Salt

Salt (NaCl) is another useful compound for the body. Like water, salt also is important because of the type of bonding it contains—ionic. Remember, when ionic compounds dissolve in water, they separate into positive and negative ions. These ions are in solution in the blood and cells.

Salt separates into positive sodium (Na^+) and negative chloride (Cl^-) ions. Recall that separated ions allow a solution to conduct an electric current. This is how the body sends nerve impulses. If you touch a hot stove, for example, nerve cells in your skin sense the heat. Sodium ions (Na^+) in the fluid surrounding the nerve cells get pumped into the nerves. At the same time, potassium (K^+) ions get pumped out of the nerves. This allows an impulse to be conducted through the nerves to the muscles of your arm.

These butterflies are enjoying a tasty snack from this hiker's sock. Butterflies need both water and salt, and they can get both from the sweat absorbed by the sock.

Sodium ions also help to keep the amount of water constant in the cells of body tissues. They do this by regulating the amount of water that passes in and out of the cells. Too much water in cells could cause them to burst. Not enough water could dry out the cells or prevent chemical reactions from taking place.

Chloride ions help our bodies digest food. They combine with hydrogen to make hydrochloric acid (HCl). Hydrochloric acid plays a role in food digestion.

CHECK YOUR READING What are two functions of sodium ions in the body?

11.1 Review

KEY CONCEPTS

1. List the six most common elements that make up living things. (8.6.b)
2. What property of water makes it so useful in living things? (8.6.c)
3. How does salt help conduct nerve impulses? (8.6.c)

CRITICAL THINKING

4. **Classify** Describe an example of water's use as a solvent, and one of its uses as a transporter.
5. **Infer** Do you think the body can get too much water? What might be the effects?

CHALLENGE

6. **Analyze** If the fluid inside nerve cells contained pure water instead of a solution of ions, would nerve impulses be able to travel through the body? Explain.