



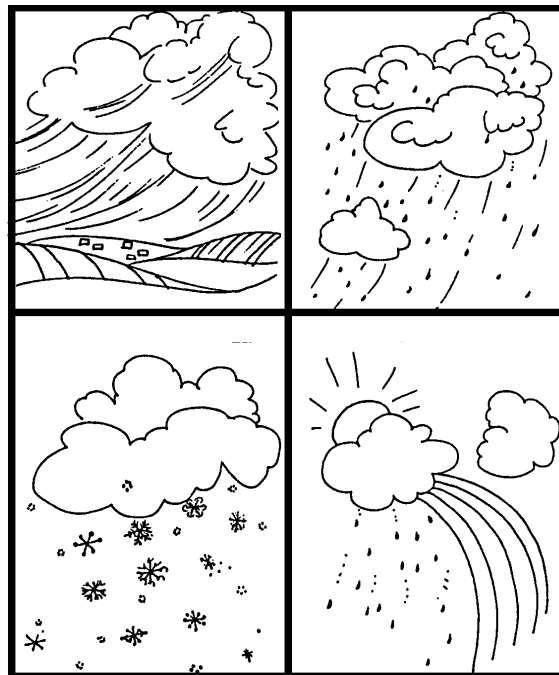
Water Cycle

The Earth's Gift



KINDERGARTEN

OCEANS



1 WEEK
LESSON PLANS AND
ACTIVITIES

WATER CYCLE OVERVIEW OF KINDERGARTEN

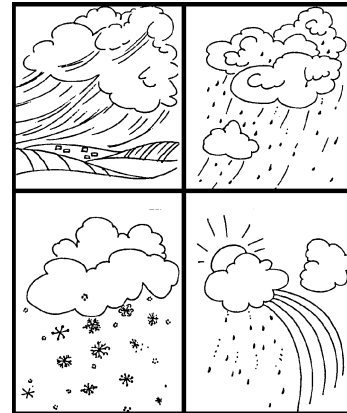
WATER

WEEK 1.

PRE: *Defining the states of matter.*

LAB: *Discovering the properties of water.*

POST: *Analyzing the water cycle.*



OCEANS

WEEK 2.

PRE: *Demonstrating the contents of water.*

LAB: *Experimenting with salt water and fresh water.*

POST: *Investigating oceans and lakes.*

ATMOSPHERE

WEEK 3.

PRE: *Exploring how clouds are formed.*

LAB: *Analyzing the shapes of clouds.*

POST: *Demonstrating how clouds are formed in the atmosphere.*

WEATHER

WEEK 4.

PRE: *Comparing different types of weather.*

LAB: *Determining the direction of wind.*

POST: *Exploring what makes weather.*

WATER CYCLE - OCEANS (K)

PRE LAB

Students predict whether liquids are salty or fresh.

OBJECTIVES:

1. Demonstrating the contents of water.
2. Analyzing the contents of clear water.

VOCABULARY:

evaporation
fresh water
lake
ocean
salt water

MATERIALS:

water
salt
epsom salt
inflatable world globe
several shallow dishes or paper plates



BACKGROUND:

The majority of the Earth's water can be found in oceans. The water however is not pure. It has other components, for example compounds, elements, or small particular matter, that have been dissolved in the water over eons of time, as water eroded the Earth's surface. Young children do not realize that water fills the low spots on the Earth's surface. Islands are not floating in water, but high mountains surrounded by very low valleys.

Salt water is not good for humans. The salt in the water makes the liquid undrinkable to humans because our body cannot take out the salt. Too much salt in our bodies is not good for it. Salt and fresh water are very different.

The term salt water is misleading because it contains more than just table salt (sodium plus chlorine). It also has other compounds, including sodium plus iodine and bromine. The term seawater is also used to refer to the ocean's water.

PROCEDURE:

1. Explain the differences between fresh and salty water. Some students may misunderstand the word "fresh" and think it is naughty water. You may want to show

students on a globe or map that oceans are salty and lakes are fresh. Slowly say the oceans, Atlantic, Pacific, Arctic, and Indian are salt water. Point out the Great Lakes in the United States as fresh water. If you have local bodies of fresh water, discuss them.

2. It is very difficult for students to "see" what is in water. In this demonstration the students will learn that clear water may have something in it. Start off this pre lab by discussing and describing water. Ask the students how they can tell if they have salt water or fresh water.

3. Mix salt and water, epsom salt and water, and plain water. Make sure that all the salt and epsom salt is dissolved by using warm water. Mix the ingredients before showing the children. Have students predict which sample is clean, and which samples with nothing visibly in it. Record their answers on the board.

4. Put some dishes out in a place where the water can evaporate. Have students look at the dishes every day, asking students the same questions. If you have a hot plate or if it is a warm day, you should be able to do this quickly. Make sure you make a thin layer of liquid in the dishes. Go back to their predictions to see if they guessed right.

WATER CYCLE - OCEANS (K)

LAB

Students experiment with salt and fresh water.

OBJECTIVES:

1. Discovering properties of salt water.
2. Experimenting with salt and fresh water.

VOCABULARY:

fresh water
salt water
surface tension

MATERIALS:

small plastic glasses
water
salt
toothpicks
wax paper
medicine dropper
food coloring



BACKGROUND:

Seawater covers a little more than 70 percent of the Earth's surface. Seawater is a solution of 96.5 percent water, 2.5 percent salts, and smaller amounts of other substances, including dissolved inorganic and organic materials and gases.

Seawater and water are similar in its chemical and physical properties, however there are noticeable differences. Seawater and water are both liquids and can be used to float larger substances. However seawater is more dense than fresh water so if you mix salt and fresh without mixing, the salt water will stay under the fresh water. It is easier for humans to swim in salt water because the higher density of the salt water helps to keep our bodies higher in the water. Salt water needs more heat to boil and more cold to freeze.

PROCEDURE:

Students will compare fresh water and salt water samples to see if they move the same on wax paper. Salt water and fresh water are similar, but they do have different properties.

1. Give each student group 2 small plastic glasses, individual toothpicks, and wax paper. Pre mix a solution of plain water and a solution of salt and water. Use warm water to dissolve the salt easily.

2. Go to each student group and pour one liquid in one glass and another liquid in the other glass. Have the students determine which glass contains the salt water and which contains the fresh water.

3. Have students determine the difference by using their senses of taste, feel, smell and touch. Make sure that they taste first before they put their hands in the water. Students should easily find the salt water with taste. The fresh water feels smoother, but this might be difficult for students to determine. Just let them feel and smell and whatever they say is all right.

4. Have the students further investigate the properties of water by having students put two separate drops on a piece of wax paper, about 6 inches away from each other. Tell the students that without touching the wax paper if they can get the two drops together. The students will experience that the water will "roll" on the wax paper like a ball if they push it slightly with the toothpick. This is because of surface tension which they will learn about in later grades. Just say the word, so the students can hear it.

5. Tell them to observe what they are doing because they will then do it with the salt water. Have students determine if the two liquids act the same. You may want to add food coloring in the salty liquid so the students can identify that drop easily. Do not put much, just enough to color the water.

6. Once they have joined the water, you may want to discuss how they accomplished this. After a discussion, have the students repeat the experiment with the salt water. Ask the students if the same thing happens? Yes. Have the students move one drop of salt water to the fresh water. What happens? The drops will merge, but you still can see the colored liquid separate from the fresh water drops.

WATER CYCLE - OCEANS (K)

POST LAB

Students use a globe to locate the different oceans.

OBJECTIVES:

1. Investigating oceans and lakes.
2. Comparing an ocean and a sea.

VOCABULARY:

marine
ocean
salt
sea

MATERIALS:

inflatable world globes
world placemats



BACKGROUND:

The world's oceans have been a barrier to humans for a long time. It has historically been looked at as a horrible and fearful road into the unknown. The ocean seems to go on forever. Children of today have to be reminded that early people did not have the tools that we have at our disposal. Many men would go out to sea and never return and so stories of a harsh and revengeful ocean would emerge. In Roman (Neptune) and Greek (Poseidon) mythology, the god of the oceans, was one of the most powerful.

Young children need to understand that the oceans are just filling a depression on the Earth's surface. There are mountains and valleys underneath the oceans. The bottom of the oceans is not just a smooth, curved surface. The world's oceans are all connected, so sometimes it is difficult to say where one ocean begins and another ends. Oceanographers, or scientists that study the oceans, use similar chemical characteristics to define the water masses.

The four oceans that are easily distinguishable are the Atlantic, Pacific, Indian, and Arctic. The Antarctic Ocean is really the southern tip of the Atlantic, Pacific and Indian. A sea is a smaller body of salt water, with most cases, an outlet to a larger marine body. A lake can be either fresh water (Lake Michigan) or salt water (Great Salt Lake), but they all have not outlet to the ocean.

PROCEDURE:

1. An ocean is a large body of salt water. A sea is just a small body of salt water. There are four major ocean bodies that students will learn in this exercise. They are the

Indian Ocean, Atlantic Ocean, Pacific Ocean, and Arctic Ocean. Some maps include the southern oceans around Antarctica as a separate ocean, but in this exercise we will only use four. Use the enclosed worksheets for students to use to find the different oceans and color them.

2. Students should be given inflatable globes and world placemats, so they can locate the oceans in small groups. Remind students that blue represents the oceans. Have them locate where they live, then have them find the closest ocean. Then ask if anyone knows of another ocean that they might have heard of or even visited.

3. Try to have the children unfold the different oceans instead of you telling them which one is which. You may want to tell stories about each of the oceans. For example, Polar bears live in the Arctic Ocean; Columbus sailed across the Atlantic; Hawaii is in the Pacific. Any fact that your students may relate to. If any of your children are from another country this might be a good time to discuss where that country is.

4. Also emphasize that organisms that live in salt water are different than organisms that live in fresh water. Also, many children do not understand that an island is part of the Earth. They think it floats in the water.

WATER CYCLE - OCEANS (K)



INDIAN OCEAN



**ARCTIC
OCEAN**



**ATLANTIC OCEAN
PACIFIC OCEAN**