Lesson 6.1 Say Cheese

What's the best way to keep your pearly whites clean and healthy?

As a small child, you had a set of only 20 teeth until your permanent or adult teeth came in. Today, you have 32 teeth that need to last you a lifetime. Taking good care of your teeth is simple once you establish good habits.

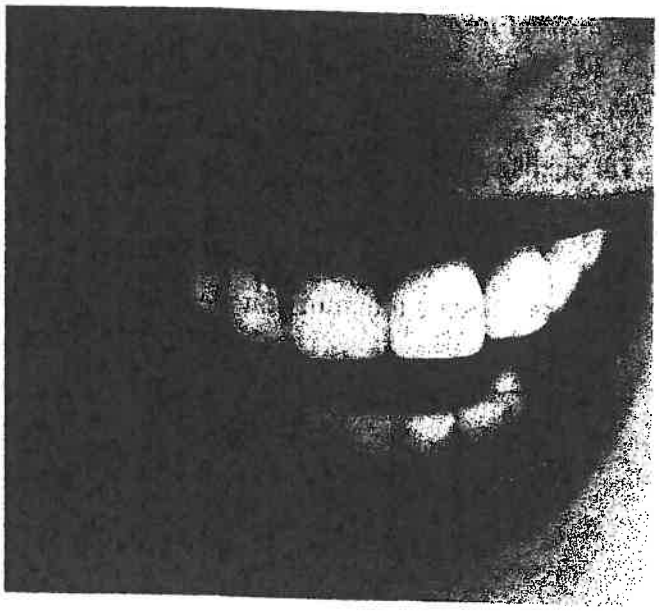
Plaque is a sticky, clear film that builds up on your teeth. If you've ever forgotten to brush, you know just how it feels in your mouth. Not only can plaque cause bad breath, it can also lead to cavities. When you eat food that contains sugar and starches, plaque forms on your teeth. Bacteria in your mouth digests the plaque to form an acid that eats away at your enamel—the hard, protective coating on your teeth. When this happens repeatedly, the enamel breaks down and the tooth decays.

Cavities aren't the only damage that plaque causes, either. Over time, plaque that remains on the teeth hardens into **tartar**. Tartar makes it more difficult for you to properly clean your teeth. It can also lead to gingivitis, a form of gum disease, in which the gums are painful, irritated, and may bleed. This can be more than just an annoyance. Studies have found that poor dental health is actually considered a strong risk factor for heart disease.

Flossing is as important as brushing because it removes food and plaque from the spaces in between your teeth where the toothbrush can't reach. Flossing also strengthens your gums and helps keep them healthy.

Eating well is important to the health of your teeth, just as it is for the rest of your body. Foods rich in calcium, such as dairy products, help build healthy teeth and bones, where 99% of the body's calcium is found. Vitamin D is also essential, because it allows the body to absorb calcium. It's found in fortified foods, like milk, but it doesn't occur naturally in most foods. Luckily, the body can manufacture Vitamin D itself through exposure to ultraviolet sunlight for just a few minutes a day.

Even if you take all the proper measures to have a healthy mouth, regular visits to the dentist—approximately every six months—are still necessary. A dentist will clean your teeth, removing the tartar that builds up no matter how well you brush. He or she can also check for cavities and other problems, like gum disease or oral cancer.



NAME _____

Write **true** or **false** next to each statement below.

1. _____ Human beings have more teeth as adults than they do as young children.
2. _____ Chewing any kind of gum is damaging to the health of your teeth.
3. _____ It's best to schedule a visit to the dentist once every two years.
4. _____ Brushing your tongue can help keep your breath smelling fresh.
5. _____ The human body can manufacture its own calcium and Vitamin D.
6. _____ Flossing can be a substitute for brushing your teeth.
7. _____ Plaque that is not removed from the teeth and hardens is called *tartar*.
8. _____ Gingivitis is a treatment that can prevent the formation of cavities.

Write your answers on the lines below.

9. Although it's best to avoid drinks that are high in sugar, what should you do if you have one?

10. Explain why both Vitamin D and calcium are necessary for the health of your teeth and bones.

11. What are two sources of Vitamin D?

12. How do cavities form?

13. How does dental health relate to the health of other systems in the body?

Lesson 6.2

Brain Food

What's the best way to feed your brain?

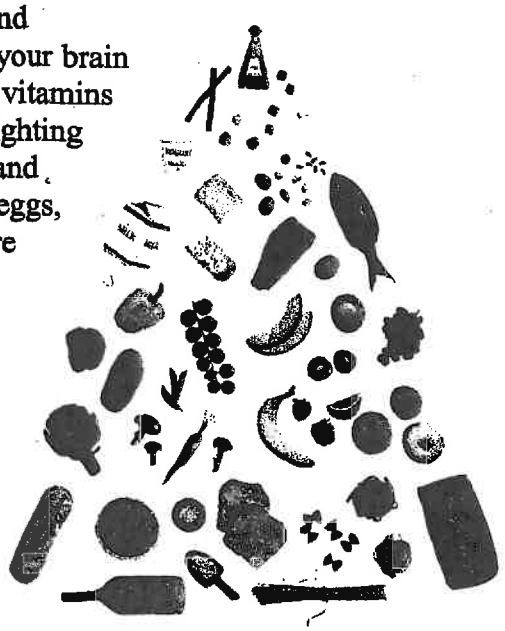
Eating nutritious foods can help you stay fit and trim. Even more importantly, it can contribute to brain health. Many people don't realize that the foods they eat affect memory, mood, behavior, and thinking skills. By making certain foods a part of your diet, you can increase your brain power and help your brain achieve peak performance.

About two-thirds of the brain is composed of fats. Fatty acids make up a large part of the membranes of neurons—the nerve cells that transmit messages within the brain. Your body needs two types of essential fatty acids. Omega-3s can be found in cold-water fish, like salmon, trout, and sardines, as well as in nuts and avocados. Omega-6s are found in sunflower, corn, soy, and sesame oil, as well as in nuts, seeds, and **legumes**. The body can't manufacture these fatty acids, so you need to consume them regularly.

Amino acids, also important to brain health, are found in protein-rich foods like fish, meat, eggs, and dairy products. Your brain needs amino acids to form neurotransmitters—chemicals that can affect your moods and feelings. Neurotransmitters play a role in your ability to concentrate, feel motivated and alert, create memories, sleep well, and learn.

Just as a car needs gasoline to perform, your brain needs fuel provided by **glucose**. Have you ever skipped breakfast and found yourself unable to concentrate at school? Low blood sugar could have been responsible. Glucose is found in carbohydrates, but it's better to choose complex carbs than simple ones. Complex carbs are found in whole-grain breads, cereals, and pastas, as well as in legumes and some vegetables. They take your body longer to digest, so they release energy over a period of time. Soda and sugary foods contain simple carbs. A rush of sugar can make you briefly feel energized, but a few hours later you'll "crash" and feel even more tired.

Micronutrients, such as vitamins and minerals, are the final key to keeping your brain healthy and happy. **Antioxidants**, like vitamins E and C, are especially important in fighting **free radicals**, or harmful ions. Fruits and vegetables, seeds, nuts, whole grains, eggs, fish, lean meats, and dairy products are excellent sources of micronutrients.



Eat a nutritious and varied diet, and you'll notice the effects in your ability to think clearly, learn quickly, remember things, and feel content. What could be more important than the health of your brain?

NAME _____

Circle the letter of the best answer to each question below.

1. In which of the following foods are trans fats most likely to be found?

   a. scrambled eggs

   b. a chicken sandwich

   c. potato chips

   d. mashed potatoes

2. Why is it important to eat foods that are rich sources of antioxidants?

   a. They turn the sugars in simple carbs into complex carbs.

   b. They help release glucose more slowly into your body.

   c. They protect your body's cells from micronutrients.

   d. They fight free radicals, which can damage the cells in your body.

Write your answers on the lines below.

3. Look at each meal listed below. Choose the meal that is a better choice for your brain, and list three reasons why.

   Meal A: a glass of grape juice, a hamburger on a white bun, a baked potato with full-fat sour cream and cheddar cheese, and a chocolate milkshake

   Meal B: a bowl of sliced strawberries, fish tacos on a whole-grain tortilla with shredded lettuce and tomato salsa, and low-fat yogurt with chopped nuts and dried fruit

   _____

   _____

4. Give examples of three foods that contain essential fatty acids.

   _____

5. Explain why it's wise to choose complex carbohydrates over simple ones, and give an example of each.

   _____

   _____

   _____

Lesson 6.3 Looking for Alternatives

What should people look for, or look out for, in natural healing?

Alternative medicine is treatment that is different from traditional Western—meaning European and North American—health care; however, in other parts of the world, these alternative medicines are actually standard treatments. Some are complete systems of treatment that include different ideas about how the body works, herbal medicine, and the connection between the mind and the body.

Homeopathy was developed in Germany in the early 1800s. It's based on the idea that "like is cured by like." This means that if a large dose of a substance would create symptoms of an illness in a healthy person, a very small dose of it will cure a sick person of that illness. The concept behind vaccines is similar—when a person receives a very small or mild dose of a disease, the body can become **immune** to it.

Modern chiropractic medicine was first practiced in 1895, although there are records of the ancient Chinese performing spinal manipulations as long ago as 2700 B.C. Chiropractic medicine is based on the idea that illness can be the result of the spine being out of alignment, especially if it presses on nerve endings. To treat this, a doctor will perform adjustments, or quick thrusts that move the spine back into alignment.

Acupuncture is a form of traditional Chinese medicine that is thousands of years old. It's based on the theory that energy moves through invisible channels in the body. Very thin needles are inserted into the skin for 5 to 20 minutes to free blocked energy. Chinese herbal medicine is often used as a part of this treatment.

Western doctors have been hesitant to trust alternative medicines, partly because they have completely different **philosophies** about health and how the body works. In addition, alternative medicine can be hard to test scientifically. For example, acupuncture has been reported to be very effective in relieving pain, but this is difficult to prove because some people can tolerate more pain, and pain is hard to measure.

More and more people in the Western world are trying alternative healing, often for long-term diseases that don't respond to traditional medicine. Herbal medicine can be very powerful—about 25% of Western prescription medicines come from plants. Some Western doctors now practice **complementary medicine**, which is Western medicine used along with some alternative healing.

NAME _____

Write **true** or **false** next to each statement below.

1. _____ Herbal supplements are subject to the same tests and regulations that prescription medications are.
2. _____ Yoga is an ancient philosophy of health that involves stretching, breathing, and meditation.
3. _____ Acupuncture is a recently invented medical therapy.
4. _____ The types of medical treatments that Americans refer to as "alternative" may be traditional treatments in other parts of the world.
5. _____ Alternative forms of medicine and medical treatment are never effective.
6. _____ Anything labeled as being natural is guaranteed to be healthful.
7. _____ The use of herbs is often a part of acupuncture treatment.

Write your answers on the lines below.

8. What does the phrase *like is cured by like* mean? How does this concept apply to medicine?

_____

_____

9. Why do you think more people are willing to try alternative forms of medicine and treatment? Give at least one reason not mentioned in the selection.

_____

_____

10. What is the basis of chiropractic medicine?

_____

11. What is complementary medicine? Do you believe that it's a good choice for treatment? Explain.

_____

_____

Lesson 6.4 A Safe Place

What safety and health risks are hiding in your kitchen?

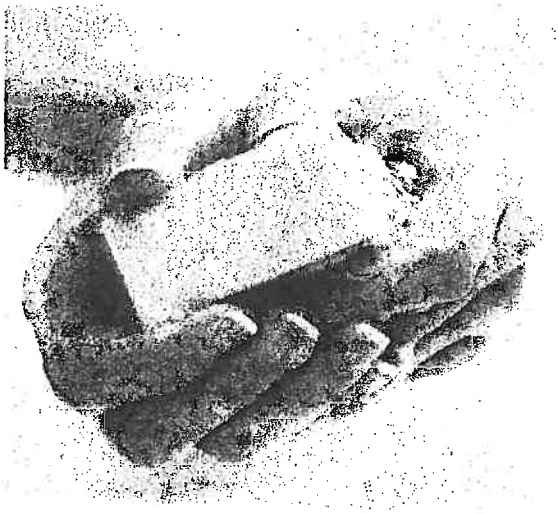
The kitchen can be the source of household injuries and even illness. Here are some tips to help you stay safe in the kitchen.

General Safety

- Always wash your hands before you begin preparing any food. If you touch raw meat or eggs, wash your hands again thoroughly for at least 20 seconds, using soap, warm water, and a brisk rubbing motion.
- Don't eat unbaked cookie dough. It contains raw eggs, which can be a source of salmonella bacteria.
- Leftovers should not remain unrefrigerated for more than two hours.
- All fruits and vegetables should be washed. They can be dirty, contain bacteria, and have residues of pesticides on them. For thicker-skinned produce, like potatoes, use a stiff brush to remove the dirt.
- Foods should always be thawed in the refrigerator and never left on the counter. If left out, the outside of the food may thaw (which allows bacteria to grow) while the inside is still frozen. To speed up thawing, place the food in a plastic bag and immerse it in a bowl of cold water. Change the water every half-hour until the food is thawed. Do not re-freeze unless the food has been thoroughly cooked first.
- Color isn't always a reliable indicator, so the best way to determine if meat is fully cooked is by using a meat thermometer. Ground poultry should reach a temperature of 165°F, while other ground meats should reach 160°F. Temperatures vary for other cuts of meat but can be found in cookbooks and at the USDA food safety Web site.

Microwave Safety

- Microwave foods only in microwave-safe glass and plastic containers. Plastics that aren't intended to be used in the microwave can leach chemicals into your food or even melt.
- Be careful when removing food from the microwave. Use a potholder, and watch out for steam when you uncover the food.
- Make sure that microwaved foods are heated evenly by rotating them. If you don't, certain portions of the food might not get completely cooked and any bacteria may not be killed.



NAME _____

Read each item below. On the line that follows, explain why it describes an unsafe situation.

1. Alexander cut up some raw chicken and placed it in a frying pan. Then, he used the same cutting board to cut up some tomatoes for his salad.

_____

2. Ebony took a handful of strawberries out of the carton and began eating them.

_____

3. Gabrielle had some friends over for a party at 7:00. When they left at 10:00, she put the cheeses and deli meats that had been on the table in bags and put them back in the fridge.

_____

4. Basir forgot that his mom asked him to defrost some salmon for dinner. An hour before dinner, he placed the salmon in a bowl on the counter to defrost.

_____

5. Olivia and Kate made oatmeal cookies for a friend's birthday. Before they washed the bowl, they each took a spoon and scraped up a bite of dough to eat.

_____

6. Kris wanted to heat up some leftovers from the restaurant. He wasn't sure if the container they were in was microwave safe, but it was plastic so he decided it was fine to use it.

_____

Write your answers on the lines below.

7. What role does baking soda play in kitchen safety?

_____

8. Why does perishable food need to be kept at temperatures of 40°F or cooler?

_____

9. What's the best way to determine if meat is fully cooked?

_____

Lesson 6.5

Learning to Coexist

Why are human beings having more and more encounters with wild animals?

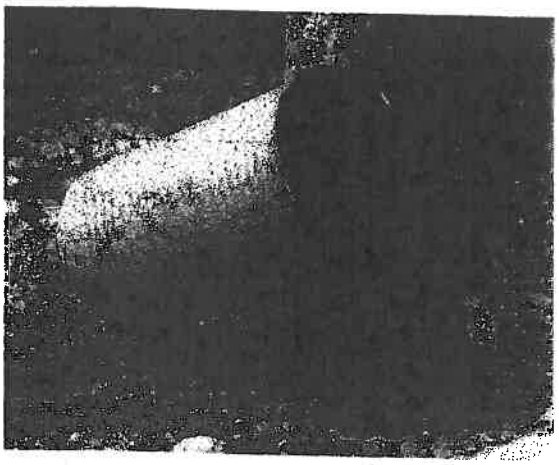
What would you do if you saw a moose strolling up your street or an alligator taking a dip in your pool? What about a bear rummaging through your trashcan or a mountain lion climbing a tree in your neighborhood? In recent years, encounters with wild animals have been on the rise around the country. Some people are excited by the chance to get an up-close look at creatures they don't usually see, while others are concerned about the safety of their children, pets, and property.

Several factors contribute to the **incidence** of wild animal sightings in urban and suburban areas. As the human population increases, so does development. This means that human beings are **encroaching** on the land and habitat of animals. Without a buffer zone between the suburbs and wild regions, animals wander into populated areas. If they find a source of food, they will return—particularly if they're having difficulty meeting their needs in the wild because of drought or overcompetition for food.

In addition, efforts at protecting wildlife and their environments appear to be working and are increasing the numbers of many species of wild animals. In some areas of the country, changes in the land are supporting large populations of wildlife. Land that was farmland a century ago has reverted, or gone back to, its natural, forested state. All of these factors combine to make run-ins between human beings and wild animals like more likely.

One result of large populations of animals living in and near cities is that more and more of them attempt to cross roads—something that is dangerous for drivers and often fatal for the animals. Part of the problem is that roads can **fragment** a habitat or ecosystem, making it necessary for animals to cross roads and highways for access to food, water, other members of their species, and enough space to roam.

Many European countries have addressed this problem by building tunnels and overpasses to reconnect fragmented habitats. Some even contain ponds and shrubbery to create a natural environment. In the Netherlands, more than 600 tunnels have been installed in an effort to protect the European badger—an endangered animal. Currently, studies are being done in Europe that examine fragmented areas and determine where more overpasses and tunnels are needed. It's the perfect example of one way in which human beings and animals are learning to share the land and coexist.



NAME _____

Write your answers on the lines below.

1. Why can it be dangerous for a human being to try to run from a predatory animal?

2. What precautions can people take if they live in areas where wild animals are frequently spotted?

3. What does it mean for animal habitats to become fragmented? What role does the spread of human development play in this?

4. Explain what some countries are doing to solve the problem of fragmented habitats.

5. Give two examples of natural events that might cause wild animals to venture into populated areas.

6. Do you believe that wild animals have a right to live in areas that are populated by human beings, or should more be done to keep them at a distance? Explain your answer.

What's Next?

In the wild, peregrine falcons nest on cliffs and rocky ledges. It isn't unusual for this once-endangered species to nest in large cities these days, using the ledges of urban apartment buildings, churches, and bridges as their homes. Sixteen falcon couples currently make their homes in New York City. Do some research about these birds that mate for life and the New Yorkers who look out for them.

Fire Power

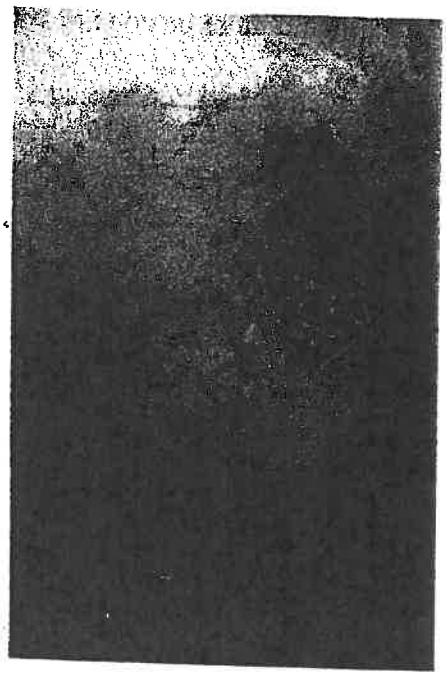
How do wildfires affect nearby human and animal populations?

Wildfires can be both spectacular and frightening to witness. They are extremely powerful and can burn as much as 1,000 acres per hour. They can destroy the homes of both human beings and animals, but they can also clear the forest floor for new plant growth. A wildfire is a large, uncontrolled fire burning in a forest or brush area. It can be started naturally, as by a lightning strike, but **arson** or human carelessness are more common causes.

The conditions of the environment have a lot to do with whether or not a wildfire will take place and how far it will spread. During times of drought, especially during the spring and summer, forest fires are more likely. High temperatures and a lack of **humidity** in the air create fire-friendly conditions. High winds can also help a fire spread quickly out of control.

For many years, it was common practice to completely suppress wildfires because of the damage they caused. In more recent years, however, some controlled burns have been allowed to take place. Wildfires are part of the natural cycle of forests. Plants and trees can grow taller and stronger when there is less competition for resources like space, light, and water. A major problem that is the result of totally suppressing wildfires is the build up of fuel. Dead leaves and branches that are allowed to accumulate on the forest floor over a long period of time can create extremely hazardous conditions. When a wildfire does occur, it can quickly spiral out of control because large quantities of dry fuel are available.

One reason wildfires present so much of a problem to human beings is that urban areas and development keep spreading closer and closer to spaces that were once completely wild. People can be **evacuated**, but these new homes and businesses have to be protected from damages. Firefighters from all over the country might come to fight a single blaze and keep it from venturing too close to human populations.



Prevention of wildfires involves careful monitoring of conditions by experts. They can predict the risks and close off certain areas when necessary. Once a fire has begun, surveillance from aircraft and even satellites can give firefighters important information about the speed and direction in which a fire is moving. They may attempt backfires, which involve burning everything in an area slightly outside of the range of the wildfire. When the fire reaches this burned area, it has no fuel to feed it and dies out.

NAME _____

Underline the correct answer from the two choices you are given.

1. (Dead, Living) plant material doesn't usually ignite easily because it contains moisture.
2. (Fall, Winter) is one of the more likely times of year for wildfires to take place.
3. One of the most common causes of forest fires is (arson, lightning strikes).
4. Suppressing wildfires causes a(n) (decrease, increase) in the amount of fuel.
5. Wildfires tend to have long-term (benefits, harm) for plants and animals.

Write your answers on the lines below.

6. What are three examples of indicators that might predict a high hazard level for wildfires?

_____

7. Explain what a backfire is, what purpose it serves, and why it is effective.

_____

_____

_____

8. How can wildfires be beneficial for forests? Give at least two reasons.

_____

_____

9. What types of conditions can cause wildfires to spread rapidly?

_____

10. Do you think that people should be allowed to construct new developments near wooded areas that are prone to forest fires? Explain your answer.

_____

_____

11. What role do satellites have in combating forest fires?

_____

Lesson 6.7

Living Way, Way Down Under

What is life like for scientists in Antarctica?

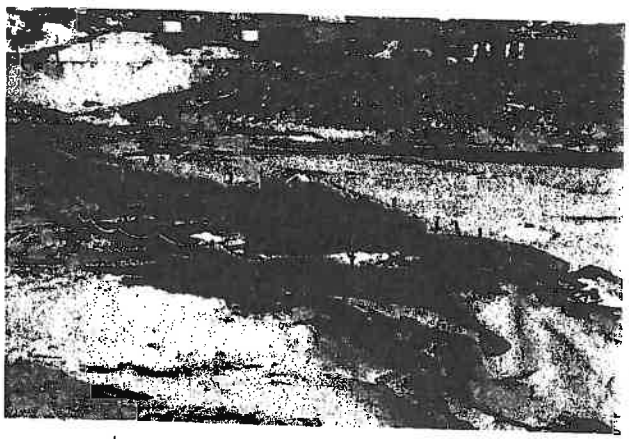
No people live permanently in Antarctica, but there are approximately two hundred research stations populated by scientists from all over the world. The Antarctic Treaty of 1961 established guidelines that make it the only land on Earth that doesn't belong to a single country. Although some stations were built by individual countries, many projects involve international cooperation, and the scientific discoveries are shared with the world.

What do scientists study on a continent covered in ice? The atmosphere over Antarctica is thinner than other places on Earth. This characteristic, along with the fact that the air is less polluted there, makes it an ideal place for studying the atmosphere. Earth's damaged **ozone layer**—a result of harmful chemicals polluting the atmosphere—was first discovered by scientists working in Antarctica. They launched large weather balloons into the atmosphere that carried scientific equipment designed to measure atmospheric conditions. These electronic devices sent data back down to computers located in the polar research stations, where it could be analyzed by the scientists.

Antarctica is also an excellent location for astronomers. There are nine months of polar darkness in which they can observe the stars and planets. Climatologists collect **ice core** samples with a special boring drill that removes a long, cylindrical piece of ice from the frozen ground. Like tree rings, the different layers in an ice core contain information scientists can use to study Earth's past. Tiny bubbles trapped inside each different layer are analyzed for their chemical compositions, and thousands of years' worth of atmospheric conditions are revealed.

The American McMurdo Station—Antarctica's largest—holds 1,200 residents during summer. It has dozens of buildings, including living quarters, a library, and a water plant. The water supply comes from seawater purified by **reverse osmosis**, a process that removes the salt. Fresh water is limited, so people shower only once every other day—for two minutes!

Most of the food eaten at the station is dried, canned, or frozen, but the scientists sometimes grow **hydroponic** plants. Like every other supply, though, the plants had to be shipped there by sea or by air. Living at a polar research station is challenging, but the scientists embrace the opportunity to live and work in one of the planet's most unique regions.



NAME _____

Circle the letter of the best answer to the question below.

1. What did scientists in Antarctica discover about the ozone layer?

   a. It contains molecules of oxygen.

   b. It absorbs ultraviolet radiation.

   c. It has been damaged by pollution.

   d. It contains freshwater ice.

Write your answers on the lines below.

2. Explain how scientists use ice cores.

_____

_____

3. Scientists working away from the station often get their water by breaking up chunks of ice. What does this tell you about the ice in Antarctica?

_____

4. Why do you think the air is less polluted in Antarctica?

_____

_____

Unifying Concepts and Processes

1. What physical characteristic of Earth causes Antarctica to experience nine months of darkness?

_____

2. A liquid that contains low concentrations of a substance will naturally flow into a liquid with higher concentrations until both liquids have equal concentrations. This process is called *osmosis*. Reverse osmosis uses force in order to create a pure liquid that contains none of the substance. Which physical law does reverse osmosis use force to overcome?

_____

Lesson 6.8

Acid in the Sky

How is acid rain sickening our environment?

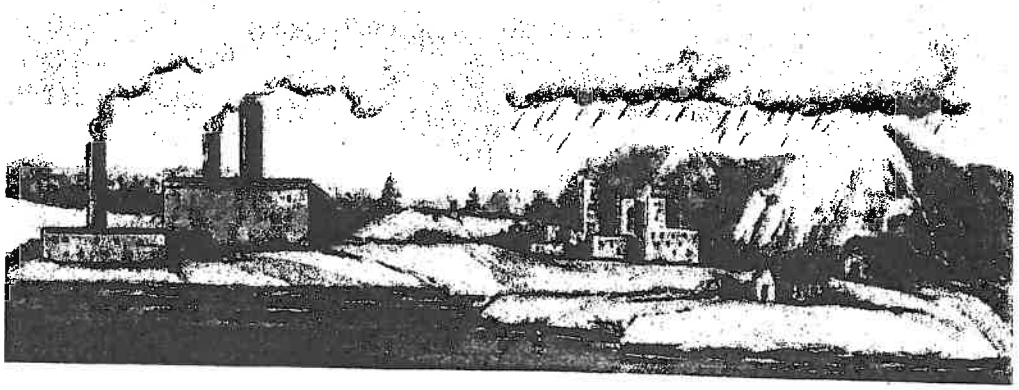
Acid rain occurs when chemicals in the air mix with water vapor and fall to the earth. When it falls in the form of snow, fog, or even dust, it is known as acid precipitation. It sounds pretty destructive, and unfortunately, it is.

On the pH scale, which measures the concentration of hydrogen in a substance, acid rain has a pH below 7, which makes it acidic. Substances with a pH above 7, like soap, are **alkaline**. Pure water has a pH of 7 and is neutral. Rain is naturally slightly acidic and has a pH of 5.6, so any rain that tests lower on the scale is considered acid rain.

When fossil fuels are burned, smoke and pollution drift into the air. Fossil fuels are coal, oil, natural gas, and their products, such as gasoline. Their smoke contains toxic carbon gases, as well as other poisonous gases and fine particles. The biggest sources of acid rain are motor vehicles, including airplanes, and coal-burning industrial and power plants. Wind can carry acid rain hundreds of miles away.

Acid rain has devastating effects on the environment. It's particularly harsh on wildlife in lakes and streams because these environments are very sensitive to pH. All fish, amphibians, and insects will die at a pH below 4.5, and many kinds of water animals and plants need much higher levels. In forests, acid rain damages tree leaves and deposits toxic metals in the ground. People can also have breathing problems and long-term health issues from breathing pollution. In our cities, great monuments are being slowly eaten by acid rain. It oxidizes with calcite that is found in limestone and marble, creating holes in surfaces and breaking down the beautiful stone.

Researchers have been focusing on solutions to the problem of acid rain for the last 25 years. Because alkaline soils can neutralize acid rain, damage is not as serious in regions with these soils. Some energy plants clean **emissions** before releasing them, although there's still the problem of where to put the toxic waste that's been removed. Alternative energy sources such as solar and wind power can reduce our needs for coal-burning electric plants. Many people are also trying to drive less and conserve energy at home. The more people who make these efforts, the better the chances are that we'll be able to heal our environment.



NAME _____

Circle the letter of the best answer to each question below.

1. What causes acid rain?
   - **a.** Burning fossil fuels
   - **b.** Constantly changing levels of pH in the atmosphere
   - **c.** Low levels of pH in the soil
   - **d.** Scientists aren't sure
2. Vinegar has a pH of about 2.5, so it is
   - **a.** alkaline.
   - **b.** acidic.
   - **c.** neutral.
   - **d.** more alkaline than acid rain.

Write your answers on the lines below.

3. What effect can acid rain have on monuments?

   _____

4. How can hydrangea flowers be an indication of a soil's pH level?

   _____

5. How would the increased use of alternative energy sources affect levels of acid rain?

   _____

   _____

6. How does soil type play a role in the effects of acid rain?

   _____

7. Explain the effects that acid rain can have on the environment.

   _____

   _____

8. If you were a lawmaker, what changes would you make to combat the harmful effects of acid rain?

   _____

From Zero to Six Billion in the Blink of an Eye

What caused the human population explosion?

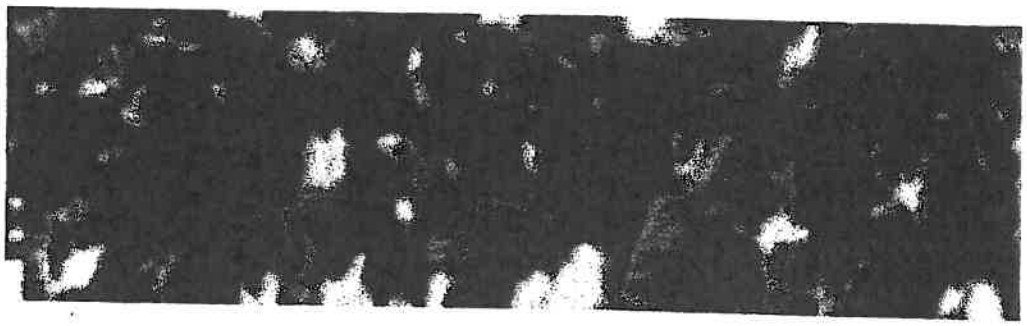
Early human beings were hunter-gatherers that survived by following their supply of food wherever it took them. The human population was controlled much as it is in the rest of the natural world—during food shortages, the weaker members would die. Scientists estimate that Earth's entire human population at that time never exceeded five to ten million.

Then, about 10,000 years ago, human beings developed **agriculture**. Growing crops meant that food supplies became more consistent, and villages and towns began to form. People also raised larger families in order to supply the workers needed to tend the fields. By the year A.D. 1, the number of people in the world had reached about 250 million. Although the number kept rising, population growth was controlled by events such a disease, war, and famine.

Over several centuries, scientific discoveries—especially in the fields of medicine and health care—led to fewer fatal illnesses and extended the average human life span. By 1850, more than one billion people were living on Earth. At this same time in history, the citizens of **industrialized nations** began to move away from the traditional agricultural lifestyles found in rural areas. They headed to the cities and began having fewer children.

As the growth rate of populations in wealthier countries began to slow, the number of people in the poorer, mostly rural nations continued to rise quickly. Having large populations led to difficult living conditions, including food shortages and quickly-spreading diseases. After World War I, wealthier countries began sending supplies of vaccines, antibiotics, food, and clothing to help improve the quality of life in these places. Although the death rates have dropped, many people in impoverished nations continue having large families, so the population keeps soaring. Earth's human population is now more than seven billion people, with one out of every six human beings living in extreme poverty.

Population growth has put a great strain on Earth's environment and resources. The need for firewood, building materials, and farmland has caused deforestation. Burning fossil fuels pollutes the atmosphere and contributes to global warming. Scientists studying the human population are trying to determine just how many people the planet can realistically support. When we exceed that number, what will be the consequences?



NAME _____

Write your answers on the lines below.

1. Why did the invention of agriculture cause an increase in the human population? Give at least two reasons.

_____

_____

2. Why do you think people who moved to the cities began having fewer children than the people who still lived on farms?

_____

_____

3. How do you think the human population will be affected if we run out of fossil fuels?

_____

_____

4. In the United States, people are allowed to give birth to as many children as they want, and the government gives them tax credits for each child. In China, there are laws governing how many children people can have. Choose one of these policies, and then write a statement explaining why it's a good policy, followed by a statement explaining why it's not.

_____

_____

_____

What's Next?

On a separate sheet of paper, draw a stick figure. Below it, draw three more stick figures to represent three children. Below each child, draw three more stick figures—a total of nine—representing a second generation of children. Repeat this pattern five more times, for a total of seven generations. This kind of exponential growth is one reason Earth's human population has risen from one billion to seven billion in just seven generations.

NAME _____

Review

Circle the letter of the best answer to each question below.

1. Alternative treatments and medicine are
   - **a.** never used in the United States or Europe.
   - **b.** sometimes used in combination with traditional Western medicine.
   - **c.** not the standard or traditional form of medical treatment anywhere in the world.
   - **d.** Both b and c

2. Ice core samples taken from the Arctic
   - **a.** can be used by climatologists to study the climate during Earth's past.
   - **b.** are used in reverse osmosis to create a water supply.
   - **c.** contain little information about atmospheric conditions.
   - **d.** are used to keep food frozen at polar research stations.

3. Which of the following is not an effective solution for dealing with acid rain?
   - **a.** the use of hybrid cars, which consume less gasoline
   - **b.** turning the thermostat down in the winter in order to use less heat
   - **c.** using solar power as a source of energy
   - **d.** creating cars that burn coal instead of gasoline

Underline the correct answer from the two choices you are given.

4. (Plaque, Gingivitis) is a form of gum disease.
5. Whole-grain cereal is an example of a (complex, simple) carbohydrate.
6. (Homeopathy, Acupuncture) is the use of very fine needles inserted in specific places around the body to free blocked energy.
7. Conditions that contribute to the spread of wildfires include (humidity, drought).
8. Researchers at polar stations can grow (hydroponic, purified) plants in order to get fresh produce.
9. A substance that has a pH of 7 is (acidic, neutral).
10. Earth's human population is greater than (6, 60) billion.

Write your answers on the lines below.

11. Plaque that builds up on the teeth can harden into _____.

NAME _____

12. Why is Vitamin D important to dental health?

13. Why is it better to choose complex carbs over simple ones?

14. Explain why you should try to avoid foods containing trans fatty acids.

15. How should frozen foods be safely thawed? Explain why.

16. What are food-borne illnesses, and how can you avoid them?

17. What danger does a fragmented habitat pose for animals and for human beings?

18. Why are wildfires important to the health of forests?

19. Why is the Antarctic a perfect place for studying astronomy?

20. What are three harmful effects of acid rain?

21. Give two reasons why the human population has grown so quickly in the last 150 years.