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

As the world begins to open, we are including activities and locations that you may be comfortable visiting in person. Many are outdoors where, according to the CDC, chances of contracting airborne diseases, including COVID, are greatly diminished.

There are still many places you can’t visit in person or “right this minute.” The good news is lots of cultural institutions are keeping their doors open, so to speak, via virtual touring. Check this list for places of interest or do a web search for a particular spot you’d like to see 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](https://www.kqed.org/mindshift/50620/how-to-ease-students-into-independent-inquiry-projects)

Science activities and experiments for young learners

Research paper ideas and suggestions [https://www.myspeechclass.com/good-and-interesting-research-paper-topics.html](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.


National Weather Service (NOAA) [https://www.weather.gov/gis/](https://www.weather.gov/gis/)
Science and Nature

Adventure Aquarium, Camden, NJ  https://www.adventureaquarium.com/Explore/Animals

American Museum of Natural History, New York City  Numerous online links to museum exhibits including the Rose Planetarium  https://www.amnh.org/explore

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. https://www.explore.org/livecams/aurora-borealis-northern-lights/northern-lights-cam; https://www.timeanddate.com/astronomy/northern-southern-lights.html; https://www.almanac.com/what-are-northern-lights?trk_msg=KFOEMDI5IMK385GKN0TDHGG4&trk_contact=AUT7F3KGVP97C31FKGESBF7CPS&trk_sid=0HHJQLBF8PPMG5CF10B7E7G&utm_source=Listrak&utm_medium=Email&utm_term=What+Are+the+Northern+Lights%3f+(read+more)&utm_campaign=Companion+Weekly&utm_content=WEEKLY

NEW Chemistry  https://www.pbs.org/wgbh/nova/series/beyond-elements/episodes/

Chesapeake Bay Watershed, Mid-Atlantic Coast  Virtual tours of the main rivers feeding Chesapeake Bay  https://chesapeakeconservancy.org/what-we-do/explore/virtual-tour/


NEW DNA Extraction  If you’ve never done it, it is quite easy. This NOVA program shows you how. https://www.pbs.org/wgbh/nova/article/take-chemistry-field-trip-nova-education/


Exploratorium  Wide range of topics from the leading hands-on-science museum, San Francisco  https://www.exploratorium.edu/learn

NEW 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 to 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  https://bestfriends.org/sanctuary/about-sanctuary

Desert setting; rescued companion animals from bunnies to horses; other locations in the U.S.

The Elephant Sanctuary, Howenwald, TN  https://www.elephants.com/elecam  Link is to livecams, touring not permitted although there is an on-site education center

Full Circle Farm Sanctuary, Warm Springs, GA  https://www.fullcirclefarmssanctuary.org/
Science and Nature continued

Goats of Anarchy Farm Sanctuary, Hampton, NJ  https://www.goatsofanarchy.org/
Heartland Farm Sanctuary, Madison, WI  https://heartlandfarmsanctuary.org/
Howell Living History Farm, Hopewell Township, NJ  https://www.howellfarm.org/
Hope in the Valley Equine Rescue, Valley Center, KS  https://www.hopeinthevalleyequinerescue.org/
Living History Farms, Urbandale, IA  https://www.lhf.org/ Includes a Native American farm and revolving exhibits
Tempe Wick Farm, Harding Township, NJ  https://www.nps.gov/morr/learn/historyculture/jockey-hollow.htm,  https://en.wikipedia.org/wiki/Jockey_Hollow  In addition to the farm, you can tour the home of a Revolutionary War family and heroine, Temperance, 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.plainfieldgardencncl.org  In Cedar Brook Park
Wave Hill, Bronx, NY  www.wavehill.org  Indoor and outdoor gardens

Geology  https://www.virtualmuseumofgeology.com/
**Science and Nature continued**

**Glaciers**  Antarctic glaciers with numerous links, lesson plans, etc.  [http://www.antarcticglaciers.org/](http://www.antarcticglaciers.org/)

- Glacier Bay National Park and Preserve, Alaska  Webcams and annotated photographs  [https://www.nps.gov/glba/learn/photosmultimedia/webcams.htm](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/](https://glacier.org/newsblog/visit-glacier-virtually/)

**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](#NEW)

- D&R Greenway, Central NJ  Locate almost 70 miles of trails by interest using the locator on the right top  [https://njtrails.org/](https://njtrails.org/)
- Roanoke Valley, VA  [https://greenways.org/trails/](https://greenways.org/trails/)
- Route 52 Bridge Trail, Cape May and Atlantic Counties, NJ  [https://www.traillink.com/trail/route-52-bridge-trail/](https://www.traillink.com/trail/route-52-bridge-trail/)
Science and Nature continued

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


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 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 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)
Science and Nature continued

- Aurora Borealis (Northern Lights)  https://www.explore.org/livecams/aurora-borealis-northern-lights/northern-lights-cam (See Aurora Borealis above)
- Interactive Sky Chart  https://skyandtelescope.org/observing/interactive-sky-chart/


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

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

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

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


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


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


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/6T1fFPJBQlMmkfUgDcVuk?si=0V738EHEQ_mFn4D6n814A&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  

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=E5FheWkimsU

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=sW0EENhO07g

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

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