

STE(A)M UNPLUGGED

EXPLORE YOUR WORLD, DESIGN YOUR WORLD



STEM WEEK OREGON

May 9th - May 17th is STEM Week Oregon 2020!

Welcome to our 6th annual STEM Week Oregon, a state-wide movement to raise awareness, celebrate, and engage in activities involving **science, technology, engineering, and math (STEM)**.

2020 is a unique year to say the least! In a spring full of video conferencing, too much screen time, and too much time indoors, **we are proud to announce our 2020 theme: STE(A)M Unplugged: Explore Your World, Design Your World.**

STEM Week Oregon traditionally celebrates all things STEM, plugged and unplugged, but this year we encourage you to think outside the box of STEM-as-tech and **engage in all the ways STE(A)M impacts your world**--observing nature, exploring the physics of balls and Frisbees and birds, getting your hands dirty in the garden, or discovering the science of food in your kitchen.

All you need to do is register! Participate in daily themed challenges and submit photos and videos of your work to our Celebrate STE(A)M Gallery, or do your own thing and tell us about it! STE(A)M is all around us--explore it!

All entries are eligible to win prizes! More activities = more chances to win!

How it works:

STEP 1: REGISTER

Be sure to register your activities!
Register once for the whole week or daily.
A separate registration can be completed for each participant so everyone has a chance to win a prize!

Each day you participate makes you eligible to win one of the daily prizes, but you have to register so we can contact you if you win!

Register online at:

www.stemoregon.org/stem-week-oregon-2020

STEP 2: DO STE(A)M

Use one of the daily activities as a guide, or come up with your own STE(A)M activities. Also check out daily virtual chats with industry professionals!

STEP 3: GET SOCIAL

Use the hashtag #STEMWeekOR on your favorite social media platform and tell us how you're celebrating. Pictures and videos are highly encouraged!



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MAKE-IT MONDAY

TODAY'S CHALLENGE: PAPER TUBE RACEWAY

Age Group: Whole family

Materials:

- Tape or other materials that can be used to attach pieces of your raceway together
- Paper tubes, paper plates, cardboard cartons
- Marbles, small balls, cars or other items that can roll through your raceway

The Challenge:

Design a structure using your materials that is either free standing or attached to a wall. This structure will be your raceway for marbles, a car, or another object of your choice.

More Ideas:

- Try building the longest raceway you can.
- Try building a raceway with curves and jumps.
- Build two or more raceways and hold a competition.
- Decorate your raceway!

Share photos & videos of your project!
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Ready for more STE(A)M?

Virtual Industry Chat: 5/11 @ 11am (grades 5-12)

"How Math & Science Helped Me Build a Wooden Boat"

with Portland Engineer Ralph Cohen

www.stemoregon.org/stem-week-oregon-2020

TAKE APART TUESDAY

TODAY'S CHALLENGE: TAKE SOMETHING APART

Age Group: Whole family, adult supervision (review safety rules for tools and be sure to properly dispose or recycle any e-waste)

Materials:

- Something to take apart (ask an adult first!)
 - Ideas: an old toy, electronic, or appliance
 - Don't have tech? Find a pinecone, leaf, flower, other item from nature
- Basic tools (optional): screwdriver, pliers, scissors, tweezers, etc.
- String, tape, wire, glue, or other items you can use to reassemble the materials you took apart into something new!

The Challenge:

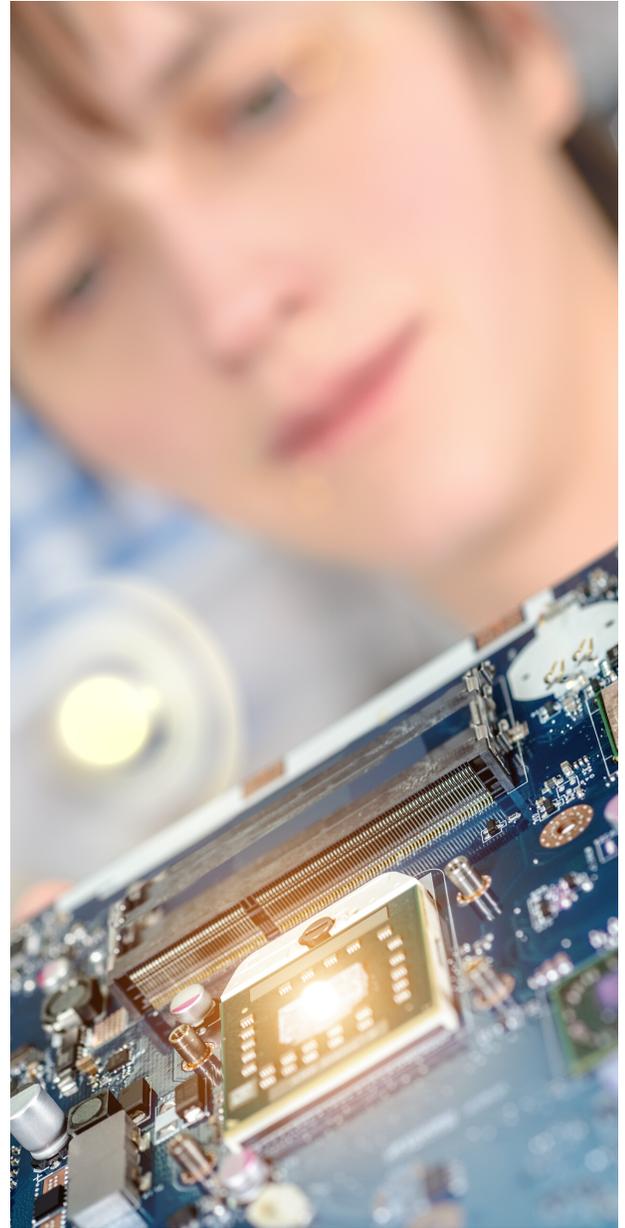
Take something apart and try to repurpose the pieces into something new!

More Ideas:

- Make a poster collage of all the parts you discover with some ideas about what they do.
- Try putting what you took apart back together!

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Ready for more STE(A)M?

Virtual Industry Chat: 5/12 @ 9am (grades 6-12+)

"Coronavirus: Intro to the Virus, Testing, and Vaccines"
with Anil Jumar from RxHome Test

Join this free industry chat and others at:

www.stemoregon.org/stem-week-oregon-2020

WHAT ARE YOU WONDERING? WEDNESDAY

TODAY'S CHALLENGE: NOTICE & WONDER

Age Group: Whole family

Materials:

- A live animal to observe (try collecting a worm, ant, snail, or other bug from your yard)
- Drawing materials
- Magnifying glass (optional)

The Challenge:

Find a live animal and observe its characteristics (color, shape, size, etc.). Write about or draw what you notice and any questions you are wondering about what you see (why does it look the way it does? What characteristics are helpful? How?).

More Ideas:

- Compare and contrast your observations and what you notice and wonder with your family members
- Try to find answers to the questions you are wondering:
 - www.nwf.org/natureguides (app)
 - www.insectidentification.org
 - www.backyardnature.net/insectid.htm
 - www.bugfacts.net/insects/php

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Ready for more STE(A)M?

For a schedule of today's virtual industry chats, visit:
www.stemoregon.org/stem-week-oregon-2020

Virtual industry chats are free!

THINK ABOUT IT THURSDAY

TODAY'S CHALLENGE: BUILD A PAPER STRUCTURE

Age Group: Whole family

Materials:

- Paper (newspaper, junk mail, index cards, etc.)
- 2 feet of tape (maximum)

The Challenge:

Using only materials from the list above, create a freestanding structure that is at least one foot high, and can hold a small stuffed animal or toy.

Think about it:

- What are some strong shapes that you see in bridges or towers?
- Could you combine the tape and paper to make a stronger material?
- What's the most important use of your tape?
- After you test: If you did this again, what would you do differently?

Use the Engineering Design Process to build your structure:

- **Define:** what is it that needs to be accomplished?
- **Brainstorm:** what are your ideas for meeting the criteria of the challenge?
- **Plan:** draw and discuss your design.
- **Make it!** and then **Test it!**
- **Improve:** make it better by repeating the Engineering Design Process again!

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Ready for more STE(A)M?

Virtual Industry Chat: 5/14 @ 10am (grades 9-12)

"What is a Surgical Consultant?" with Joe Harper
from Boston Scientific

Join this free industry chat and others at:

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FIELD TRIP FRIDAY

TODAY'S CHALLENGES: BACKYARD FIELD TRIP & SCAVENGER HUNT

Age Group: Whole family

Materials:

- Piece of paper and something to write with
- An egg carton, paper bag, or plastic container

What do you hear?	What do you see?
What do you feel?	What do you smell?

Challenge #1: Backyard Field Trip

Use Your Senses

Take your paper and pen/pencil outside and find a place to sit quietly for 10 minutes. Spend time writing or drawing what you hear, see, feel, and smell. Then think about these questions: what have you learned about your special place that you didn't know before? Was there anything you expected to hear, smell, or see that you didn't?

Challenge #2: Scavenger Hunt

Find and collect the following items and then create a picture or collage with your items (share on social media with #STEMWeekOR):

- Something fuzzy and something rough
- Something straight and something round
- Two kinds of seeds and two pieces of man-made litter
- Two different types of leaves and something green
- Something that makes noise
- A cone, a stick, and a beautiful rock
- Other items of your choice!

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Ready for more STE(A)M?

Virtual Industry Chat: 5/11 @ 11am (grades 5-12)

"What do Structural Engineers Do? A Virtual Tour Inside a Real-Life Construction Site" with Structural Engineer Mike Daily

Join this free industry chat and others at:

www.stemoregon.org/stem-week-oregon-2020

SOUNDS & SHADOWS

SATURDAY

TODAY'S CHALLENGE: CREATE SHADOW ART

Age Group: Whole family

Materials:

- Paper and something to draw with (pen, pencil, markers, etc.)
- A light source (lamp or the sun)
- Something that can be used to cast a shadow

Ideas:

- Line up toys and try tracing their shadows to create a scene.
- Try creating portrait silhouette art by taping paper to a wall, having someone sit in front of it, shining a lamp on them, and then tracing their silhouette. If you use colored paper, you can cut out the silhouette and glue it to another piece of paper!
- Create a small sculpture with foil, trace its shadow, and then attach the sculpture to the drawing.
- Try an abstract piece by laying paper beneath a tree. Trace the shadows cast by the branches and color in the shapes.

Guiding Questions:

- Where does the object need to be, relative to the sun (or other light source), to make a shadow?
- Why is the shadow a different size than the item casting the shadow?
- What might be the best time of the day to do shadow art? What might be the most difficult time of day?



Source: Mini First Aid via kidsactivitiesblog.com



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Ready for more STE(A)M?

For links to more great shadow and sound
STEM activities, visit:

www.stemoregon.org/stem-week-oregon-2020

SOARING SUNDAY

TODAY'S CHALLENGE: PAPER AIRPLANES & FLIGHT

Age Group: Whole family

Materials:

- Paper (try using different kinds!)
- Scissors and tape
- Paperclips (or some other weight to attach to plane)

The Challenge:

What is the best way to fold a piece of paper to make a paper airplane fly the highest, the farthest, or the fastest? Can you make a plane that does acrobatic tricks? Visit www.foldnfly.com for some ideas on how to fold different kinds of paper airplanes!

Guiding Questions:

- What can you do to change how your airplane flies?
- What parts of the plane can be changed to make it fly straighter, farther, faster, or with more acrobatics?
- What happens if you change the folds, or what kind of paper you use, or where you put some weights?

Extensions:

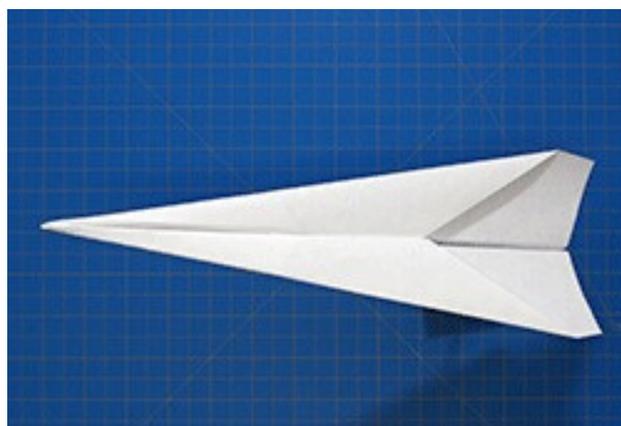
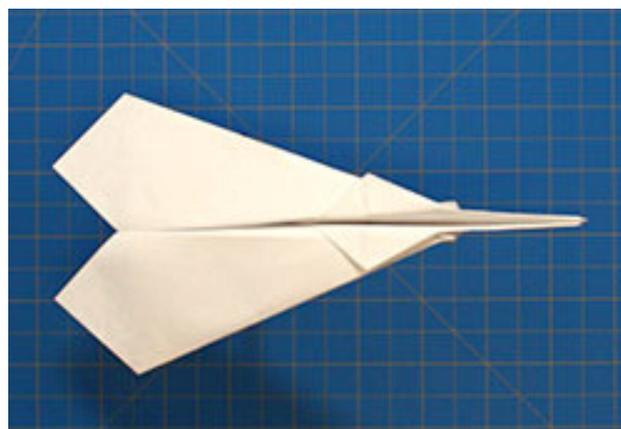
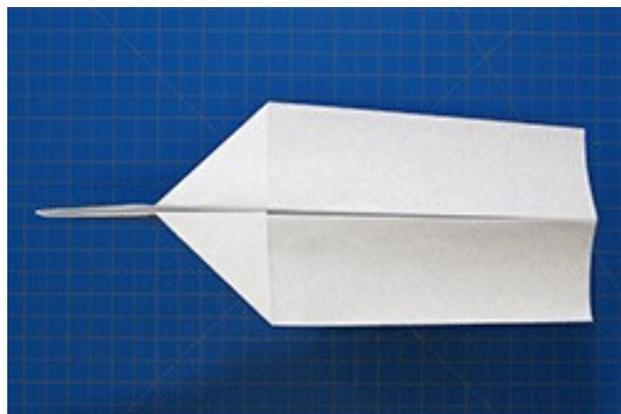
Design a parachute for a toy. Some supply ideas: string, paper, plastic bags, cloth scraps. Test different options. What works best to give your toy a safe landing?

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Source: www.foldnfly.com



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Ready for more STE(A)M?

Keep STE(A)M going beyond STEM Week!

For more information about local STEM resources in your area,
find your regional STEM Hub at:

www.stemoregon.org/regional-stem-hubs