

THE AMERICAN HEART ASSOCIATION'S  
**STEAM CLUB**  
**TOOLKIT**



**Welcome to the American Heart Association's STEAM Club toolkit.** This resource, created in collaboration with OSF Healthcare, has been thoughtfully designed to assist you in your mission to inspire and empower the next generation of leaders in Science, Technology, Engineering, Arts and Mathematics (STEAM).

The American Heart Association recognizes the importance of building healthy bodies and minds. By inspiring students to pursue STEAM-related careers, you are not merely investing in individual futures; you are investing in the future of heart health, medical innovation and well-being for communities around the globe.

We are delighted to extend this resource to you, the dedicated educators at the frontline of shaping our future. Thank you for your commitment to education and to the future we share.

## WHAT'S INSIDE

This toolkit is tailored for upper elementary and middle school students and packed with a wealth of resources to ignite young minds:

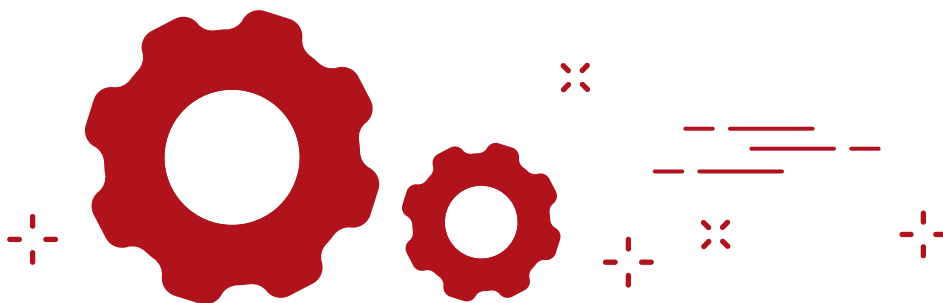
- **Interactive Activities:** Bring complex scientific concepts to life with hands-on experiments and real-world applications.
- **Career Pathways:** Introduce students to diverse STEAM careers, from biomedical engineers to data scientists, showing them how STEAM makes a difference in people's lives.
- **Digital Assets:** Engage students in a blended learning experience with our video tutorials, quizzes and interactive modules.



## ABOUT THE AMERICAN HEART ASSOCIATION

For over 100 years, the American Heart Association, along with our volunteers, supporters and collaborating organizations, has worked to build longer, healthier lives.

And there's no letting up in the next 100 years as we remain devoted to a future of health and hope for everyone, everywhere. The American Heart Association recognizes the importance of building healthy bodies and minds.



## WHAT IS STEAM?

STEAM education combines Science, Technology, Engineering, Arts and Math into a unified, well-rounded learning experience. STEAM fosters creativity, critical thinking and innovation.

- **Science:** This component focuses on the natural world and scientific inquiry. It encourages students to explore the physical and biological sciences, conduct experiments and develop a deep understanding of scientific principles.
- **Technology:** Technology encompasses the study of tools, machines and the application of scientific knowledge to solve real-world problems. In STEAM education, technology can involve coding, computer programming, robotics and understanding how technology impacts society.
- **Engineering:** Engineering involves the application of scientific and mathematical principles to design and build solutions to practical problems. STEAM encourages students to think like engineers by engaging in hands-on projects and design challenges.
- **Arts:** The arts component includes various forms of creative expression. It emphasizes the importance of creativity, innovation, visualization, aesthetics and self-expression in the learning process.
- **Mathematics:** Mathematics serves as the foundation for many scientific and technological advancements. In STEAM education, mathematics is integrated into various projects and activities to demonstrate its practical applications.

## WHY STEAM?

Several factors influence the importance of STEAM. The list below encompasses just some of the benefits:

- **Integrated Learning:** STEAM integrates multiple subjects, eliminating the traditional academic silos. This approach helps students see the connections between different subjects.
- **Inspiration & Career Preparation:** STEAM education provides wide-ranging exposure. Starting in early primary years, our next generation needs this hands-on inspirational learning to pursue careers in fields with shortages to address workforce gaps.
- **Critical Thinking:** STEAM encourages students to think critically and engage in hands-on learning. These skills are valuable in STEAM-related fields, as well as other aspects of life.
- **Innovation:** The arts component in STEAM fosters creativity and encourages students to approach problems with innovative solutions. Creativity is key for science and technological advancement.
- **Real-World Application:** STEAM emphasizes the application of learning. This approach helps students understand how what they learn in the classroom can be used to solve real-world problems.

# STEAM ACTIVITIES AND LESSONS

## HEART

- Anatomical Heart Lessons:
  - [The parts of the heart](#)
  - [The path blood takes to the heart](#)
  - [Arteries and their important role](#)
  - [How much blood is pumped through the body](#)
- Activities:
  - [Target Heart Rate Calculation activity](#)
  - [Building a Heart Model activity](#)
  - [Exploring a Heart Attack activity](#)

## BRAIN

- Brain Health Lessons:
  - [The brain's anatomy, how it works and how to boost its power](#)
  - [The basics of stroke and the warning signs](#)

## BODY

- Activities:
  - [The Effects of Vaping/Smoking on the Lungs activity](#)
  - [Dehydration and the Importance of Water activity](#)



## STEAM CAREERS

- [Career Interviews by Students](#)
  - [Career Interviews Activity Sheet](#)



Join Charlotte and Peyton in learning how engineering helps in everyday life, like grocery shopping!



Join Parker & his dad in taking a look into how science and technology are a part of being an airline pilot!

- [OSF STEAM Careers Interactive 360](#)
- [OSF Healthcare Career Guide](#)

## DIGITAL ASSETS

- [OSF STEAM STARS](#): An interactive platform for mobile or desktop devices with grade-level-specific classrooms for STEAM learning.
- [3D Heart model](#)
- [3D Brain model](#)



## ADDITIONAL RESOURCES

- [OSF STEAM Resources](#)
- [The Wonder of Science](#)
- [Next Generation Science Standards](#)
- [STEM Gems – Giving Girls Role Models in STEM](#)
- [At Home Projects](#)