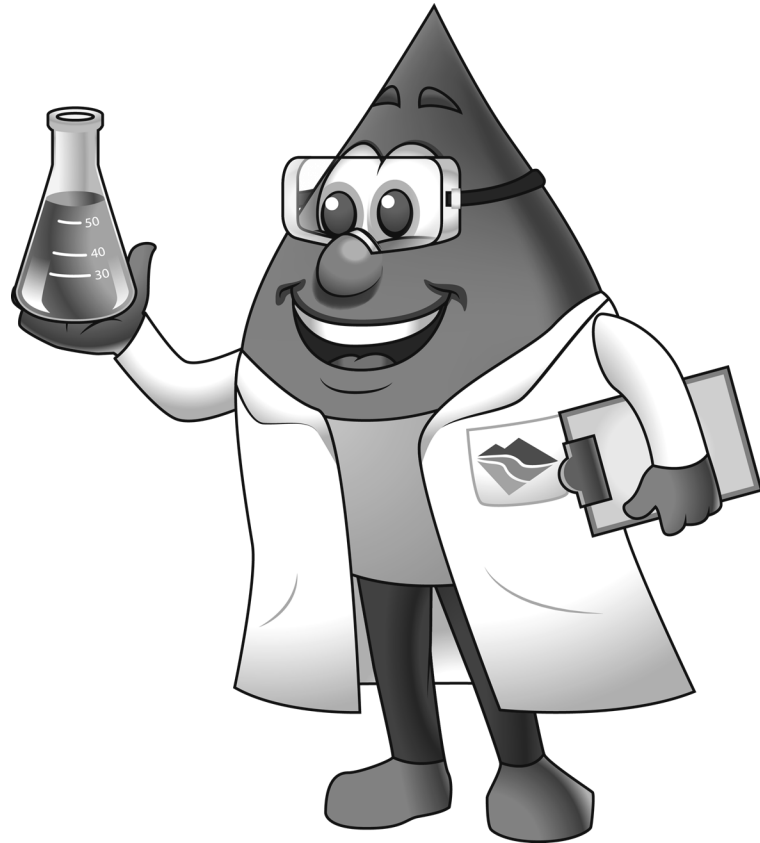


Keep Exploring!



I'm A Citizen Scientist



Name: _____

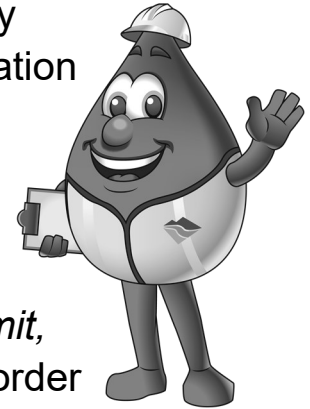
To explore other curriculum and activities developed by
Central Utah Water Conservancy District head to:
<https://cuwcd.com/education.html>

 Central Utah Water STEM Club Passport

Who is Central Utah Water?



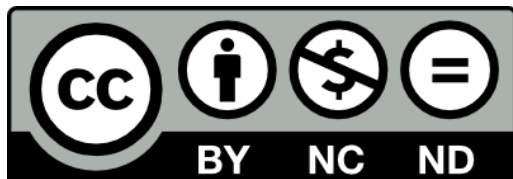
Central Utah Water Conservancy District is a government organization with the mission to move water across county boundaries. We have 8 counties located within the District (*Duchesne, Juab, Salt Lake, Sanpete, Summit, Uintah, Utah, and Wasatch*). In order to meet our mission of moving water, Central Utah Water stores water in 9 reservoirs, maintains over 180 miles of large diameter pipelines, and runs 3 regional drinking water treatment plants.



In addition to our primary responsibility to move water, Central Utah Water is the second largest producer of hydropower in the State of Utah, works to protect endangered species, supports community based water conservation projects, and is a regional leader in water education.

To learn more about Central Utah Water and our work in the community go to CUWCD.com

This curriculum is released by
Central Utah Water Conservancy District
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Further Adventures







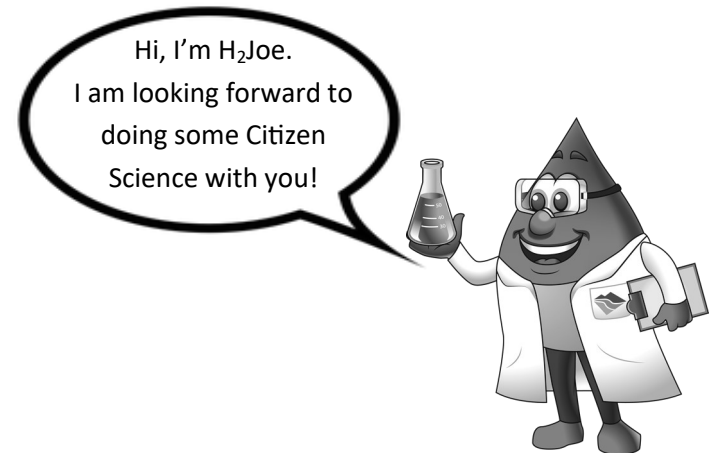
Just because this club is done, doesn't mean you have to end the fun! H₂Joe has done his research and found you a bunch of citizen science data bases can help you find the right project to do at home.

- <https://scistarter.org/>
- <https://www.zooniverse.org/projects>
- <https://www.citizenscience.gov/#>
- <https://science.nasa.gov/citizenscience>
- <https://www.nationalgeographic.org/idea/citizen-science-projects/>



Welcome to the Citizen Scientist Club! Together we will be completing scientific projects that will help collect data that scientists will use to help answer some of the worlds big question. So let's start exploring the world around us!

-  **Activity 1** - In The Classroom
-  **Activity 2** - On The Playground
-  **Activity 3** - Tracking The Wild
-  **Activity 4** - To The Stars





In The Classroom

We can participate in citizen science any place, so let's start in a location we are all familiar with...The classroom! In this activity we will learn about different citizen science projects we can complete indoors and have the chance to start collecting data ourselves.

For Today's Citizen Science Projects I Need...

A Computer or Tablet Internet Connection

FUN FACT

Citizen science is defined as any science collected by someone who isn't a professional scientist in a given field. Anyone who is interested or curious about a particular subject can become a citizen scientist.



And Beyond



Don't feel like doing a citizen science project alone? Consider inviting your friends and/or family to participate too.

Utah Water Watch



From: USU Extension

Link: <https://extension.usu.edu/utahwaterwatch/>

Project Description:

Help keep Utah's rivers and streams clean by monitoring their health.

Western Firefly Project



From: Natural History Museum of Utah & BYU

Link: <https://nhmu.utah.edu/citizen-science/fireflies>

Project Description:

Help entomologists find and track Utah's native firefly population.





And Beyond

Help other organizations in Utah solve big questions by supporting local citizen science projects.

Operation Snowfall



From: Central Utah Water

Link: <https://cuwcd.com/assets/documents/Education/OperationSnowfall/OperationSnowfall.pdf>

Project Description:

Help water managers better understand winter storms by tracking the types of snowflakes that fall.

Museum Gone Digital



From: Natural History Museum of Utah

Link: <https://nhmu.utah.edu/citizen-science/field-note-transcription>

Project Description:

Help preserve records from important paleontology, botany, archology, and zoology expeditions.



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In The Classroom

Our first citizen science project is in partnership with the University of Southern Denmark's Max-Plank Odense Center for Biodemography of Aging. We will be helping them by looking a pictures of people and trying to identify what age they are. Their goal is to figure out how humans estimate how old someone is.



Get started on this Citizen Science project by going to <https://www.ageguess.org/home> or using the QR Code above!



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In The Classroom

Today's second citizen science project is a partnership with Ludwig Maximilian University of Munich. In this project we will be playing games to help researchers create a search engine for millions of pieces of art. This activity is particularly fun because it has collaborative game modes.



Participate in the ARTigo project by going to <https://www.artigo.org/about.html> or using the QR Code above!



To The Stars

One of the oldest space citizen science projects, Galaxy Zoo has helped scientists map and categorize the estimated on hundred billion galaxies that populate our night's sky.



Get started on this Citizen Science project by going to <https://www.zooniverse.org/projects/zookeeper/galaxy-zoo/> or using the QR Code above!





To The Stars

Satellites aren't the only scientific tool that researchers use to explore space. Rovers are critical for allowing humans to explore the surfaces of other planets. But in order for these rovers to move safely across other worlds, someone has to teach them how to identify danger.



Get started on this Citizen Science project by going to <https://www.zooniverse.org/projects/hiro-ono/ai4mars> or using the QR Code above!



In The Classroom

Now that we have explored two citizen science projects, we need to pick one to participate in.

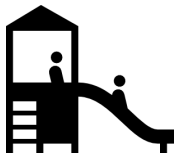
The project I choose is...

I chose this project because...

How many images did I classify?

What did I learn while doing this project?





On The Playground

In the last activity we did some citizen science projects inside, now it is our chance to head out into the playground to find the answers to some more scientific questions.

For Todays Citizen Science Projects I Need...

4 Paper Plates

4 Cotton Balls

Water

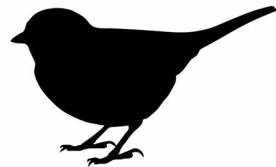
Sugar Water

Salt Water

Olive Oil

FUN FACT

The National Audubon Society's Christmas Bird Count is considered to be the oldest, continuously running citizen science project in the world. The first official Christmas Bird Count was held in 1901 and volunteers have helped to count birds every December ever since.

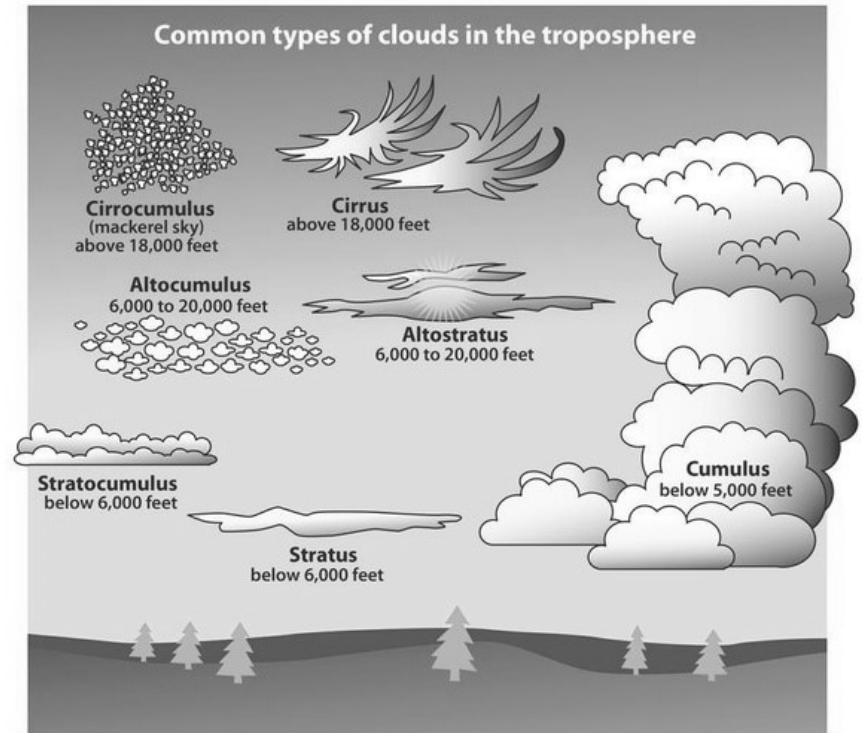


6

To The Stars



Satellites help us better understand earth's atmosphere, but in order to make sure the information they send back to earth is correct, the satellites need to be ground checked. You can help NASA ground check satellites by taking pictures of clouds with the GLOBE Observer: Clouds project.



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To The Stars

We end our citizen science journey by looking to the last frontier...space. From understanding our atmosphere to mapping the stars, astronomers and meteorologists have relied on citizen scientists to make observations through history more than any other scientific field.

For Today's Citizen Science Projects I Need...

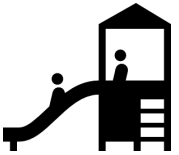
- A Computer or Tablet
- Internet Connection
- Camera

FUN FACT

Not all citizen science projects require someone to actively participate. A great example of a passive citizen science project is SETI at Home which allows scientists to use your computer to look for life on other planets.



On The Playground

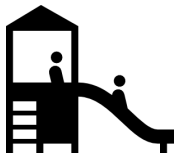


We know what our favorite foods to eat at a picnic are...but have you ever wondered what an ant's favorite treats are? The Rob Dunn Lab at North Carolina State University has been trying to answer this question and has found that ants around the world have different preferences. Track your local ant's preferences by holding your very own ant picnic!

Track your local ant's preferences in the table below:

| | Insect 1: | Insect 2: | Insect 3: |
|-----------------|-----------|-----------|-----------|
| Control (Water) | | | |
| Sugar | | | |
| Water | | | |
| Salt Water | | | |
| Olive Oil | | | |





On The Playground

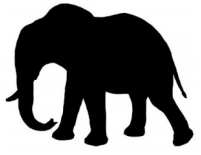
Ants aren't the only insects that scientists are interested in tracking. Native ladybugs are starting to disappear across North American and the entomologists at Cornell University in Ithaca, New York, need your help finding and counting the spots on ladybugs to help them find out why.

Look for ladybugs for 5 minutes in three different locations. Record and sketch the bugs you find. Don't find bugs? That is okay. A lack of ladybugs is still data.

| Location | Count | Sketches |
|----------|-------|----------|
| | | |
| | | |
| | | |



Tracking The Wild

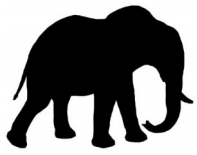


Finally, let's head to Utah's Great Salt Lake, where we can help the Great Salt Lake Institute at Westminster College study pelican populations.



Get started on this Citizen Science project by going to <https://www.zooniverse.org/projects/jaimibutler/pelicams> or using the QR Code above!





Tracking The Wild

Next let's head to Antarctica where we will help Oxford University complete a penguin population census.



Get started on this Citizen Science project by going to <https://www.zooniverse.org/projects/penguintom79/penguin-watch> or using the QR Code above!



On The Playground



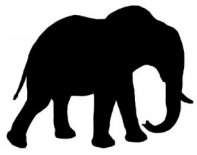
Professional scientists aren't the only ones who can create a citizen science project, curious members of the public can create them to. Take a moment and design your experiment below.

What is your question?

What is your hypothesis?

Describe your experiment:





Tracking The Wild

Citizen science is an important tool for helping to protect some of the world's most important ecosystems. While some of these projects are done in-person, most use people from around the planet to process photos and data from the comfort of their own computer.

For Today's Citizen Science Projects I Need...

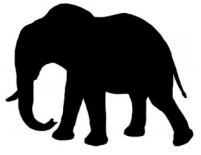
A Computer or Tablet Internet Connection

FUN FACT

Camera traps are a great way for scientists to track wildlife populations without interfering with their natural behavior. Camera traps are set up along places where animals are known to travel. They use an infrared light beam, that triggers the camera to take a picture when it is interrupted.



Tracking The Wild



We start on our quest to save the planet by helping the University of Minnesota's Lion Center classify images caught by camera traps in the Serengeti National Park in Tanzania.



Get started on this Citizen Science project by going to <https://www.zooniverse.org/projects/zooniverse/snapshot-serengeti> or using the QR Code above!

