

GLOBE Citizen Science

A NASA-sponsored program encourages all of us to be scientists.



Students measure water salinity in a tide pool.

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The Global Learning and Observations to Benefit the Environment (GLOBE) Program encourages the public to collect and interpret scientific data. This NASA-sponsored program brings together researchers, teachers, students, and learners of all ages for hands-on science-learning experiences to help us better understand Earth as an interconnected, dynamic, and complex system. Projects focus on Earth's atmosphere, water, soil, and life. Citizen scientists in over 110 countries participate in GLOBE programs, and millions of observations of our planet have been collected. Join a community to learn more about how **you** can share data with researchers who collaborate with NASA!



You can catalog the properties of clouds using the GLOBE Observer app.
observer.globe.gov

Ciencia Ciudadana GLOBE

Este programa patrocinado por la NASA nos anima a todos a ser científicos.



Estudiantes midiendo la salinidad del agua en una piscina natural.

APRENDE MÁS:
globe.gov

El programa **Global Learning and Observations to Benefit the Environment (GLOBE)** (Aprendizaje y observaciones globales para beneficiar el medio ambiente) anima al público a recolectar e interpretar datos científicos. Este programa patrocinado por la NASA reúne a investigadores, maestros, estudiantes y personas de todas las edades alrededor de actividades prácticas para aprender de ciencia, y nos ayuda a entender mejor la Tierra como un sistema complejo, dinámico e interconectado. Los proyectos se enfocan en la atmósfera, el agua, el suelo y la vida en la Tierra. Ciudadanos científicos participan en los programas GLOBE en más de 110 países, y millones de observaciones sobre nuestro planeta ya han sido recolectadas. ¡Únete a una de estas comunidades y averigua de qué manera tú puedes compartir información con los investigadores que colaboran con la NASA!



Puedes describir las propiedades de las nubes usando la aplicación GLOBE Observer.
observer.globe.gov

Looking Down at Earth

NASA observes the whole Earth system from above.

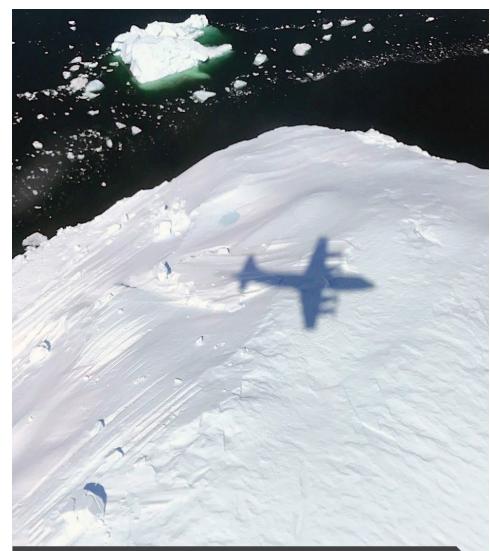


LEARN MORE:
nasa.gov/scientificballoons

Scientists launch a balloon to study charged particles in Earth's atmosphere.

NASA scientists use satellites, rockets, balloons, planes, and drones to study Earth. NASA may be best known for space exploration, but it also conducts many different kinds of missions to investigate Earth systems. These include studying land, atmosphere, glaciers, forests, and oceans.

Through a coordinated series of missions, NASA's Earth science program looks down from above to learn more about our constantly changing planet. For example, the Global Precipitation Measurement mission uses satellites to observe how much rain and snow fall onto Earth—and where—to better model the complex relationship between precipitation, weather, and climate. The Operation IceBridge mission uses aircraft-mounted instruments to map Arctic and Antarctic ice to understand how climate change affects the coldest parts of our planet.



A plane flies over an iceberg during NASA's Operation IceBridge mission.

Mirando la Tierra desde arriba

La NASA observa todo el sistema de la Tierra desde arriba.



APRENDE MÁS:
nasa.gov/scientificballoons

Científicos lanzan un globo aerostático para estudiar las partículas cargadas de la atmósfera de la Tierra.

Los científicos de la NASA usan satélites, cohetes, globos, aviones y drones para estudiar la Tierra. Aunque la NASA es más conocida por la exploración del espacio, también realiza muchos tipos de misiones diferentes para investigar los sistemas de la Tierra. Estos incluyen el estudio del suelo, la atmósfera, los glaciares, los bosques y los océanos.

Por medio de una serie de misiones coordinadas, el programa de ciencias de la Tierra de la NASA mira hacia abajo desde arriba para aprender más sobre nuestro planeta en constante cambio. Por ejemplo, la misión *Global Precipitation Measurement* (Medición Global de la Precipitación) usa satélites para observar cuánta lluvia y nieve caen en qué lugar sobre la Tierra, para así crear un modelo mejor de la relación que existe entre la precipitación, el tiempo y el clima. La misión Operación *IceBridge* utiliza instrumentos instalados en aviones para trazar mapas del hielo en el Ártico y el Antártico, y entender cómo el cambio climático afecta las partes más frías de nuestro planeta.



Avión volando por encima de un iceberg durante la misión de la Operación *IceBridge* de la NASA.

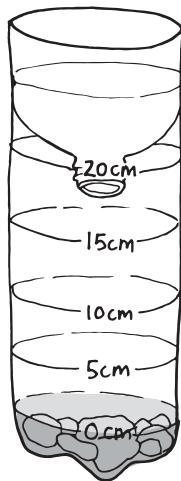
Make a Rain Gauge

SUPPLIES

- An empty, clean plastic soda or water bottle
- Rocks (stones or pebbles) for weight
- Tape
- A permanent marker
- A ruler

STEPS

- Cut the top off the bottle about 5 centimeters (2 inches) down, and keep it.
- Place some rocks into the bottom of the bottle, then turn the top upside down and place it back into the bottle and tape it in place.
- Use the ruler and marker to draw lines in 5-centimeter increments on the bottle. This is how you will measure how much rain you collect.
- Pour water into the bottle until it reaches the bottom line on the scale and label that "zero." Then, label the rest of the lines.
- Put your rain gauge outside where it can collect water when it rains.
- Every time you take a measurement, record the amount of rain, the time of day, and what the weather was like.



Join a global community, become a citizen scientist. Your observations can help researchers working with NASA better understand Earth systems.

Learn more about the GLOBE Program and ways to participate in precipitation studies: observer.globe.gov/training

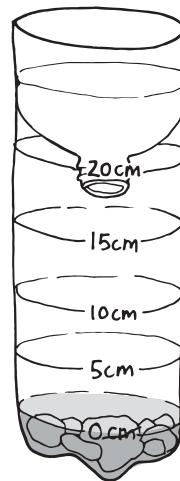
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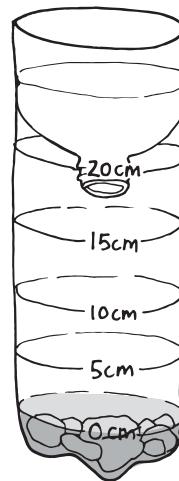
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