

Think about it

Salt

Salt (sodium chloride) is a lot more interesting than we give it credit for. Did you know that salt wasn't always so easy to get and used to be very valuable? In fact in ancient Rome, soldiers used to be paid with an amount of salt called a *salarium*. This is where the word "salary" comes from. Salt was considered so precious that kings and queens had elaborate silver containers, called *salt cellars*, specially made to hold salt at the table. In fact, the expression "salt of the earth" describes a particularly kind and good person.

Who needs salt?

Humans and other animals need salt. Animals in the wild who find a salt deposit will travel back to it over and over again to lick up some salt. In the past, animals have created paths that people also followed to get the salt. Some of these paths eventually were made into roads, which people used to trade and sell salt. Sometimes whole towns would start because of these salt deposits and roads.



The body requires a certain amount of salt to function properly. Salt plays an important role in helping to maintain the volume of fluid in the blood stream, cells, and tissues. The sodium from salt also plays an important role in nerve function. The digestive, circulatory, and excretory systems help balance the amount of salt taken in and the amount absorbed and excreted. Sometimes this balance can be thrown off by extreme sweating or by not taking in enough fluids.

What happens when there is too much salt?

Some animals have special ways to balance the salt in their bodies. Salt water fish take in salty ocean water but need to get rid of the extra salt in order to survive. They excrete the extra salt in salty urine and through specialized cells in their gills. Freshwater fish have the opposite problem. They take in a lot of water but not much salt. With their kidneys, they excrete large quantities of dilute urine and take in salt through special salt-absorbing cells in their gills.

Vocabulary

volume	recrystallize
absorb	evaporate
excrete	preservative
dissolve	dilute



Review and apply worksheet

Name: _____

Sometimes, other animals that live near salt water take in too much salt and it needs to be removed from the body. Sea birds that eat a diet high in salt or drink salt water have large areas near their eyes called *salt glands*. These glands remove the extra salt by secreting a solution through the nose that is very high in salt and low in water. Because these glands are not fully developed in the young, adult birds will sometimes dunk food into freshwater before giving it to their babies.

Reptiles like sea turtles also take in a great deal of salt when they eat and drink. They have salt glands in their eye sockets which allow them to excrete leftover salt. The amount of salt in their tears can be twice as much as found in sea water. When female turtles nest to have babies, it looks like they are crying. Actually, they are excreting salt through their eye glands.



Uses for salt

As you probably know, salt isn't just for making food taste better. One of its main uses in history was as a preservative. Meat and fish were treated with salt, which made it harder for bacteria to live and grow on the food. This allowed food to be transported over greater distances and to last longer while being stored. Salt is also used for purposes that have nothing to do with food. It is used in making soap and detergent, dyeing fabric, making paper, and in many other products and processes. Thousands of tons of salt are used to make roads safer for driving when there is snow and ice in the winter.

Where does salt come from?

There are two huge sources of salt on Earth. One is the salt that is dissolved in oceans and seas. The other is deposits of solid rock salt called *halite* which is under the earth's surface. To get salt from ocean and sea water, the water is placed in large open pools and allowed to evaporate. This allows the sodium ions and the chloride ions dissolved in the water to recrystallize to form salt crystals.

There are two different methods for getting salt from beneath the earth. One technique is to drill down into a salt deposit and pump in large amounts of water to dissolve some of the salt. This salty water is then pumped up to the surface and allowed to evaporate, allowing the dissolved salt to recrystallize.

The other method is like underground mining where long mine shafts and tunnels are built to get down into the salt deposit. Machinery is used to blast, scrape, and dig the solid salt out of the ground. This salt is then sent up to the surface where it is crushed and processed.

Think about it (*continued*)

- The reading suggests that salt deposits could have caused entire towns to be built. This is because...
 - Where there is salt, there is water.
 - Where there is salt, it is easier to grow crops.
 - Animals like salt.
 - Salt was very useful and valuable.
- In history, salt has been used as a preservative. Re-read the “Uses for salt” section. What is the main reason for using a preservative?
 - Makes food taste better
 - Makes it harder for bacteria to live and grow
 - To help make roads safer in winter
 - To make soap and detergent
- Salt is found dissolved in the oceans. In this sentence, what does the word “dissolve” mean?
 - Water and salt are completely mixed, making salt water.
 - Salt is found on the shore line.
 - Salt is found in the ocean.
 - Salt is also found in the body systems, including the digestive system.
- What is the most likely reason that the author included the information about salt?
 - To tell readers how much salt should be used on their food
 - To explain to readers where they can find salt
 - To teach readers about the importance of salt
 - To encourage readers to put more salt on their foods
- There are two places we can find salt on the earth. The type of salt that is found in solid rock is called...
 - halite.
 - halitosis.
 - heme.
 - Rockis saltis.
- According to the details in the passage, what do sea turtles do to eliminate extra salt from their bodies?
 - They remove the salt through their salt gills.
 - They remove the salt through their tears.
 - They remove the salt through their nose.
 - They leave the extra salt in their bodies.

Think about it (*continued*)

7. People like the taste of salt, but we also need to have a certain amount of it in our bodies to keep us healthy. What is one of the roles of sodium in our bodies?

8. Animals that live in salt water need to get rid of excess salt. What is one way they do this?

9. Salt makes food taste better. Name at least two other uses for salt.

10. What are the two main sources of salt on Earth?

