NISE Net Online Workshop

Museum school outreach and fields trips in the time of COVID uncertainty

Tuesday, September 29, 2020

Welcome!

Today's presenters are:

- Ross Johnston, Mote Marine Laboratory & Aquarium, FL
- Eron Damercy & Stephen Weisenreder,

Rochester Museum & Science Center, NY

- Elizabeth Nuckols, ECHO, Leahy Center for Lake Champlain, VT
- Josh Sarver, Center of Science and Industry (COSI), OH

As we wait to get started with today's discussion, please:

Introduce yourself! Type your name, institution, and location into the Chat Box

Questions? Feel free to type your questions into the <u>Chat Box</u> at any time throughout the webinar or use the raise your hand function in the participants list and we'll unmute your microphone.

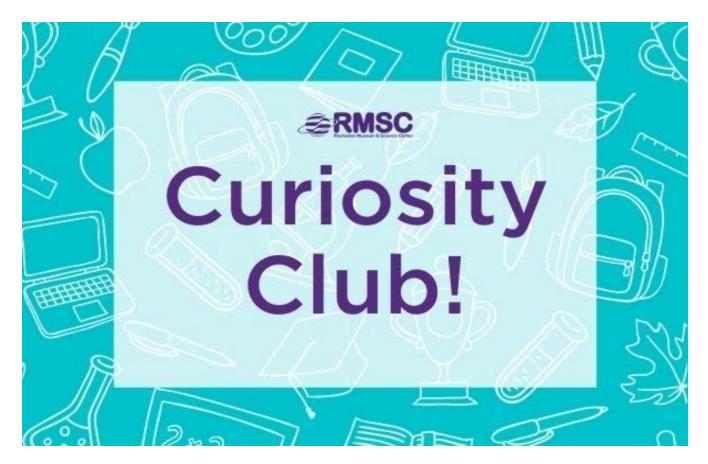
Today's discussion will be recorded and shared on nisenet.org at: <u>nisenet.org/events/online-workshop</u>



ONLINE WORKSHOPS



Stephen Weisenreder & Eron Damercy



Rochester Museum and Science Center Rochester, NY

Curiosity Club at the RMSC

Who: Children in grades 1-8

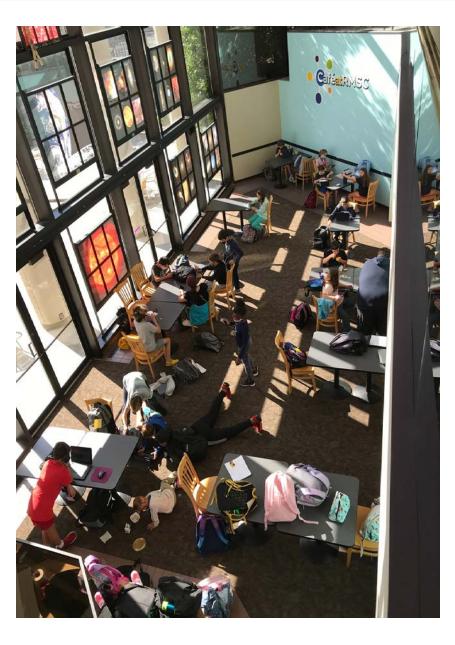
What: Supervised virtual learning and homework help, STEM enrichment activities, exhibit exploration, science shows, COVID-friendly games and activities

Where: Socially-distanced classrooms with WiFI and individual workstations, flex spaces for games/enrichment, and Museum exhibits/presentation spaces

When: 9:00 AM - 4:00 PM (extended care available) Monday-Friday *Program runs September-December but will remain open in spring 2021 if schools continue to use hybrid/virtual model

Why: To provide a safe, supportive learning environment for children with working families, fill gaps in demand for inperson Museum programs, and situate the RMSC as a valuable community asset





Curiosity Club by the Numbers



Unique Registrants: 132 Daily Registrations: 2467 Average Daily Attendance: 45

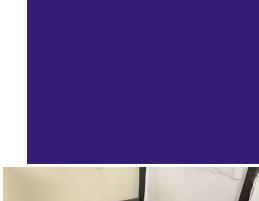
Everyone is Welcome at Curiosity Club!

Scholarships & Free Meals

- \$44,000 provided by private foundation for students to attend Curiosity Club
- Applicants are eligible for a full scholarship if they receive SNAP benefits quick & easy application
- Students receive as many days coverage & Extended Care as needed allowing RMSC staff to develop long-term relationships with students and make a lasting impact
- 27 Scholarship students (15-20% of registrants)
- Local food bank providing free breakfast & lunch for ALL club participants

Inclusive & Supported Learning

- Participants include students with IEP/504 plans, neurodivergent students, students with ADD/ADHD, sensory processing disorder, and Club can accommodate private lessons/therapy
- Club participants are in groups of 15 or less, providing lots of opportunities for personalized support
- Variety of learning spaces, materials, and staff/volunteers with diverse educational experience







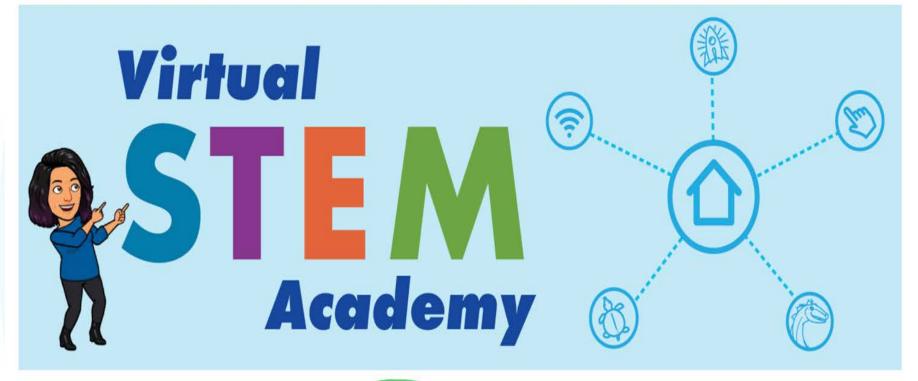


Elizabeth Nuckols Youth Programs Manager









Online, At-Home Science Program by ECHO Educators

ECHO Virtual STEM Academy classes are standards-aligned, 6-week learning sequences for elementary-age students. Lessons are delivered virtually one day per week along with exciting athome activity plans. ECHO STEM Academy classes are the perfect solution for keeping your student connected to their local community while taking the planning and guesswork out of athome science instruction.

Who's It For?

- · Students enrolled in hybrid school programs
- Homeschoolers
- · At-home learning pods

Program Components

- Morning science lessons featuring exciting science demos, animal presentations, and guest scientists, technologists, and engineers from the community
- Themed, *at-home activity plans* built around everyday materials
- Afternoon breakout sessions for small group work and activity reflection.
- Visual, *kid-friendly weekly program guide*. Click here to view program guide sample.

Ways to Participate

- Synchronously: Log in live for morning lessons and afternoon breakout sessions on the scheduled program day
- Asynchronously: Following along at your own pace as new content gets posted each week

Session 1 Class Offerings

Registration Now Closed

CHAMP INVESTIGATORS | GRADES K & 1ST | MONDAYS

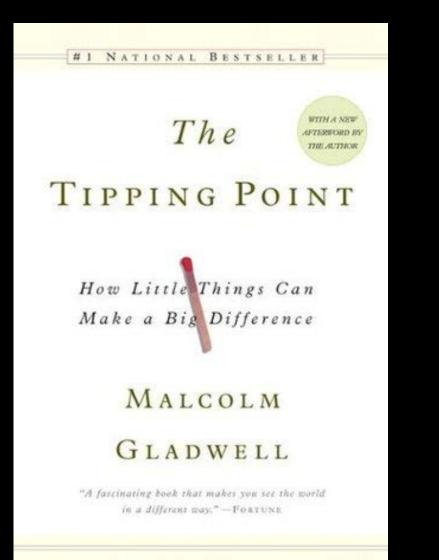
ECOSYTEM EXPLORERS | GRADES 2ND & 3RD | WEDNESDAYS

EARTH AND SPACE DISCOVERY | GRADES 4TH & 5TH | WEDNESDAYS



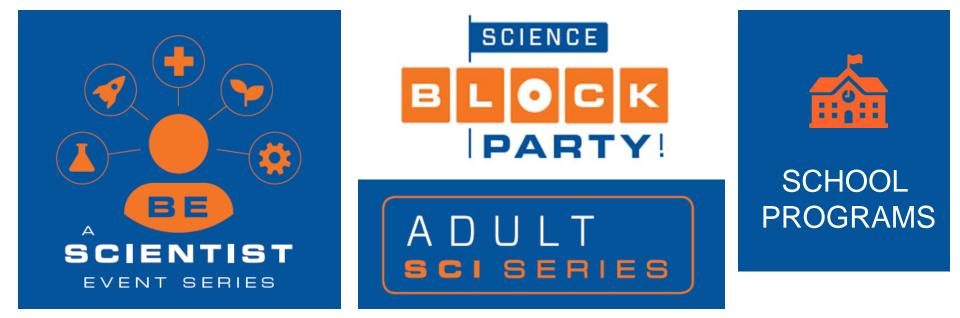


Josh Sarver Vice President of Exhibits & Programs





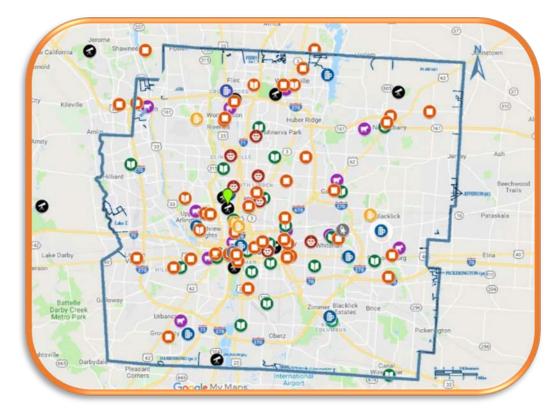
4 Types - Community Events





#COSISciFest cosiscifest.org

Science is Everywhere



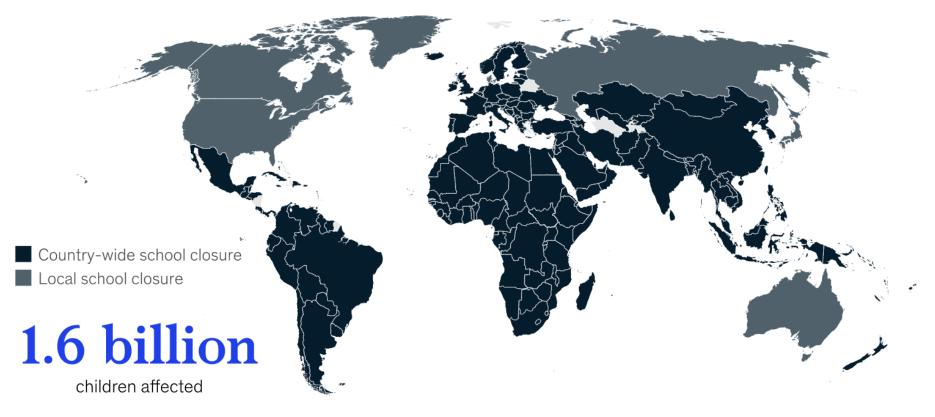


#COSISciFest | cosiscifest.org

CORONAVIRUS DISEASE 2019 (COVID-19)

As of April 15, 191 governments had closed K–12 schools in response to the coronavirus.

School closures



Source: UNESCO

McKinsey & Company



- -

STIVAL

#COSISciFest cosiscifest.org

DIGITAL IMPLEMENTATION







Science.

Education.

Career Awareness.

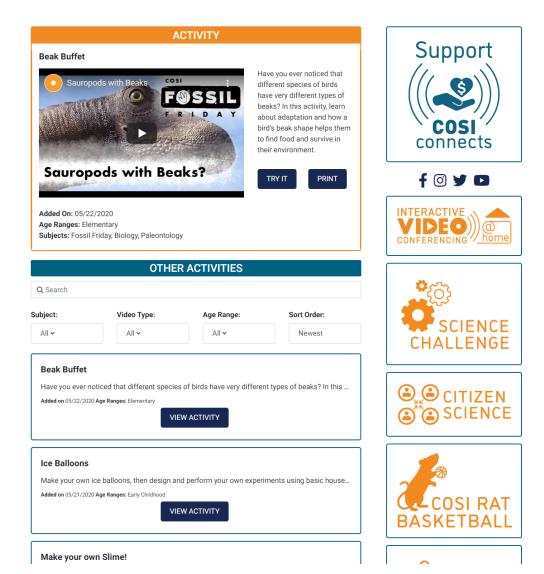








COSI Connects is COSI's Digital Doorway for fun at-home science discovery and learning. We provide exciting and engaging science through COSI videos and hands-on science you can try with your family at home.





COSI((O)) connects

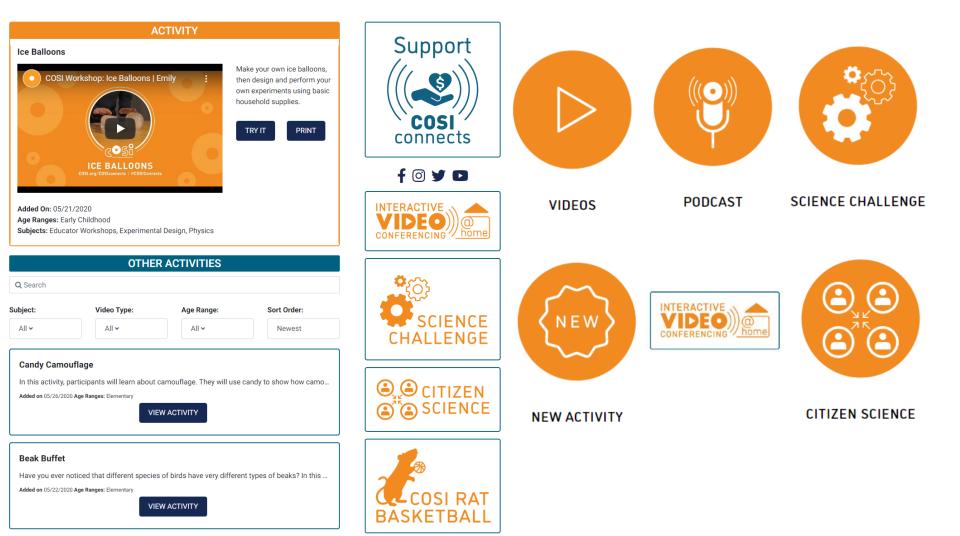
MENU

DONATE

EXHIBITS

COSI Connects is COSI's Digital Doorway for fun at-home science discovery and learning. We provide exciting and engaging science through COSI videos and hands-on science you can try with your family at home.

cosi((**o**))) connects



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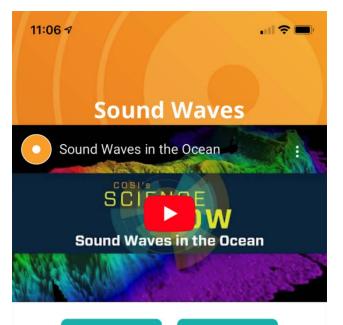
MEMBERSHIP











TRY ACTIVITY

PRINT

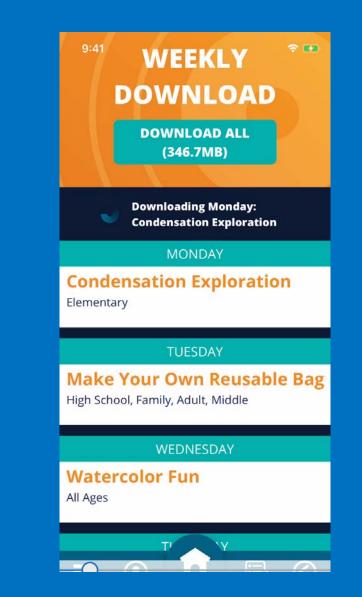
Investigate sound waves at home using nothing more than a coat hanger and some string! This activity will help you to explore and understand sound energy and how it moves. Then, use what you learned to make simple string telephones.













Curbside: COSI on Wheels

Bringing critical science to underserved youth in Columbus where they live learn and lounge in the COVID-19 Era





We are so happy to announce a new partnership with our friends at @COTABUS. To help bridge the digital divide our community faces during the pandemic, COSI and @COTABUS COTA will host 9 COSI on Wheels: Curbside events at 5 @ColsCitySchools locations.



COSI @COSI · 30m Replying to @COSI

In addition, a very special thanks to @COTABus's CEO, @joanna5317, for her leadership and dedication to providing educational resources to our underserved populations.



COSI @COSI · 30m

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We are excited to embark on this partnership with @ColsCitySchools and @ColsCitySuper. The 5 events will take place throughout the month of August and into early September.



PHYSICAL IMPLEMENTATION

cosi ((o)) connects learning lunchbox



An Innovative Partnership: Feeding Hungry Lives Feeding Hungry Minds

A Bold Distance Learning Model During COVID-19 To Inspire Underserved Youth in STEM



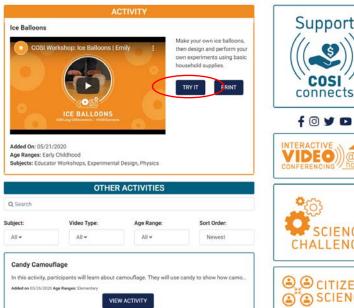
Children's Hunger Alliance



COST **COSI**((O)) connects

2

COSI Connects is COSI's Digital Doorway for fun at-home science discovery and learning. We provide exciting and engaging science through COSI videos and hands-on science you can try with your family at home.





Have you ever noticed that different species of birds have very different types of beaks? In this ...



Support connects

0











COSI ((**O**)) connects



ACTIVITY: Ice Balloons

VIDEO

Watch the COSI Workshop: Ice Balloons. Then, make your own ice balloons to experiment on your own!

MATERIALS

Modify as necessary for the experiments you will perform

- Balloons* Water
- Salt
- Sugar Food dye
- Flashlight
- Magnifying glass
- · Platter or plastic bin to catch melting water

INSTRUCTIONS

PART 1: Create balloons

- 1. Carefully fill a balloon (or multiple balloons) with tap water. The easiest way to do this is to stretch the neck of the balloon over the faucet then turn it on low. Once it is at about 5 inches in diameter,
- turn off the water, remove the balloon, and tie it closed. 2. Place the balloon into the freezer. It may take up to 2 days to completely freeze your ice
- balloon(s).* *Don't have balloons? Just use regular ice!

PART 2: Experiment

Take your balloons out and cut the neck to remove the balloon. Place your ice on a platter or in a plastic bin to catch melted ice and other messes. Discuss what sorts of experiments you would like to perform, and what you think will happen when you try them out. Then test out your experiments! If you're not sure where to start, here are a few ideas:

- · See what happens when you sprinkle salt on top of the ice. Place about 1/2 1 tsp of salt and observe for a few minutes. Does the same thing happen when you sprinkle sugar?
- . Try putting a few drops of food coloring on the upper side of the ice. Does it flow? How?
- · What if you add salt, then place food coloring where the salt was?
- · Will your ice float in a bathtub or sink filled with water? What if you shine a light on your ice?
- · Can you look at your ice with a magnifying glass? What do you see? What if you look at food dye on your ice with a magnifying glass?

What's going on?

Experimenting with ice is a great way for kids to be curious, explore, and practice the scientific method. Ask a guestion, design an experiment, and observe the results of your experiment. Providing kids the freedom to explore in their own way makes the activity curiosity-led and inquiry-driven.

If you tested the salt, you might have noticed a pool of liquid forming as ice melts. Salt lowers the freezing point of water and thus allows the water to exist as a liquid below its normal freezing point.

Additional Resources:

Reach out to the COSI Department of Science Content if you have any questions or comments.







Children's Hunger Alliance



#COSIconnects

Phase I









WHAT IS IN THE BOX?

Phase I





ACTIVITY: Chromatography Flowers

Look at your markers. What color is each marker? In this activity, you will use a process called chromatography to explore additional colors that are hidden inside markers! Chemists use this process to figure out what is inside certain materials. All we need today is water H2O!



Take a picture with your phone of this square to see a cool video! —



turn page over for more! -----

MATERIALS

P

Ε

IN THE BOX: • 6 coffee filters • d

- FROM HOME:
 or a drying rack
- Dixie cup
 pipe cleaner
- and paper to

INSTRUCTIONS

- Pick a dark colored marker for your experiment. Hypothesize: how many different pigments, or colors, do you think you will find in that color of marker?
- 2. Put a small amount of water in your dixie cup (about ½ inch deep)
- 4. Fold the coffee filter in half and then in half again, so that there is a point at the bottom. Place it in the cup so the tip is touching the water, but the marker ink is not.
- 5. Watch for 3 minutes. What happens? What do you notice?
- 6. Once you are happy with how your experiment looks, remove it from the water and let it dry!
- 7. Make as many as you would like! Experiment with different colors and patterns.

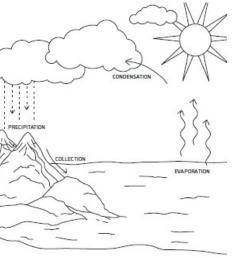




Phase I









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learning ((0))

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| Microscope | Lens | Surface | Force |
|------------|---------|---------|-------|
| Pipette | Gravity | Weight | |
| Density | Zoom | Tension | |

















Department of Agriculture

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COLUMBUS METROPOLITAN LIBRARY Virgin hyperloop one

JPMORGAN Chase & Co.



Test your knowledge and use QR codes to check your answers: How Dinosaurs Looked Fancy frills, sharp horns, pointy spikes, massive sails on their backs-dinosaurs had them all! Why did dinosaurs sport these features? For clues, scientists often compare dinosaur designs with those of modern animals. Guess what the features are for! Scan the QR code for the answer. 1. What is the function of the armor on these animals? SCAN HERE for answe A Edmontonia B. Armadillo B Weighing in at over 3.5 tons, *Edmontonia* had relatively short and muscular legs that supported a heavy load on its back. It also sported hornlike spikes on its sides. short and muscular legs that supported a heavy load on 2. What is the function of these horns and frills? SCAN HERE for answe A. Triceratops B. Rhinoceros A young *Triceratops* typically had smaller horns and frills. These features became fully developed only when the animal reached maturity. 3. What function did the Hadrosaur crest serve? SCAN HERE A. Hadrosaur B. Cassowary Scientists think that the crest on the *Hadrosaur's* head may have been brightly colored. They also think it may have looked different in males and females. SCAN for a Virtual 360° Tour of the HERE American Museum of Natural History Dinosaur Gallery at COSI



Nature B 0 X

Educator, Parent & Caregiver Resource Guide

Dear Educators, Parents, and Caregivers:

We know education is important now more than ever, and COSI stands ready to be your partner with this COSI Learning Lunchbox. Together, we will engage, inspire, and transform our students and youth in science, technology, engineering, and math (STEM) at school and at home. COSI has leveraged Ohio's Core Principles for Remote Learning and the Remote Learning Resource Guide to provide high-quality remote learning, respond to issues of equity, leverage partnerships, and much more to design a collection of engaging activities to complete at home. These activities correlate directly to Ohio's Learning Standards – the same key learning goals that schools, educators, parents and caregivers use.

This box is full of experiences designed to engage learners of all ages! As you look through the Activity Sheets, you will find step-by-step instructions, interactive questions that will promote critical thinking, and explanations of the science behind each activity. If you want to dig deeper into science, at your grade level, additional experiences are available through our free COSI Connects digital platform. On this "Educator, Parent, and Caregiver Resource Guide," you will find the Ohio Learning Standards that correspond to each of the activities in this box. We are in this together, for Each Child and for Our Future.

Animal Hide and Seek

Kindergarten K.LS.1: Living things have specific characteristics and traits.

Kindergarten K.LS.2: Living things have physical traits and behaviors, which influence their survival.

First Grade 1.LS.2: Living things survive only in environments that meet their needs.

Third Grade 3.LS.2: Individuals of the same kind of organism differ in their inherited traits. These differences give some individuals an advantage in surviving and/or reproducing.

What's for Dinner?

Kindergarten K.LS.1: Living things have specific characteristics and traits.

First Grade 1.LS.1: Living things have basic needs, which are met by obtaining materials from the physical environment.

Fourth Grade 4.LS.1: Changes in an organism's environment are sometimes beneficial to its survival and sometimes harmful.

What's for Dinner? con't

Fifth Grade 5.LS.1: Organisms perform a variety of roles in an ecosystem.

Seventh Grade 7.LS.1: Energy flows and matter is transferred continuously from one organism to another and between organisms and their physical environments.

Birdwatching

Kindergarten K.LS.1: Living things have specific characteristics and traits.

Kindergarten K.LS.2: Living things have physical traits and behaviors, which influence their survival.

First Grade 1.LS.2: Living things survive only in environments that meet their needs.

Second Grade 2.LS.2: All organisms alive today result from their ancestors, some of which may be extinct. Not all kinds of organisms that lived in the past are represented by living organisms today.

What's a Watershed?

Second Grade 2.LS.1: Living things cause changes on Earth

Fourth Grade 4.ESS.1: Earth's surface has specific characteristics and landforms that can be identified.

Science 4.ESS.3: The surface of Earth changes due to erosion and deposition.

High School Biology B.DI.2: Ecosystems

High School Environmental Science ENV.GP.2: Potable water quality, use, and availability

High School Environmental Science ENV.ES.4: Hydrosphere

High School Physical Geology PG.ER.3: Water

Biomimicry

Kindergarten K-2.DT.1.a.: Identify and discuss differences between the human-designed world and the natural world.

Third Grade 3-5.DT.1.d.: Identify and describe examples of technology products and processes.

Sixth Grade 6-8.DT.1.b.: Analyze how tools, materials and processes are used to alter the natural and human-designed worlds.

learning lunchbox



ACTIVITY: Float Your Boat

What objects float in water, and what objects sink? Try experimenting with different objects to see which ones are buoyant.

START HERE!

Take a picture with your phone of this square to see a cool video! -

MATERIALS

IN THE BOX:

V

P

E

 objects of various weights, sizes and shapes: paperclip, pen, tin foil, a piece of tissue paper, and a penny

FROM HOME:

- objects of various weights, sizes and shapes, such as Styrofoam packing peanuts, a screw, a tennis ball, or a ping pong ball
- a bowl, cup or bin filled with water

INSTRUCTIONS

- What do you think makes an object float? Look at the objects in front of you and predict which objects will float and which will sink.
- 2. One by one, put each item into the water? Which ones float? What do they look like?
- Now, teach back what you've learned! Use the COSI app to upload a photo or video of your completed activity.



EXTENSION:

Find a bottle cap - do you think the bottle cap will float? Why or why not? Test your prediction. You may have to put the cap on the water very carefully, but you should be able to get it to float. Use your pipette to add a few drops of water to the cap. Does it still float? How many drops do you think it be able to carry before it sinks? If it sinks, why does the cap sink?

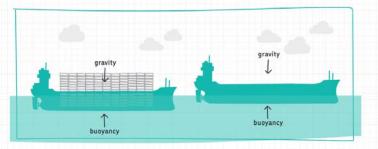


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WHAT'S GOING ON?

When an object is placed into the water, gravity pulls it down and the water exerts an upward buoyant force on that object. The weight of the object helps determine whether it will float or sink, but so does its shape. Boats and bottle caps have spaces with air in them. Air is less dense than water, which helps the object float. If that space fills up with water, it no longer helps the object float and the object sinks.

How does a ship as big as the Titanic float? The ship was made mainly from iron and steel. Steel has a density about eight times that of water, so you would expect a ship made of steel to sink. However, if you were to look at a plan of the Titanic, you would learn that most of its volume was occupied by air. So the average density of the entire ship was less than the density of water, causing it to float. Sadly, when the Titanic hit the iceberg, water rushed into the ship's hull and displaced the air. The average density of the water and the steel ship was greater than the density of water.



HAVE A QUESTION ABOUT WHAT YOU JUST LEARNED? Email sciencequestions@cosi.org.

WANT TO SHARE YOUR SCIENCE? Tag us on Instagram and Facebook @cosiscience, or on Twitter @cosi using the hashtag #COSIConnects.









WATER BOX

OSU Extension Connecting The Ohio State University to Ohioans





OSU Extension Connecting The Ohio State University to Ohioans





NATURE BOX

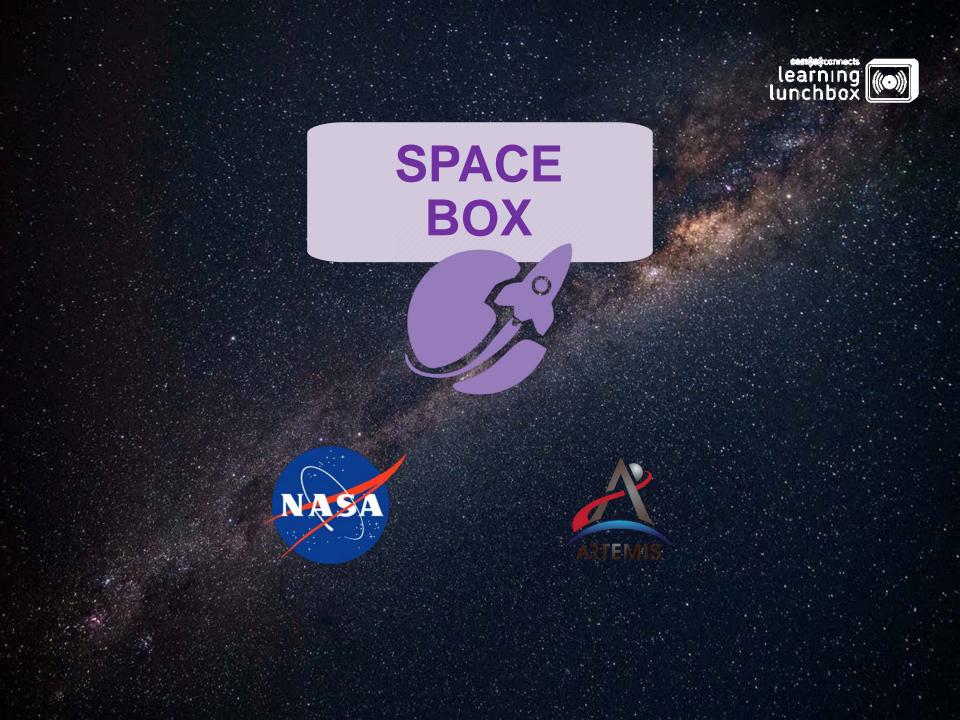
OSU Extension Connecting The Ohio State University to Ohioans





Department of Agriculture OSU Extension Connecting The Ohio State University to Ohioans

USDA







SPECTACULAR SPACE

ARTEMIS

- Monday Build an Electromagnet
- Tuesday Rockets
- Wednesday Build a Moon Base
- Thursday Impact Craters

NASA

Friday – Parachute













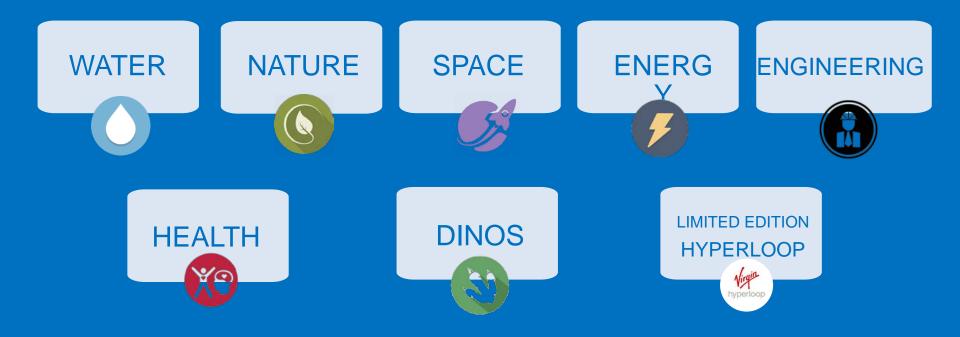


STEM is important now more than ever for our youth and together we will help develop the next Artemis generation.





EIGHT THEMED KITS







EDUCATOR TOOLKIT









COSI can also work with your school to determine availability of publicly funded versions of these STEM Kits, called COSI Learning Lunchboxes.

Connect to a universe of science online, offline, and in your classroom.







COSI Connects Free Teacher Activities available here Virtual Field Trips 360 Tours of COSI

connects[⊕] Exhibitions



• WHEELS

COSI comes to you with free WiFi and Mini-Science Kits





PARTNERSHIP BETWEEN

• See - Hundred - Chico Department of Education

COSI ((**O**)) connects





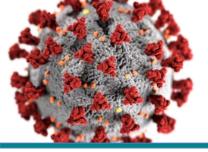


Josh Sarver Vice President of Exhibits & Programs

Workshop Overview



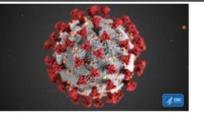
- Ross Johnston, Mote Marine Laboratory & Aquarium, FL 8 min
- Elizabeth Nuckols, ECHO, Leahy Center for Lake Champlain, VT 8 min
- Eron Damercy & Stephen Weisenreder, Rochester Museum & Science Center, NY 8 min
- Josh Sarver, Center of Science and Industry (COSI), OH 8 min
- Ali Jackson Sciencenter & NISE Network – 5 min
- Share-out, discussion, Q/A 20 min



COVID-19 NISE Network Resources

Coronavirus Museum Resources

We wanted to make sure you are aware of these resources in this rapidly changing situation:



 Association of Children's Museum (ACM)

https://www.childrensmuseums.org/about/acm-in-the-news/307-museum-response-covid-19astc

 Association of Science and Technology Centers (ASTC), including educational resources, policy and advocacy updates and tools, and business and operations resources

https://www.astc.org/coronavirus/

 Association of Science and Technology Centers (ASTC) Educational Resources

https://www.astc.org/coronavirus/educationalresources/



- Museum reopening resources (ACM, ASTC, AZA, IMLS, Dome Dialogues and more)
- Coronavirus resources (CDC, NIH, Johns Hopkins and more)
- NISE Network Online Workshops
- Viruses and Coronavirus videos and activities for the public
- Resources for digital public engagement
- Evaluation and research resources

https://www.nisenet.org/coronavirus

https://www.nisenet.org/athome

How to Participate in the Share-Out

| Participants (2) | | How to talk |
|-------------------------|--------------------------------|------------------------------------|
| Brad Herring (me) | ت 🦑 🖐 | |
| ZA Zoom Attendee (Host) | | Raise your hat |
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Discussion Topics from RSVP Form

- What does **HANDS-ON** look like this year? How do we remain inquirybased, interactive, and engaging? Anything happening in-person?
- **Partnering with schools and teachers:** How are museums marketing and communicating their virtual options and how can we support what teachers are doing to enhance the remote or physical distanced learning this year?
- Live versus pre-recorded: Benefits? Challenges?
- How do we continue to include **volunteers, SMEs, grad students**, other facilitators?
- How do we determine pricing and what other financial models are museums exploring?
- What about **pre-K**?

Upcoming NISE Network Online Workshops



Online Workshop: The Science Behind the 2020 Explore Science: Earth and Space Toolkit B – Virtual Tour of a NASA MoonLab Tuesday, October 13, 2020 2pm-3pm Eastern / 11am-12pm Pacific

Online Workshop: Moon Adventure Game -An introduction to a new challenge-based game for science and children's museums Tuesday, October 27, 2020 2pm-3pm Eastern / 11am-12pm Pacific

Learn more at nisenet.org/events

Get Involved

Learn more and access the NISE Network's online digital resources nisenet.org



Subscribe to the monthly newsletter nisenet.org/newsletter



Continue the online conversation bit.ly/nisenetryver



Follow NISE Net on social networking nisenet.org/social

Thank You





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