



**NASA JPL
EARTH SCIENCE
Patch Program**

An At-Home Patch Program

Girl Scouts of California's Central Coast NASA/JPL Earth Science Patch Program



- In this Earth Science Patch Program, we will be exploring the Earth's Systems through temperature, climate and ocean systems using online platforms and then you will be asked to Take Action in your own community to implement projects that bring these explorations home to your own backyard, here on Planet Earth!
- The criteria to earn the patch for each level is listed below. All listed criteria of the level is required in order to earn the patch.

Program Outline:

DAISY

1) Measure Air Temperature

- Using your preferred weather app, monitor the temperature changes throughout the day. Choose five specific times throughout the day (be sure to include one where it is dark outside) and record them for 10 consecutive days.
- Be sure to note the weather conditions as well.

2) Water Use

- Have you ever wondered how much water you use in your shower or bathtub?
- Visit the following website to find out:
<https://ca.pbslearningmedia.org/resource/ess05.sci.ess.earthsys.showermath/shower-estimation/>
- Track how much water you use for an entire week.
- Can you use less water?
- If so, how many gallons of water did you conserve?



3) Water Conservation

- Learn about your local water source.
 - i. Learn about your drinking water: <https://www.americanrivers.org/rivers/discover-your-river/drinking-water/>

- ii. Use the interactive map to learn where your city gets its water from:
<https://geopub.epa.gov/DWWidgetApp/>
 1. Once you click on your city, click “watershed” in the popup box and look for “Source”
- Draw a map of where your water comes from and share it.
 - Discuss three ways in which you can conserve water at home.

BROWNIE

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2) Sea Level Rise

- Find two clear plastic cups.
- With a permanent marker, label one cup “Sea Ice” and the other cup “Land Ice”
- Fill each cup with water.
- Add a large ice cube to the cup labeled “Sea Ice”
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- Place a piece of cheesecloth (you can also substitute with aluminum foil or plastic wrap with small holes poked into it) on the top of the cup labeled “Land Ice”.
- Secure the cloth with a rubber band around the top of the cup.
- Once the ice melts, mark the water level with permanent marker. Which cup had the largest amount of increase in water level? Why?
- For more information: <http://www.calacademy.org/explore-science/a-warming-planet>



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5) Green Careers

- A green career can be any type of job that provides education, products and/or service that use renewable energy resources and either clean up or reuse waste.
- Learn more about a few types of green careers here:
<https://climatekids.nasa.gov/menu/dream/>
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JUNIOR

1) Understanding Temperature Differences

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6) Disaster Preparedness

- Create an earthquake preparedness plan. Plans can also be used during other types of emergencies, such as a hurricane, snowstorm, ice storm, flood, power outage, etc.
- Information can be found at: <https://www.earthquakecountry.org/step2/>

SENIOR

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3) NASA/JPL Takes The Earth's Vital Signs

- Visit the Eyes on the Earth website: <http://eyes.nasa.gov/earth/download.html> (Please note that this site does not work on iPads)
- Choose 5 NASA satellites that are currently monitoring our planet Earth
- Which satellites look at the ocean? Land? Atmosphere?
- Which satellite is the smallest? Which is the largest?



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6) Comparing Planets

- Compare the planets of Mars and Earth.

- Are they the same or different?
- Find 3 ways they are the same as one another and 3 differences (hint: size, weather, mass, ice caps, land, oceans, volcanoes, length of year, length of day)
https://mars.nasa.gov/classroom/pdfs/EarthMars_Poster.back.pdf

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Completion Form:

<https://www.cognitofrms.com/GirlScoutsOfCaliforniasCentralCoast2/GSCCCJPLNASAEarthSciencePatchProgramAtHome>

Patch Purchasing Link:

https://girlscoutscoc.doubleknot.com/orgstore/store/store_viewitem.asp?idProduct=43356&promo=