
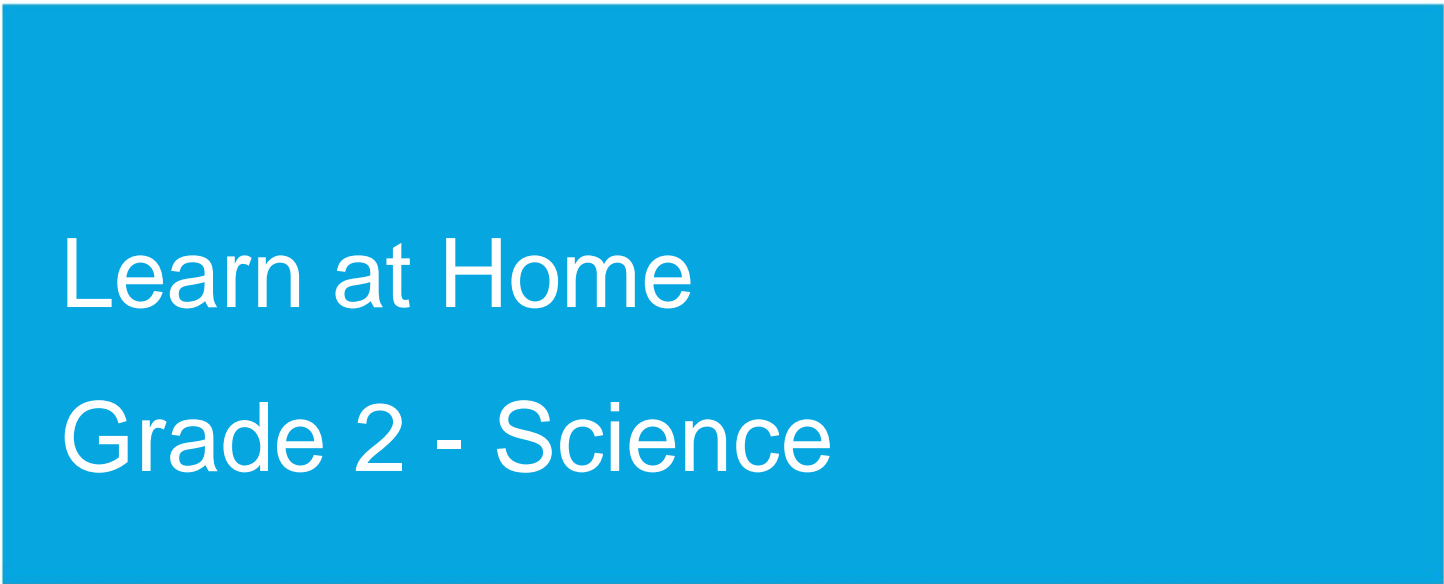


Learn at Home

Grade 2 - Science



Unit Overview

This series of online activities packet of resources is designed for students and their parents who wish to support in-school learning with activities that can be done independently and/or with a partner at home. The packet includes ten activities that support the major scientific work of the 2nd Grade with a particular focus on science content. These activities should each take 30-40 minutes (although some can be extended) and may be completed in any order.

How to use this guide

For each activity, you will find:

- A description and/or instructions for the activity
- Information about both content and practice that the activity supports
- One or more focus or discussion questions that will help deepen the learning of the activity

Day 1 Science

Activity: Hawaii-Animals and Plants in their Habitats

Task

Complete the online activity about Animals and Plants in their Habitats. Join Daisy as she explores her grandparents' garden and learns all about habitats and how they support animals and plants.

At the end of the activity, you should understand:

- Different habitats of animals and plants
- Different animals eat different foods
- Predators of different animals

Link: Click on <https://en.e-learningforkids.org/science/lesson/hawaii-animals-plants-in-their-habitats/>

In these activities, you will be asked to click on 6 different icons (pictures). Each of these icons (pictures) will teach you different facts about how animals and plants live in their habitats.

Vocabulary

Learn the new vocabulary words below. You will use these vocabulary words in today's activity.

- Habitat – the environment on which an animal or plant normally lives or grows
- Predator – An animal that hunts another animal for food.
- Prey - The animal that is hunted is called the prey.
- Pond – an area of water that is surrounded by land and that is smaller than a lake.
- Adaptation - A structure of behavior that enables an organism to survive in its environment. The thick fur of some animals is an adaptation to cold environments.

Click on Exercise 1 – Habitats

- Animals can live in many different places. Practice getting to know where animals and plants live by dragging pictures to the right habitats.

Click on Exercise 2 – Food for the Animals

- Animals need the right food to live healthy lives. Practice feeding animals the right food by dragging the animal pictures above the correct food source.

Click on Exercise 3 – Ponds

- Some animals and plants can live in ponds and some cannot. Find out which animals can live in a pond by clicking on a check or an 'x'.

Click on Exercise 4 – Predators

- Some animals are eaten by other animals. Animals that eat other animals are called predators. Click on the picture, in the group of four pictures, of the animal that eats other animals.

Click on Exercise 5 – Growth

- Animals and plants grow, some change shape and others become bigger. Choose the correct picture of the grown up plant or animal.

Click on Exercise 6 – Adaptation

- Animals have adapted to their environment. That means they have changed in some way to help them live better in their habitats. Read the question and pick the best picture that shows the physical properties that help the animal adapt.

Day 2 Science

Activity: Properties and Uses Rocks

Task

Complete the online activity Properties and Uses of Rocks. Join Halvor and Tim in Norway as they explore how rocks are used and some of the different properties or characteristics of rocks.

At the end of the activity, you should understand:

- How different types of rocks can be used
- How to identify or identifying different materials that things are made of

Link: Click on <https://en.e-learningforkids.org/science/lesson/norway-properties-uses-of-rocks/>

In these activities, you will be asked to click on 4 different icons (pictures). Each of these icons (pictures) will teach you different facts about the properties and uses of rocks.

Vocabulary

Learn the new vocabulary words below. You will use these vocabulary words in today's activity.

- Rock- a naturally occurring combination of minerals
- Gem – a highly prized, valuable mineral
- Mineral – a naturally occurring, non-living solid with a specific chemical composition.

Click on Exercise 1 – Finding the Gems

- Gems are special rocks that are shiny and beautiful. Complete the activity by putting the jewelry in the correct box.

Click on Exercise 2 – What's it used for?

- Many things are made of rocks. Identify if the items are made of rock by placing a check or an 'x' for each item.

Click on Exercise 3 – What's it made of?

- Many different things are made of different materials. Can you identify which materials the pictures in this activity are made of? Answer the questions in this section but choosing which materials each object is made of.

Click on Exercise 4 – How can I use this?

- Halvor has many rocks in his rock collection? Help him identify ways they can be used. Click the box that best represents what the rocks in Halvor's collection can be used for.

Day 3 Science

Activity: Pacific Ocean – Plants and Animals

Task

Complete the online activity about Properties and Uses of Rocks. Join Josephine as she explores the Marshall Islands on the North Pacific Ocean as she explores the native plants and animals that live there.

At the end of the activity, you should be able to:

- Understand how different plants and animals inhabit local environments, such as beaches
- Recognize some plants that grow on beaches
- Recognize some animals that live on beaches and in the ocean

Link: Click on <https://en.e-learningforkids.org/science/lesson/pacific-ocean-plants-and-animals/>

In these activities, you will be asked to click on 4 different icons (pictures). Each of these icons (pictures) will teach you different facts about plants and animals living on the Marshall Islands.

Vocabulary

Learn the new vocabulary words below. You will use these vocabulary words in today's activity.

- Environment- the total of all surroundings - air, water, plants and animals which affect living things
- Plant - a living thing that cannot move from place to place on its own, makes its own food, and produces offspring
- Animal- a living thing that can move on its own, eats plants and other animals for food and produces offspring
- Ocean- are salt water that covers much of the Earth's surface
- Beach- an area covered with sand or small rocks that is next to an ocean or lake

Click on Exercise 1 – On the Beach or in the Ocean

- Some plants on Marshall Island live on the beach and others live in the ocean. Drag and drop the pictures in either the beach or the ocean box.

Click on Exercise 2 – Is Jo telling a fib?

- Jo will tell you some things her mom told her about animals on the beach. Can you guess which one she is making up? Identify if Jo is telling the truth by placing a check or an 'x' for each item.

Click on Exercise 3 – Remembering time with Jo

- Have fun with Jo by naming the plants and animals living on Marshall Island. Click on the correct plant or animal name that Jo identifies.

Day 4 Science

Activity: North Pole - Different Materials

Task

Complete the online activity about different materials. Join Oscar as he is on vacation with his parents to see the North Pole. They're on a cruise ship. During this trip, Oscar sees a lot of different objects which are made of different materials. Can you help him discover everything about these materials and recycling?

At the end of the activity, you should be able to:

- Know that some useful materials are obtained from changing natural ones
- Recognize the importance of recycling materials.

Link: Click on <https://en.e-learningforkids.org/science/lesson/north-pole-different-materials/>

In these activities, you will be asked to click on 4 different icons (pictures). Each of these icons (pictures) will teach you different facts about different materials.

Vocabulary

Learn the new vocabulary words below. You will use these vocabulary words in today's activity.

- Recycle – To reuse a resource to make something new.
- Materials – Relating to, derived from, or consisting matter.
- Natural Resources – something found in nature that people can use
- Dispose – to place or set in a particular order; arrange
- Reduce – to use less of something
- Reuse – to use again, especially after salvaging or special treatment or processing.
- Characteristics – physical properties

Click on Exercise 1 – Natural and Man-Made

Oscar is on his way to the North Pole, there is so much to see. He saw forests and mountains on the coast. In the middle of the sea, he also saw a huge oil platform. Tim tells Oscar that some of the things he saw were natural materials. Some other things were made by humans from these natural materials. For example, the wood of a table is directly from nature. The paper of a book is made from wood by people in a factory. Sometimes it is very difficult

to see which is which, can you help Oscar?

- Which objects are made with materials created by humans, and which are directly from nature? Drag and drop the pictures in the correct box.
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- Which objects are made with materials created by humans, and which are directly from nature? Drag and drop the pictures in the correct box.

Click on Exercise 2 – Materials

Look at Oscar's cabin. This is where I sleep. Sometimes I can see polar bears on the ice outside my window. That's really cool! But right now, I don't see any polar bears. So we'll have to find something else to see. I've got an idea! Why don't we see if we can find out more about the stuff in his room?

- Place a check under the picture that is directly made of natural materials.
- Place a check under the picture that is directly made of natural materials.
- Place a check under the picture made of materials that humans create by changing natural materials.
- Place a check under the picture that are directly made of natural materials.

Click on Exercise 3- Recycling

Look, this is where they collect all the garbage of this ship. They sort it out for recycling. This means that some materials will be used again. Recycling helps nature, because that way people won't waste too much natural materials. Can you help Oscar sort?

- Drag and drop the right objects into the garbage can for vegetable, garden and fruits waste.
- Drag and drop the right objects into the garbage can for paper.
- Drag and drop the right objects into the garbage can for plastic
- Drag and drop the right objects into the garbage can for glass.
- Drag and drop the right objects into the garbage can for metal and iron.

Click on Exercise 4 – Recyclable or not?

- Which objects is not recyclable?
- Which objects is recyclable?
- Which objects is not recyclable?
- Which objects is not recyclable?
- Which objects is recyclable?

Day 5 Science

Activity: Cruise Ship – How Water Can Provide Us Energy

Task

Complete the online activity about water and how water can provide us energy. Join Shana as she discovers all the different ways water can provide us with energy!

At the end of the activity, you should be able to:

- Understand that water can provide energy.
- Describe what sorts of energy are provided by water.

Link: Click on <https://en.e-learningforkids.org/science/lesson/cruise-ship-how-water-can-provide-us-energy/>

In these activities, you will be asked to click on 4 different icons (pictures). Each of these icons (pictures) will teach you different facts about water. Shana is cruising on a ship across the ocean. During the cruise she will make some stops.

By crossing seas, oceans and rivers, you can reach different countries. This is because water connects the whole world like a huge, endless street.

Water is precious! For example, we drink it, we wash ourselves, we use it to cook and we water plants. Did you know water can even provide us energy? We can transform water into vapor, then we call it “steam”, or just use water force to make energy. We call this “Hydropower”. The word “hydro” means water: Hydropower is energy that comes from the force of moving water. Do you think this is impossible? Jump on board and let’s start our cruise! Water is a natural and clean source from which energy can be created! Think of a river with a strong current, imagine water force. This can be transformed into energy!

Vocabulary

Learn the new vocabulary words below. You will use these vocabulary words in today’s activity.

- Water- a clear liquid without color, taste or odor which all living things need to survive.

- Water Vapor – Water in gaseous state
- Energy - The ability to cause change, ex. Wind energy can cause a rock to move, heat energy can cause a plastic container to melt.
- Force – A push or a pull
- Steam – Water at boiling temperature diffused in the atmosphere
- Hydropower – Electrical that is generated by falling water.

Click on Exercise 1 – A Moving Force

- The captain showed Shana a picture of a water mill. With it he gave her some pieces of paper with explanations on how it uses water to make things move. Shana dropped the pieces of paper and now they're all mixed up! Can you help Shana make them right again? Drag and drop the strips of paper to the right place in the drop area.

Click on Exercise 2 – Which of These Works on Steam?

- Do you know, in the past some vehicles used to work on steam power! And some still do. Can you tell Shana which of these vehicles work on steam? Click on the picture that works on steam.

Click on Exercise 3 – Hydropower, the Clean Energy

- Shana heard many facts about energy produced from water, that's called hydropower. It seems it's a very clean energy sources! Shana is a bit confused, can you help her figure out some facts about hydropower? Read the statement, if the statement is true click the check icon and if the fact is false click the X icon.

Click on Exercise 4 – A Deep Look: How Does a Hydropower plant Work?

- Shana visited a hydropower plant on an island called "Mauritius". The water forms an artificial lake, or reservoir, behind a dam. Water passes with force through the penstock and spins the blades of a turbine. The turbine is connected to the generator, which makes electricity by spinning. After passing through the turbine, the water flows back into the river. Shana has some puzzles, help her solve them by dragging the missing piece to the right place and you will see how the hydropower plant works.

Day 6 Science

Activity: The Water Cycle

Task

Complete the online activity about the water cycle. Hop in the cockpit with Explorer Dan to explore the four parts of the water cycle. Enjoy the flight!

At the end of the activity, you should be able to:

- You will be able to identify the four parts of the water cycle.

Click on https://lessons.e-learningforkids.org/efk/Courses/EN/The_Water_Cycle/launch.html

Vocabulary

Learn the new vocabulary words below. You will use these vocabulary words in today's activity.

Phase 1 – Learn about Evaporation

Phase 2 – Learn about Condensation

Phase 3 – Learn about Precipitation

Phase 4 – Learn about Collection

Exercise 1: Complete the Water Cycle.

Exercise 2: Match the cycle phase to its definition, by dragging the numbers to its definition.

Day 7 Science

Volcanoes

Vocabulary

Explore the new science vocabulary words below. You will use these vocabulary words in today's activity.

- acid rain** (noun): dirty air mixed with water in the air; it is bad for plants and people
- cough** (verb): to quickly push air out of the mouth
- protea** (noun): a plant that lives in Hawaii; it has hard leaves and colorful flowers
- sulfur dioxide** (noun): a gas; it is bad for people
- volcano** (noun): an opening in the earth through which gases come out

Directions

- Read the article below and answer the questions that follow.

Volcano Causing Problems for People, Plants

HONOLULU, Hawaii (Achieve3000, May 6, 2008).

Kilauea is a volcano on Hawaii's "Big Island." For years, it has been blowing up. It sends sulfur dioxide into the air. The sulfur dioxide mixes with dust and sunlight. This makes something called "vog."

Vog is bad for some people. It can make them cough. It can give them headaches. People are careful to stay inside. Schools keep kids inside during playtime.

Vog is causing other problems, too. Some plants and flowers are dying. They might be dying from the sulfur dioxide. Or it might be something else. Vog mixes with water in the air. This makes acid rain. The acid rain might be killing the plants.

Protea is one of the flowers being killed. Protea are grown on many farms in Hawaii. Farmers sell these flowers. With this and other plants dying, farmers are losing money. Many are thinking about growing different crops.

Information for this story came from AP.

Question 1: According to the news story, why is it bad that plants and flowers are dying?

Question 2: The news story says, "Schools keep kids inside during playtime." Can you give a word that is the opposite of "inside"?

Question 3: The news story does not say:

1. Acid rain helps protea.
2. Vog is bad for some people.
3. Acid rain may kill plants.
4. Vog can cause problems.

Question 4: Let's say you are retelling this news story. What is the most important thing to tell your audience?

Question 5: The news story says, "Vog is causing other problems, too. Some plants and flowers are dying." What other problems do you think vog could cause?

Question 6: The news story says: For years, it has been blowing up. It sends sulfur dioxide into the air. The sulfur dioxide mixes with dust and sunlight.

These sentences help the reader to know:

1. What volcanoes look like
2. How vog is made
3. How big volcanoes are
4. Why Kilauea is blowing up

Question 7: Which of these is an opinion?

1. Acid rain might be killing the plants.
2. Kilauea is a volcano in Hawaii.
3. Protea are grown on many farms
4. Farmers should still grow protea.

Question 8: What is your opinion about the news article you read? Why?

Day 8

Hawaii Fire Show

Vocabulary

Learn the new science vocabulary words below. You will use these vocabulary words in today's activity.

- erupt** (verb): to burst out
- gas** (noun): something like air that can't be seen or touched
- lava** (noun): melted rock flowing from a volcano
- ocean** (noun): a very large body of water
- shield volcano** (noun): a kind of volcano that has lava coming out of the sides, not the top

Directions

- Read the article below and answer the questions that follow.

Hawaii's Fire Show

KALAPANA, Hawaii (Achieve3000, March 28, 2008). Many people are visiting Hawaii. They are going to Volcanoes National Park. About 9,000 people visit every day. Why? They hope to see Kilauea erupt.

Kilauea is a shield volcano. That means that lava comes out of holes in its sides. The lava moves very slowly. People who live nearby have time to get away.

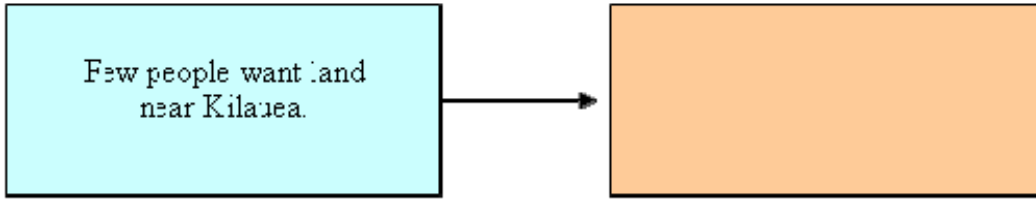
In March 2008, Kilauea erupted. Lava made a big path down to the ocean. It burned through homes. No one lived in the homes. About a week later, gas blew out of the volcano. Small rocks blew out, too. The last time this happened was 1924.

About 8,500 people live near the bottom of Kilauea. They were able to buy the land for very little money. Why? Few people want the land. Homes built there can be burned by moving lava. No one knows when the volcano will erupt next.

Information for this story came from AP.

Since . . .

Then . . .



Question 1: Which fits best in the empty box above?

1. People nearby have time to get away.
2. People built homes closer to the ocean
3. People bought land for little money.
4. People visited Hawaii to see Kilauea.

Question 2: What is an opinion that is stated in the article?

Hint: An opinion tells what a person thinks or feels. Others may not think this is right.

Question 3: Which word means almost the same as erupt?

1. Knock
2. Move
3. Push
4. Blow

Question 4: Which question is not answered by the news story?

1. Where is Volcanoes National Park?
2. Why are people visiting the park?
3. What kind of volcano is Kilauea?
4. When will Kilauea erupt next?

Question 5: What is the big idea of this news story?

Question 6: Which word means almost the same as rocks?

1. Blocks
2. Stones
3. Glass
4. Piles

Question 7: Let's say you are retelling this news story. Which is most important to say?

Question 8: The news story says: Many people are visiting Hawaii. They are going to Volcanoes National Park. About 9,000 people visit every day.

What does this show?

1. Why many houses get burned.
2. How many people like to watch Kilauea.
3. Why many people live in Hawaii.
4. How many volcanoes are found in Hawaii.

Thought Question

Let's say you go to Hawaii. You see Kilauea. Write a story about it. Tell what you see, hear, and feel. Look at the news story for help. Make up your own ideas, too. Write your answer below.

Day 9

Activity 1: *The Water Cops*

Directions

- Read the article below and answer the questions that follow.

The Water Cops

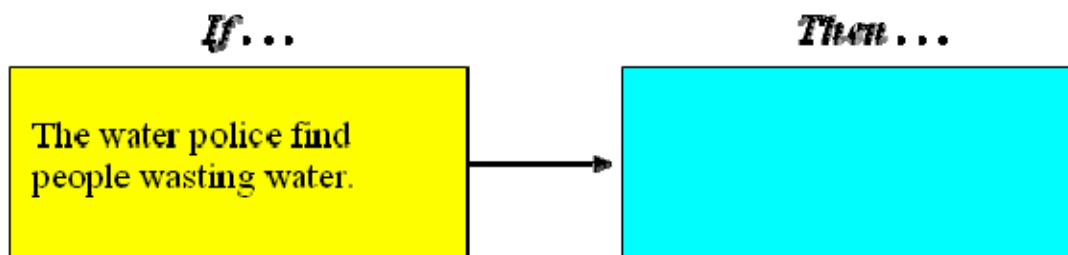
LOS ANGELES, California (Achieve3000, February 20, 2009). There's a new group of police officers in Los Angeles, California. They're called "water cops." And they're looking for careless gardeners. The water police make sure that people don't waste water. California is struggling with a drought. Therefore, conserving water is more important than ever.

Water is precious everywhere. But this is very true where there is a not enough of it. In June 2008, California Governor Arnold Schwarzenegger declared a statewide drought. Why? The state has had little rain or snow over the past two years.

Los Angeles is California's largest city. With so many people, Los Angeles must look for ways to conserve water. The city has 15 water police officers. They travel around the city's neighborhoods looking for people who are wasting water. How do people waste water? Some people water their yards. Others wash their driveways. Some people even empty and fill their swimming pools.

What happens to those who are caught wasting water? They can be given a warning. Or they can be made to pay fines. These fines show up on water bills. The fines start at \$100.

Information for this story came from AP.



Question 1: Think about the news story. Which fits best in the empty box above?

Question 2: What is the big idea in this news story?

Question 3: The news story says: How do people waste water? They water their yards. They wash their driveways. Some people even empty and fill their swimming pools.
What does this show?

Question 4: Which two words from the news story have opposite meanings?

1. Empty and fill
2. Wash and travel
3. Give and waste
4. Find and conserve

Question 5: Which is not talked about in the news story?

1. Some people are putting in bird baths.
2. Some people water their yards.
3. Some people wash their driveways.
4. Some people fill their swimming pools.

Question 6: Let's say you are retelling this news story. What is the most important thing to make sure people know?

Question 7: Which means almost the same as conserving?

1. Saving
2. Running
3. Filling
4. Buying

Thought Question

Let's say you are a water cop in Los Angeles. How do you feel about your job? Use facts from the news story in your answer. Use your own ideas, too. Write your answer below.

Achieve3000

Day 10

Task: Test Density with a Supersaturated Solution



The place where the lower end of a river meets the ocean is called an estuary (ES-choo-AIR-ee). What do you think happens when the rush of freshwater collides with the gush of the ocean's tides? Do the two kinds of water instantly mix? Does the freshwater float on top of the salt water? Or does the salt water float on top?

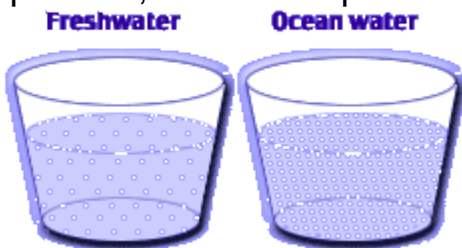
So What are Salinity and Density?

Before you begin, it is necessary to understand two important differences between freshwater and seawater.

One is salinity (suh-LIN-ih-tee), which means how salty a solution is. As you'd probably guess, ocean water has greater salinity than freshwater.

Another important difference between freshwater and seawater is their density. Density refers to the amount of "stuff" in a given space or packed in a space. For example, a 10 inch round pan containing a fluffy angel food cake would have a lower density than the same size pan filled with a fudge cake.

The salinity of water affects its density. The saltier water is, the denser it is. Which is denser — a cup of ocean water or a cup of freshwater? To help you answer this question, look at the pictures to the right.



Freshwater is made up of water molecules with a little bit of salt in it. Ocean water is made up of water molecules with a lot of salt. When put in the same container, denser materials fall to the bottom and less dense materials sit on top.

What happens when freshwater and saltwater collide?



Test Density with a Supersaturated Solution

Instructions

In this activity, you'll compare three solutions with different levels of salinity, or salt. By using food coloring, you'll be able to observe which solution is the most dense, and which is the least dense. You'll also investigate how a liquid's density affects objects that are put into it.

What You'll Need

- a pitcher
- a long spoon
- 3 drinking glasses (all the same size)
- warm water
- table salt
- a spoon
- blue and red food coloring
- 2 identical soda bottles with a regular neck (not wide)
- an unsharpened pencil
- a funnel (that fits inside the top of the soda bottle)
- a ruler



What To Do

1. Make A Saturated Solution

Half fill the pitcher with warm water. Add a spoonful of salt, stir, and wait until the water is still. Do you see any salt at the bottom of the pitcher? If so, go to the next step. If not, keep adding salt slowly until the salt begins to collect on the bottom. The water is now saturated with salt.



2. Half fill two glasses with the solution. Each glass should have the same amount. Put one glass aside and put enough blue food coloring into the other glass to turn the liquid dark blue, then stir. This glass of blue solution represents salty ocean water.



Pour the "Ocean" into the "River"

3. Fill a third glass halfway with warm water. This glass represents fresh river water. Then take the glass with the blue solution (ocean water) and SLOWLY pour it into the glass of warm water (river water). This thick solution will pour like syrup. The trick is to pour it gradually at the edge of the glass (SEE PICTURE) Don't mix the solution, just let it sit. What happens? Which liquid is denser — the blue one or the clear one?



4. Think again about our question: Which is denser, ocean water (salty) or freshwater (no salt)? Why do you think this is?

Add a Third Layer

5. Take the other glass that you put aside earlier, half-filled with the saturated solution. Add some warm water to it until the glass is full. Then, put in enough red food coloring to turn the solution a deep red, and mix well. This glass is filled with a liquid of medium salinity — less salty than the blue water, but saltier than the freshwater.



6. What do you think will happen if you SLOWLY pour a small amount of this red solution into the glass with the blue and clear water? Make a prediction and then try it out. What happened?



Which Pencil Will Rise to the Occasion?

7. Make more saturated solution (repeat Step 1). Then use a funnel to pour this solution into a soda bottle.
8. Fill an identical soda bottle with warm water (but no salt).
9. What do you predict will happen if you put an unsharpened pencil (eraser side down) into each bottle? Try it out and observe the results. Use a ruler to measure the difference. Measure from the base of the bottle up and see which is the greater distance. In which condition is the pencil higher in the water column?
10. Based on how the pencils "behaved" in the freshwater and saltwater, which do you think is easier for you to float in, a swimming pool or the ocean? Another way of asking this question is: "In which kind of water will you have greater buoyancy — freshwater or saltwater?" Buoyancy is how much something will

float.

BONUS ACTIVITY: Bottles in the Bathtub

Take an empty soda bottle, fill it halfway with water, and screw on the top. Then take another empty soda bottle (the same size as the first) and put on the top (with no liquid inside). Which bottle do you think has greater buoyancy? To find the answer, fill a bathtub with water and compare how the two soda bottles float in it.

Super Salty Sea

The Dead Sea, located in the Middle East, between Jordan and Israel, contains some of the saltiest water in the world. It's almost six times as salty as the ocean. Because of the Dead Sea's high salinity, no plants or animals live there. Since human bodies have a lower density than the water of the Dead Sea, people can float in it effortlessly. The extremely salty water holds people up instead of letting them sink.

This activity and images are provided courtesy of the American Museum of Natural History