Science
Water in Extreme Environments
RSG & Activities 1-7
Our Ideas Poster

Prep & Setup Guide

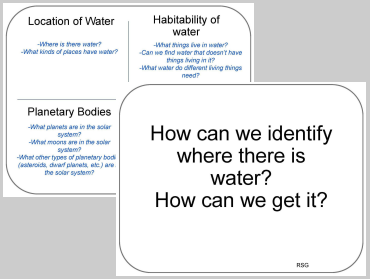
Poster Components

All poster components can be printed on **8.5 x 11” paper**

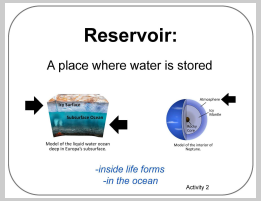
There are PDFs for:

- **Poster Pages** to build the poster (pages numbered in lower right corner with corresponding adventure(s))
- **Poster Pages** with examples are for educator reference only and not intended to print.
- **Blank Pages** for more space or to build your own poster
- **Blank ¼ page cards** for learners to add additional terms, drawings, ideas
- **Term cards**:
  - Icon-only
  - Term + icon

Poster Pages

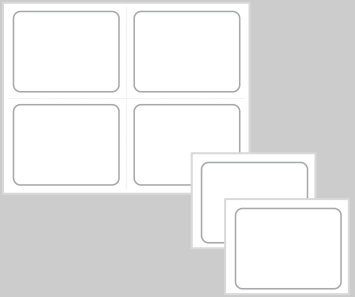


Term Cards



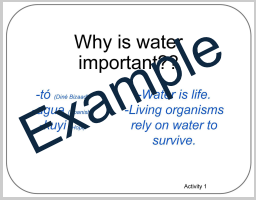
Term + icon

Blank ¼ page cards



Intended for learner responses

Poster Pages With Examples



For reference only, Do not print.

Blank Pages

Setup

To set up the poster space, you will need a wall or whiteboard area of about **80” Length x 60” Height**

Please see the following pages for setup examples. You may choose alternative layouts to fit your learning environment.

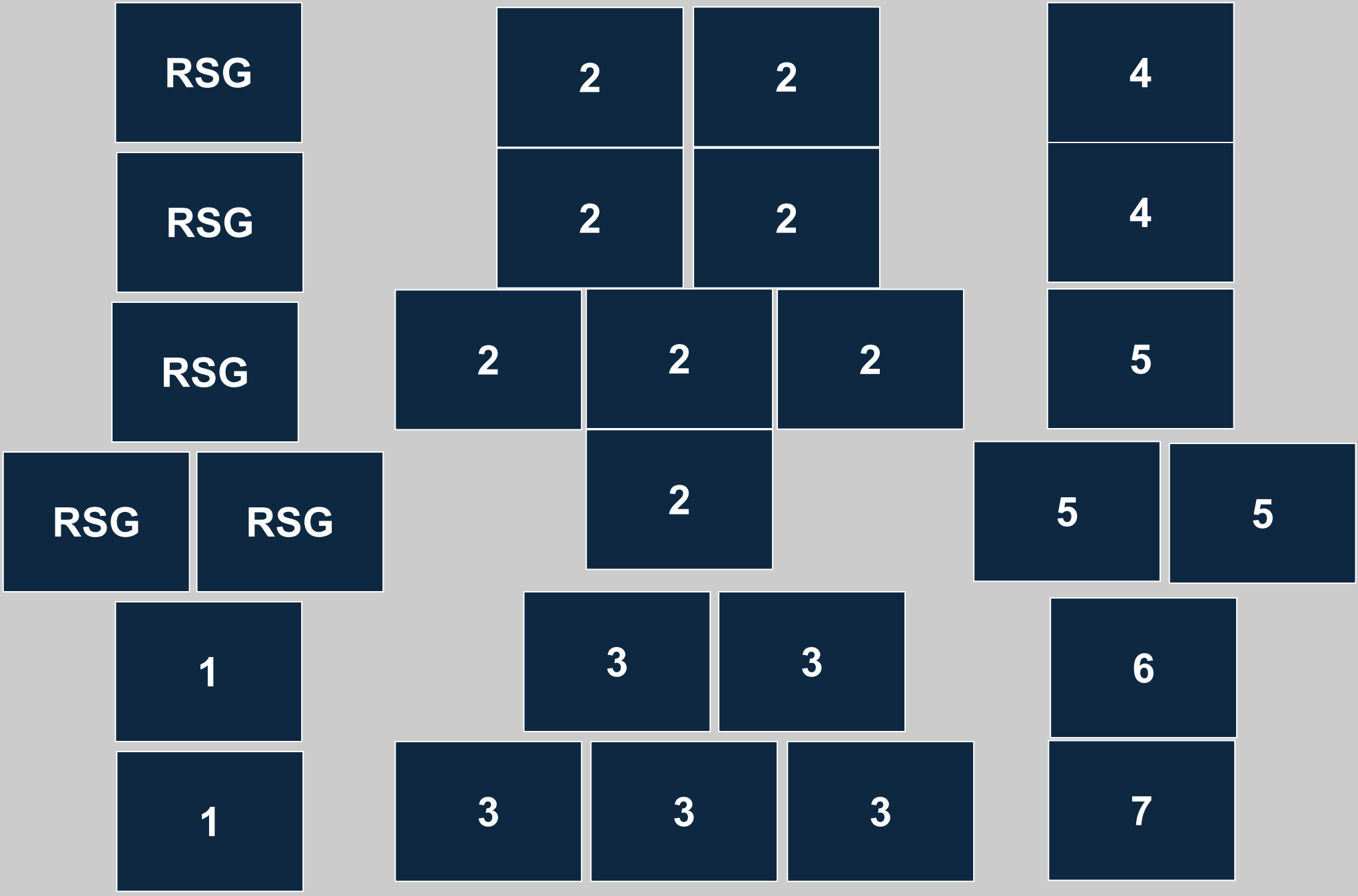
Other Materials:

- Scissors
- Masking Tape
- Tape
- Markers

icons: Flaticon.com

Poster Setup (by number)

Our Ideas about
Water in Extreme Environments
Science



Poster Setup (with Example)

Our Ideas about Water in Extreme Environments Science

How can we identify where there is water?
How can we get it?

RSG

-We can make observations by sound, smell, and feeling. We can use what we know about water and other substances.

-We can design devices that help us collect it.

RSG

Scientist

-Test things out
-Make observations & measurements

?

-Ask questions
-Gather evidence to answer questions.

RSG

Engineer

-Design things to solve problems
-Build things
-Design technologies

RSG

Technology

-The solution to the problem.
-Material to protect a spacecraft
-Spacecrafts built safely to bring astronauts home.
-writing utensils
-bikes

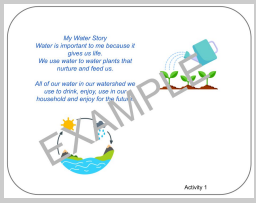
RSG

Why is water important??

-tó (Diné Bizaad)
-agua (Spanish)
-kuyi (Hopi)

-Water is life.
-Living organisms rely on water to survive.

Activity 1



Activity 1

NASA does not have infinite time and resources, so it cannot send spacecraft to explore everywhere. NASA needs to make decisions about which places are most likely to have what it is looking for.

Activity 2

Where in the solar system should NASA search for life?

Activity 2

Location of Water	Habitability of water
-Where is there water? -What kinds of places have water?	-What things live in water? -Can we find water that doesn't have things living in it? -What water do different living things need?
Planetary Bodies	**Water on Planetary Bodies**
-What planets are in the solar system? -What moons are in the solar system? -What other types of planetary bodies (asteroids, dwarf planets, etc.) are in the solar system?	-Which planetary bodies have water? -How much water do they have? -Is it liquid water? -Which planetary bodies have water with the right conditions for life?

Activity 2

Where is there water on Earth?

Activity 2

Reservoir:

A place where water is stored

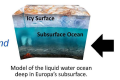
-inside life forms
-in the ocean

Activity 2

Subsurface:

Places under the surface of a planet

-underground



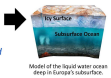
Model of the liquid water ocean deep in Europa's subsurface.

Activity 2

Surface:

The part of a planet exposed to the atmosphere or space

-ice sheets
-in lakes and streams



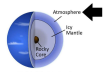
Model of the liquid water ocean deep in Europa's subsurface.

Activity 2

Atmosphere:

The air around a planet

-in the air



Model of the interior of Neptune.

Activity 2

What kind of things live in or need water?

Activity 3

Liquid

-not solid
-flows easily
-has to be contained to use
-Rivers are in liquid form.
-The ocean is in liquid form.

Activity 3

Salinity:

The concentration of salt dissolved in water

Activity 3

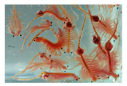
Habitable:

Able to support life

Activity 3

Extremophile:

A living thing that lives in conditions that are extreme compared to the conditions that favor most life forms



Activity 3

What are the different planetary bodies in the solar system, and what are their properties?

There are many planets, dwarf planets, asteroids, and moons in the solar system, and these different bodies have different properties.

Activity 4

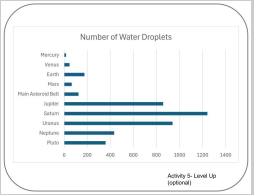
-By distance from the Sun, size, gravity, materials, amount of water.
-Most of the planetary bodies are in the outer solar system.
-Most of the planetary bodies are smaller than Earth and have lower gravity.

Activity 4

Where is the most water in the solar system?

-There is generally less water in the inner solar system (closer to the Sun) and more water in the outer solar system (farther from the Sun).

Activity 6



Activity 5- Level Up (optional)

Activity 5

water ice

water vapor

-condensing (for example, on a cold surface)

-water evaporating (for example, from a cup of hot water)

Activity 5

Besides Earth, where in the solar system is most likely to have life?

Activity 6

What water reservoir in the solar system do you recommend exploring?

Activity 7

Poster Setup (Empty Example)

Our Ideas about Water in Extreme Environments Science

How can we identify where there is water?
How can we get it?

RSG

RSG

Scientist

RSG

Engineer

RSG

Technology

RSG

Why is water important??

Activity 1

Activity 1

NASA does not have infinite time and resources, so it cannot send spacecraft to explore everywhere. NASA needs to make decisions about which places are most likely to have what it is looking for.

Activity 2

Where in the solar system should NASA search for life?

Activity 2

Location of Water	Habitability of water
Planetary Bodies	Water on Planetary Bodies

Activity 2

Where is there water on Earth?

Activity 2

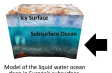
Reservoir:

A place where water is stored

Activity 2

Subsurface:

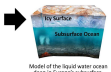
Places under the surface of a planet



Activity 2

Surface:

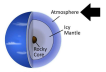
The part of a planet exposed to the atmosphere or space



Activity 2

Atmosphere:

The air around a planet



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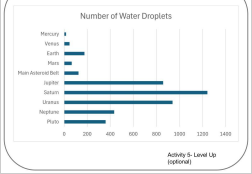

Activity 5- Level Up (optional)

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water ice	water vapor

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Water in Extreme Environments - Science

RSG &

Activities 1-7

Our Ideas Poster

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RSG

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Scientist

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Engineer

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Habitability of water

Planetary Bodies

Water on Planetary Bodies

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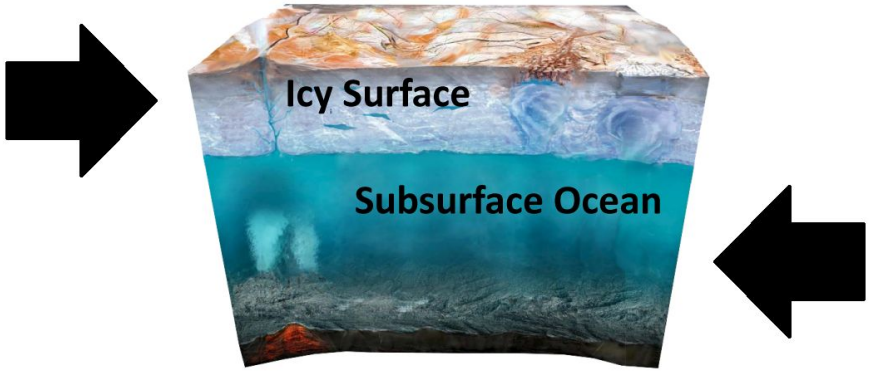
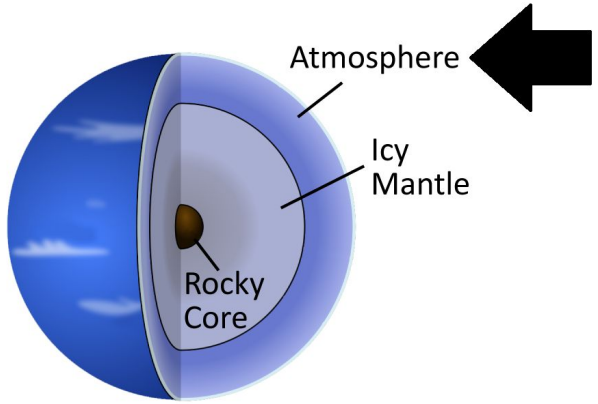


Model of the liquid water ocean deep in Europa's subsurface.



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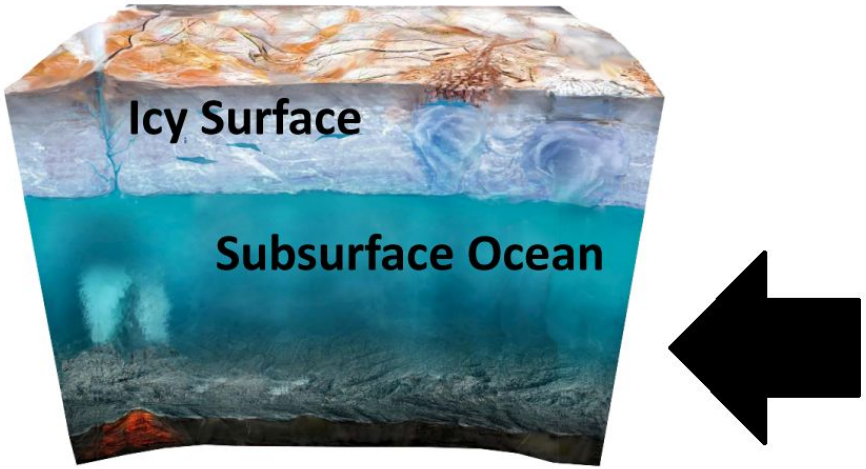

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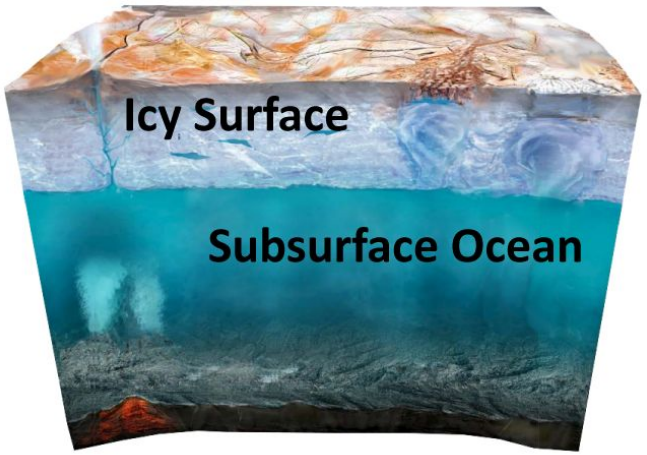

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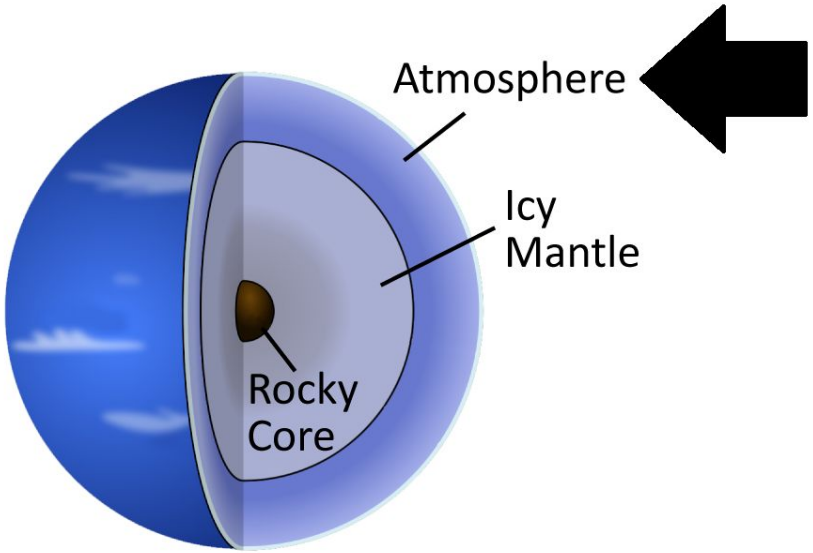

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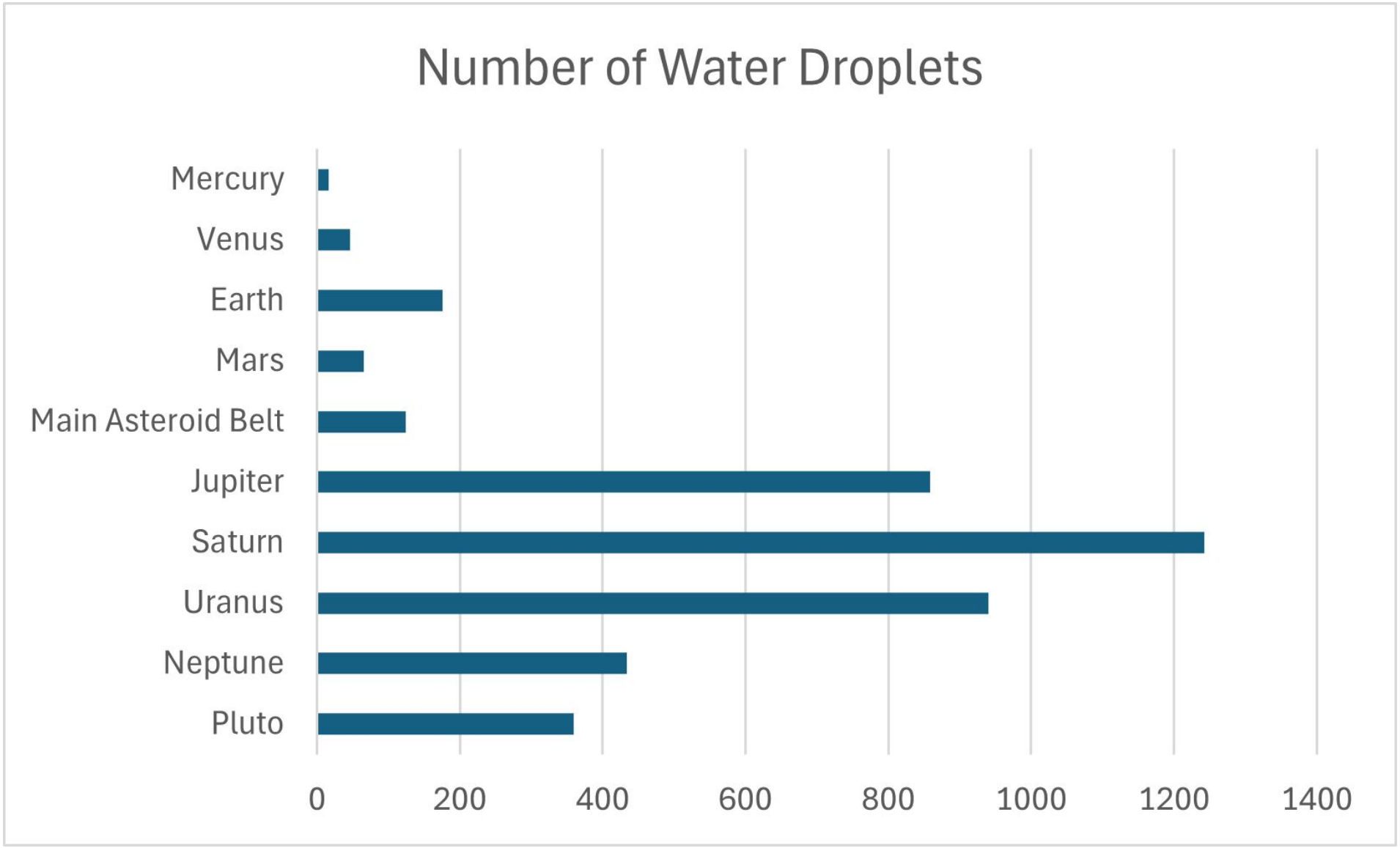

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