

Helping Kids Learn – Post #19 7/14/20 **Latest Update 9/16/24**

STEAM Online: In-person and Virtual Field Trips & Family Activities

We began this tome when the world shut down due to COVID-19. You can now visit many sites in person. However, due to distance, time, and other factors, there are still many places you can't visit in person or "right this minute." The good news is lots of "virtual touring" sites are still available. Check this list for places of interest or do a web search for a particular spot you'd like to see, cast to a large screen, and enjoy your actual or "armchair" visit.

Stay-at-home activities and games are included, also. Topics listed alphabetically.

Note: Some sites contain advertising and in-site purchase options. Sites may change over time. Adults should establish ground rules about children's viewing. No endorsements are implied.

Inquiry Projects Also known as *passion projects*, these are investigations inspired by students' own interests and wonderings on any topic. To help you get started, see

<https://www.kqed.org/mindshift/50620/how-to-ease-students-into-independent-inquiry-projects>

Science activities and experiments for young learners

<https://wabisabilearning.com/blogs/inquiry/inquiry-based-learning-science-activities>

Research paper ideas and suggestions <https://www.myspeechclass.com/good-and-interesting-research-paper-topics.html>

NEW Geographic Information Systems This is a category unto itself. A **Geographic Information System (GIS)** is a geography-based method for gathering, organizing, analyzing and categorizing data of all types. One of the cool things about a GIS is that it turns numbers and other kinds of data into visual displays such as maps. Scientists use GIS to understand data they have collected. GIS helps them make sense of big data and to ask and answer major questions.

For example, GIS can help to determine the effects of fertilizer runoff in the Gulf of Mexico which allows commercial shell or fin fisheries to predict animal populations.

Good overview, commercial site <https://www.esri.com/en-us/what-is-gis/overview>

National Geographic http://media.nationalgeographic.org/assets/file/MW_Introduction_Overview.pdf

National Weather Service (NOAA) <https://www.weather.gov/gis/>

Science and Nature

UPDATED Adventure Aquarium, Camden, NJ [Explore](#) and [learn about sharks](#)

UPDATED American Museum of Natural History, New York City Numerous online links to museum exhibits including the Rose Planetarium [Explore](#) and scroll down to Virtual Field Trips for Any Age!

UPDATED Aurora Borealis (Northern Lights) Visible at night year round, not just in winter, the “Northern Lights” are caused by solar radiation and other space particles colliding with our atmosphere. Most occur near the magnetic North *and South* Poles. Just below the Arctic Circle there is an atmospheric ring called the Auroral Oval where viewing in the Northern Hemisphere is optimal. (There’s one in the Southern Hemisphere, too.) [This webcam](#) is located beneath the Oval and is maintained by Polar Bears International so you may get a bonus bear sighting.

UPDATED Chemistry Three PBS Nova [episodes](#)

UPDATED Chesapeake Bay Watershed, Mid-Atlantic Coast [Virtual tours](#) of the main rivers feeding Chesapeake Bay

UPDATED Cold Spring Harbor Laboratory, Cold Spring Harbor, NY High-quality research laboratory. Available for high school student and teacher registration. Cost attached. <https://www.cshl.edu/Education/>

NEW CRISPR Gene “snipper” editing tool that has enabled realistic cures for previously incurable diseases. See [CRÈME](#), the updated AI version, and Sickle Cell (below).

NEW Explore.org You can view a wide variety of webcams on a variety of subjects. If you want to explore what the site contains, click on the All Cams Live Now tab in the photo menu bar.

UPDATED DNA Extraction If you’ve never done it, it is quite easy. This [NOVA program](#) shows you how.

UPDATED Eagles Duke Farms, Somerset, NJ Live webcam of an [eagle nest](#) – There have been successive nests built and chicks fledged since the first hatchling, 2/26/21; most recently in May 2024. Note that animals caught by the eagles may be visible.

UPDATED Exploratorium San Francisco, CA Wide range of topics from the leading hands-on-science museum. Visit in person if you have the chance!

UPDATED Farms and Farm Sanctuaries Take a virtual or in-person trip to a farm, observe old farming techniques and contrast them with modern ones – helping you understand events such as the current water crisis in many areas of the U.S. – and learn how farm animals, traditionally grown to support humans, are helped by them instead. May include entrance fees for in-person visits.

- [Best Friends Animal Sanctuary](#), Kanab, UT Desert setting; rescued companion animals from bunnies to horses; other locations in the U.S.
- [The Elephant Sanctuary](#), Howenwald, TN [EleCams](#) allow you to see several different elephants since touring is not permitted. There is an on-site learning center and organized [virtual field trips](#) can be scheduled.
- [Full Circle Farm Sanctuary](#), Warm Springs, GA You can view animals by species

- **UPDATED Farms and Farm Sanctuaries continued**

- [Goats of Anarchy Farm Sanctuary](#), Hampton, NJ Includes a number of domesticated species
- Heartland Farm Sanctuary, Madison, WI <https://heartlandfarmsanctuary.org/>
- [Hey Friend Foundation](#) at Hockhockson Farm, NJ Animal rescue and human family supports
- [Howell Living History Farm](#), Hopewell Township, NJ
- [Hope in the Valley Equine Rescue](#), Valley Center, KS
- [Living History Farms](#), Urbandale, IA Includes a Native American farm and revolving exhibits
- [Tempe Wick Farm](#), Harding Township, NJ In addition to the farm, you can tour the home of a Revolutionary War family and heroine, Temperance “Tempe”, and the [encampment of the entire Continental Army](#) in the Winter of 1779-80, reputed to be the worst of the War.

Gardens Public parks and gardens are a great way to get into nature, especially helpful for families with unvaccinated members or those who want to easily social distance without masks. Some charge admission but have free days. Gardens obviously change seasonally. Check websites for admission and other current information. Listed here are some kid-friendly public gardens in the New York-New Jersey area. If you live or will be visiting elsewhere, “public gardens [state name]” entered in a search engine will get you a list. There may be a public garden in your town, too. See also **Greenways; Hiking Trails; Montgomery County; Virtual Walks** in [Architecture and the Arts](#)

Brooklyn Botanic Garden, Brooklyn, NY www.bbg.org Indoor and outdoor gardens; adjoins Prospect Park, which has a zoo; near the Brooklyn Museum and Brooklyn Public Library

Davis Johnson Gardens and Park, Tenafly, NJ www.tenaflynj.org

Duke Farms, Hillsborough, NJ www.dukefarms.org Indoor and outdoor gardens

Highline, Manhattan, NY www.thehighline.org About 1.45 miles long, elevated park on the west side of Manhattan along former commercial rail line; free admission; food available

New Jersey Botanical Gardens, Ringwood, NJ www.njbg.org Self-guided tours on website; guides available on Sundays

New York Botanical Garden, Bronx, NY www.nybg.org Often has art exhibits; indoor and outdoor gardens; primordial forest; extensive children’s garden; near the Bronx Zoo

Presby Iris Gardens, Montclair, NJ www.presbyirisgardens.org Free admission; picnicking permitted; borders a nature preserve with hiking trails

Shakespeare Garden, Plainfield, NJ www.plainfieldgardenclub.org In Cedar Brook Park

Wave Hill, Bronx, NY www.wavehill.org Indoor and outdoor gardens

Geology <https://www.virtualmuseumofgeology.com/>

Glaciers Antarctic glaciers with numerous links, lesson plans, etc. <http://www.antarcticglaciers.org/>

Freya Glacier, Greenland webcam <https://www.webcamgalore.com/webcam/Greenland/Freya-Glacier/26603.html>

Glacier Bay National Park and Preserve, Alaska Webcams and annotated photographs <https://www.nps.gov/glba/learn/photosmultimedia/webcams.htm>

Glacier National Park, Montana Includes numerous virtual options and webcam <https://glacier.org/newsblog/visit-glacier-virtually/>

Jökulsárlón Glacier, Iceland webcam <https://www.skylinewebcams.com/en/webcam/iceland/austurland/hofn/jokulsarlon.html>

Greenways Trails in the U.S. pre-date European arrival and were commercial lifelines until the 20th century. Some major U.S. highways still follow native and settler trails. However, the trails presented here are essentially traffic free. Using a landscape architecture concept called “green necklace,” many towns and states are connecting individual parks to form a continuous green space free of or minimizing motor vehicles. In addition to an emphasis on nature, some preserve historic sites, also. Many are appropriate for young children and are ADA compliant. Here is a sampling; check your local area, also. They aren’t always well publicized. See also ***Gardens; Hiking Trails; Montgomery County; Virtual Walks in Architecture and the Arts***

Appalachian Trail Among the first formally created hiking trails in the U.S.; terrain ranges from flat to mountainous; runs through the states of Georgia, Tennessee, North Carolina, Virginia, West Virginia, Maryland, Pennsylvania, New Jersey, New York, Connecticut, Massachusetts, Vermont, New Hampshire, and Maine <https://appalachiantrail.org/> and <https://appalachiantrail.org/explore/hike-the-a-t/day-hiking/14-state-challenge/>

Connecticut Greenways (official state list) <https://portal.ct.gov/DEEP/Outdoor-Recreation/Greenways/Official-Connecticut-Greenways>

D&R Greenway, Central NJ Locate almost 70 miles of trails by interest using the locator on the right top <https://njtrails.org/>

Lake Mineral Wells State Park and Trailway, TX <https://tpwd.texas.gov/state-parks/lake-mineral-wells/trailway-1>

Mineral Belt Trail, Leadville, CO <https://www.mineralbelttrail.com/>

Roanoke Valley, VA <https://greenways.org/trails/>

Route 52 Bridge Trail, Cape May and Atlantic Counties, NJ <https://www.trailink.com/trail/route-52-bridge-trail/>

86 Trails in and near New York City <https://www.alltrails.com/us/new-york/new-york-city>

Hiking Trails (in person or virtually) See also ***Gardens; Hiking Trails; Montgomery County; Virtual Walks*** in [*Architecture and the Arts*](#)

12 trails Canada to Egypt <https://www.travelandleisure.com/trip-ideas/nature-travel/virtual-walking-trails-around-the-world>

National Historic Trails – a series of trails with historic significance maintained by the National Park Service <https://www.nps.gov/subjects/nationaltrailssystem/maps.htm>,
<https://www.nps.gov/subjects/nationaltrailssystem/national-historic-trails.htm>

National Scenic Trails – a series of nature trails maintained by the National Park Service
<https://www.nps.gov/subjects/nationaltrailssystem/maps.htm>,
<https://www.nps.gov/subjects/nationaltrailssystem/national-scenic-trails.htm>

The Fifty Trail – a series of hiking trails that connect the 49 continental states, District of Columbia and 3 Canadian provinces <https://www.pjwetzell.com/p/the-fifty-trail-one-long-footpath.html>, <https://www.nps.gov/subjects/nationaltrailssystem/maps.htm>

Lab Experiments to do at home <https://blog.prepscholar.com/easy-science-experiments-for-kids-at-home>

Montgomery County Parks (MD) Wide variety of animal observations, nature crafts, Zen moments
<https://www.montgomeryparks.org/explore-from-home-activities/>

Museum of Archeology and Anthropology, London, England <https://maa.cam.ac.uk/>

Museum of Archeology and Anthropology, University of Pennsylvania, Philadelphia, PA Penn Museum at Home featuring children’s programs, locating museum objects on a world map, much more
https://www.penn.museum/athome/?utm_source=highlightbox&utm_medium=webpage&utm_campaign=homepage&utm_content=athome

Museum Tours 12 museums in the U.S. and Europe with virtual tours specifically for children (some are listed separately elsewhere in this lesson) <https://www.purewow.com/family/virtual-museum-tours-for-kids>

National Museum of African-American History and Culture, Washington, D.C. <https://nmaahc.si.edu/>

National Museum of the American Indian, New York City, Washington, D.C. Numerous online links to exhibits <https://americanindian.si.edu/online-resources/exhibition-websites>

National Museum of Natural History (Smithsonian), Washington, D.C. Numerous online links to exhibits <https://naturalhistory.si.edu/visit/virtual-tour>

Natural History Museum, Kansas University Lawrence, KS Museum from Home with numerous activities, tours, from spitting fish to human perception to quarks <https://biodiversity.ku.edu/nhm-at-home>

Newark Museum of Art, Newark NJ Planetarium, multiple science exhibits; limited online access
<https://www.newarkmuseumart.org/> (See Architecture and Art, also)

Night Sky <https://www.space.com/16149-night-sky.html> (written at a sophisticated level),
<https://earthsky.org/tonight>;

Aurora Borealis (Northern Lights) <https://www.explore.org/livecams/aurora-borealis-northern-lights/northern-lights-cam> (*See Aurora Borealis above*)

Comet Neowise <https://www.space.com/comet-neowise-visibility-july-2020.html>;

Interactive Sky Chart <https://skyandtelescope.org/observing/interactive-sky-chart/>

UPDATED Oceans, Lakes, Rivers, Estuaries [Live ocean and aquaria web cams](#) (47 at last count)
<https://www.theguardian.com/travel/2020/apr/13/10-best-virtual-ocean-sea-adventures-diving-great-barrier-reef>, <https://www.dec.ny.gov/lands/4923.html>

Robotic Moon and Planetary Rovers <https://videos.space.com/m/zM0x0G4c/rover-in-a-sand-trap-no-problem-with-rear-rotor-pedaling?list=9wzCTV4g>

NEW Sickle Cell Anemia A disease that causes misshaped red blood cells which has become treatable thanks to the CRISPR gene-editing tool. This is a [podcast](#) with Victoria Gray, the first person cured.

Space Science – Behavior of liquids: Slime on the International Space Station You can easily skip the first 2.5 minutes. <https://youtu.be/aLWFcwzFetA>

Space Science – Surface of Mars Maneuver to see different images taken by cameras on Curiosity in 2011 <https://accessmars.withgoogle.com/>

Trails See *Greenways; Hiking Trails; Montgomery County; Virtual Walks in Architecture and the Arts*

Viruses Series of lessons, model-building, and experiments to learn about viruses in general and COVID in particular <https://www.exploratorium.edu/learn/covid>

Wild, Natural Settings Live Cams There are many links at the site, U.S. and international <https://explore.org/livecams>; **Updated seasonally for current animals**

Zoo Cams Note that some zoos have live cameras on multiple species. Observing nature requires patience; also, check the animals' natural circadian patterns for when to watch (some are nocturnal). They include species such as Platypus (San Diego), Naked Mole Rat (National – and Mo Willems' wonderful book!), Leafcutter Ants (Houston), Black Tip Reef Sharks (National Aquarium), Giraffes, Tigers and Patas Monkeys (Topeka), and a baby Sloth (London). Some feature habitats and ecosystems such as the Bronx Zoo, Central Park Zoo, and New York Aquarium. Some also have virtual tours. Sketch, take notes, or capture screen shots to write about afterwards. **Updated for new arrivals**

Belfast Zoo, Northern Ireland <http://www.belfastzoo.co.uk/> Great profiles of numerous animals

Bronx Zoo and Central Park Zoo, New York City https://bronxzoo.com/virtual-zoo?_ga=2.148283828.2044759998.1599141027-1441490970.1599141027

Duke Farms, Somerset, NJ Eagle's nest webcam <https://dukefarms.org/eaglecam>

Houston Zoo <https://www.houstonzoo.org/explore/webcams/>;

London Zoo <https://www.zsl.org/zsl-london-zoo/virtual-london-zoo>

National Aquarium, Baltimore MD <https://aqua.org/explore/livestreams>

National Zoo (Smithsonian, Washington, D.C.) <https://nationalzoo.si.edu/webcams>

Science and Nature continued

New York Aquarium, Coney Island, New York City https://bronxzoo.com/virtual-zoo?_ga=2.148283828.2044759998.1599141027-1441490970.1599141027 (click on View More Cameras)

San Diego Zoo <https://zoo.sandiegozoo.org/live-cams>;

Topeka, KS Zoo <https://www.youtube.com/channel/UCvff1tmu6KDwchMM6B9MQvg>

Zoo Virtual Tour: Turtleback Zoo, West Orange, NJ <https://turtlebackzoo.com/animals/exhibits/>

Technology

Artificial Intelligence (machine learning) Simple explanations <https://www.zdnet.com/article/what-is-ai-everything-you-need-to-know-about-artificial-intelligence/> Expansive history and explanation (may be boring for kids) https://en.wikipedia.org/wiki/Artificial_intelligence

Coding/Programming Explanation of coding with several programming languages explained <https://www.thoughtco.com/what-is-programming-958331>

Constructing and de-bugging programs Writing code and finding and correcting errors in coding are essential skills for building any computer program. They are taught in a gaming format that families can enjoy. (Developed by NJIT Professor Michael Lee with the help of middle school and college students) <http://www.helpgidget.org/>

Engineering applications in gaming formats <https://tryengineering.org/games/>

How computers work <https://www.explainthatstuff.com/howcomputerswork.html>

How programming works <https://www.dummies.com/programming/>

Engineering

Bridges Explanation of bridge designs and construction <https://science.howstuffworks.com/engineering/civil/bridge1.htm>

Designing and Building Mechanical Devices These are sometimes called Rube Goldberg Devices <https://www.youtube.com/watch?v=cv5WLLYo-fk>; <https://brainpowerboy.com/rube-goldberg-ideas-machine-tasks-and-materials/>

Diesel Locomotives History and explanation of steam and diesel locomotives https://duckduckgo.com/?q=virtual+tunnel+tours&iax=videos&ia=videos&iai=https%3A%2F%2Fwww.youtube.com%2Fwatch%3Fv%3Dkd_griXKO8c

Engineering applications in gaming formats <https://tryengineering.org/games/>

Engineering experiments Grouped by grade level <https://www.teachengineering.org/#atHome>

Engineering topics explained <https://science.howstuffworks.com/engineering-channel.htm>

Engineering continued

Perpetual Motion Machine The theory https://en.wikipedia.org/wiki/Perpetual_motion The practice <https://brainpowerboy.com/rube-goldberg-ideas-machine-tasks-and-materials/>

Tunnels How they are constructed including the physics of natural forces, includes links to several related topics <https://science.howstuffworks.com/engineering/structural/tunnel.htm>

Architecture and the Arts

Architecture Golden Gate Bridge, San Francisco to Marin County, CA
<https://science.howstuffworks.com/engineering/civil/golden-gate-bridge.htm>

Architecture St. Louis Arch, St. Louis, MO
<https://science.howstuffworks.com/engineering/architecture/st-louis-arch.htm>

Architecture World's largest dome (Santa Maria del Fiore, Florence, Italy)
<https://science.howstuffworks.com/engineering/architecture/brunelleschis-dome.htm>

Hirshhorn Sculpture Gardens (Smithsonian), Washington, D.C. Go to A Few Other Smithsonian Tours and scroll down to Hirshhorn <https://naturalhistory.si.edu/visit/virtual-tour>; or scroll down to Kids at Home <https://hirshhorn.si.edu/hirshhorninsideout/>

Jazz: Institute for Jazz Studies, Rutgers University, Newark, NJ <https://www.libraries.rutgers.edu/jazz>

Louvre, Paris, France Many virtual tours include One Minute Museum features
<https://www.louvre.fr/en/visites-en-ligne>

Metropolitan Museum of Art, New York City Architecture Ancient Egypt, comprehensive art exhibits
www.metmuseum.org

Museum Tours 12 museums in the U.S. and Europe with virtual tours specifically for children (some are listed separately elsewhere in this lesson) <https://www.purewow.com/family/virtual-museum-tours-for-kids>

Museum of Modern Art, New York City 19th to 21st century art; scroll down to Family Art-Making Activities in English and Español www.moma.org

Newark Museum of Art, Newark NJ Lunch and Learn Zoom programs www.newarkmuseumart.org
(See Science and Nature, also)

Princeton Art Museum, Princeton, NJ <https://artmuseum.princeton.edu/>

Shakespeare via Podcast, for example:
https://open.spotify.com/show/6T1fFPJBQIMmkkfUgDcVuk?si=0V738EHEQ_mfFn4D6n814A&dm_i=49UD,B8QJ,23UJ5M,16A8X,1

Spoken Word <https://www.poetryfoundation.org/learn/glossary-terms/spoken-word>

Architecture and the Arts continued

Virtual Walks Unlike hikes, these take place in urban areas. And unlike greenways, they aren't necessarily focused on the natural world.

New York City Architecture and Geology 17 different walks with still pictures and commentary
<https://www.nytimes.com/interactive/2020/12/02/arts/design/new-york-city-walking-tours.html?searchResultPosition=2#card7>

Paris Filmed live in 2020; captions and map; hover near bottom navigation bar for a second navigation by neighborhood/site <https://www.youtube.com/watch?v=oz1Mgu8e1N4>

Rome Filmed live; no narration or captions <https://www.youtube.com/watch?v=EsFheWkimsU>

Various cities and modes of transportation Can also let the program choose and you guess locations <https://virtualvacation.us/explore>

Venice Filmed live in 2020; captions and map
<https://www.youtube.com/watch?v=sW0EENh007g>

Visual Performance *Unsung Hollywood* documentaries featuring Black performers, athletes, and other celebrities https://www.imdb.com/title/tt3545908/?ref=nm_knf_t1; On TV, possibly streaming, also: PBS *Great Performances* is showing many **live capture Broadway** performances. Check local listings.

Zimmerli Art Museum, Rutgers University, New Brunswick, NJ Their permanent collection is on line; go to Collections, choose the type of art and click on Gallery
<http://zimmerlimuseum.rutgers.edu/collection/collection-overview-0>

Mathematics

Early Math Concepts Wide variety of games for young learners from well-known PBS shows
<https://pbskids.org/games/math/>

Logic Puzzles Good family activity – site is free but does ask for an email address at some points (can play without giving one) <https://www.brainzilla.com/logic/>

Make 24 Great practice and fun with the four basic operations (+, -, x, ÷), also a commercial card game, *The 24 Game*. <https://www.coolmathgames.com/0-make-24> You can make your own 24 by working backwards: Think of a way to combine two numbers to make 24, e.g., 12 + 12. This will be your *last* step. Now think of a way to make 12 using only 1-digit numbers, e.g., 4x3; and another way since you have another 12, e.g., 5 + 7. Give your partner(s) the numbers 5, 3, 4, 7. There may be more than one right answer (There is for this one: 5 + 3 = 8, 7 - 4 = 3, 8 x 3 = 24 or 4 x 3 = 12, 5 + 7 = 12, 12 + 12 = 24). For younger children, you can limit the operations to the ones they have learned.

Mathematics continued

Math Games and Explorations

<https://www.intmath.com/help/interactive-math-applications.php>;

<http://interactivesites.weebly.com/math.html>

Wide variety by topic and grade level – contains ads unless you pay a subscription fee

<https://www.mathplayground.com/>

Museum of Mathematics, New York City Virtual field trips (fee for some activities)

<https://momath.org/upcoming-events/> Free weekly math puzzle (middle school and up, requires registration) <https://momath.org/civicrm/?page=CiviCRM&q=civicrm/event/info&reset=1&id=1620>

Puzzles and Conundrums Variety of levels; solutions given but no explanations. Link is to the May 2016 issue; scroll down to the Recent Posts box in the right column for more recent puzzlers

<https://vicskeptics.wordpress.com/puzzles/may-2016-logic-maths-puzzles/>

SET Game Real family game – anyone age 4 or older can play the same game. It is a commercial card game; this is the online, free version <https://smart-games.org/en/set/start>