

## STEAM Activities

Most activities require minimal preparation, materials and adult support. This curated list focuses on activities that foster scientific thinking and acting, applied math, integrated technology, and engineering and art design practices. Organized by indoor/outdoor, time & topic.

### Activities that take 20-60 min over a period of 4 or more weeks

#### **OUTDOOR:**

Use Five Senses to Explore - <http://www.espsciencetime.org/FiveSensesinSpring.aspx>

Observe and explore Buds opening

- Project Learning Tree Bursting Buds <https://www.plt.org/family-activity/bursting-buds/>
- <https://wildaboutthere.com/how-to-watch-tree-buds-grow/>

Keep a moon journal [https://drive.google.com/open?id=18w\\_hOI8g4zmH7xQ4mF-GBP1xHcfxV1X](https://drive.google.com/open?id=18w_hOI8g4zmH7xQ4mF-GBP1xHcfxV1X)

- Take the moon for a walk <https://tinkergarten.com/activities/take-the-moon-for-a-walk>

Plant a seed

- <https://tinkergarten.com/activities/eggheads>
- <https://tinkergarten.com/activities/planting-seeds>
- <http://7474fab53f1b6ee92458-8f3ac932bad207a00c83e77eae8d15c.r12.cf1.rackcdn.com/OAK-TREE.jpg>

Observe/Hug a tree

- <https://tinkergarten.com/activities/befriend-a-tree>
- <https://tinkergarten.com/activities/a-wish-tree-for-me>
- <http://7474fab53f1b6ee92458-8f3ac932bad207a00c83e77eae8d15c.r12.cf1.rackcdn.com/STREET-TREE.jpg>

Learn to Compost <http://7474fab53f1b6ee92458->

<8f3ac932bad207a00c83e77eae8d15c.r12.cf1.rackcdn.com/COMPOST-2016%20NEW.jpg>

Build a Nature Table <http://7474fab53f1b6ee92458->

<8f3ac932bad207a00c83e77eae8d15c.r12.cf1.rackcdn.com/Nature%20table.jpg>

#### **INDOOR ACTIVITIES**

Sprouting seeds <https://www.scholastic.com/parents/school-success/learning-toolkit-blog/germinate-seeds-and-watch-them-sprout-windowsill.html>

### Activities that can be done in a day to a week

#### **OUTDOOR**

Observe Wildlife <http://7474fab53f1b6ee92458->

<8f3ac932bad207a00c83e77eae8d15c.r12.cf1.rackcdn.com/BIRDHIDE.jpg>

Collect Animal Footprints

- <http://7474fab53f1b6ee92458-8f3ac932bad207a00c83e77eae8d15c.r12.cf1.rackcdn.com/FOOTPRINT-TRAP.jpg>
- <https://www.wildlifewatch.org.uk/activity-sheets>
- Make a small mammal nature tunnel and footprint trap <http://7474fab53f1b6ee92458-8f3ac932bad207a00c83e77eae8d15c.r12.cf1.rackcdn.com/Small%20mammal%20tunnel.jpg>

Observe Shadows/making a sun clock

- <https://lifestyle.howstuffworks.com/crafts/seasonal/shadow-fun-activities1.htm>
- <https://www.scientificamerican.com/article/its-about-time-to-make-a-sundial/>

Building a Pizza box solar cooker <https://www.sciencebuddies.org/stem-activities/solar-oven>

## **INDOOR**

Vascular plant structure, turgor and transport - Celery/flower in food coloring <http://www.teaching-tiny-tots.com/toddler-science-celery-experiment.html>

Making sugar crystals - Rock candy

- [https://www.google.com/search?q=rock+candy+science+experiment&rlz=1C1CHBD\\_enUS859US859&oq=rock+candy+science+experiment&aqs=chrome..69i57j0l7.12103j0j4&sourceid=chrome&ie=UTF-8#kpvallbx= Q5B\\_Xtf0E5Lv\\_Qb5653gBg36](https://www.google.com/search?q=rock+candy+science+experiment&rlz=1C1CHBD_enUS859US859&oq=rock+candy+science+experiment&aqs=chrome..69i57j0l7.12103j0j4&sourceid=chrome&ie=UTF-8#kpvallbx= Q5B_Xtf0E5Lv_Qb5653gBg36)
- <https://sciencebob.com/make-your-own-rock-candy/>
- <https://www.stevespanglerscience.com/lab/experiments/homemade-rock-candy/>
- [Edible Rock Candy Geodes](#)

Growing Salt crystals <https://thebeakerlife.com/salt-crystals-experiment-bdcb9f7f1d3>

Conservation – reducing plastic use

[https://www.wildlifewatch.org.uk/images/activity\\_sheets/reducing%20plastic%20small.png](https://www.wildlifewatch.org.uk/images/activity_sheets/reducing%20plastic%20small.png)

<b>Activities that can be done in 20 minutes to a few hours</b>
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## **OUTSIDE**

Make a Bird Feeder

- [https://www.wildlifewatch.org.uk/images/activity\\_sheets/make%20your%20own%20bird%20feeder.jpg](https://www.wildlifewatch.org.uk/images/activity_sheets/make%20your%20own%20bird%20feeder.jpg)
- <https://tinkergarten.com/activities/orange-you-glad-we-made-this-feeder>
- <https://www.audubon.org/news/make-bird-feeder-out-recycled-materials>

Make and insect motel [http://7474fab53f1b6ee92458-](http://7474fab53f1b6ee92458-8f3ac932bad207a00c83e77eae8d15c.r12.cf1.rackcdn.com/INSECT-HOTEL.jpg)

[8f3ac932bad207a00c83e77eae8d15c.r12.cf1.rackcdn.com/INSECT-HOTEL.jpg](http://7474fab53f1b6ee92458-8f3ac932bad207a00c83e77eae8d15c.r12.cf1.rackcdn.com/INSECT-HOTEL.jpg)

Animal tracks and signs walk [http://628202242a032dff9975-](http://628202242a032dff9975-8a88a36bd5b80e36c3634e14eb705770.r12.cf1.rackcdn.com/tracks&signs.pdf)

[8a88a36bd5b80e36c3634e14eb705770.r12.cf1.rackcdn.com/tracks&signs.pdf](http://628202242a032dff9975-8a88a36bd5b80e36c3634e14eb705770.r12.cf1.rackcdn.com/tracks&signs.pdf)

Investigating soil <https://www.soils4kids.org/experiments>

- Soil profiles/particles <https://www.youtube.com/watch?v=VeuQeAxJljs>
- Build an outdoor kitchen <https://tinkergarten.com/activities/build-outdoor-kitchen>

Litter Pick-up [http://7474fab53f1b6ee92458-](http://7474fab53f1b6ee92458-8f3ac932bad207a00c83e77eae8d15c.r12.cf1.rackcdn.com/LITTERPICK.jpg)

[8f3ac932bad207a00c83e77eae8d15c.r12.cf1.rackcdn.com/LITTERPICK.jpg](http://7474fab53f1b6ee92458-8f3ac932bad207a00c83e77eae8d15c.r12.cf1.rackcdn.com/LITTERPICK.jpg)

## **INSIDE**

Rocks/seeds/shells

- <https://drive.google.com/open?id=1UJmk0334YuDC2dp6S27WCVBihz1x31ma>
- <https://drive.google.com/open?id=1rp00BNCXyLYw6jor7SPW7bxi-tZVsNWL>

Marshmallow challenge -

<https://drive.google.com/file/d/1BFRsDvuRK5eJxWo5qVhCTgIFGQRTg0b/view?usp=sharing>

Test for starch (starch is a type of carbohydrate)

- <https://www.youtube.com/watch?v=P9qyEq5-IIQ&feature=youtu.be>
- <https://www.youtube.com/watch?v=5YMDOX71Tel>

Test for Acid/Base

- [https://www.education.com/activity/article/Explore\\_Color\\_Science\\_with\\_Grape/](https://www.education.com/activity/article/Explore_Color_Science_with_Grape/)
- <https://www.youtube.com/watch?v=OMXMIWybv8A>
- <https://www.youtube.com/watch?v=l18K2upEHLc>

Test for vitamin C <https://www.livestrong.com/article/338206-how-to-test-vitamin-c-in-fruits-at-home/>

Chromatography – the presence and relative weight of color

- <https://www.education.com/science-fair/article/find-color-pigments-hidden-green/>
- [https://www.exploratorium.edu/science\\_explorer/black\\_magic.html](https://www.exploratorium.edu/science_explorer/black_magic.html)

Making distilled water <https://www.youtube.com/watch?v=1qDOQGiKtXM>

Sink and Float/boats

- <https://childsci.org/float-a-boat/>

- <https://tinkergarten.com/activities/what-floats-your-boat>
  - <https://www.exploratorium.edu/snacks/tag/buoyancy>
- Rube Goldberg <https://tinkerlab.com/engineering-kids-rube-goldberg-machine/>
- [https://twitter.com/hashtag/RoundtheWorld\\_ChainReaction?src=hashtag\\_click](https://twitter.com/hashtag/RoundtheWorld_ChainReaction?src=hashtag_click)
  - [https://www.exploratorium.edu/sites/default/files/tinkering/files/Instructions/chainreaction\\_guide\\_final\\_-\\_screen.pdf](https://www.exploratorium.edu/sites/default/files/tinkering/files/Instructions/chainreaction_guide_final_-_screen.pdf)

#### General Resources Links to great outdoor activities

Wildlife Watch – <https://www.wildlifewatch.org.uk/>

Tinkergarten –

[https://tinkergarten.com/activities/filtered?utf8=%E2%9C%93&activity%5Bage\\_groups%5D%5B%5D=&activity%5Btime\\_durations%5D%5B%5D=&activity%5Bskills%5D%5B%5D=&activity%5Bkeyword%5D=&commit=Search](https://tinkergarten.com/activities/filtered?utf8=%E2%9C%93&activity%5Bage_groups%5D%5B%5D=&activity%5Btime_durations%5D%5B%5D=&activity%5Bskills%5D%5B%5D=&activity%5Bkeyword%5D=&commit=Search)

Building Observations Skills- Fish and Wildlife

<https://www.fishwildlife.org/application/files/8515/1373/1089/ConEd-Fostering-Outdoor-Observation-Skills.pdf>

Conservation National Park and Recreation Association <https://www.nrpa.org/blog/five-fun-activities-for-teaching-kids-about-conservation/>

Stewardship National Wildlife Federation <https://www.nwf.org/Home/Trees-for-Wildlife/Activities-and-Guides>

Natural Start Parents Guide to Nature Play

[http://www.greenheartsinc.org/uploads/A\\_Parents\\_Guide\\_to\\_Nature\\_Play.pdf](http://www.greenheartsinc.org/uploads/A_Parents_Guide_to_Nature_Play.pdf)

Project WILD <https://www.fishwildlife.org/projectwild>

#### Virtual STEAM Learning Resources

This list focuses on organizations that provide on-line content and activities that align to state and federal STEAM content standards. The activities vary greatly in educational quality, on-line functionality, and student engagement. There are links to curriculum, activities for kids, and content for teachers. Most links here provide exceptional photo, video and audio resources, diverse cultural perspectives and global data.

**WBGH Learning Media** wide variety of disciplines, lessons, activities, videos for teachers and for students. Something for all ages <https://mass.pbslearningmedia.org/>

**Smithsonian** – endless array of resources for teachers and kids on a wide variety of integrated topics, something for all ages. Links for kids <https://www.si.edu/kids>. Resources for Educators that build upon the resources in every Smithsonian Museum <https://www.si.edu/educators/resources>

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**Exploratorium** – some of these are on-line simulations, some are photo's, videos and readings related to a particular topic. There are also experiments that use simple materials students can get at home <https://www.exploratorium.edu/explore/activities>

#### **National Oceanic and Atmospheric Administration (NOAA)**

There are MANY resources- this list is organized by topic and includes information and videos and activities. <https://www.noaa.gov/education/resource-collections>

Here is a link that takes you to videos and activities for kids <https://oceanservice.noaa.gov/kids/>.

Here is a link that takes you to teacher resources <https://www.noaa.gov/education/stories/teachers-students-explore-noaa-s-new-education-website>

**NASA**

LOTS of resources for educators and students. If you go to this page you will see the many options available in the left hand menu <https://www.nasa.gov/education/resources> There are literally endless amounts of resources from on-line interactives to videos, readings and teacher resources on a wide range of topics that integrate science, technology, math and literacy in meaningful and relevant ways.

Simulation Games <https://www.knowitall.org/series/nasa-science-simulations?>

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### **National Geographic**

Curated collection of resources on a wide variety of Social/Science topics. Lots of video and images, text and some activities. Lots of very strong material on teaching about climate change

<https://www.nationalgeographic.org/education/professional-development/courses/>

**Facing History and Ourselves** – video, audio, text. Need to join to get access, but it is no cost. This is not an on-line learning package, but offers many tools for teachers can use and assign.

<https://www.facinghistory.org/educator-resources>

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STEM Maker activities <https://www.instructables.com/>