



No-Cost Digital STEM Resources

from Discovery Education & TGR Foundation



KEEPING YOU CONNECTED



Presented by

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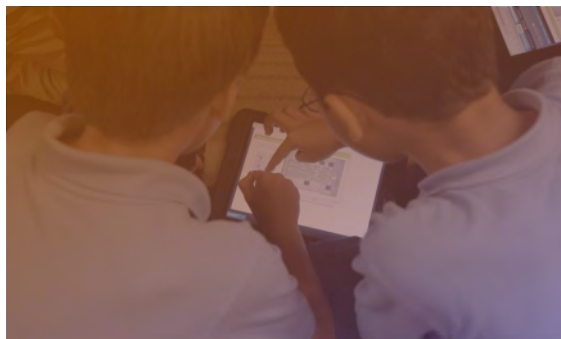
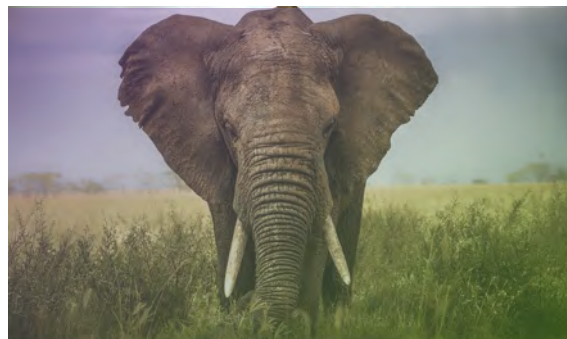
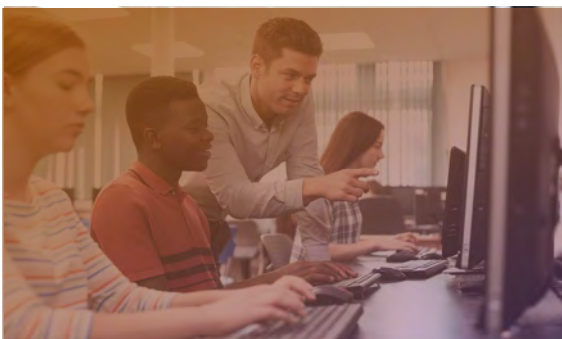
KEEPING YOU CONNECTED

EDUCATION



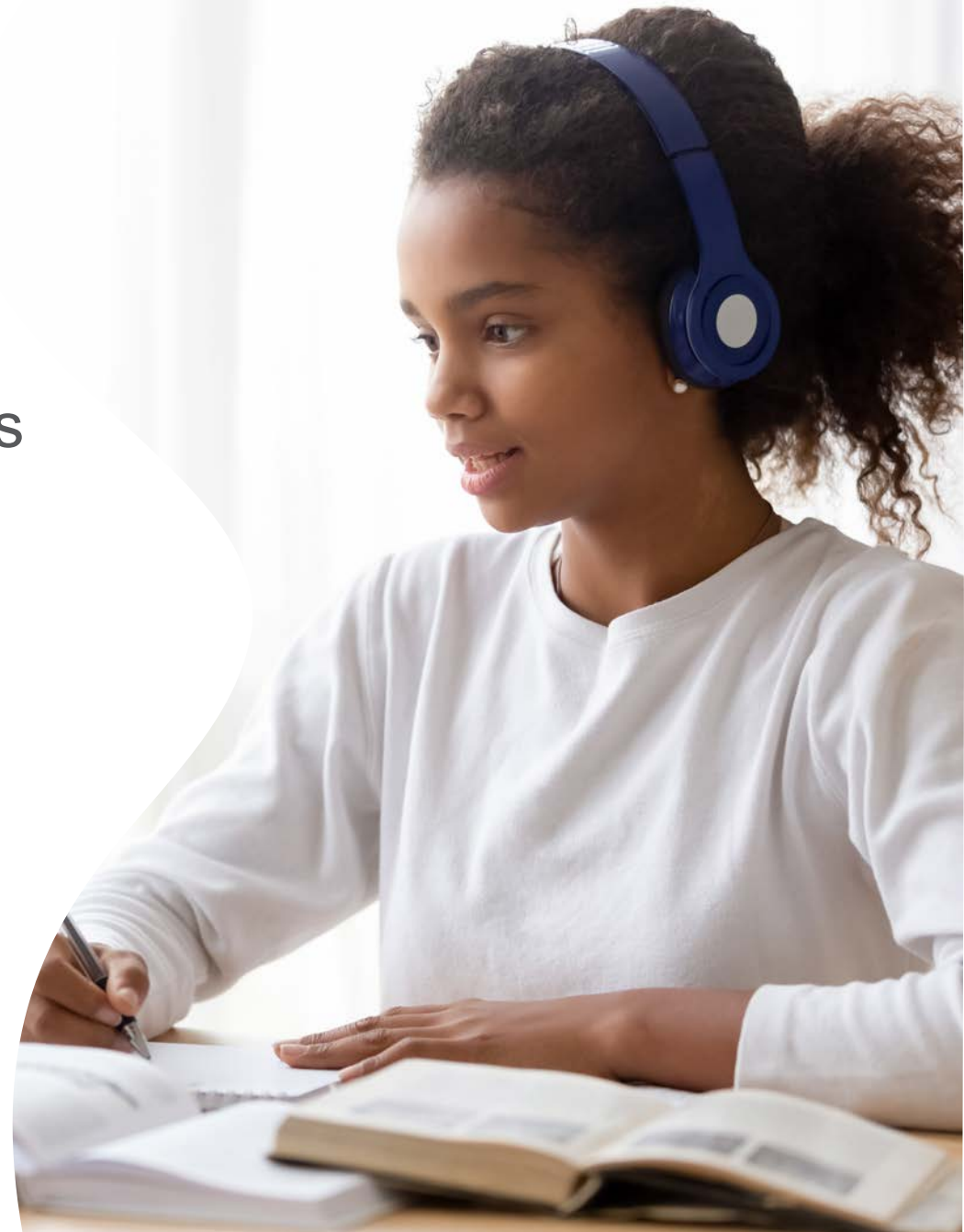


Discovery EDUCATION™



Corporate Education Partnerships

- ✓ Diverse content portfolio, including resources for STEM, SEL, Workforce Readiness, Substance Misuse Prevention & more
- ✓ Digital resources – Virtual Field Trips, Interactive Modules, Classroom Activities, Video & more
- ✓ Programs developed in partnership with diverse corporate and community partners

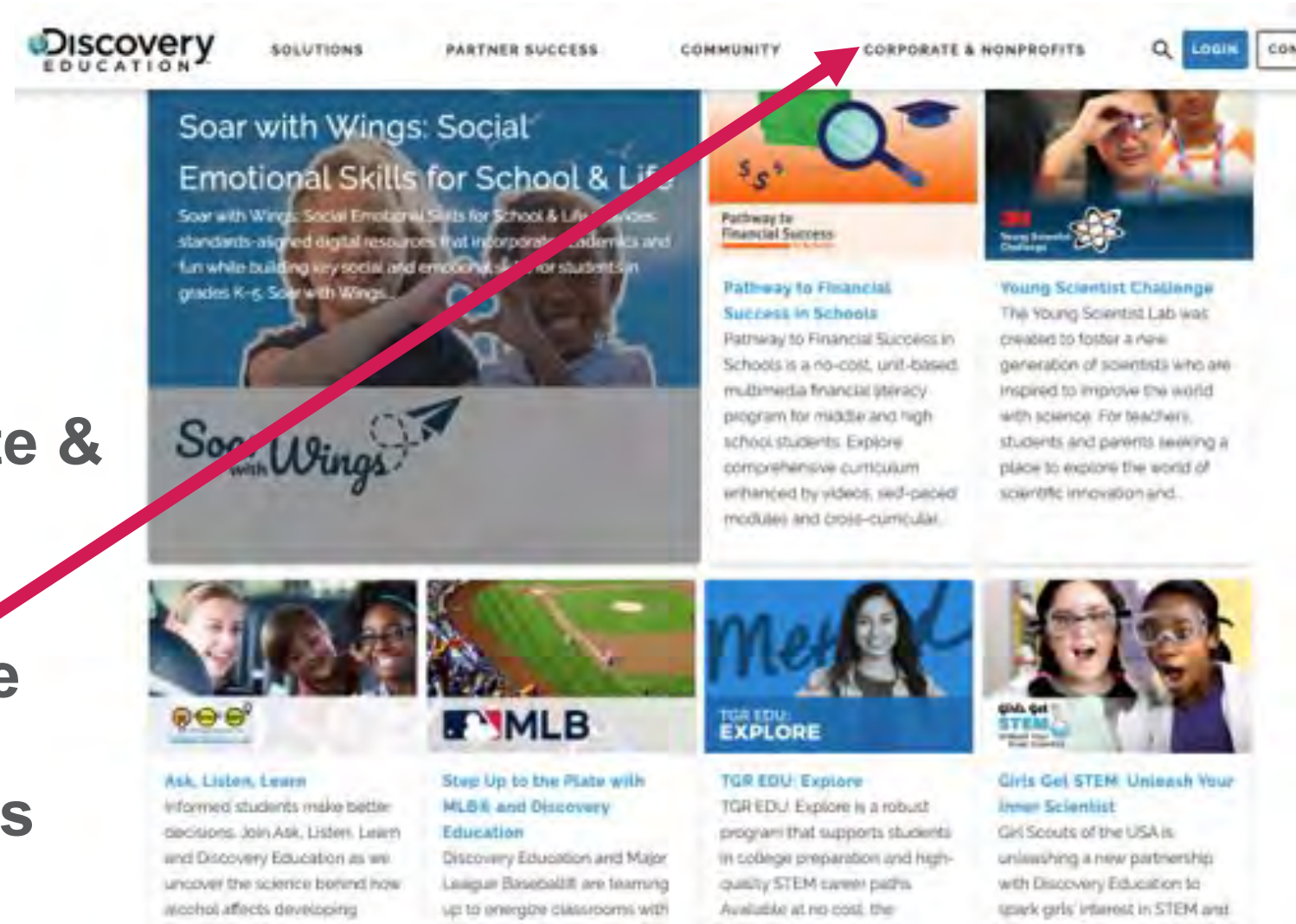




KEEPING YOU CONNECTED

Where to find the programs

1. Corporate & Nonprofits Section
2. Corporate Education Partnerships



Where to find the programs

EXPERIENCE



KEEPING YOU CONNECTED

STEM-Based Learning Resources

HANDS-ON STEM EXPLORATION

HEALTH & WELLNESS

TECHNOLOGY & ENGINEERING

FINANCIAL LITERACY

COLLEGE & CAREER READINESS



KEEPING YOU CONNECTED



SCIENCE FAIR CENTRAL

SCIENCE FAIR CENTRAL

Built by The Home Depot and Discovery Education

[Students](#) [Teachers](#) [Parents](#) [Coordinators](#) [Workshops](#)



MAKE, CREATE, EXPLORE.

VISIT THE MAKER CORNER FOR NEW STEAM-POWERED



PROJECT IDEAS

Search through hundreds of idea starters to develop your own investigation or engineering design challenge.

[Scientific Ideas >](#)

[Engineering Ideas >](#)



PROJECT STEPS

Organize your investigation or engineering design challenging using our guides.

[Scientific Steps >](#)


[Engineering Steps >](#)



Trash Fishing

Grades 6-8 | 45-60 Minutes

Students will design, build, test, and refine a device that will allow them to fish trash out of local waterways while standing on the shoreline.

 [Download Activity](#)

[Scientific Tips >](#)

[Engineering Tips >](#)

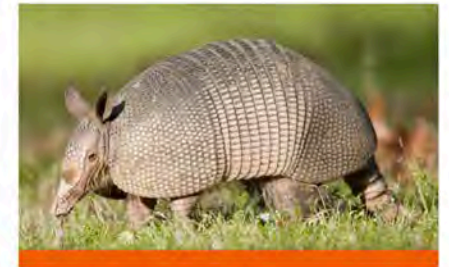


Designed for Delivery

Grades 6-8 | 45-60 Minutes

Students will take on the role of a packaging designer and be tasked with creating a package design for a box left outside after delivery that needs to remain cold and dry.

 [Download Activity](#)



Armadillo Architecture

Grades 6-8 | 45-60 minutes

Students will learn about the efficient and lightweight shell of an armadillo. They will then apply these advantageous adaptations to their own architectural model using a variety of different materials.

 [Download Activity](#)

SCIENCE FAIR CENTRAL



People around the world rely on cold drinks for refreshment and hot drinks to warm up.

Overview

Every day, people around the world rely on cold drinks for refreshment and hot drinks to warm up. Homes, stores and restaurants currently have cups designed to keep beverages hot and cold—but could you do better? In this activity, students will design and build a beverage cup insulator with the goal of keeping a hot drink the warmest. They will also experiment with the fastest way to cool a beverage, using a thermometer and trying a variety of cooling techniques. After analyzing their results, students will share their findings in a one-minute public service announcement.

Have you ever wondered . . .

Why liquids have to eventually cool down?

There are three main reasons why any liquid, in a regular cup, will eventually move towards room temperature. Even a boiling cup of water and a block of ice will eventually reach the same temperature, thanks to heat transfer. (Heat transfer is the process by which heat, a form of energy, flows from a body of high temperature to a body of low temperature).¹ Using a cup of hot chocolate as our model, let's think about how this drink would cool down naturally:

What can you do to keep your drink at the perfect temperature no matter the weather?

Materials

One per student group:

- Thermometer

For the class to share:

- Paper cups
- Aluminum Foil
- Bubble Wrap
- Cloth
- (4) Cardboard
- (2) Foam
- Plastic Wrap
- All Purpose Glue
- Super Glue
- Rubber Bands
- Scissors
- Clear Packaging Tape
- Duct Tape

Put the following materials to the side, as they are specifically for Part 2:

- Ice
- Table Salt
- Paint Bucket, one per student group

1. **Conduction:** This kind of heat transfer occurs through physical contact. When you touch a hot pan, you begin to move quickly. This happens with the side of the cup, the cooler cup and the liquid inside. Heat transfers from hot to cold and no...

2. **Convection:** Heat also moves through currents. Hot air (and hot liquid) sinks. When you blow on a cup of hot liquid, you are moving the air just on top of the liquid. This causes heat transfer from the liquid to the air. This is happening because you are transferring heat from the liquid to the air.

3. **Radiation:** Radiation transfers heat, but can't see. Pictures of radiation include a fire, which travels to Earth in the form of light and then deposit heat into objects. Radiation heat transfer is how the sun heats the Earth. Objects like burning metal also account for a little bit of radiation heat transfer.

What can you do to keep your drink at the perfect temperature no matter the weather?

There are certain materials that they stop and/or slow down heat transfer.

Even a boiling cup of water and a block of ice will eventually reach the same temperature.

Blueprint for Discovery

Prior to the Class Arriving:

- On a white board or a large piece of paper, list the materials and design of your insulators. There are markers available so several students can work on the board.
- Photocopy the Hot! Brainstorm + Data Sheet for each student.
- Display the insulator materials in an area that is easily accessible to the students.

During Class:

1. **As students enter**, invite them to answer the question, "What can you do to keep your drink at the perfect temperature no matter the weather?"

2. **Think/Pair/Share:** Why do all of these hot drinks need insulators?

3. **Share this Doodle Science video.** (You may want to show this video before the presenter speaks quickly!). **Ask:** Which of your ideas are the most innovative?

Part 1:

1. **Explain that students will be having a friendly competition.** The goal is to create the best hot beverage insulator for a paper cup. To do this, each group will have 45 minutes to complete the activity. Each group will have 45 minutes to complete the activity and create three different trial insulators within that time limit!

2. **Pass out one Brainstorm + Data sheet** to each student. Review the available materials, and clarify any questions.

3. **Provide students with updates** indicating how much time is left for brainstorm, design, and building process. After a 15-minute building phase if they haven't already.

4. Once 45 minutes is up, **direct student groups** to the activity area.

5. **Fill the student's cups with hot water.** (If an insulator is not used, or hot water from the sink will work as a control). Record the water's starting temperature on their data sheet.

Hot! Hot! Hot! Brainstorm & Data Sheet

Directions: In the grid below, brainstorm the materials and design of your insulators as well as a brief description of why you think each insulator will be effective. There are 4 brainstorming slots in case you would like to brainstorm an extra idea and then narrow them down to three.

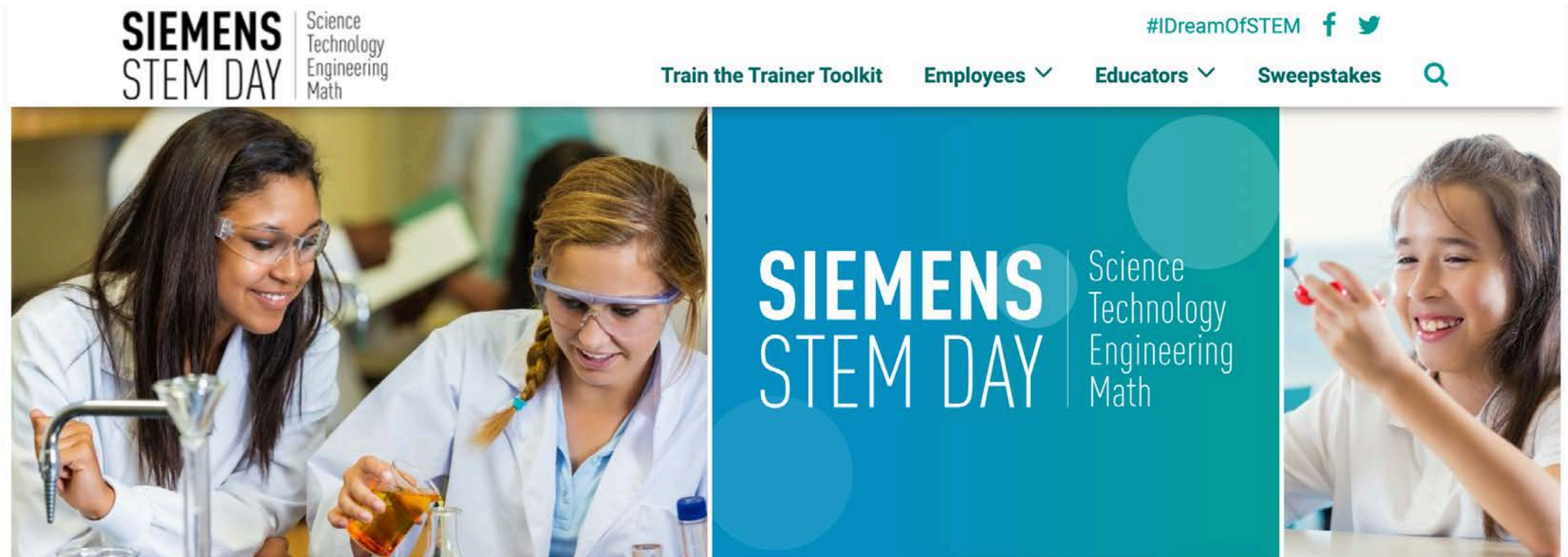
Materials Needed:	Sketch of the design:	Why do you think this design may work?	Temperature Trials	
Idea #1			0 minutes	°F
			10 minutes	°F
			20 minutes	°F
			30 minutes	°F
			____ minutes	°F
			Total change	°F

Idea #2			0 minutes	°F
			10 minutes	°F
			20 minutes	°F
			30 minutes	°F
			____ minutes	°F
			Total change	°F

Idea #3			0 minutes	°F
			10 minutes	°F
			20 minutes	°F
			30 minutes	°F
			____ minutes	°F
			Total change	°F

Idea #4			0 minutes	°F
			10 minutes	°F
			20 minutes	°F
			30 minutes	°F
			____ minutes	°F
			Total change	°F

SIEMENS STEM DAY



SIEMENS STEM DAY | Science
Technology
Engineering
Math

#IDreamOfSTEM [f](#) [t](#)

[Train the Trainer Toolkit](#) [Employees](#) [Educators](#) [Sweepstakes](#) [Q](#)

SIEMENS STEM DAY | Science
Technology
Engineering
Math



Elementary K-5

Spark student interest in STEM with classroom activities. >



Middle School 6-8

Extend and deepen interest in STEM with classroom activities. >



High School 9-12

Apply STEM to everyday life with classroom activities. >

Share



#IDreamOfSTEM

SIEMENS STEM DAY

This is your destination for quality, standards-aligned content that is both easy to implement and applicable to students of all backgrounds and abilities – plus, it's all FREE!



Train the Trainer Video

See how easy it is to put the Siemens STEM Day resources to work with students in your community. This new training video will show you how to find the activities and resources, present ideas on how to implement them with students, and demonstrate the value of opening students' minds to the possibilities of STEM. You'll hear from a coordinator at the Georgia Youth Science and Technology Center about how she has been able to utilize the Siemens STEM Day activities with

Lead a STEM Day Training Guide

Whether you are leading STEM classroom activities, coordinating after-school learning sessions, or incorporating STEM learning at home, this guide provides you with everything you need to engage students in learning about the world around them through the exploration STEM concepts.



Train the Trainer Guide

No need for fancy STEM equipment here! Siemens STEM Day was purposefully designed to use materials commonly found in the classroom or at home, while still providing a hands-on, engaging learning experience for students. Use this guide for more information on how to use the Siemens STEM Day resources, including how to effectively incorporate technology, how to manage your time, and how to find the right resource for you.

- Looking for ideas on how to organize multiple activities into a series?
- Not sure how to insert personal or real-life connections to the concept?
- How about understanding what it's like to lead kids through a learning experience?

Download the training guide now to answer these questions and more!

3M YOUNG SCIENTIST LAB & 3M SCIENCE AT HOME

3M Young Scientist Lab

ENTER CHALLENGE TODAY LOG IN


CHALLENGE TEACHERS STUDENTS PARENTS NEWS & EVENTS

STUDENTS

Student Activities

Enter a world of cool science through brain boggling experiments!


These activities are designed to capture your curiosity and engage you in the scientific thinking process; while having fun! They are based on classic scientific discoveries; some dating back over 200 years. Scientists have used these activities to engage audiences around the world. They might not overwhelm you, but we predict you just might bewhelmed!



BALLOON ELECTROSCOPE

Use balloons to make an electroscope and witness the effect of static charges before your very eyes!


[Download Activity](#)



BALLOON ROCKET

Build a multistage rocket from two balloons.


[Download Activity](#)



CHARGED FINGERS

Do you have the magic touch? Watch as your finger mysteriously moves a pencil without touching it.


[Download Activity](#)



DISAPPEARING GLASS

Glass objects seem to disappear when placed in cooking oil.


[Download Activity](#)



GELATIN OPTIC FIBERS

Strips of gelatin dessert and a laser pointer demonstrate total internal reflection.

[Download Activity](#)



PIE-PAN ACCELEROMETER

A metal pie pan demonstrates the acceleration of gravity.

[Download Activity](#)

3M Young Scientist Lab

ENTER CHALLENGE TODAY LOG IN


CHALLENGE TEACHERS STUDENTS PARENTS NEWS & EVENTS

TEACHERS

Interactives

Help Students Feel Engage and Excited about Science


Is there chemistry in the kitchen? Is there physics at the park? Interactives help students discover the real-world science around them and make connections to what they are learning in school. These activities could ignite the spark that may lead students to a scientific career!



WIND ENERGY

You will be able to design, build and test a wind turbine. Your challenge is to create a turbine that will supply 400 homes with electricity for a year at the highest efficiency.


[Download Activity](#)



INNOVATION EXPLORATION

Advance your way through everyday life by exploring the science all around you. Click on an innovation within each scene and answer each question to proceed to the next.


[Download Activity](#)



TRAVEL THROUGH TIME

Transport yourself through the last 100 years to meet the innovations that have shaped our world.


[Download Activity](#)



TOO HOT TO HANDLE

Can you design a handle for Hot Stuff's new skillet?

[Download Activity](#)



GETTING CONNECTED

Can you find the problem and fix the circuit in time for the Halloween contest?

[Download Activity](#)

KEEPING YOU CONNECTED

Hands-On STEM Exploration

3M YOUNG SCIENTIST LAB & 3M SCIENCE AT HOME

Science Experiments for Kids at Home

Watch more science experiments designed, and tailored, for kids at home using commonly available items from around your place of living. Each experiment includes information on how to include them in your distance learning curriculum.



Soap Boat

Join 3M Researcher Vasav Shani as he introduces you to the science of surface tension. Not only is it only important for many engineering and earth science processes, it also makes blowing bubbles possible.



Chromatography

Did you know your red marker has more than just red ink inside of it? 3M's SVP for Research & Development and Chief Technology Officer, John Banovetz shows a simple way to separate the materials in your marker using capillary action.



Feeling Sound

Believe it or not, you can feel sound! Join Gitanjali Rao, former Discovery Education 3M Young Scientist Challenge winner, as she teaches about the frequency of sound and how we perceive pitch.



Bernoulli Balance

A jetliner can weigh over 100,000 pounds and doesn't just drop out of the sky. SVP of Corporate Affairs, Rutherford explains the science behind it and how without it, planes couldn't fly.



Diffusion with Miss America 2020

Ever wonder why things mix (or don't mix) differently in different temperatures of water? Join Camille Schrier, a scientist who was crowned Miss America 2020, as she explains diffusion and how substances move through water.



Push & Pull

Follow along with 3M's Sam Reiss, as he shows you that magnetism is more than just a simple push and pull – it's an example of the power of the earth itself.



Liquid Fireworks

Join 3M scientist Jeff Payne as he uses nothing more than milk, dish soap, and a few other kitchen supplies to get the amazing effects of fireworks without using any fire at all.



Inflation Station

Follow along with 3M's SVP of Corporate Affairs, Advocate, Jaysshree Srinivasan as she shows students how chemists use air where it's most needed.



Bring Science Home!

Simple, at-home STEM experiments

3M Science. Applied to Life.

Discovery EDUCATION



KEEPING YOU CONNECTED

DISCOVER DATA

STUDENT INTERACTIVE



STUDENT INTERACTIVE | DATA IN MY DAY

10-15 min.

In this self-paced eLearning module, students travel through a typical day to investigate everyday occurrences and discover where and how data and data science play a part. Students will explore the many ways data can be used along with various data-driven careers.

[LAUNCH INTERACTIVE](#)

[DOWNLOAD EDUCATOR GUIDE](#)



BIG DATA IN THE BIG GAME

Grade: 6-12

Subject(s) : ELA, Math, Science, Afterschool Enrichment

Do you prefer to watch the game, the commercials or the halftime show? In these activities, students will investigate consumer data bytes surrounding championship football—such as the fans, the entertainment, and the food.



WOMEN & GENDER EQUITY AT 100

Grade: 6-12

Subject(s) : ELA, Math, Science, After school enrichment

Students will assess the extent of the progress in 2020 by analyzing data through women's changing role in entertainment, professional sports, and leadership.



USING THE CENSUS FOR A U.S. SNAPSHOT

Grade: 6-12

Subject(s) : ELA, Math, Science, After school enrichment

Students will use archived Census data to explore changes in U.S. population density, diversity, and voting participation.



UNDERSTANDING THE ELECTION CYCLE

Grade: 6-12

Subject(s) : ELA, Math, Science, After school enrichment

Students will investigate voting participation rates in elections, the impact of advanced data on campaign advertisements, and the evolving impact of media consumption and election information.

[DOWNLOAD](#)

DISCOVER DATA

EDUCATOR WEBINAR

Looking for ways to make data more interesting for your students? Whether this is your first step in exploring data science or you are a seasoned expert looking for new strategies, the DISCOVER DATA educator webinar will have something for everyone.



This webinar is broken out into two thematic parts:

- How to make data in everyday life come alive for your students
- Strategies for engaging students with the multi-media resources available from the DISCOVER DATA initiative



WATCH NOW

WANT MORE? SCHEDULE A VIRTUAL VISIT FROM A REAL-WORLD DATA EXPERT



Hands-On STEM Exploration

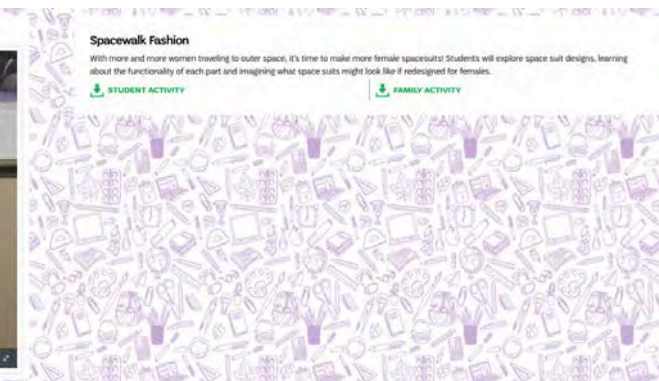
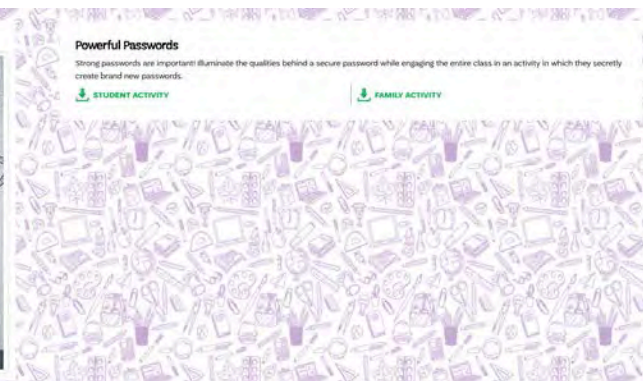
GIRLS GET STEM



[Virtual Field Trip](#) [Educator Resources](#) [About](#)



Girls Get STEM
Unleash Your Inner Scientist



KEEPING YOU CONNECTED

Hands-On STEM Exploration

GIRLS GET STEM

Virtual Field Trip

Join us as we experience a brand-new kind of camp – it's not just swimming, sun, and s'mores – but STEM! Tune in to transport students to the STEM Center of Excellence where STEM will come to life in new and unexpected ways.

English Spanish

**Girls Get
STEM**

**Unleash Your
Inner Citizen Scientist**



KEEPING YOU CONNECTED

STEM-Based Learning Resources

HANDS-ON STEM EXPLORATION

HEALTH & WELLNESS

TECHNOLOGY & ENGINEERING

FINANCIAL LITERACY

COLLEGE & CAREER READINESS



KEEPING YOU CONNECTED



DISCOVER YOUR HAPPY (SEL)



Experience
Happiness
Discover Your Happy

Educators

Turn-key, standards-aligned materials provide engaging, hands-on activities that help students to identify actionable ways to bring happiness to their communities.



NEW VIDEO: See how happiness can lead to student success

CHOOSE A FILTER

CLASSROOM ACTIVITY

DIGITAL LESSON BUNDLE

FAMILY ACTIVITY

INFOGRAPHIC

PROFESSIONAL DEVELOPMENT

VIDEO

VIRTUAL FIELD TRIP



KEEPING YOU CONNECTED

STEM for Health & Wellness

DISCOVER YOUR HAPPY (SEL)

VIDEO



This is Your Brain on Happiness

Grades 7-12
4 min. duration

Happiness is an essential aspect of what it means to be human. Explore the science behind happiness and how happiness can affect our sympathetic and parasympathetic nervous systems.

 **Watch Video**

CLASSROOM ACTIVITY

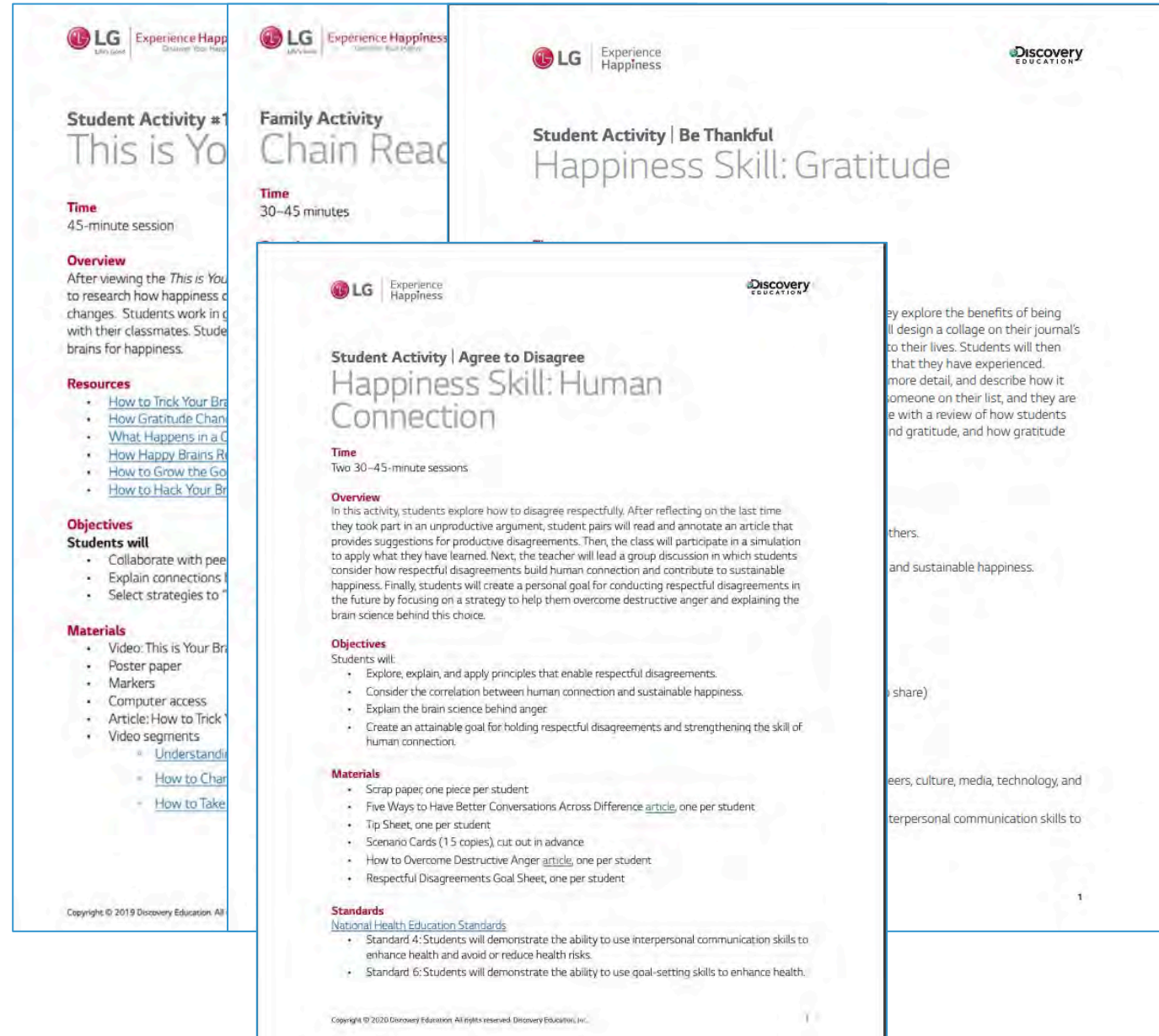


This Is Your Brain on Happiness

Grades 7-12
45 min. duration

Students participate in a jigsaw activity to research how happiness changes the brain and how they can take control of those positive changes.

 **Student Activity**



Student Activity #1 This is Your Brain on Happiness
Time: 45-minute session
Overview: After viewing the *This is Your Brain on Happiness* video, students will research how happiness changes the brain and how they can take control of those positive changes. Students work in groups with their classmates. Students share their findings and brainstorm for happiness.

Resources

- [How to Trick Your Brain](#)
- [How Gratitude Changes the Brain](#)
- [What Happens in a Happy Brain](#)
- [How Happy Brains Release Dopamine](#)
- [How to Grow the Good Habits](#)
- [How to Hack Your Brain](#)

Objectives
Students will

- Collaborate with peers
- Explain connections between happiness and brain science
- Select strategies to improve happiness

Materials

- Video: *This is Your Brain on Happiness*
- Poster paper
- Markers
- Computer access
- Article: *How to Trick Your Brain*
- Video segments
 - [Understanding the Science of Happiness](#)
 - [How to Change Your Brain](#)
 - [How to Take Control of Your Happiness](#)

Family Activity Chain Reaction
Time: 30-45 minutes

Student Activity | Be Thankful Happiness Skill: Gratitude

Student Activity | Agree to Disagree Happiness Skill: Human Connection
Time: Two 30-45-minute sessions
Overview: In this activity, students explore how to disagree respectfully. After reflecting on the last time they took part in an unproductive argument, student pairs will read and annotate an article that provides suggestions for productive disagreements. Then, the class will participate in a simulation to apply what they have learned. Next, the teacher will lead a group discussion in which students consider how respectful disagreements build human connection and contribute to sustainable happiness. Finally, students will create a personal goal for conducting respectful disagreements in the future by focusing on a strategy to help them overcome destructive anger and explaining the brain science behind this choice.

Objectives
Students will:

- Explore, explain, and apply principles that enable respectful disagreements.
- Consider the correlation between human connection and sustainable happiness.
- Explain the brain science behind anger.
- Create an attainable goal for holding respectful disagreements and strengthening the skill of human connection.

Materials

- Scrap paper; one piece per student
- *Five Ways to Have Better Conversations Across Difference* article, one per student
- Tip Sheet, one per student
- Scenario Cards (15 copies), cut out in advance
- *How to Overcome Destructive Anger* article, one per student
- *Respectful Disagreements Goal Sheet*, one per student

Standards
National Health Education Standards

- Standard 4: Students will demonstrate the ability to use interpersonal communication skills to enhance health and avoid or reduce health risks.
- Standard 6: Students will demonstrate the ability to use goal-setting skills to enhance health.

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KEEPING YOU CONNECTED

AHA NFL PLAY60 (PHYSICAL FITNESS)



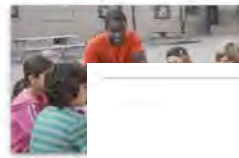
Virtual Experiences



Digital Exploration



Videos



Promo

LESSON PLANS

NEW

Pump You Up
Science/PhysEd/ELA | 45 min.
Students will learn about the many benefits of regular physical activity, analyze statistics related to physical activity levels in the U.S. and track their own physical activity level.

ZIP

NEW

The Influence of Science & Tech in Sports & Physical Activity
Science/PhysEd/ELA | 90 min.
Students will design a measurement tool so they can track their fitness goals, ensuring that they get a balance of muscle and bone strengthening activities.

ZIP

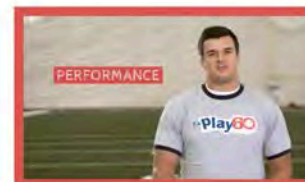
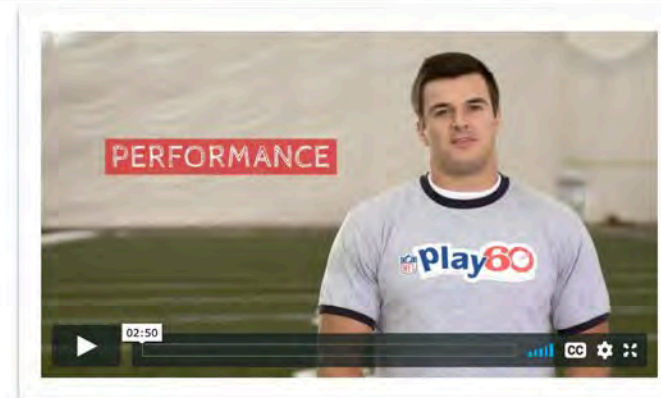
Fitness Mini Trainer
PhysEd | 90 min.
Students collaborate simulation of a fitness incorporating physical activity, and team-built

Journey of The Blood
Science | 90 min.
Students learn about the circulatory system and the impact of physical activity on blood flow and heart rate.

What Happens When You Move?
Science | 90 min.
Students learn about cardiovascular health and the relationship between physical exercise and physiological changes.

FAVORITE

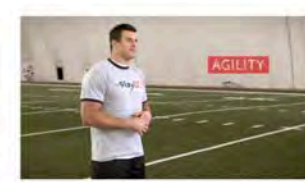
PLAY 60 Presents!
ELA/Science | 90 min
Students create a pre a sport or physical activity and present to the class. Students learn about physical fitness and how different sports involve the use of different muscle groups and other body systems.



Performance
2:50 min.
Use this circuit workout to exercise your whole body, increase your heart rate, and keep your physical activity fun and exciting



Lateral Movements
3:14 min.
These lateral movements will strengthen your oblique muscles while challenging your mind and heart.



Agility
3:26 min.
Learn these easy ways to move quickly and efficiently into different positions to increase your coordination.

STEM for Health & Wellness

AHA NFL PLAY60 (PHYSICAL FITNESS)

Do you have a game plan for your 60 minutes of physical activity every day? Come explore the different ways that regular physical activity can benefit your life, both at school and at home. It's an important part of each day! Join the NFL PLAY 60 Challenge, and design your own game plan to get moving!

Powered by
Discovery
EDUCATION

Physical activity can benefit you in many different ways. Explore how physical activity benefits **your body**.

Regular physical activity can reduce your risk for heart disease and type 2 diabetes and help maintain healthy blood pressure and cholesterol. It can also help keep your blood sugar levels in a healthy range.

Tip +

BACK Select all of the hot spots before continuing. NEXT

Now that you know why it's important to be physically active, it's time to design your three-day game plan.

Activities	Weekday 1 0 min.	Weekday 2 0 min.	Saturday/Sunday 0 min.
Football	Before School 15 minutes	Before School 15 minutes	Morning 15 minutes
Swimming	During School 15 minutes	During School 15 minutes	Mid Day 15 minutes
Riding a bike	After School 15 minutes	After School 15 minutes	Afternoon 15 minutes
Skateboarding	Evening 15 minutes	Evening 15 minutes	Evening 15 minutes
Jumping rope			
Rollerskating			
Hopscotch			
Running			

BACK Fill in your game plan before continuing. SUBMIT



KEEPING YOU CONNECTED

ASK, LISTEN, LEARN – A PROGRAM OF RESPONSIBILITY.ORG (UNDERAGE DRINKING PREVENTION)



ask listen learn
Kids and alcohol don't mix.
A PROGRAM OF RESPONSIBILITY.ORG

In partnership with
Discovery
EDUCATION

SIGN UP FOR UPDATES SHARE: 1 2

Educators Parents Students

Alcohol and the Developing Brain

Teachers, School Nurses and Counselors

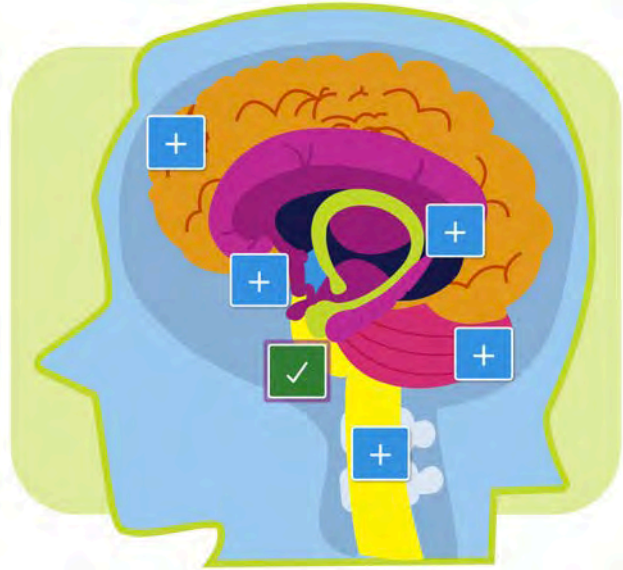
Together, let's equip students in grades 5-7 with the tools to say "YES" to a healthy lifestyle and "NO" to underage drinking. Explore no-cost digital classroom curriculum and engaging videos that uncover the science behind how alcohol affects developing brains, bodies and behavior.







Digital Exploration


Digital Exploration, Educator Guide, and Classroom Activities



ASK, LISTEN, LEARN – A PROGRAM OF RESPONSIBILITY.ORG (UNDERAGE DRINKING PREVENTION)



<p>Cerebellum</p>  <p>+ Learn More</p>	<p>Central Nervous System</p>  <p>+ Learn More</p>	<p>Cerebral Cortex</p>  <p>+ Learn More</p>
<p>Hippocampus</p>  <p>+ Learn More</p>	<p>Medulla</p>  <p>+ Learn More</p>	<p>Hypothalamus</p>  <p>+ Learn More</p>



Drag each item to the corresponding section and select continue.

True	False
<p>Drag elements here</p>	<p>Drag elements here</p>
<p>Alcohol enables you to think clearly.</p>	<p>Alcohol affects your blood pressure.</p>
<p>Alcohol affects your balance.</p>	<p>Alcohol causes your heart rate to slow.</p>

DOSE OF KNOWLEDGE (SUBSTANCE MISUSE PREVENTION)

Dose of Knowledge

A substance misuse prevention program for grades 6–12



STEM for Health & Wellness

DOSE OF KNOWLEDGE (SUBSTANCE MISUSE PREVENTION)

DIGITAL LESSON BUNDLE



VIDEO

Opioids and their Effects

Grades 9-12

3:53 min

Meet Fernando, a CVS pharmacist who will talk to students about opioids, the risk associated with substance misuse, and what students should do if they are prescribed an opioid.

[Watch Vignette](#)



EDUCATOR GUIDE AND LESSON

Opioids and the Brain

Grades 9-12

45-60 min

Students will receive an overview of what opioids are and examine the short-term and long-term effects they have on the brain and body. Students will learn about substance misuse and substance use disorder.

[Digital Lesson](#) PPT 245MB

[Educator Guide](#) PDF 2.3MB

Dose of Knowledge

Opioid Use and Misuse | Digital Lesson Educator Guide

Procedure

Engage

- Lead a discussion with students by asking the following questions:
 - What are some activities that make you happy or feel good about yourself?
 - How do you think your body is able to feel pain?
 - Do you believe receiving an opioid prescription drug is a safer alternative to using illegal street drugs? Why?

Learn

Slide 1

- Inform students that opioids are substances that act on receptors in your brain for pain relief.
- Click to expand to learn that the legal opioids are only available with a prescription (i.e., Hydrocodone, Oxycodone, Morphine and Codeine). You may recognize their brand as "Vicodin", "OxyContin", or "Percocet". Opioids, like heroin, are illegal drugs.
- Click again to reveal that opioid therapy is a powerful synthetic opioid that is used to manage pain. It is 50-100 times more potent than prescription drugs used to treat patients with severe pain. Make sure to clarify that it is not an illegal street drug. Heroin is a synthetic opioid.
- Ask for 1-2 volunteers to offer examples of other medications they're familiar with to pain that are not opioids. Remind students that there are many common over-the-counter pain medications available. Explain your research and administrative drugs. It is like NSAIDs (like aspirin or ibuprofen) help reduce pain and swelling from injury and inflammation. NSAIDs are not opioids. Acetaminophen (Tylenol) is not

Slide 2

KEY TALKING POINTS:

- Opioids can be both legal (e.g. prescription opioids) and illegal (e.g. heroin).
- Heroin is an FDA approved opioid pain medication to treat severe pain, but is often dangerously used to cause BCI/illegal drug.
- NSAIDs (like aspirin or ibuprofen) help reduce minor pain and swelling.
- Acetaminophen is often used to treat minor aches and pains and reduce fevers.

Anticipated Student Response: When asked, anticipated student responses for activities and questions are provided next to corresponding slides. Definitions: A warning summary is provided at the end of each lesson for the educator to provide reinforcement of the key concepts and objectives of each lesson.

Materials Needed

- Printed, one-page student
- Student paper
- Resources for These student resources are provided.

Content Areas

Health, Physical Education

Activity Duration

40-60 minutes

Grade Band

8-12

Objectives

Students will:

- Identify what an addiction is and how it can be treated.
- Compare the differences between legal and illegal prescription medications.
- Identify the difference between prescription and over-the-counter.

Key Terms

- Addiction:** a psychological and physical state, characterized by compulsive and often unhealthy behaviors, which usually involves repeated use of a substance.
- Dysphoria:** a mental state characterized by intense pain and distress.
- Euphoric:** feelings of intense happiness or excitement.
- Illegal drug:** a drug that a person is not allowed to own or use, regulated by law.
- Street drug:** substances that either originate or are produced through an illicit system or process but do not originate or occur in an illicit, unregulated system.
- Misuse:** to use incorrectly.

Lesson At-a-Glance

Section	Activity	Approximate Time in a 45-Minute Session
Engage	Discussion	4-6 minutes
Learn	What is an opioid and how do opioids work?	2-3 minutes
	How do they act on the brain?	3-4 minutes
	Timeline and dependence	2-3 minutes
	Law and misuse	2-3 minutes
	Substance misuse and the addict's brain	3-4 minutes
	Resources for Teens	3-4 minutes
Assess	Summary of key points to learn	3-5 minutes
	Public service announcements	10-20 minutes

Notes: Each section includes a "Check for Understanding" opportunity for students to apply what they learned by completing the activity in a later time if they are unable to do it during the lesson.

Dose of Knowledge

Opioid Use and Misuse | Digital Lesson Educator Guide

Anticipated Student Response: When asked, anticipated student responses for activities and questions are provided next to corresponding slides. Definitions: A warning summary is provided at the end of each lesson for the educator to provide reinforcement of the key concepts and objectives of each lesson.

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KEEPING YOU CONNECTED

STEM-Based Learning Resources

HANDS-ON STEM EXPLORATION

HEALTH & WELLNESS

TECHNOLOGY & ENGINEERING

FINANCIAL LITERACY

COLLEGE & CAREER READINESS



KEEPING YOU CONNECTED



BOEING FUTURE U



EXTENDED-REALITY VIDEO AND COMPANION ACTIVITIES



Echo Voyager

unity WebGL

STEM

Grades 6-8

Echo Voyager

[Play Echo Voyager](#)

25 minutes

(Please allow about 5 minutes for the experience to load.)

Travel to the depths of the ocean 8,200 feet below the surface inside a specially designed autonomous sea vehicle: The Echo Voyager. As the vehicle descends below the ocean's surface, students will meet a variety of marine animals, explore the environments in which they live, and consider how they survive in such extreme conditions.



STEM

Companion Activities & Educator Guide Grades 6-8

Welcome to the depths of the ocean! This 360° experience guides students through the epipelagic, mesopelagic, and bathypelagic zones of the ocean to see what kind of marine life lives there and explore underwater volcanoes. The Educator Guide provides instructions on how to maneuver once inside the experience, while the Companion Activity encourages students to propose their own ideas for how the Echo Voyager could be used to further our understanding of the planet's oceans.

[Companion Educator Guide](#)

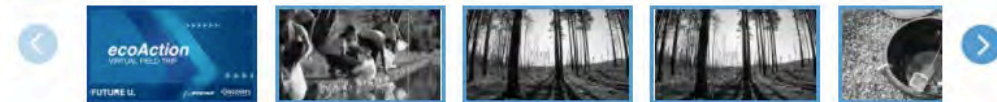
[Companion Activity](#)

ecoAction Virtual Field Trip

Boeing and Discovery Education are celebrating the 50th anniversary of Earth Day with the ecoAction Virtual Field Trip. Students will investigate the themes of air, land, water, and waste as they explore how they can do their part to improve the environment as well as how a large company like Boeing is doing its part, too.

Wondering how we make sure to stay safe on set?

Check out the [Health and Safety Questions & Answers](#)



KEEPING YOU CONNECTED

BOEING FUTURE U

EXTENDED-REALITY VIDEO AND COMPANION ACTIVITIES



unity WebGL

Discover Mars

STEM
Grades 6-8
Discover Mars
25 minutes

Immerse your students in the Mars experience where they can venture to the Boeing Mars Experiment Laboratory and investigate how to grow plants in Martian soil. Then, program the deep space rover to collect samples for research. Finally, enter the Earth-Mars museum to see the differences in gravity, magnetism, air pressure, and plate tectonics on each planet.

[Explore Extended-Reality Video](#)



STEM Companion Activities & Educator Guide Grades 6-8

Each Activity takes 45-60 minutes

Welcome to Mars! This 360-experience guides students through three space-based scenarios with a focus on various aspects and considerations with respect to travelling to Mars. The Educator Guide provides instructions on how to maneuver once inside the experience, while the Companion Activities provide wrap-around context for the three sections of the experience: The Lab, The Rover, and The Museum.

- [Companion Educator Guide](#) PDF, 2MB
- [Activity 1: Plant Study](#) PDF, 421KB
- [Activity 2: Rover Exploration](#) PDF, 760KB
- [Activity 3: Earth-Mars Physics Museum](#) PDF, 391KB

Experience Handout

STUDENT HANDOUT

Directions: As you learn more about the Mars rover throughout the 360 experience, use the space below to take notes on the rover's important features as well as any challenges that it faces. Complete sentences are not needed, but notes must be taken!

Part 1: Label the rover's key parts below, as well as why each part is important. Be as specific as possible.

Part: _____
Function _____

Part: _____
Function _____

Part: _____
Function _____

Part: _____
Function _____

Part 2: As you navigate the rover, jot down any challenges you face, as well as new or improved rover elements that may help make its mission more successful. Sketch or explain your ideas in the space below.

TECH FOR TOMORROW

TECH for Tomorrow

Innovating for
a better world



Inspire the innovators of tomorrow. Spark curiosity today! →



About Tech for Tomorrow

Tech for Tomorrow is an education program for grades 4-8 designed to highlight how technology and innovation can better our world. Tech for Tomorrow's mission is to expose students to today's cutting-edge technology and inspire them to create enduring solutions for the future.

Classroom Activities



CRYPTOBABEL

Coded Communication

Grades 4-6

🕒 60-75 minutes

Students are presented with a top-secret scenario in which they must intercept a message from a spy.

📄 [Coded Communication Classroom Activity](#)



NETBUILDER

Information Transfer

Grades 4-6

🕒 60-75 minutes

Students must teach others about how information is transferred over the Internet.

📄 [Information Transfer Classroom Activity](#)

TECH FOR TOMORROW



Zipline

How can we deliver life-saving medical supplies to remote hospitals?

- [▶ The Problem](#)
- [▶ The Solution](#)
- [▶ The Impact](#)
- [▶ The What Can I Do?](#)

[↓ Lesson Plan](#) PDF 835KB



Amandla Mobi

How can those without internet access come together to create change?

- [▶ The Problem](#)
- [▶ The Solution](#)
- [▶ The Impact](#)
- [▶ The What Can I Do?](#)

[↓ Lesson Plan](#) PDF 845KB



Solvatten

How can we increase access to safe, clean water in developing nations?

- [▶ The Problem](#)
- [▶ The Solution](#)
- [▶ The Impact](#)
- [▶ The What Can I Do?](#)

[↓ Lesson Plan](#) PDF 826KB

CONSERVATION STATION



SAVING AN ENDANGERED SPECIES

- <https://www.twa.gov/eng>

SUSTAINABLE CITIES AND INFRASTRUCTURE

- [Auto dimming street lights](#)
- [Electric pole damage detection](#)
- [Residential ground fault interruption detection](#)
- [Gunshot sound detection devices](#)
- [Utility pole equipment theft detection](#)
- [Power outage detection](#)
- [Smart home devices](#)
- [Remote natural gas meter detection](#)
- [Advanced utility meter detection](#)

PRE-ACTIVITY

Have students fold a piece of paper and write down ideas for smart devices in their home that could be connected to the internet. Have them share their thoughts and ideas with their classmates.

DURING-ACTIVITY

Applying Your Knowledge and Skills to Careers in Technology

1. Distribute the Applying Your Knowledge and Skills to Careers in Technology handout.
2. Guide students to brainstorm ideas for smart devices in their home that could be connected to the internet.
3. Direct students to watch the video and take notes on the careers and interests of the professionals in the field.

POST-ACTIVITIES

Activity 1: Sustainable City

This activity will help students design a sustainable city that improves the quality of life in a city. They will explain how the smart devices they designed will be used in the city. Students will capture their ideas in a video or presentation.

Name _____ Date _____ **STUDENT HANDOUT**

APPLYING YOUR KNOWLEDGE AND SKILLS TO CAREERS IN TECHNOLOGY

Developing innovative technology that provides solutions to managing our energy and water resources will help create a more sustainable, resourceful world. The excitement about engineering, conservation of natural resources, and analytics result in strong job opportunities in this area. Your interests, abilities, and goals all influence your career choices.

What are your interests? _____

What are your abilities? _____

While watching the video, highlight:

Director
Mechanical Engineer
Senior VLSI Design Engineer
Environmental Engineer

SUSTAINABLE CITIES AND THE INTERNET OF THINGS

Directions: Select 3-4 devices from the list below. After conducting online research, use the textboxes to explain how each device works and describe its environmental, safety, or economic benefit for the city. Draw a line from the textbox to where this device could be used effectively in the city.

- Water meters that automatically detect leaks
- Residential ground fault interruption detection
- Auto dimming street lights
- Automatic gas leak detection and shut off
- Traffic flow meters
- Gunshot sound detection devices
- Automatic smoke detectors
- Public Wi-Fi
- Electric pole damage detection
- Digital information kiosks



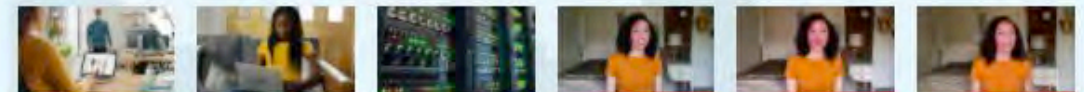
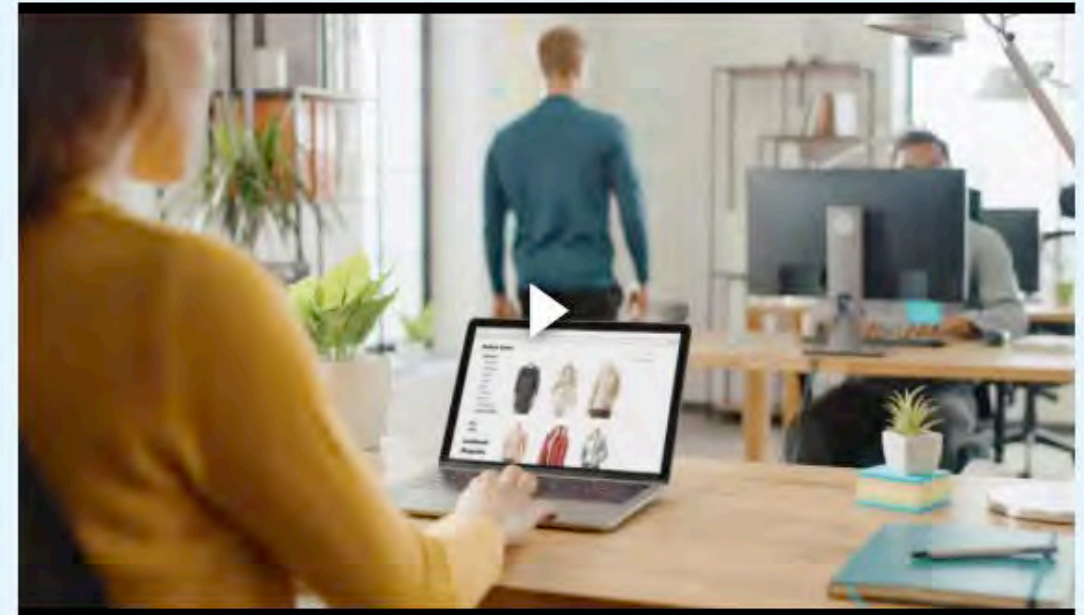
CONSERVATION STATION www.learntoconserve.com

INTERNET OF THINGS: INFINITE POSSIBILITIES VIRTUAL FIELD TRIP

The Internet of Things refers to a collection of computing devices – such as smart speakers, thermostats and sensors – which are connected to a network to allow for an improved real-time data to better manage two of the most critical resources to humanity: energy and water. Students will get an exciting look at how the internet they use in their everyday lives can be used to conserve natural resources, protect ecosystems, and create safer, more sustainable communities.

Get the learning started BEFORE watching the Virtual Field Trip! Download the standards-aligned companion guide to discover how the internet does more for us than we think – it has a direct effect on how we can make our communities more sustainable. The activities designed for completion during and post viewership connect and extend student learning to classroom concepts.

[Educator Guide](#) 



Internet of Things: Infinite Possibilities Virtual Field Trip

Learn to Conserve

The Internet of Things and Energy Conservation

Design and Development of Smart Meters

Smart Cities and Environmental Actions

The Internet of Things and Natural Disasters

Unable to watch the video above? Watch on [YouTube here](#).

CONSERVATION STATION



WEEK OF RESOURCEFULNESS

Creating a Water Conscious Meal

Grades 6 – 9

🕒 45-60 minutes

This activity is designed to help families understand how their food choices affect water availability on Earth by discovering how much water is needed to produce certain foods.

[Family Activity](#)



WEEK OF RESOURCEFULNESS

Energy Audit

Grades 6 – 9

🕒 45-60 minutes

Families will identify the top 3 devices that consume the most electrical energy and develop a plan to reduce the amount of energy used in the house.

[Family Activity](#)



WEEK OF RESOURCEFULNESS

“Smarter” Home Blueprints

Grades 6 – 9

🕒 45-60 minutes

Family members will work together to create a blueprint of their living space that highlights ways that they can save energy and water.

[Family Activity](#)



Create a Global Energy Infographic

Grades 6 – 9

🕒 45-60 minutes

In this activity, students will use the Global Energy Statistical Yearbook 2018 to view data about energy use around the world. They will be able to look at various types of energy use, such as oil, gas, and renewable energy, by country and compare and contrast how different countries consume energy.

[Download Activity](#)



Harvesting Energy in Your School

Grades 6 – 9

🕒 45-60 minutes

In this activity, students will discover how high school science students used technology and innovation to harvest energy at their school from an act as simple as walking down the hallway. Students will be asked to think about their own school and identify ways that various types of energy, such as kinetic or heat energy, may be lost every day.

[Download Activity](#)



How Much Water Does it Take?

Grades 6 – 9

🕒 45-60 minutes

In this activity, students will be introduced to the idea that it takes water to make many of the products that we buy and use or consume every day. Often the amount of water and the way that it is used is unexpected and hidden from the consumer.

[Download Activity](#)



Calculating Your Ecological Footprint

Grades 6 – 9

🕒 45-60 minutes

In this activity, students will consider and estimate their consumption of energy used in the home, transportation, food, housing, and for goods and services, while estimating the amount of waste they generate. The goal is to identify ways they can reduce the impact that they have on Earth.

[Download Activity](#)



Combustion Energy Conversion

Grades 6 – 9

🕒 45-60 minutes

This activity demonstrates the conversion of energy into usable forms through a demonstration showing the conversion of potential chemical energy to heat energy. Students will discuss how to improve this process to create electrical energy.

[Download Activity](#)



Solar Powered Homes

Grades 6 – 9

🕒 45-60 minutes

In this activity, students will study how solar electricity can be generated, stored, and utilized in homes. Students will be given a small solar panel to test and improve.

[Download Activity](#)

STEM-Based Learning Resources

HANDS-ON STEM EXPLORATION

HEALTH & WELLNESS

TECHNOLOGY & ENGINEERING

FINANCIAL LITERACY

CAREER EXPLORATION



KEEPING YOU CONNECTED



CHA-CHING MONEY SMART KIDS

Educational Resources



Classroom Activities

Activities made especially for K–6 educators to provide the knowledge and tools necessary for kids to be money smart. Get your class rockn' with the band and learning the building blocks of finance.

[!\[\]\(c694a3ff3b077d76910920a6a1593ab4_img.jpg\) Download Classroom Activities \(ZIP\)](#)



Educator Guides

Guides created to help educators make meaningful classroom connections and leverage the Cha-Ching financial literacy videos and classroom activities.

[!\[\]\(dd161862f9164df98f62b726e9846241_img.jpg\) Download Educator Guides \(ZIP\)](#)



Family Activities

Activities made especially for parents to provide the knowledge and tools necessary for kids to be money smart. Get the entire family involved in creating a strong financial future!

[!\[\]\(a8f9309f944226d1420f5fed22e2b6e6_img.jpg\) Download Family Activities \(ZIP\)](#)

CHA-CHING MONEY SMART KIDS

Videos



Episode 1

Earn, Save, Spend, Donate

[Download Activity \(ZIP\)](#)



Episode 2

It's Got to be Earned

[Download Classroom Activity \(PDF\)](#)

[Download Family Activity \(PDF\)](#)



Episode 3

Entrepreneur

[Download Classroom Activity \(PDF\)](#)



Episode 4

Grow Money

[Download Classroom Activity \(PDF\)](#)



Episode 5

Saving for Success

[Download Family Activity \(PDF\)](#)



Episode 6

Just in Case

[Download Classroom Activity \(PDF\)](#)

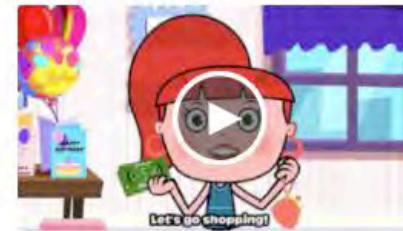


Episode 7

Spend Your Money Wisely My Friend

[Download Classroom Activity \(PDF\)](#)

[Download Family Activity \(PDF\)](#)



Episode 8

Please Little Spender, Think

[Download Classroom Activity \(PDF\)](#)

PATHWAY TO FINANCIAL SUCCESS

STUDENTS

Middle School

How do you picture your future? Making your dreams come true requires smart planning, especially in managing your money. Your path to financial success starts here. Check out these videos for overview of basic money matters.



UNIT 4 : USING CREDIT WISELY

What is Credit, and How do You Use It?

When it comes to money, credit is basically a loan where you borrow money with the promise of paying it back later. Learn how to use credit, responsibly, to pay for items you want or need.

[Watch Unit 4 Video](#)



UNIT 1 : BEING FINANCIALLY RESPONSIBLE

Budgeting: What Is It and How Does It Work?

Simply put, a budget is a spending plan for your money. Learn how to use a budget to map out your path to financial success.

[Watch Unit 1 Video](#)



UNIT 5 : MAKING MAJOR FINANCIAL DECISIONS

“To Buy or Not to Buy” That is the Question

From your favorite social media stars to ads popping up in apps, does everyone seem to be trying to sell you something? Learn how to block out the noise and evaluate purchases as a savvy consumer.

[Watch Unit 5 Video](#)



UNIT 2 : GETTING PAID

What Do You Want to Be When You Grow Up?

It's not too early to think about your future career. Learn how to research careers and consider how your education can help you meet your goals.

[Watch Unit 2 Video](#)



UNIT 6 : GROWING & PROTECTING YOUR FINANCES

The Risks and Rewards of Investing

What exactly is investing, and how is it different than setting up a regular savings account? Discover ways to own a piece of a company with this introduction to the stock market.

[Watch Unit 6 Video](#)



UNIT 3 : PAYING YOURSELF FIRST

How Can You Get the Most from Your Money?

Money does not grow on trees, but it can grow with smart planning. Learn how savings accounts increase the value of your funds with compound interest.


[Watch Unit 3 Video](#)

Financial Literacy

PATHWAY TO FINANCIAL SUCCESS

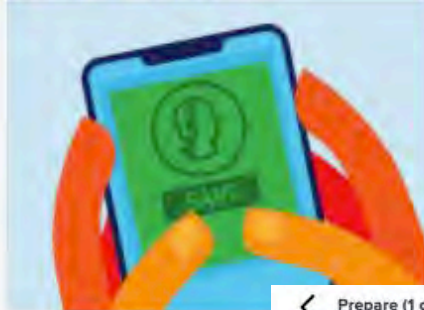
UNIT 1 : BEING FINANCIALLY RESPONSIBLE

SELF-PACED MODULE



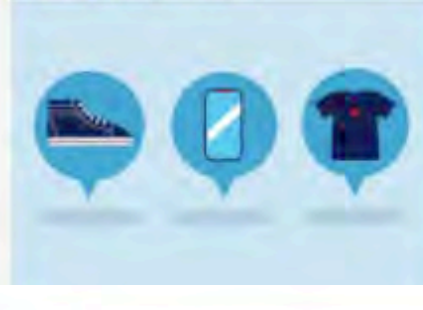
TOPIC 2
Imagining Your Financial Future
10 to 15 minutes
What are your goals for the future? Learn about setting goals and financial success strategies to help you reach those goals.
[Launch Module](#)

SELF-PACED MODULE



TOPIC 3
Money Habits
10 to 15 minutes
Money habits include the way you spend, save, and talk about money. Learn the differences between good and bad habits and how to form good habits.
[Launch Module](#)

SELF-PACED MODULE




Prepare (1 of 6)

Pathway to Financial Success
In Schools

Unit 1 | Topic 1
Imagining Your Financial Future

- Prepare (0 of 6)
- Learn (0 of 7)
- Reflect (0 of 2)
- Challenge (0 of 6)
- Certificate (0 of 1)

Use the icon to the right to turn on audio transcript.



What are your goals for the future?

Continue

STEM-Based Learning Resources

HANDS-ON STEM EXPLORATION

HEALTH & WELLNESS

TECHNOLOGY & ENGINEERING

FINANCIAL LITERACY

CAREER EXPLORATION



KEEPING YOU CONNECTED



INNOVATION GENERATION

Career Profiles

Show students the many STEAM careers available to them with detailed career profiles featuring professionals from Stanley Black & Decker.



Meet Shernale

3 minutes

Shernale is a Materials Engineering Manager at Stanley Black & Decker who manages the prototype teams to ensure they have the most high quality materials for their products.

[Download Career Connection](#)

[Watch Video](#)



Meet Caroline

4 minutes

Caroline is an Outdoor Product Manager at Stanley Black & Decker who ensures that outdoor products like mowers and leaf blowers meet marketplace needs.

[Download Career Connection](#)

[Watch Video](#)



Meet Harry

4 minutes

Harry is a Technical Innovation Lead at Stanley Black & Decker who devises new and improved methods and protocols for machine operations.

[Download Career Connection](#)

[Watch Video](#)

**INNOVATION
GENERATION**
Making an Impact

Outdoor Product Manager

Who are they?

Outdoor product managers are goal-focused designers and strategists concerned with how to manage and build a product. They tell engineers why product features are essential for the customer. Outdoor product managers must create user experiences with products that solve problems and provide customer benefit. They are experts in the outdoor product market. They see products from the idea stage through the release of products to the marketplace.

What do they do?

Outdoor product managers are goal-focused designers and strategists concerned with how to manage and build a product. They tell engineers why product features are essential for the customer. Outdoor product managers must create user experiences with products that solve problems and provide customer benefit. They are experts in the outdoor product market. They see products from the idea stage through the release of products to the marketplace.

**INNOVATION
GENERATION**
Making an Impact

STEAM DAY OF LEARNING CONNECTION RESOURCES

How

An outdoor product manager is responsible for the design, development, and marketing of outdoor products. They work closely with engineers and designers to create products that solve problems and provide customer benefit. They are experts in the outdoor product market. They see products from the idea stage through the release of products to the marketplace.

In addition to a bachelor's degree, this position requires:

- Experience in outdoor product development and marketing
- Courses in the degree that include courses in drawing, computer-aided design, and drafting (CADD), and three-dimensional modeling
- Business courses in marketing and sales

Salary Ranges*:

Associate Product Manager: \$50,000-\$70,000
Product Manager: \$70,000-\$105,000 + Bonus
Senior Product Manager: \$90,000-\$135,000 + Bonus
Director Product Management: \$130,000-\$190,000 + Bonus

*Salaries given are averages for Stanley Black & Decker. Salaries may vary between a state's urban, suburban, and rural districts and should be adjusted for cost of living.

Job Outlook⁴

Employment is expected to grow by 4% by 2026. Outdoor product managers have the unique opportunity to combine a love of outdoor recreation and sports with a creative employment field in a growing market. Combining advancements in technology and engineering into products that make experiencing outdoor adventures that were never possible in the past for the average consumer.

*Anal. 1 (August)

*Bureau (March)

Copyright

⁴Info Q, Technical Leadership: The Other Overlooked Skills and Responsibilities of a Technical Team Leader, on the internet: <http://www.infoq.com/articles/technical-leadership-overseen/> (August 19, 2018)

INNOVATION GENERATION

CONCEPT & CREATE
VIRTUAL FIELD TRIP

INNOVATION GENERATION
Making an Impact

StanleyBlack&Decker | Discovery EDUCATION

INNOVATION GENERATION
Making an Impact

StanleyBlack&Decker | Discovery EDUCATION

Empower the Next Generation of Makers to THINK BIG

ENTER NOW >

PREV > NEXT

Full VFT

Chapter 1: Meet the Teams

Chapter 2: What is a Makerspace?

Chapter 3: The Design Process

STEM CAREERS COALITION



Software Engineer

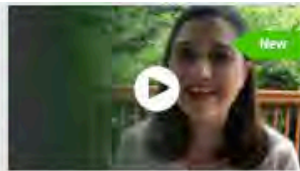
Elementary, Middle, and High School | Grades: K-12

Video Length: 5:19 min

Software Engineers apply the principles of engineering to computer science to create software that powers computers and many other everyday electronic devices. Their expertise in programming languages offers many career opportunities developing apps, video games, social media and more.

[Student Activation \(.pdf\)](#)

[Career Profile \(.pdf\)](#)



AI Researcher

Elementary, Middle, and High School | Grades: K-12

Video Length: 3:59 min

Senior Principal Researchers have an adept understanding of advanced Artificial Intelligence technologies, which they utilize to envision the next world-changing application of AI and figure out how to bring it to life. They also think deeply about the ethics of AI's relationship to people and society.

[Student Activation \(.pdf\)](#)

[Career Profile \(.pdf\)](#)



Data Scientist

Elementary, Middle, and High School | Grades: K-12

Video Length: 3:26 min

Data Scientists use curiosity and attention-to-detail to "wrangle" massive datasets in search of patterns and information that can help companies solve problems. Data science careers are available in almost every industry, incorporating machine learning, computer science, and other state-of-the-art tools.

[Student Activation \(.pdf\)](#)

[Career Profile \(.pdf\)](#)



Welder

Elementary, Middle, and High School | Grades: K-12

Video Length: 1:24 min

Welders use hand-held or remote-controlled equipment to join or cut metal parts, with a combination of mechanical expertise and artistry. They bring ideas, concepts, and plans to life through their knowledge of all types of metals and the tools and techniques necessary to fuse a permanent bond.

[Student Activation \(.pdf\)](#)

[Career Profile \(.pdf\)](#)



Technician

Elementary, Middle, and High School | Grades: K-12

Video Length: 1:49 min

Technicians are excellent problem solvers who like to work with their hands and make things work, often using the mastery of sophisticated equipment. Technicians are needed in a wide variety of environments and fields, whether working independently or under the direction of a professional.

[Student Activation \(.pdf\)](#)

[Career Profile \(.pdf\)](#)



Facilities Engineer


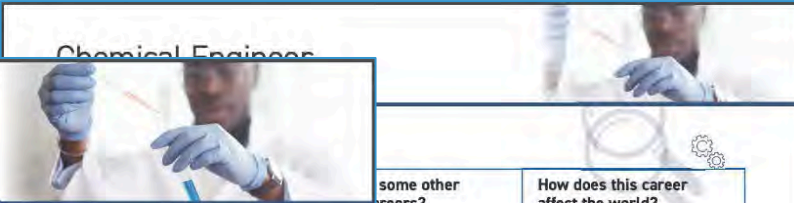
Elementary, Middle, and High School | Grades: K-12

Video Length: 4:25 min

Facilities engineers are the masterminds who oversee all the essential aspects of maintaining a facility, whether for planning new projects or improving existing facilities. They ensure optimal facility operations by designing, constructing, and managing all infrastructure components.




[Student Activation \(.pdf\)](#)

[Career Profile \(.pdf\)](#)

Chemical Engineer

STUDENT ACTIVATION


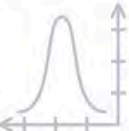





OVERVIEW

Chemical Engineers figure out how to transform chemicals and raw materials into products that humans can use. They also create and improve upon the processes that develop these products. Chemical Engineers could, to name a few, work in food production and develop strategies to improve the quality of food, address environmental challenges as they develop systems that reduce pollution, work to improve the efficiency of energy sources like oil and gas, or develop fibers that make clothes more durable. No matter what, this career helps transform ideas that begin in science labs into products and processes that will benefit the world.


EVALUATE YOUR INTEREST

- I like collaborating with others.
- I enjoy analyzing and solving problems.
- I am interested in a variety of STEM subjects, including math, physics, engineering, chemistry, and biology.
- I like being creative and thinking outside the box.

www.STEMCareersCoalition.org

How does this career affect the world?	How does this career affect the world?
<p>Chemical Engineers positively impact life around the world in countless ways. For instance, their work in medicine and technology contributes to important healthcare advances. Their roles in fields like waste systems and the energy industry also means that Chemical Engineers play an important role in designing new innovations to keep our environment clean, while still producing needed resources. With all of the fields that Chemical Engineers touch, it's no surprise that Chemical Engineers are sometimes called Universal Engineers!</p>	<p>Chemical Engineers positively impact life around the world in countless ways. For instance, their work in medicine and technology contributes to important healthcare advances. Their roles in fields like waste systems and the energy industry also means that Chemical Engineers play an important role in designing new innovations to keep our environment clean, while still producing needed resources. With all of the fields that Chemical Engineers touch, it's no surprise that Chemical Engineers are sometimes called Universal Engineers!</p>



www.STEMCareersCoalition.org

STEM CAREERS COALITION

COVID-19 Solution Seekers

With the rapid spread of COVID-19 affecting nearly every aspect of life, many inspiring people, communities, companies, and governments have quickly mobilized to fight the spread of the coronavirus. COVID-19 Solution Seekers highlights a series of diverse individuals working in a variety of industries, who are all harnessing their STEM skills to help contribute to this urgent global effort.



COVID-19 SOLUTION SEEKER

Senior Policy Advisor, American Petroleum Institute

Grades K-12

Video Length: 3:35 min

With expertise in addressing community concerns about environmental health issues, Uni is drawing on her knowledge to help mitigate the spread of COVID-19, finding ways to reduce transmission in community areas and workplaces.

[Companion Activity](#)



COVID-19 SOLUTION SEEKER

Senior Researcher, Microsoft

Grades K-12

Video Length: 3:50 min

To help support precision medicine in clinical settings during the pandemic, Grace uses data science methods to research and identify genetic, biologic, and environmental factors that help in tracking and treating the virus.

[Companion Activity](#)

IGNITE MY FUTURE

Career Vignettes

See computational thinking at work. Meet the diverse and dynamic people who have taken their passions and launched amazing careers in computer science and design thinking. Our career connections highlight professionals in a variety of specialties.



Christopher

Business Analyst

Christopher loved the complexity of video games growing up. Now he serves as a centerpoint for his clients and his company, connecting all of the pieces.



Elisha

Quality Assurance & Control

Computer Engineering class in high school ignited Elisha's love of technology. Today, thousands of professionals rely on the applications she tests for accuracy daily.



Saravanan

Business Analyst & Designer

Saravanan had an early knack for identifying and solving problems. Now, he combines his computer and math skills with creativity and brainstorming to develop the best products and solutions for users.



10 Tips for Success

Computer Science | EL
Abstract | Develop Alg

Analyze data about w
companies successful,
themes to develop a "
teaching others how t
and turn it into a thri

[Download Act](#)

What does happiness mean?



Career-o-Matic

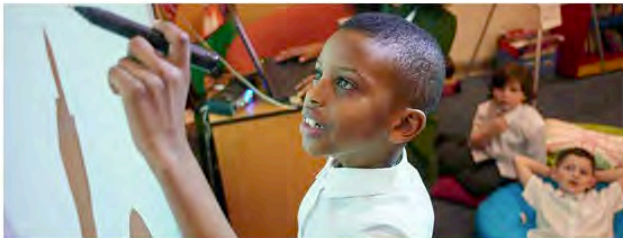
Career Development |
Social and Emotional Learning | Math |
Computer Science

Analyze Data | Develop Algorithms

Act as data scientists tasked with creating the Career-o-Matic, a new instrument that identifies the perfect career for a student through algorithms calculating the best fit for individuals based on their customized values.

[Download Activity](#)

IGNITE MY FUTURE



Resources

Ignite their knowledge in the classroom and at home with resources that will get students on the path toward seeing the world through the powerful lens of computational thinking

Middle School Curriculum

Explore content by subject, guiding question or computational thinking strategy

Family Activities

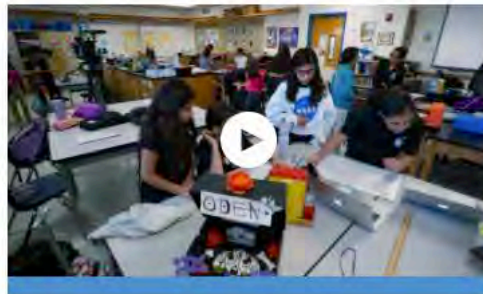
Engage in computational thinking with family-friendly activities that can be applied at home

Career Vignettes

Meet professionals using computer science and design thinking to build a brighter future

Master Class

What does computational teaching look like in real classrooms? Meet three real-life educators who share their personal experiences and demonstrate their computational teaching strategies within diverse classrooms. Teachers will share their insights and success utilizing unique tools.

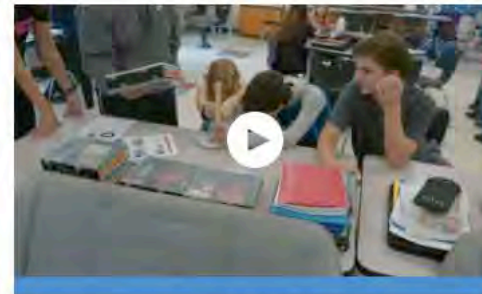


Pete Delgado

Young Women's STEAM Research and Preparatory Academy.

El Paso, TX

Meet Pete and learn how he consistently infuses aspects of computational thinking into his daily lessons, including collect and analyzing data, decomposing problems, building models, and developing algorithms.



Jenna Rosiensi

Franklin Middle School

Janesville, WI

Meet Jenna and learn how she demonstrates computational thinking across subjects and the importance of collaboration with her fellow educators and administration that has made this strategy such a success.



Emy Aultman

G.O. Bailey Elementary School

Tifton, Georgia

Meet Emy and learn how she debunks myths about teaching computational thinking – such as needing technology like computers in the classroom to use computational thinking resources or that teaching computational thinking will take time away from “regular” classes.

Continue the journey, and register for the TECHademy webinar series



TGR EDU: EXPLORE | Discovery EDUCATION | TGR FOUNDATION AT THE WORLD'S EMERGENCY

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PROFESSIONAL DEVELOPMENT | CURRICULUM | FAMILY RESOURCES

CURRICULUM

Lessons, experiences & resources. It's all for you.

We offer our award-winning STEM and college-access resources at no-cost because everyone deserves the tools and support to thrive in schools and beyond.

[Explore Our Curriculum Resources](#)

PROFESSIONAL DEVELOPMENT
Providing educators with opportunities to help students realize their full potential.

CURRICULUM
Lessons, experiences & resources. It's all for you.

FAMILY RESOURCES
Demystifying the path to college, just a click away.

Gyla Bell
Senior Director,
Programs
TGR Foundation

Where to find the programs

1. Corporate & Nonprofits Section
2. Corporate Education Partnerships

The screenshot shows the Discovery Education website interface. At the top, there is a navigation bar with the Discovery Education logo and several menu items: SOLUTIONS, PARTNER SUCCESS, COMMUNITY, and CORPORATE & NONPROFITS. A red arrow points from the 'CORPORATE & NONPROFITS' menu item to the main content area. The main content area features several program tiles:

- Soar with Wings: Social Emotional Skills for School & Life**: A large tile with a blue background and a photo of children. Text: "Soar with Wings: Social Emotional Skills for School & Life provides standards-aligned digital resources that incorporate academics and fun while building key social and emotional skills for students in grades K-5. Soar with Wings."
- Pathway to Financial Success**: A tile with an orange background and a magnifying glass icon. Text: "Pathway to Financial Success in Schools is a no-cost, unit-based, multimedia financial literacy program for middle and high school students. Explore comprehensive curriculum enhanced by videos, self-paced modules and cross-curricular."
- Young Scientist Challenge**: A tile with a blue background and a photo of a young scientist. Text: "The Young Scientist Lab was created to foster a new generation of scientists who are inspired to improve the world with science. For teachers, students and parents seeking a place to explore the world of scientific innovation and..."
- Ask, Listen, Learn**: A tile with a photo of three students. Text: "Informed students make better decisions. Join Ask, Listen, Learn and Discovery Education as we uncover the science behind how alcohol affects developing..."
- Step Up to the Plate with MLB® and Discovery Education**: A tile with a photo of a baseball game. Text: "Discovery Education and Major League Baseball® are teaming up to energize classrooms with..."
- TGR EDU: EXPLORE**: A tile with a photo of a young woman. Text: "TGR EDU: Explore is a robust program that supports students in college preparation and high-quality STEM career paths. Available at no cost, the..."
- Girls Get STEM: Unleash Your Inner Scientist**: A tile with a photo of two young girls. Text: "Girl Scouts of the USA is unleashing a new partnership with Discovery Education to spark girls' interest in STEM and..."

Where to find the programs



We bring the real world to the classroom—engaging students through dynamic partnerships with like-minded organizations that share our mission of positively impacting youth achievement. Check out the latest standards-aligned digital curriculum resources designed to introduce students to the careers and experiences that power learning.

Find more at DiscoveryEducation.com



SCIENCE, STEM, & EXPLORATION

Available in Discovery Education Experience and via the program sites below.

AG EXPLORER AgExplorer.com GRADES: 9-12	Scoring for Cows & Flourishing Communities DiscoverUndeniablyDairy.com GRADES: 5-8	CONSERVATION STATION LearnToConserve.com GRADES: 6-9	DECODING CANCER DecodingCancer.org GRADES: 9-12	DIG INTO MINING TheStoryOfCopper.com GRADES: 6-12
DISCOVER DATA DiscoverDataInSchool.org GRADES: 6-8	DNA decoded DNAdecoded.org GRADES: 9-12	FUELING EDUCATION FuelingEducation.com GRADES: 5-8	FUTURE U. BoeingFUTUREU.com GRADES: 6-12	GENERATION BEYOND GenerationBeyondInSchool.com GRADES: 6-12
GENERATION HEALTH HowSciencePowersUs.com GRADES: 6-12	Girls Get STEM UnleashYourInnerScientist.com GRADES: 2-5	IGNITE MY FUTURE IgniteMyFutureInSchool.org GRADES: 6-8	INNOVATION GENERATION Making an Impact Innovation-Gen.com GRADES: 6-10	FOOTBALL BY THE NUMBERS FootballByTheNumbers.DiscoveryEducation.com GRADES: 4-8
Manufacture Your FUTURE ManufactureYourFuture.com GRADES: 3-12	NAVIGATING NUCLEAR NavigatingNuclear.com GRADES: 6-8	SCIENCE FAIR CENTRAL ScienceFairCentral.com GRADES: K-12	SIEMENS STEM DAY ScienceTechnologyEngineeringMath SiemensSTEMDay.com GRADES: K-12	NAVY STEM CLASSROOM NavySTEMForTheClassroom.com GRADES: 9-12
STEM Careers Coalition STEMCareersCoalition.org GRADES: 9-12	TGR EDU: EXPLORE TGREduExplore.org GRADES: 6-12	TECH for Tomorrow TechforTomorrow.com GRADES: 4-6	3M Young Scientist Challenge YoungScientistLab.com GRADES: K-8	

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SOCIAL AND EMOTIONAL LEARNING & GLOBAL CITIZENRY

Learn Experience Happiness LearnExperienceHappiness.com GRADES: 6-12	Soar with Wings SoarWithWings.com GRADES: K-5	SPEAK TRUTH TO POWER SpeakTruthToPowerInSchool.com GRADES: 9-12	Teaching with Testimony TeachingWithTestimony.com GRADES: 3-12
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HEALTH & WELLNESS

AHA-NFL PLAYGO AHA-NFLPLAYGO.DiscoveryEducation.com GRADES: 3-8	BE VAPE FREE BeVapeFree.org GRADES: 5-12	Alcohol Developing Brain DiscoverBrainBodyBehavior.com GRADES: 5-7	Dose of Knowledge DoseofKnowledge.com GRADES: 6-12	OPERATION PREVENTION OperationPrevention.com GRADES: 3-12
Super Health Super You SuperHealthSuperYou.com GRADES: 3-5	Teen Drive TeenDrive365.com GRADES: 9-12			

FINANCIAL LITERACY & ECONOMICS

Cha-Ching Cha-ChingUSA.org GRADES: K-8	Econ Essentials EconEssentialsInSchool.com GRADES: 9-12	Pathway to Financial Success PathwayInSchools.com GRADES: 6-12	STEMvest STEMVestUSA.com GRADES: 6-12
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KEEPING YOU CONNECTED

Where to find the programs

EXPERIENCE



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Thank You!

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