

H2O Response Team: Earth's 4 Spheres

Tuesday, March 29th



The 4 Spheres of Earth

twig SCIENCE 4 Spheres Activity

GRADE 5
MODULE 3
DQ5

As we learn about the 4 Spheres of Earth, use the information from the slides and the video to complete your handouts!

Spheres of the Earth

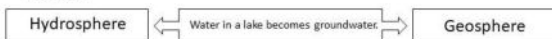
Name: _____ # _____ Date: _____

What are the 4 spheres of the earth?

1. Describe each of Earth's four spheres. List several examples of features in each sphere.

How do the 4 spheres interact?

2. For each of the following processes, list the sphere where matter begins in the process and the sphere where matter ends in the process.
Example:



	Water evaporates into the air.	
	Plants absorb water into their roots.	
	Humans breathe in oxygen.	
	Oil wells burn fossil fuels.	
	Rivers deposit sediment.	

Spheres of the Earth

Name: _____ # _____ Date: _____

What is the cryosphere?

1. When did NASA begin collecting satellite data on Arctic sea ice?
2. How can a loss of sea ice be both a cause and an effect of climate change?

[YouTube Video Link](#) (if the video does not work)

4 Major Spheres



The Earth is made of
4 interacting spheres:

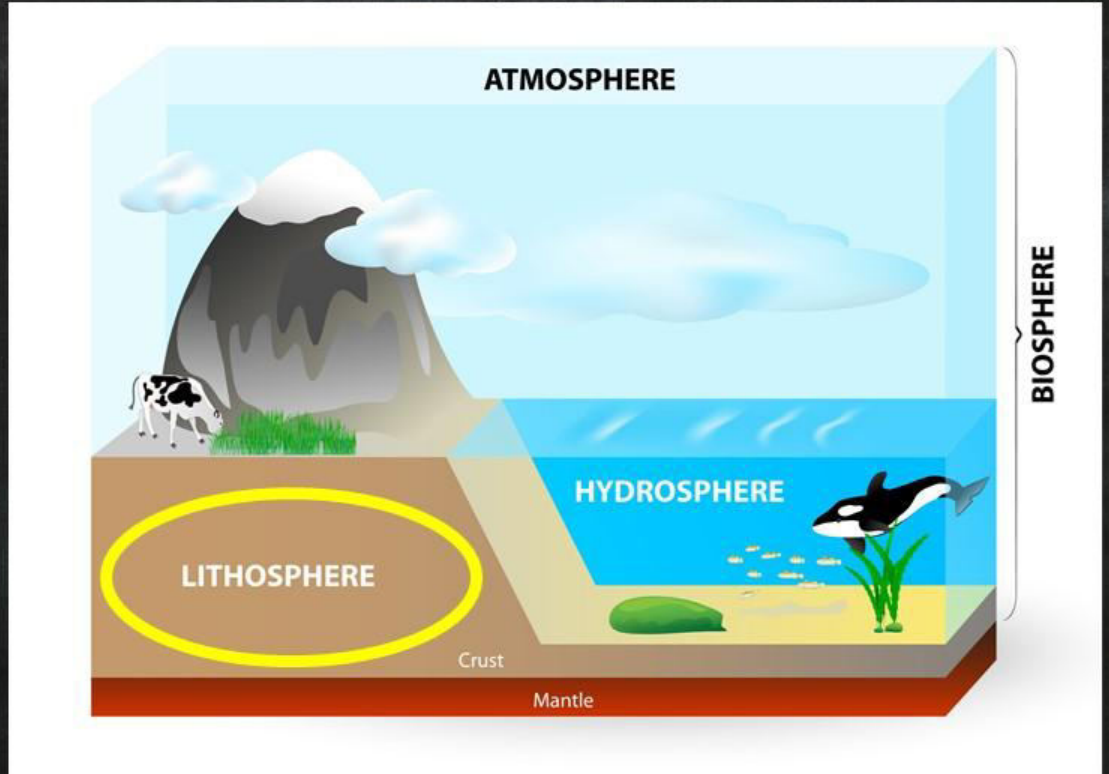
- Lithosphere Stone
 (or Geosphere) (Or ground)
- Hydrosphere Water
- Biosphere Life
- Atmosphere Air

Named using the
Greek roots describing
what they are made of



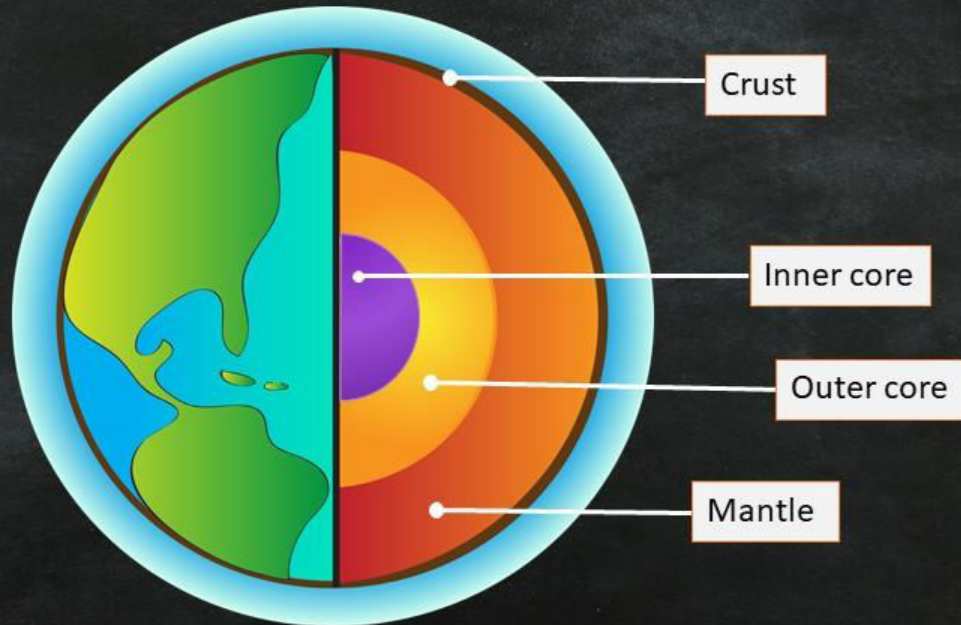
Lithosphere/Geosphere

- Rocks
- Minerals
- Soil



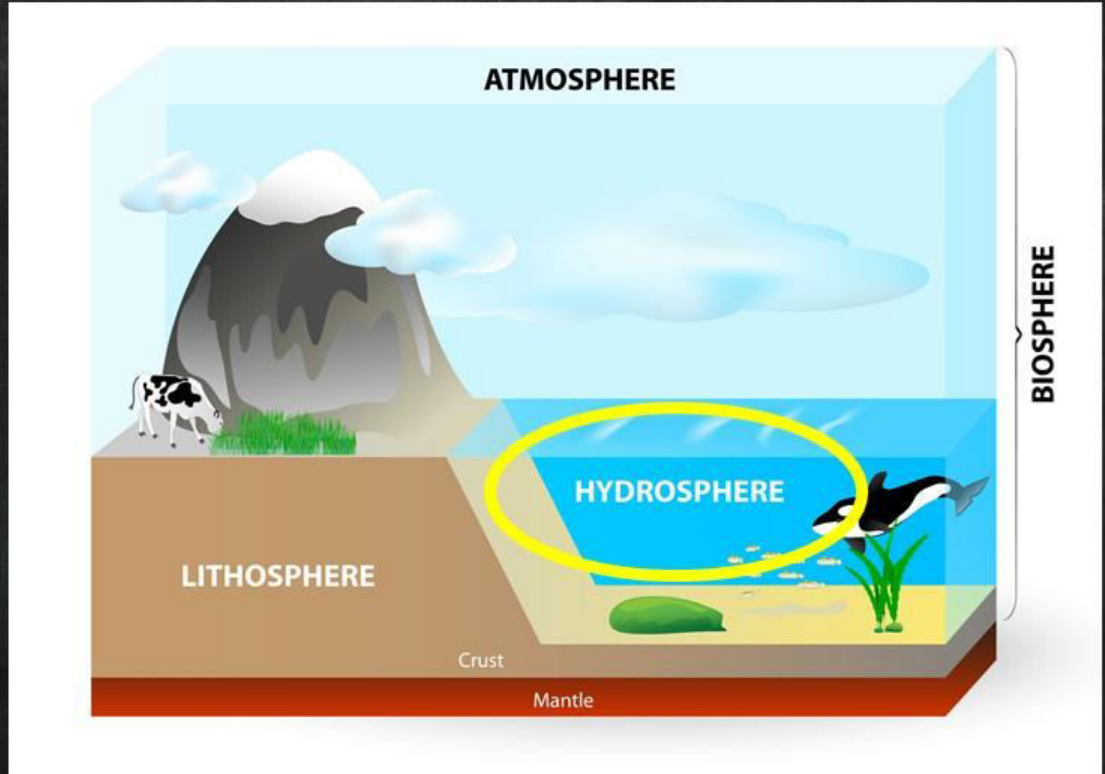
Lithosphere/Geosphere

- Includes all the layers of the earth's interior



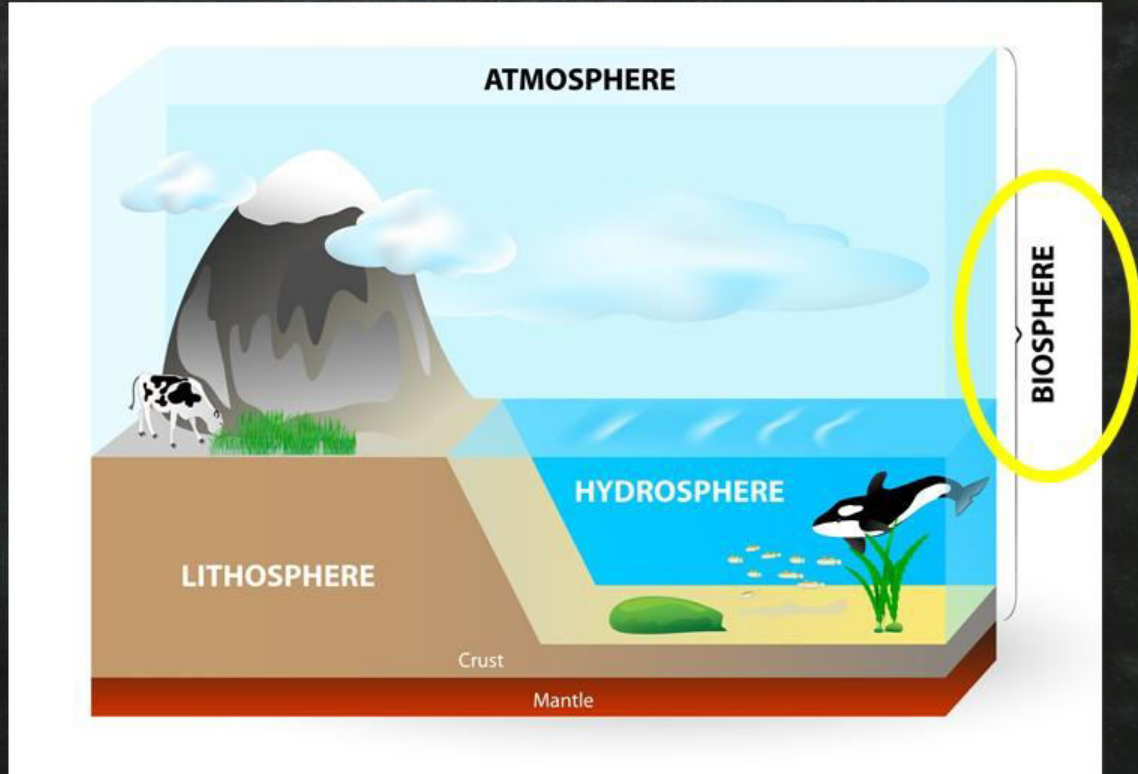
Hydrosphere

- Oceans
- Rivers, lakes
- Glaciers
- Water vapor in the air



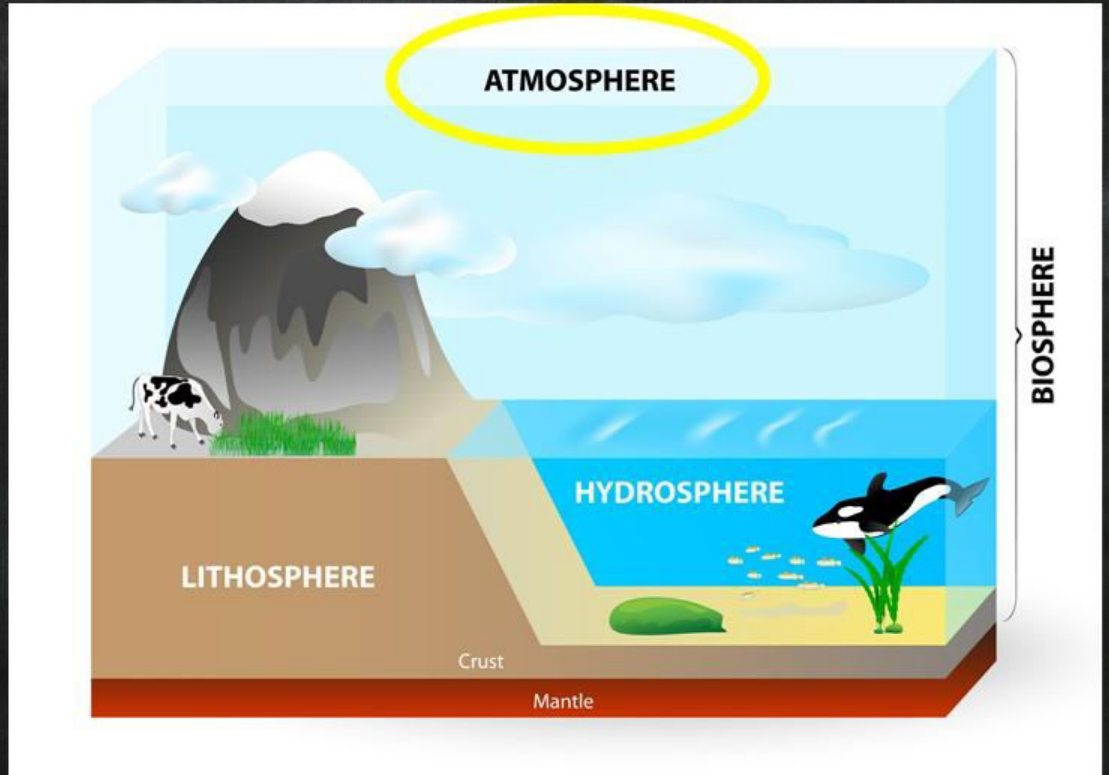
Biosphere

- The portion of the earth that can support life
- Living things



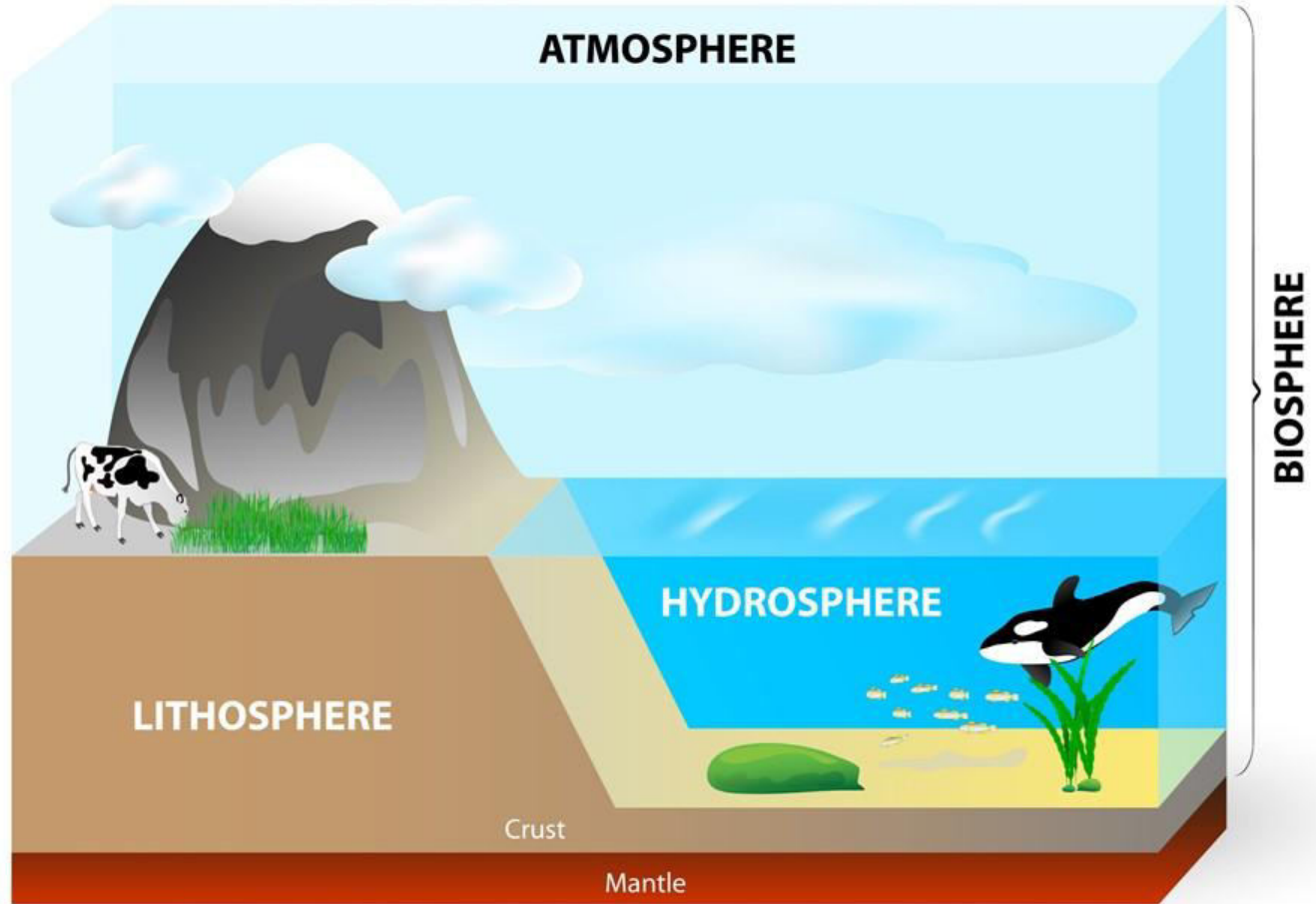
Atmosphere

- Gases surrounding the earth
- Mostly Nitrogen & Oxygen



These 4 spheres are constantly interacting.

For example:
Rain (hydrosphere)
falls on the soil
(lithosphere), which
causes grass
(biosphere) to grow.
A cow (biosphere) eats
the grass and breathes
out carbon dioxide
(atmosphere) as it eats.



THE CRYOSPHERE

- The cryosphere is a peice of frozen hydrosphere
- If the cryosphere melts it adds to the hydrosphere and that takes away land
- The atmosphere is warmed up because it reflects the energy and sun's rays and pushes them backs
- The biosphere's bodies get cold when the cryosphere is near

Cryosphere



[Link to video](#)
if it does not
work

OPTIONAL/BONUS: 4 Spheres Exploration

GRADE 5
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Spheres of the Earth: Activity

Name: _____ # _____ Date: _____

Go outside. Find 12 things you can see and put each item in the category or "sphere" in which it belongs.

LITHOSPHERE / GEOSPHERE ATMOSPHERE

HYDROSPHERE EARTH'S SPHERES BIOSPHERE

3

H2O Response Team: Watershed & Hydrosphere Connections

Wednesday, March 30th

Teachers: Students will need their TWIG M3 Notebooks!

Driving Question 2

How do humans work to protect the hydrosphere?



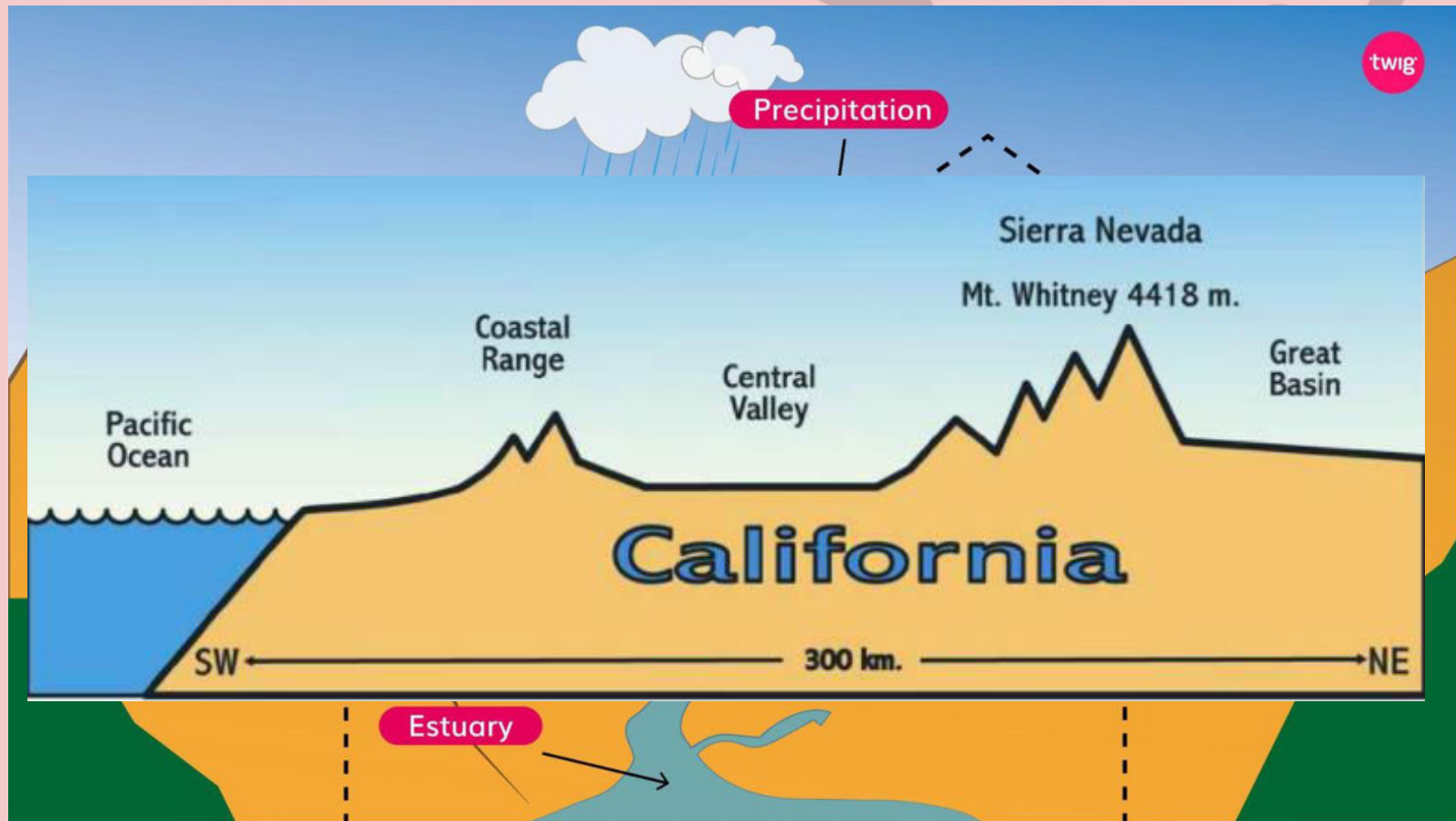
Reviewing Watershed Models:

*Review & Connect to
Hands in the River Pre-
Lesson with Scout*



Why do you think the
HYDROSPHERE is
important to the
BIOSPHERE?







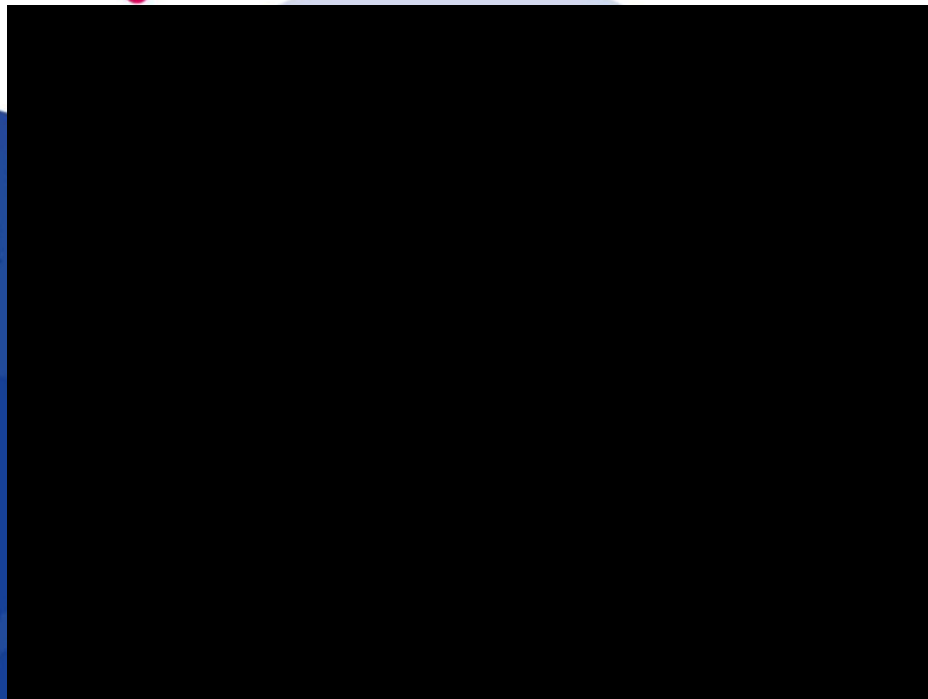
[Link to video](#)
if it does not
work

Think back to our watershed models we created with Scout before our field trip **last Tuesday!**
Share what you remember observing!



Watch and then discuss!

What would happen if we had added POLLUTANTS to our models??



Fill in page 30 of
your TWIG book.

Watershed Observations



LESSON
1

Make Observations • Make it rain in your watershed model and observe what happens. Update the model you drew on page 29. Use a blue pencil to show where the water in your watershed flowed.

- Where did the water flow?

- Where did the pollutants you sprayed go?

- What effects could these materials have on the hydrosphere?

Reflect & Review:

Effects of Water Pollu



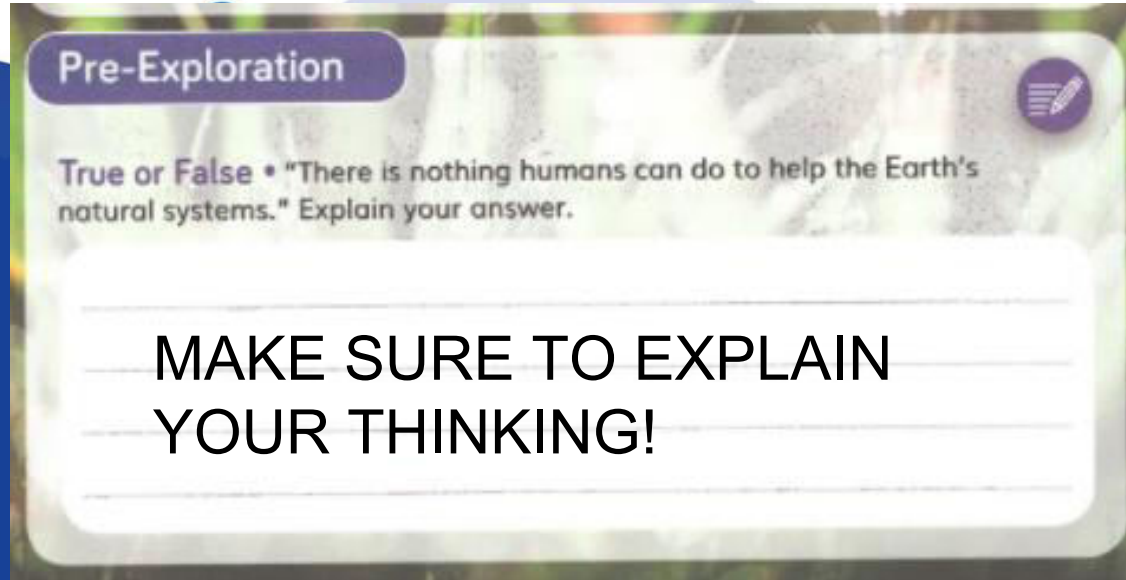
[Link if video does not work above](#)

Now that we've watched this video, answer the questions on page 31 of your **TWIG book**.

Communicate Information • Can the biosphere affect the hydrosphere? How do you know? Be specific.

Can the hydrosphere affect the biosphere? How do you know? Be specific.

In preparing for your next lesson, complete the Pre-Exploration about humans and the Earth's systems on page 31.

A snippet of a worksheet titled "Pre-Exploration" with a background image of a forest. It contains a "True or False" question about human impact on Earth's natural systems and a large text box for the answer.

Pre-Exploration

True or False • "There is nothing humans can do to help the Earth's natural systems." Explain your answer.

**MAKE SURE TO EXPLAIN
YOUR THINKING!**

What steps
are being
taken by our
state to
protect the
watershed?



[Link to
video](#) if it
does not
work

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HYDROSPHERE EARTH'S SPHERES BIOSPHERE

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H2O Response Team: Pollution Solutions

Friday, March 32nd

DIY WATER FILTER



Gather Materials

- Uncut Water bottle with dirty water
 - One student can collect water and dirt from Module 2 materials
- Water bottle **with a lid** that is cut in half
- Filtration Materials (students collect in dixie cups)
 - River rocks
 - Charcoal
 - Sand
 - Gravel
 - Mini Rocks
 - Cotton Balls



Build your filter in the top half of the cut water bottle!! (keep the lid on until you are ready to filter).

Filter your water!

Fill out your noticings and reflections!

