

THE ENRICHMENT PROJECT

Badge Program

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Science Center X: Earth

Exploring weather adds another group of activities / exhibits we can add to our Science Center.

NOTE: Only general ideas are given for this theme. Be sure to explore ideas online or at your local library.

SCIENCE CENTER X: EARTH

Steps

OUR PLANET

1. **Solar system.**

The earth is just one of many planets in our solar system. How might you communicate the differences between the planets? You might measure it in the amount of water/ice each planet has, the distance from the sun, how long it takes for the planet to go around the sun, the length of a “day” or other ways.

Examples: A merry-go-round can be spun in accordance with how fast a planet spins. Toilet paper or ribbon can be used to demonstrate the equivalent distances of the planets from the sun.

2. **Take a look.**

You can ask for telescopes to be donated, build a radio telescope or even stargaze. A local children’s museum has a “blow up” that the kids can go in and see the constellations inside. What other ways can you look at our universe? What stories can you share? How might you make them more entertaining?

3. **Solar power.**

Using the sun as a power source goes beyond a solar oven. Explore ways to make solar power collectors and / or items that can be powered by solar power. Show how it can be built and how it works.

4. **Earth.**

What makes our planet unique in our solar system? Brainstorm words that explain our planet. Which words work with each of the other planets? You might present your answers in a “Why I choose to live on Earth” display or something similar.

5. **Seasons.**

Using a sphere, show the tilted angle of the Earth and show how the tilt of the Earth and its relation to the sun changes our seasons. Be sure to explain the difference between the Northern and Southern Hemispheres.

6. **Closed ecosystem.**

Create a terrarium for visitors to see. Compare the closed ecosystem of our earth to the terrarium such as we drink the same water the dinosaurs did. How we’ve evolved to survive on our planet or how other creatures have could also be put into an exhibit.

7. **Greenhouse effect.**

www.epa.gov/climatestudents/basics/today/greenhouse-effect.html

Use your exhibit to explain the greenhouse effect and global warming. Include examples of how we might slow down, stop or reverse the effects we are seeing today. Do your visitors have more ideas?



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ROCKS AND MINERALS

8. **Geology.**

Learning to identify rocks and minerals is a lot of fun. You can limit yourself to rocks found locally or expand to create a full overview of those available anywhere. Provide a small collection for identification and categorization.

9. **Rock formations.**

Discussing conditions that contributed to rock formation and finding ways to create an interactive exhibit to show how could be a challenge you want to meet. You might be able to simulate stalactites and stalagmites, pressure of turning coal into diamond, fossil creation, etc.

10. **Make rocks.**

How many different ways can you make rocks? You might do this to show visitors how this can be done or you might make concrete rocks as part of an outdoor exhibit.

AIR

11. **What is air?**

Air surrounds the Earth up to approximately 300 miles. Though we can't see it, we know it contains mainly nitrogen and oxygen. Get facts on air that you can share to include in the exhibit(s) you make.

12. **“Showing” air.**

You can show air by doing the “burning air” experiment — pulling water up into a jar with a candle burning in it, putting hot water into a bottle and watching it expand a balloon (or contract with cold). Blow up a balloon to show the presence of air. Challenge your visitors to come up with ideas to show air.

13. **Playing with air.**

Making items like paper airplanes, parachutes, rockets and hoop gliders are one way to play with air. After building them, you could try to see which go the farthest, highest, straightest, etc. How about trying to blow up a balloon without using your breath? Look at different ways to play with air. What kind of exhibit can you create for this step?

14. **Wind power.**

One solution for our future energy needs is wind power. Create an exhibit showing how we utilize wind power today and what the future might hold.

WEATHER

15. **Track it.**

Track weather on an hourly or daily basis. In your tracking, you might want to include:

- Sunny / overcast / etc.
- Temperature
- Rainfall
- Cloud cover / type
- Wind direction and speed

See if you can predict the weather from the information you've gathered. What might help you do so?

16. **Effects of heat.**

How does heat affect the air? You can use examples like the drinking (dipping) bird or hand boiler. How else might you exhibit heat energy transfer?



17. **Rain and clouds.**

There are a lot of possibilities with rain and clouds. You can discuss various cloud classifications (cumulus, stratus, stratocumulus, cirrus, etc.). Visitors can go outside to observe clouds or you can provide samples for them to see. Discuss why the clouds form in that way and what it means. In addition, you might create your own clouds and rain in a jar. How else might you use rain and clouds in an exhibit?

18. **Tides.**

The gravitational pull of the sun and moon causes tides. You might do a diagram or actual replicas of the Earth, sun and moon to demonstrate how the gravitational forces work. Simulate the gravitational pull by creating a large water area with a board or other item that can push and pull against the water in a tub or small pool. Explore different ways to explain and show how tides work.

19. **Blizzards and other cold-based weather.**

Blizzards, ice storms and other cold-based weather can be very dangerous. You might do an exhibit of the different types of extreme cold weather or how to survive if you're caught out in it. Brainstorm other ideas for using this in an exhibit.

20. **Hurricane and other water-based weather.**

Hurricanes can be made into an interesting exhibit. You can do comparisons of different hurricanes, their paths, what affected their paths, damage done and more. You might do one showing how a hurricane forms, then builds or subsides. What other items might you explore in a Science Center exhibit?

21. **Tornadoes and dust devils.**

Make your own tornadoes. You might start small with a tornado in a bottle. A tornado machine is a larger version of this — and it's really cool. Find examples of real life air phenomenon on YouTube or a similar site. How can you create an exhibit that explains how these are formed.

22. **Weather art.**

Not all weather is dangerous. In fact, we like to make items that we can put outside that are affected by the weather. Purchase or make items to be placed in your exhibit. Alternatively, you might want to craft one as an activity. Would one or more of these ideas work as an outdoor exhibit for you?

- Wind chime
- Wind sock
- Sun catchers
- Rain chains

23. **Hydro power.**

When you think of water power, you normally think of dams. Scientists are looking into other ideas such as wave power, tidal power, pipe power, etc. Explore how one or more of these work for your exhibit.

BE PREPARED

24. **Weather.**

What can you do to protect yourself from weather extremes? Start with making sure you have contact information for family members as well as emergency services. Build an emergency supply kit. Create a plan. Check out FEMA's *ready.gov* for more information. How can you use these ideas to create an exhibit?

25. **Chemicals.**

Collect various household products (cleaning, bathing, hair, etc.). Create a list of contents for each and find the MSDS (Material Safety Data Sheet) to find out what exactly each is. Discuss the use of environmentally-friendly products or making your own instead of using chemically dangerous products.



26. **Oil spills.**

Oil spills can be devastating to wildlife. Using oil on top of water in a contained area, allow visitors to experiment with a variety of materials to clean up the “oil spill”. The “shoreline” can be damaged by soap as well, so be sure to give your visitors a few challenges.

27. **Recycling.**

Learn how to identify recyclable materials. Examine the life cycle of recyclable materials. Set up a sorting station, a recycling center or other ways to support recycling. A few additional ideas in regards to creating a recycling exhibit include:

- Composting
- Crafts using recyclables
- Reusable materials
- Landfills
- What’s in a package? Can you redesign it?
- Minimal impact lunches
- Where does a water bottle go?
- Reduce your class garbage
- The Great Pacific Garbage Patch

28. **Explore more!**

Of all the “Science Center X” badge programs created, Earth is the largest. We’ve just scratched the surface. There are many more ways to describe the earth, how it works and what we need to do to protect it. Get out your thinking caps, hop online and start finding more ways to add to these exhibit ideas.

Supplements

SUPP_Constellations_Film.pdf

Constellations in a Canister: Film Canister

SUPP_Constellations_Pringle.pdf

Constellations in a Canister: Pringles Can

SUPP_Constellations_TP.pdf

Constellations in a Canister: Toilet Paper Roll

SUPP_SCR_Geologic Finds.pdf

Scramble: Geologic Finds

SUPP_SCR_Weather.pdf

Scramble: Weather

SUPP_Weather Tracking.pdf

Weather Tracking sheet plus large graphics for weather conditions

SUPP_WF_Geologic Finds.pdf

Word Find: Geologic Finds

SUPP_WF_Geology.pdf

Word Find: Geology

SUPP_WF_Meteorology.pdf

Word Find: Meteorology

SUPP_Exhibit Planner.pdf

Exhibit Planner — Pre-planning and testing questions

SUPP_Scientific Inquiry.pdf

Scientific Inquiry — Printables for use with any exhibit theme



Sites to Explore

www.kidactivities.net/post/School-Age-Science-Center-Supply-List.aspx
www.nasa.gov/audience/forkids/kidsclub/flash/index.html
www.scholastic.com/home
pbskids.org/zoom/activities/greens
www.planetkids.biz/resources.htm
www.planet-science.com
www.rsc.org/resources-tools/education-resources
www.epa.gov/wastes/education
www.ready.gov
geology.com/teacher
www.exploratorium.edu/explore
www.discoveryeducation.com/teachers/free-lesson-plans
kids.usa.gov/teachers/lesson-plans/science/index.shtml
www.teach-nology.com/teachers/lesson_plans/science
www.sciencefairadventure.com
www.yoursciencefairprojects.com
www.sciencefair-projects.org
www.sciencebuddies.org
www.freesciencefairproject.com
tryscience.org
sciencenetlinks.com/lessons
www.education.com/activity/science
pbskids.org/zoom/activities/sci
www.sciencebuddies.org
howtosmile.org
instructables.com
www.msms.bayer.us/msms/MSMS_Home.aspx
www.smithsonianeducation.org/educators/lesson_plans/science_technology.html

Check out [Iarajla's Enrichment Project](#) to start your own adventure.