

## Hide and Seek Posters

In this activity, you and your child will view 10 informational posters and then determine where ice and water may exist in our solar system.

### What You Need:

- 10 sheets of poster board in different colors
- Large print-outs of the information below and questions.
- Color images related to the topic
- Cover sheets for the answers
- Scissors
- Glue or tape to adhere the information to the poster board
- Hide and Seek Game Card and Stickers

### What to Do:

Each of the following should be made into a big, bold, colorful poster with related images. Make sure the answers to the questions are on the posters, but covered by a page labeled "lift me" that hides the answer.

Provide each child with a game card and stickers. Invite the children and parents to examine the posters and complete the game card by putting the sticker in the appropriate box.

Water = You!

Your body has lots of water in it – 6/10's of your body is water – and your brain is made of even more water!

Water is important to you and to every living thing we know!

Without water we would not be able to live!

## How Do We Explore for Liquid Water and Water Ice?

Scientists examine images from other planets to see if there is evidence on the surface of ice.

Scientists also gather other data to determine if a planet has water ice. They use special instruments on spacecraft – spectrometers – to examine the different parts of the Sun's energy (light) that are reflected from a planet's surface. Water has a specific "signature." When scientists collect that signature, they know that water is present.

## Why Do We Want to Know Where Water and Water Ice Exist in our Solar System?

All living things that we know of need water to live! If we can find water – or water ice - on a planet or moon, we may also find life.

### Comets

Comets are made of different types of ice – including ice made of water. Comets also have dust and gas and organic stuff.

Do Comets have liquid water or ice?

Yes. Comets may deliver water to different planets and moons in our solar system!

### Mercury

Mercury's temperatures on its surface can reach 800F (425C)! Whew!

Does liquid water or ice exist on Mercury?

No. Mercury is too hot for water or ice! Some ice may be hidden in deep craters at Mercury's poles where the Sun's heat and light do not reach!

Earth

Does Earth have water?

Yes – LOTS!

Can you name the different forms of water  
AND where you might find them on Earth?

Solid Ice

Liquid Water

Gaseous Steam

Moon

Our Moon's temperatures on its surface range from 250F (123C) to almost 400F BELOW zero (233C) in its deepest craters at its poles!!

Does liquid water or ice exist on our Moon?

Maybe! While our Moon is too hot for ice or water in most places, some ice may be hidden in deep craters at the Moon's poles where the Sun's heat and light do not reach!

Mars

Mars has two big ice sheets! They are made of carbon dioxide ice and water ice. The temperatures on Mars range from 68F (20C) to 220 below zero (-140C)! Does liquid water or ice exist on Mars?

Yes! Mars is cold enough for water to exist as ice! There is evidence on Mars that streams and oceans of liquid water used to exist! Much of the ice in Mars' ice caps is made of frozen carbon dioxide – dry ice.

## Venus

The temperatures on the surface of Venus can reach 900F (480C)! Venus has the hottest surface of all the planets. Does liquid water or ice exist on Venus?

No. Venus is too hot for water ice!

## Saturn

Compare the surface of Saturn's moons to the surface of sea ice around Antarctica.

Do you think it looks like there might be water or ice around Saturn?

Yes! Saturn has lots of moons with icy surfaces and interiors! Enceladus and Rhea and more! Many of these are thought to have mostly clean water ice.

Saturn's rings may have formed from bits of icy moons that broke apart when objects hit them.

## Europa

Compare the surface of Europa to the surface of sea ice around Antarctica. Do you think it looks like there might be water or ice on Europa?

Yes! Europa is covered by a shell of ice, floating on what might be a salty ocean.

## Possible Images for Posters

### Poster 1 -

Cartoon brain image:

[http://www.childs-iq.com/memory\\_modern\\_theories.htm](http://www.childs-iq.com/memory_modern_theories.htm)

Human body drawing:

<http://www.bfawu.org/images/bakers-union-body.gif> - Color in 60% of the image.

Images from Clip Art can be used for examples of living things that need water to survive. For example, dogs, cats, plants, and people.

### Poster 2 -

Mars Ice Caps:

[http://ai.jpl.nasa.gov/public/home/chien/spring-agu-images/MLS/Mars\\_Ice\\_Cap.jpg](http://ai.jpl.nasa.gov/public/home/chien/spring-agu-images/MLS/Mars_Ice_Cap.jpg)

Antarctica:

[http://upload.wikimedia.org/wikipedia/commons/9/98/Antarctica\\_satellite\\_orthographic.jpg](http://upload.wikimedia.org/wikipedia/commons/9/98/Antarctica_satellite_orthographic.jpg)

Europa:

<http://upload.wikimedia.org/wikipedia/commons/archive/5/54/20060729061948!Europa-moon.jpg>

### Poster 3 -

Halley's Comet:

<http://apod.nasa.gov/apod/ap961210.html>

Comet Kohoutek:

<http://static.howstuffworks.com/gif/comet-kohoutek.jpg>

Comet Hale-Bopp:

<http://helios.gsfc.nasa.gov/sw.html>

### Poster 4 -

Mercury:

<http://apod.nasa.gov/apod/ap011124.html>

### Poster 5 -

Lambert Glacier, Antarctica

[http://earthart.gsfc.nasa.gov/images/icefall\\_hires.jpg](http://earthart.gsfc.nasa.gov/images/icefall_hires.jpg)

## Poster 6 –

Nasa Moon Gallery

<http://solarsystem.nasa.gov/planets/profile.cfm?Object=Moon&Display=Gallery&Page=1>

Moon's South Pole

<http://www.lpi.usra.edu/expmoon/clementine/spole.gif>

[http://www.spudislunarresources.com/Images\\_Maps/south%20pole.jpg](http://www.spudislunarresources.com/Images_Maps/south%20pole.jpg)

Moon's North Pole

[http://www.spudislunarresources.com/Images\\_Maps/north%20pole.jpg](http://www.spudislunarresources.com/Images_Maps/north%20pole.jpg)

## Poster 7 –

Mars, its poles, and more

[http://nssdc.gsfc.nasa.gov/photo\\_gallery/photogallery-mars.html](http://nssdc.gsfc.nasa.gov/photo_gallery/photogallery-mars.html)

Mars channels

<http://themis.asu.edu/>

## Poster 8 –

Venus image gallery

[http://nssdc.gsfc.nasa.gov/photo\\_gallery/photogallery-venus.html](http://nssdc.gsfc.nasa.gov/photo_gallery/photogallery-venus.html)

## Poster 9 –

Saturn and its satellites image gallery

[http://nssdc.gsfc.nasa.gov/photo\\_gallery/photogallery-saturn.html](http://nssdc.gsfc.nasa.gov/photo_gallery/photogallery-saturn.html)

## Poster 10 –

Europa image gallery

[http://nssdc.gsfc.nasa.gov/photo\\_gallery/photogallery-europa.html](http://nssdc.gsfc.nasa.gov/photo_gallery/photogallery-europa.html)

Europa

<http://www.wvu.edu/depts/skywise/planets/europa.jpg>

## Hide and Seek!

### Where is the Water in Our Solar System?

Tour the Solar System Posters to find out where we have water and water ice in our solar system! Place the correct sticker in the appropriate box!

	Liquid Water	Frozen Water Ice	No Water
Saturn's Moons			
Mercury			
Europa			
Comets			
Mars			
Earth			
Venus			
Moon			

