
Technologies	• Pages • Notes • Keynote • Photo • Garage Band • Swift Playground (coding connection)
Setup	• Gather and copy all materials
Presentation	Keynote format | Google Slides format

Facilitation

Overview:

In this activity, youth begin by identifying examples of AI they already use (like Siri, Face ID, or autocorrect). Working in small groups, students will design and present their own **"AI for Good"** idea that uses AI to solve a real-world problem in their afterschool program or community.

Engage:

1. Ask youth: **What is AI (artificial intelligence)? Do you or your families use smartphones to navigate from one place to another? Do you have a voice-activated assistant in their home like Alexa or Google Assistant? Do you use Pandora or Spotify to select the music they listen to? Do you have a Netflix account that recommends movies to watch? How well do you think these computer programs and apps imitate human behavior?**
2. Provide a basic explanation of artificial intelligence: **Artificial Intelligence (AI)** is when computers or machines are designed to think and learn like

people. They can recognize patterns, make decisions, solve problems, and even improve over time by learning from information or experiences. You may opt to show the video: AI: What is Machine Learning? or similar video.

3. Have youth complete one or two activities suggested that allow them to engage with:
    a. Smarter Writing with AI
    b. Create an AI Image in Keynote
    c. Photo Finder Challenge
    d. Music Remix with Garage Band

4. After youth have tried the activities, discuss the following questions: **How did AI make your task easier or more interesting? What are some limits or challenges AI still faces? What kind of problems could AI assist us to solve here in our program? What groups of people might be helped by AI technology?**

Investigate:

1. Share with the group some examples of how AI is helping those with a variety of disabilities.

2. Have youth work in groups to brainstorm an AI powered solution that could make a positive impact in your program or community. You may choose to have the groups choose one of the ideas they suggested earlier or come up with a new idea. Groups should use the following guiding questions to move their project along:
    a. What problem or need do we see in our program or community that technology could help solve?
    b. How could Artificial Intelligence (AI) make this problem easier to solve or improve people's lives?
    c. What kinds of data or information would the AI need to work effectively?
    d. Who would benefit most from our AI idea, and how would it help them?
    e. How would our solution work? How can we explain the solution to others?

Act:

1. Challenge youth to create an elevator pitch to sell their solution to the group. Groups could choose to present their solution using Keynote or iMovie. Each pitch needs to include at a minimum:
    a. A name for their solution
    b. Who the solution is aimed to help

c. How AI is used to solve the problem
d. How the solution works
e. How will it make life better

Remind youth that they are brainstorming and imagining, they do not need to create the solution or ensure that it functions correctly.

2. Allow youth time to create their pitch. This should take between 15-20 minutes. Once all pieces are complete, have each group share their pitch. If you like, you could have the group vote for their favorite solution.

Wrap-up:

Lead a short wrap-up discussion. Ask youth: **What did you learn about AI today? How can technology help people? What's one thing you'd like to learn next about AI?**

Extension

Coding Connection:

- Youth can take their proposed solution to the next level by creating an app for their solution. Have youth design an app Icon to represent their solution.

Career Connection:

- Share the Career Connection slides with the group and discuss the role each career plays in AI creation and implementation. (AI Prompt Engineer, Data Scientist, AI Ethicist, Roboticist, Machine Learning Engineer, Accessibility Specialist)
- Challenge students to create a short "Career Spotlight" poster or mini video about an AI related job. They can include:
    - Job title
    - What the person does daily
    - Science area they communicate about
    - Why it's important