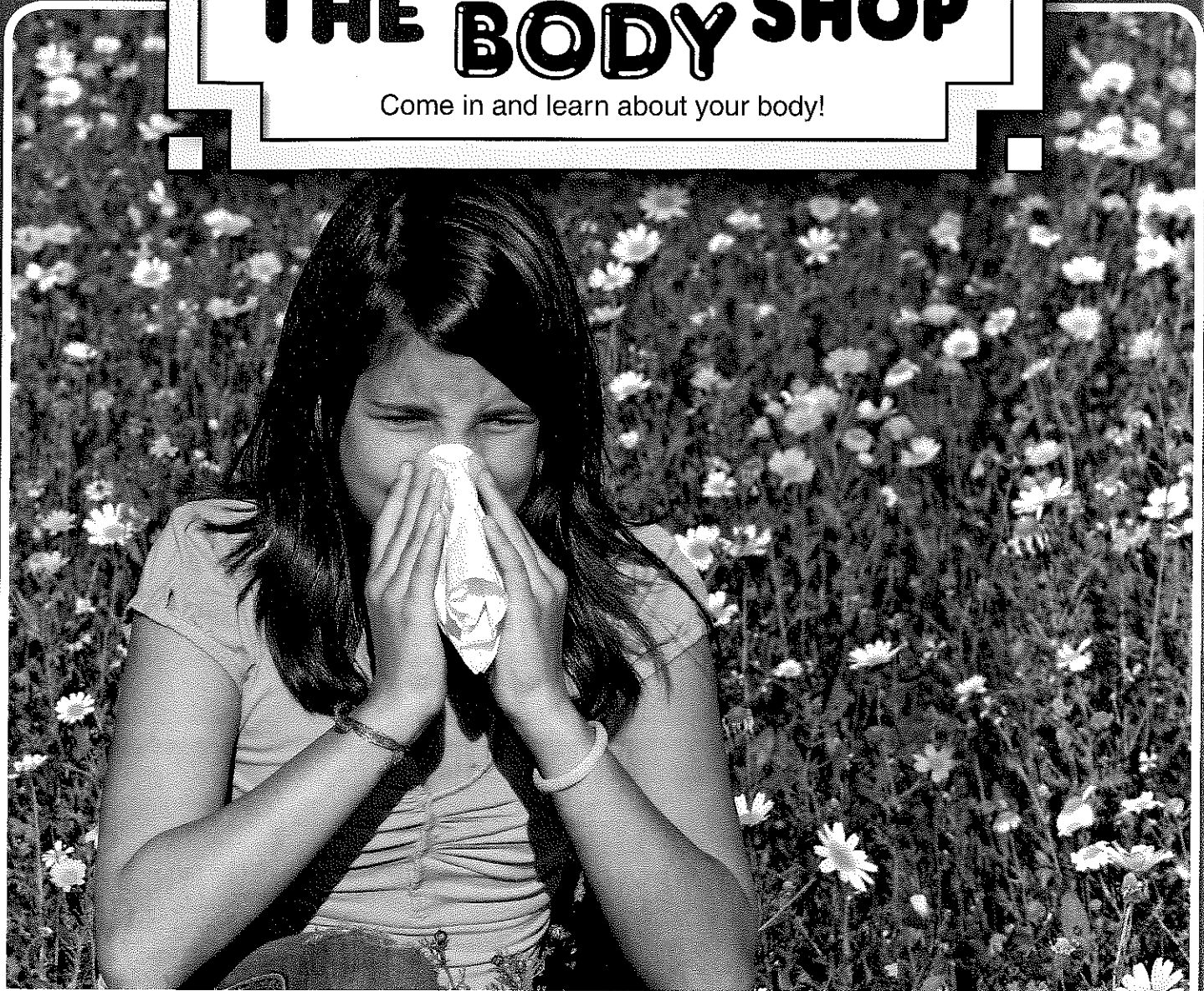




# GREAT THE BODY SHOP

Come in and learn about your body!



## Allergies and Asthma

Leslie was having a miserable day. Her nose was itchy and she couldn't stop sneezing. Her eyes were so watery that she could barely see. "This is absolutely the worst cold I've ever had!" she complained to her mother.

Leslie didn't realize it, but she didn't have a cold at all. Her symptoms were caused by allergies. An allergy is a sensitivity to something in the air, in food, or something you touch. Anything that causes an allergy is called an **allergen**. People with allergies will have an adverse or negative reaction when they come into contact with the allergen to which they are sensitive. Some common symptoms of allergies are sneezing, watery eyes, coughing, itching, a stuffy nose, a rash, or trouble breathing.

Name: \_\_\_\_\_





# How Allergies Work

Allergies are not communicable. That is, you can't catch them from someone else. However, the tendency to have allergies is hereditary. If your parents have them, it's more likely that you will, though you might not be allergic to the same things.

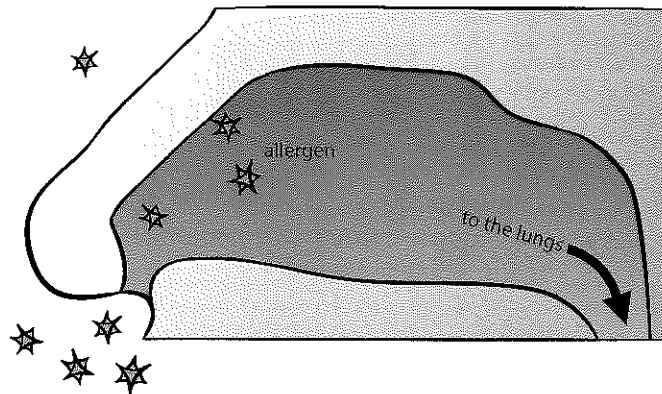
Imagine that you're allergic to cats. If you pet one (or even if you just go near one), the tiny cells from the cat's skin or fur will get into your nose, mouth, and eyes. These cells are called dander. Once you breathe in these dander cells, your body will make antibodies to fight them. These antibodies are IgE antibodies.

Now, antibodies have a very important job. They fight the bacteria and viruses that get inside your body. The problem is you don't need antibodies to fight cat dander, but an allergic person makes them just the same. In other words, his body overreacts to the allergen. (Overreacting is like calling an ambulance every time you scrape your knee!)

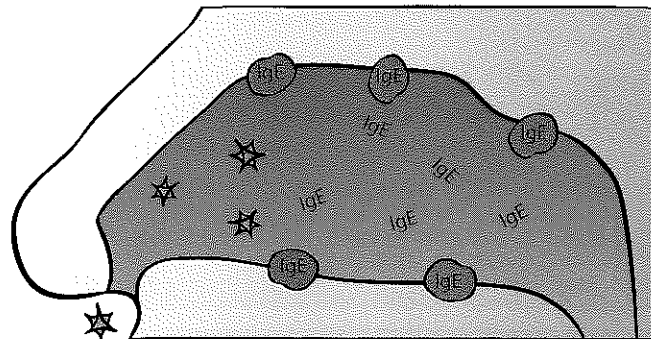
When the allergen meets the IgE antibodies, they trigger the release of a chemical called **histamine**. Histamine causes the inside lining of the nose to create more mucus, so the nose runs and becomes itchy. It can make eyes itchy and watery, and can cause headaches and rashes. It may make the bronchioles in the lungs swell, so that it's harder to breathe.



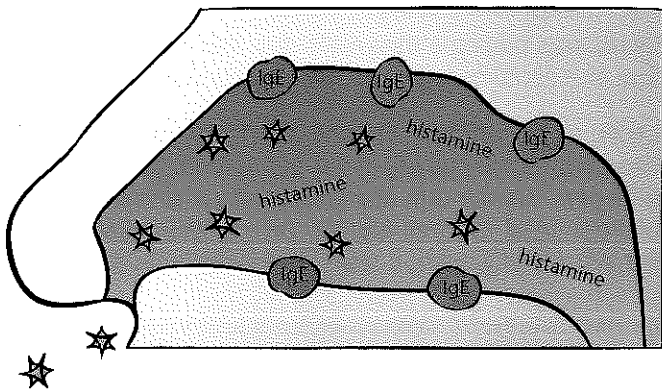
1. An allergen is inhaled for the first time.



2. The body overreacts to the allergen by making IgE antibodies. The antibodies attach to cells in the nose, throat, and lungs. These cells are called mast cells.



3. The next time the allergen gets into the body, it meets the antibodies on the mast cells. Together, they cause the release of histamine, as well as other chemicals. These chemicals irritate the nerves in the nose, and—bingo!—you sneeze. Histamine is also responsible for runny noses and watery eyes, etc.



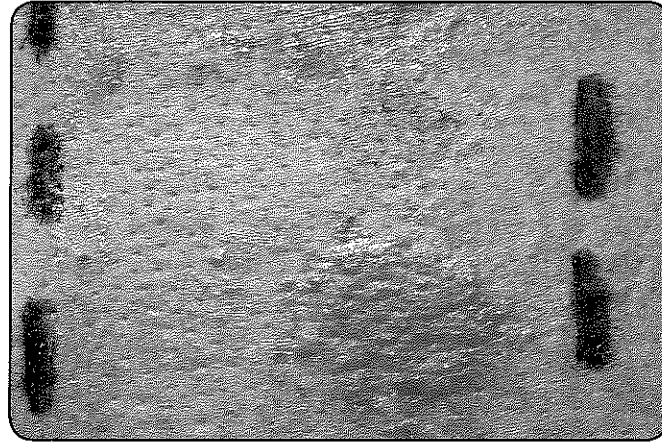
## Find the Allergen

There are several allergens that cause allergic reactions in people. The pollen from plants and weeds is one of the most common. It causes hay fever. Hay fever is simply an allergy. It really has nothing to do with hay and doesn't cause a fever! About one in ten people is allergic to pollen.

Common food allergens are milk, nuts, shellfish (such as shrimp and clams), eggs, and wheat. Pets, mold, metal, feathers, and dust mites (the tiny bugs that live in dust) can be allergens, too.

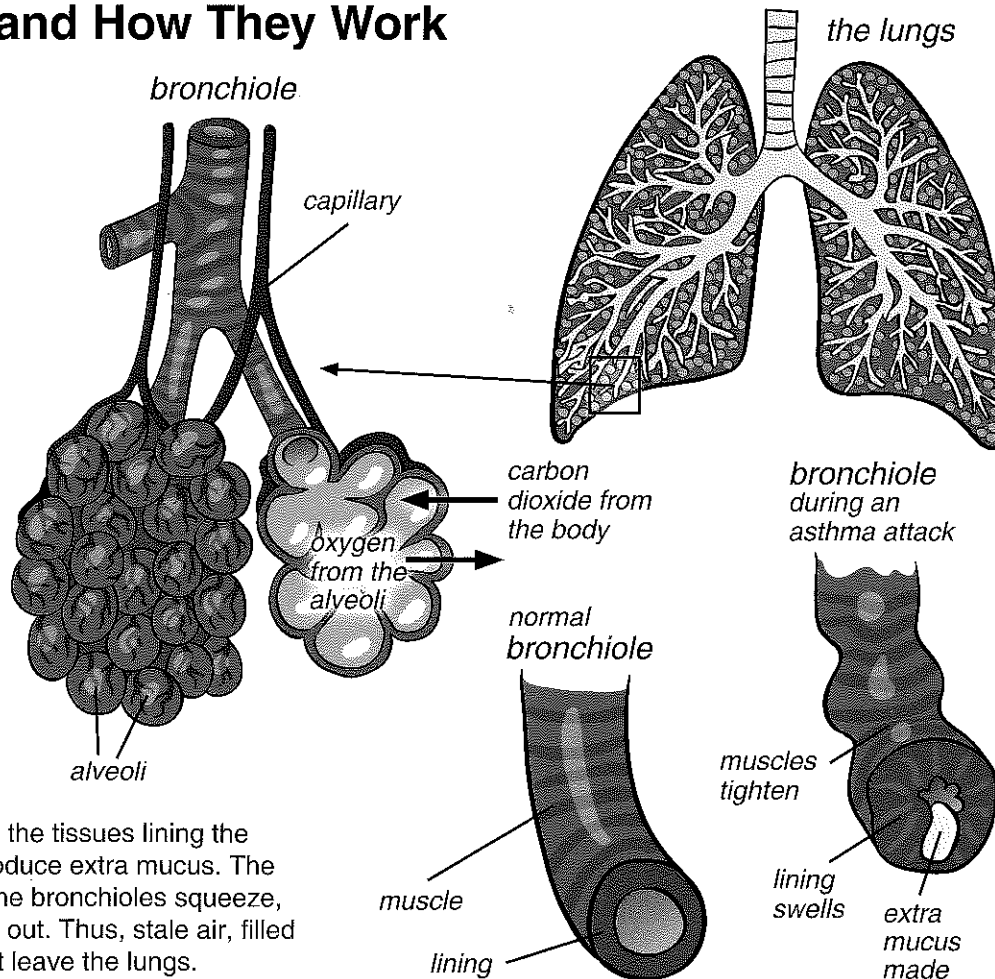
An allergist is a doctor trained to treat allergies. A pediatrician can treat allergies, too. He or she will identify what is causing a person's symptoms. First, the doctor will take a detailed health history. Knowing when, where, and how often the allergic symptoms occur helps to target the allergen. An allergist may also do a "scratch test." He or she will scratch the patient's skin with needles that have been dipped in extracts of different allergens. If a scratch appears red and slightly swollen 20 minutes later, the allergist knows that is the substance causing the allergy.

There are medicines to lessen the symptoms of allergies. **Antihistamines**, for example, stop histamine so it can't cause problems. Prescription medicines can help those with severe allergies. In some cases, the doctor might decide to try allergy shots. He or she will give the patient very small doses of the allergen. The shots will cause the patient to make antibodies that fight IgE antibodies. They help him become less sensitive to the real allergen.



## Healthy Lungs and How They Work

1. With each breath you take, air goes into the lungs, through the **bronchioles**, and to the **alveoli**.
2. Tiny blood vessels called capillaries cover the surface of each **alveolus**.
3. From the alveoli, oxygen passes out into your blood and to the rest of your body.
4. The blood also "drops off" useless carbon dioxide, the waste gas it picks up from cells. You get rid of this carbon dioxide when you breathe out, or exhale.



During an asthma episode, the tissues lining the bronchioles swell. They produce extra mucus. The muscles wrapped around the bronchioles squeeze, making it harder to breathe out. Thus, stale air, filled with carbon dioxide, cannot leave the lungs.

## Asthma Alert

Matt was having trouble paying attention during class. His chest felt “tight,” and it was getting harder for him to breathe. It was a problem he had never had before. By the end of class, he was gasping and wheezing, therefore, his teacher took him to the school nurse.

Matt found out that he had asthma. Asthma is a disease that affects your lungs. It can cause you to pant, wheeze, or gasp for breath. Most of the time, asthma is triggered by an allergy, but it can also be caused by cold air, stress, cigarette smoke, exercise, outdoor air pollution, or infections. Instead of getting a runny nose and watery eyes, the histamine affected Matt’s lungs.

Normally, the air you breathe in flows through the tiny tubes, or bronchioles, inside your lungs. At the end of the tubes are the alveoli, little sacs that look like bunches of grapes. (See diagram on page 3.) In Matt’s case, histamine made the linings of his bronchioles swell and become clogged with extra mucus. Thus, the air couldn’t get out of the alveoli. He felt as if he was breathing through a straw that someone was pinching shut. A severe asthma episode (or attack) could have sent him to the hospital.

Asthma can be very frightening—just imagine not being able to breathe! Thankfully, most people with asthma feel “warning signs” just before asthma strikes. They might have an itchy throat, or a “tight” chest or a cough. They know how to help themselves when that happens. Matt, for example, has now learned that he should sit quietly, close his eyes, and breathe in slowly through

his nose. If he starts to get nervous, it will just make it harder to breathe. A glass of warm water sometimes helps loosen the mucus.

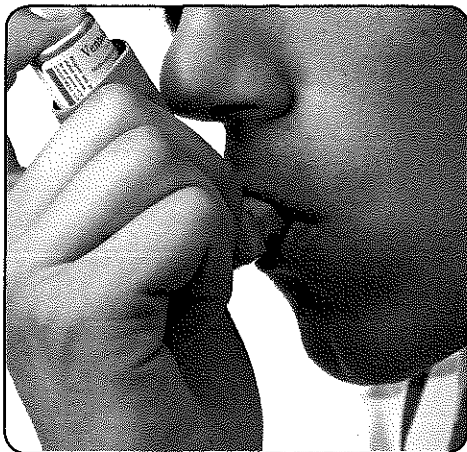
Do you think asthma means Matt can’t try out for the soccer team? Not at all! Matt has learned that cold, dry air can kick off an asthma episode. Now, he knows to warm up slowly and breathe through his nose. Some people with asthma may need medication before they play sports.

Asthma, just like allergies, can develop in people who have never had it before. In some cases, people improve as they get older. If you know of someone with asthma, take time to understand their condition and know their asthma triggers.



## Inhalers for Asthma

Inhalers are often used to prevent or treat an asthma episode. Inhalers are prescribed by a doctor and must be used strictly according to directions. Never share inhalers or other medicines.



## The Sting

The sting of a bee or wasp is no fun for anyone. For people with allergies, a bee sting can be dangerous. Approximately, two million people (in the United States) are allergic to bee stings.

When an insect stings, it leaves venom in the skin. For most people, the sting hurts for a while and turns the skin red, and it may even start to itch. But if a person is allergic to the venom, the venom will cause the face to swell. It may make the skin break out in red bumps, and cause severe breathing difficulty. A bee sting, for these people, can cause anaphylactic shock, which requires an immediate shot of **epinephrine**.

If someone you know gets stung, stay with that person for at least 15 minutes to see if he or she has an allergic reaction. If he or she does, call for help to get your friend to the hospital Emergency Room right away.



*photo by Sam Droege*

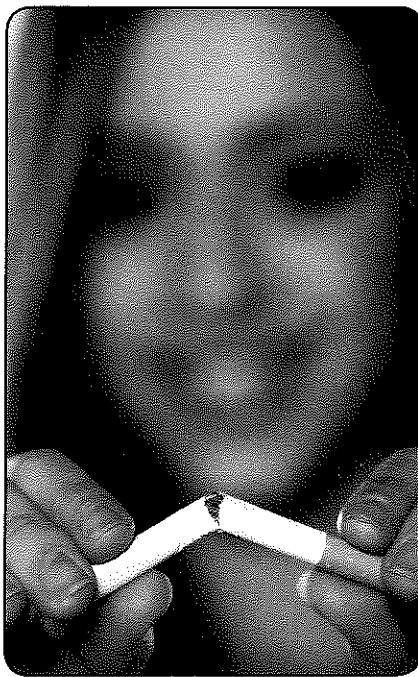


## What About Smoke?

Smoking, of course, is not good for anyone. As you can guess, it's particularly harmful for people with asthma. The hot smoke will dry up the lining of their air passages. The smoke will also "paralyze" the tiny cilia, or hair, in the lungs. The cilia then won't be able to help clean out dust, dirt, and mucus. If the cilia aren't working, the lungs will make extra mucus. All that combined can trigger an asthma attack.

Secondhand smoke (the smoke from other people's cigarettes) will also irritate the lungs. Many offices, restaurants, and public buildings now have areas where smoking is not allowed. Some states have laws to keep elevators and other public areas smoke-free.

The Environmental Protection Agency (EPA) has stated that children who constantly breathe in secondhand smoke have much more bronchitis, pneumonia, respiratory infections, and fluid in the ears than other children. The study also said that secondhand smoke aggravates the condition of up to 1,000,000 asthmatic children.



## What Is Anaphylaxis?

**Anaphylaxis** is a potentially fatal allergic reaction that can involve the skin, respiratory tract, and cardiovascular system. The most common causes are allergic reactions to food, medication, insect stings, and latex. If someone is severely allergic to peanuts and eats them unknowingly, it can be life threatening. For those who are at risk for

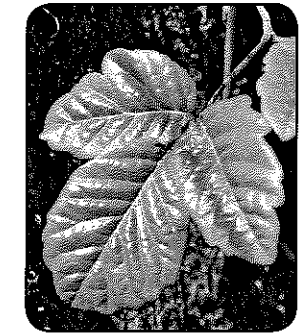


anaphylaxis, doctors will prescribe a medication which can be given at the time of the allergic reaction.

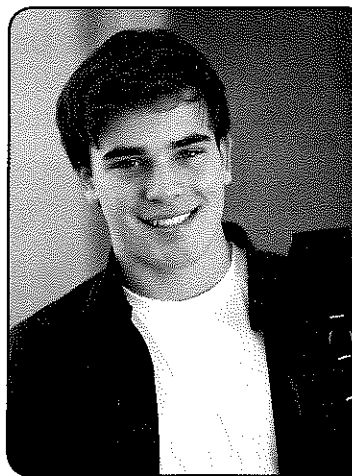
Be aware of those you know who have severe allergic reactions and be prepared to help them in case of an emergency.

## Poison Plants

Have you ever taken a walk through the woods, only to return home later with a case of poison ivy? "You must be allergic to it," someone is likely to tell you. Actually, a red, itchy rash from poison ivy, poison oak, or poison sumac is caused by an oil in the leaves of the plants. This chemical irritates the skin when you touch it. It doesn't cause histamine release, as allergies do. Washing your skin and clothes with soap and water (within 10 minutes of touching the plant) will get the oil off. It's the best way to keep the rash from developing.



## Who's in Charge? You Are!



If you've got allergies or asthma, you've got a special need. But it's a need you can control. How? By taking your medicine, following your doctor's orders, and making wise decisions for your health. After all, you know yourself better than anyone else does. You know what food, exercise, or conditions make your illness worse. You know that not getting enough sleep or feeling too much stress makes you feel lousy. When you decide to avoid or manage

these things, you show that you are responsible.

It's not easy being the only kid who sneezes and gets itchy eyes on a sunny spring day. And it's no fun to sit on the sidelines while everyone else is having fun. But just remember that allergies and asthma are problems you can control. Don't let them control you!

## ACHOO!

See if you can answer the following questions about allergies and asthma.  
(Answers on page 8)

1. The thing a person is allergic to is called an \_\_\_\_\_
2. When allergens and antibodies meet in your body, they make a chemical called \_\_\_\_\_
3. Name three foods that are common allergens. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
4. What are IgE antibodies? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



## Risky Business

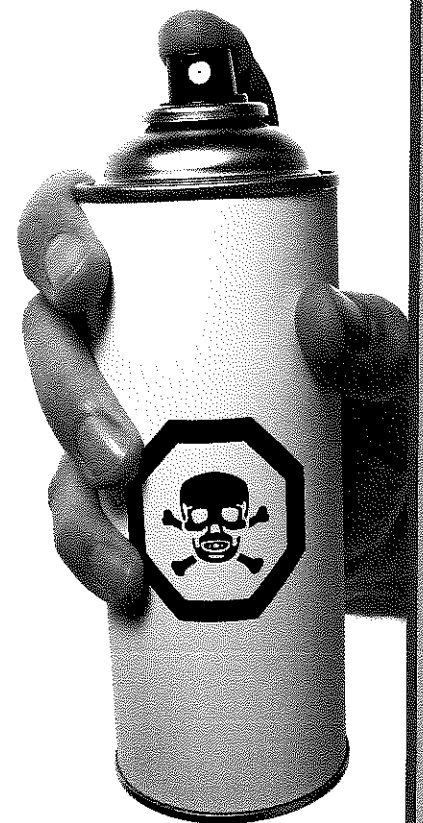
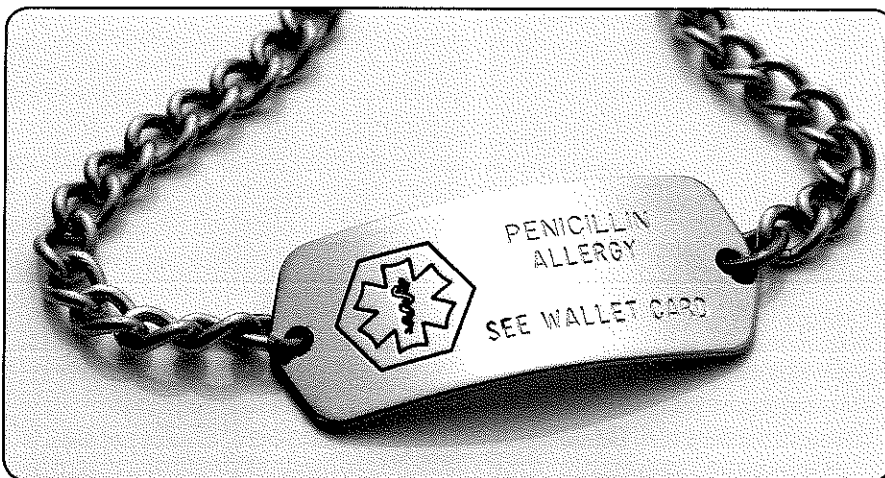
"I heard some kids talking about inhaling this stuff," said Dave as he looked at a can of cleaning solvent. "Why would they do that? Don't they know how dangerous it is?"

Dave is right. Inhaling household cleaners, aerosols, and solvents to get high is extremely dangerous. Household cleaners, bleach, paint thinner, perfume, and deodorants are toxins—chemicals or poisons that can cause kidney and liver damage, and even death, if you inhale them.

**PLAY IT SMART! DON'T INHALE ANYTHING BUT CLEAN AIR!**

## Life-saving Bracelet

Most allergies are just a pain in the nose, but some are quite dangerous. People with severe allergies often wear special bracelets. In an emergency in which the person can't talk, doctors will recognize the bracelet and know how to treat the person. These special "medic alert" bracelets are also worn to signal problems such as epilepsy, heart conditions, diabetes, and other illnesses.



## Word Wise

Choose one or more of the following activities:

1. Put words in alphabetical order.
2. Create a crossword or word search puzzle.
3. Write each word in a sentence, filled with context clues to show the meaning of the word.

**histamine**—a chemical in the body that causes symptoms of an allergic reaction

**antihistamine**—medication that stops the histamine response

**bronchiole**—a tiny thin-walled branch of a bronchial tube

**allergen**—a substance that causes an allergy

**epinephrine**—a hormone, also called adrenaline, that is used to stop the anaphylaxis reaction

**anaphylaxis**—a severe, immediate, potentially fatal reaction to an allergen

**alveolus**—small air-containing compartment of the lungs found at the end of the bronchioles, and the site at which respiratory gases are exchanged

**alveoli**—more than one alveolus



## The Puzzler's Challenge!

See if you can find all six answers in the word block below. (Answers on page 8)

1. bits of animal skin and hair
2. the cells to which IgE antibodies attach
3. this has nothing to do with hay or fevers
4. tiny tubes that get clogged during an asthma episode
5. insect fluid
6. "sweepers" in the nose and lungs

A I H I V A I A L I G Z  
H I O P E N B C I J O S  
A B R O N C H I O L E S  
Y A I O O Z A L I M P O  
F I O P M Q W I N A Y U  
E R T U Y I A A I S A L  
V N D A N D E R U T I O  
E Q O W P E I D N C I A  
R L A I D I A N S E A L  
Q N M P L Y T D N L Q Z  
P G B N M L P F T L K B

## Think About It

Do laws that ban smoking in public places help make the community a safer place? Or do you think people should be allowed to smoke wherever they want?







## Allergies and Asthma

This month in THE GREAT BODY SHOP, your son or daughter studied allergies and asthma. The lessons covered:

- Lesson 1:** About Allergies
- Lesson 2:** Feeling Good about You
- Lesson 3:** Risks to Your Health and Safety
- Lesson 4:** First Aid for Allergies and Asthma

## Did You Know That . . .

About 90% of all asthma in children is caused by allergies? (*New England Journal of Medicine* statistic.) Allergies and asthma are responsible for more school absences and hospital stays among children than any other condition.

## If Your Child Has Asthma . . .

These guidelines from The American Lung Association can be helpful:

- Visit a doctor for treatment.
- Don't give any medication without your doctor's approval.
- Help your child to relax when tense or when having an asthma episode. Together, practice slow, deep-breathing exercises. Set an example by remaining calm during asthma episodes.
- Encourage your child to be active. If exercise aggravates asthma, taking prescribed medicine beforehand may help.
- Give your child household jobs. It is important to be a productive member of the family.
- Don't keep him/her from playing with friends. Social isolation can be emotionally harmful to a child.

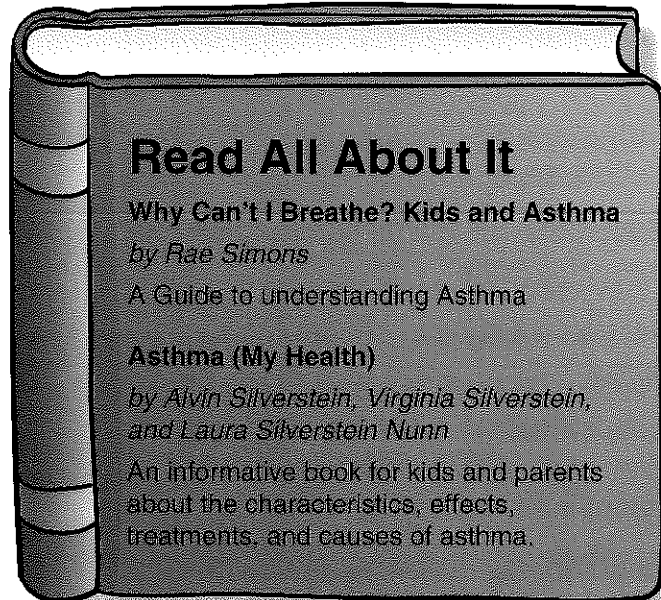


## Answers to "ACHOOO!":

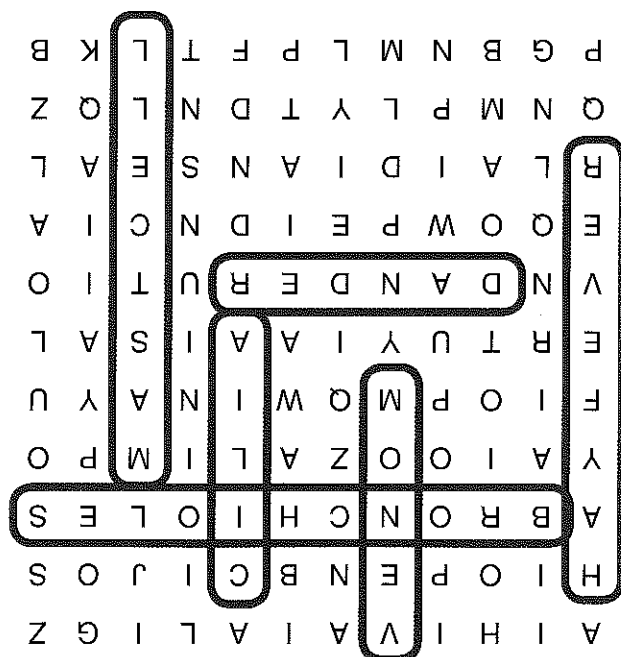
1. allergen 2. histamine
3. milk, nuts, shellfish, eggs, wheat, peanuts
4. antibodies made after an encounter with an allergen

## Should You Buy an Air Filter?

Air filters (or purifiers) have been designed to get rid of smoke and dust. But don't count on them to completely remove the tiny pollen, mold spores, dust mites, or dander that cause allergy symptoms. In studies, air filters helped only when placed directly above a child's head at night. (Univ. of CA/Berkeley Wellness Letter.) For more information visit: The American Asthma Association at [www.aafa.org](http://www.aafa.org).

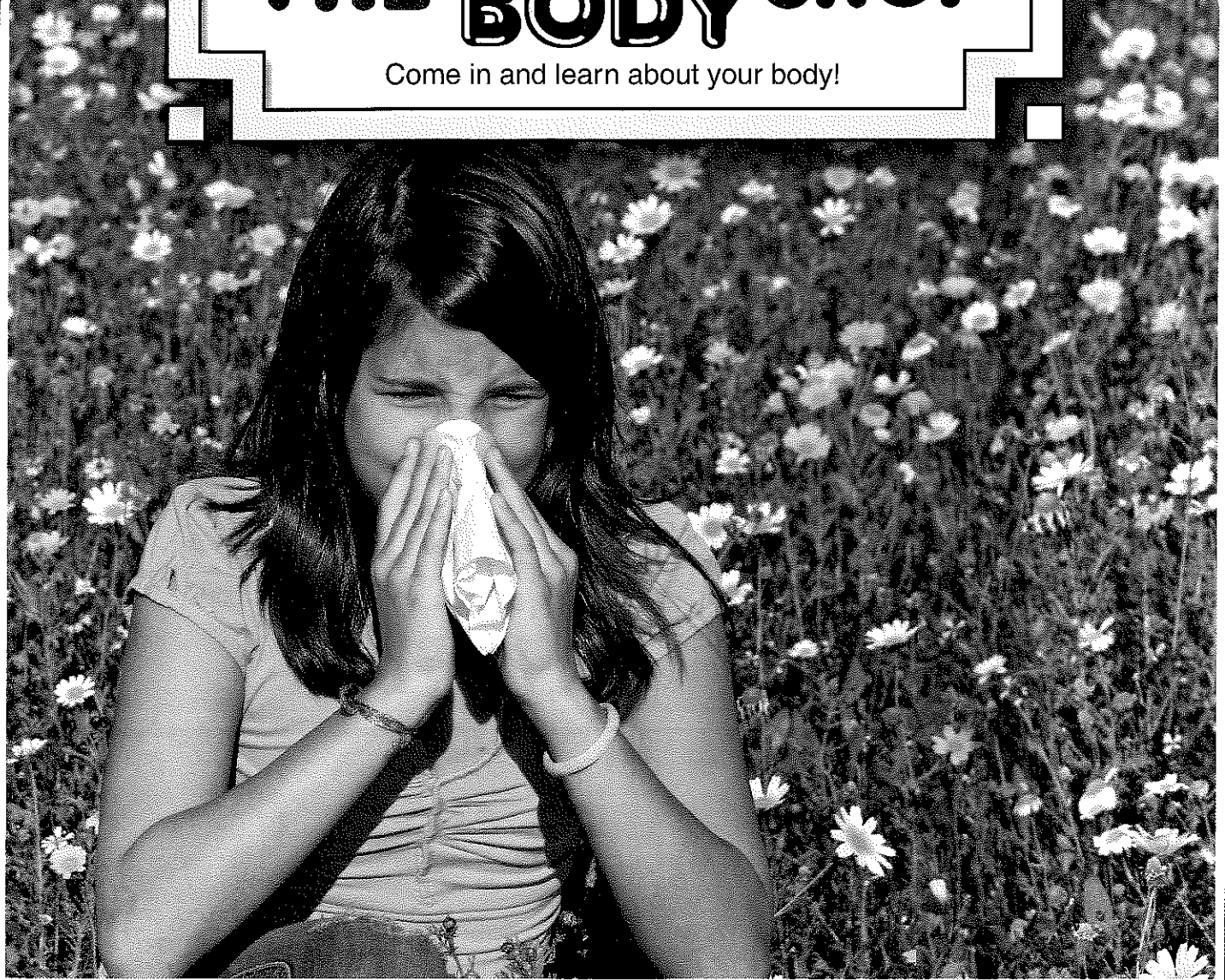


## Answers to The Puzzler's Challenge!



# GREAT THE BODY SHOP

Come in and learn about your body!



## Allergies and Asthma

Leslie was having a miserable day. Her nose was itchy and she couldn't stop sneezing. Her eyes were so watery that she could barely see. "This is absolutely the worst cold I've ever had!" she complained to her mother.

Leslie didn't realize it, but she didn't have a cold at all. Her symptoms were caused by allergies. An allergy is a sensitivity to something in the air, in food, or something you touch. Anything that causes an allergy is called an **allergen**. People with allergies will have an adverse or negative reaction when they come into contact with the allergen to which they are sensitive. Some common symptoms of allergies are sneezing, watery eyes, coughing, itching, a stuffy nose, a rash, or trouble breathing.

Name: \_\_\_\_\_

