

Be an Engineer!

Design an obstacle course with a station for each of the four categories of exercise described in this book. Draw a map of the course and label what people would do at each station. On separate paper, explain how each station in your obstacle course will help improve certain body systems.



Beyond the Book

Use the Internet to learn about exercises that help you develop a strong core using only your own body.

FOCUS Book

Exercise: Get Moving!



: Science A-Z 



Exercise: Get Moving!



FOCUS Question

How does exercise affect your
body's systems?

Cause and Effect

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Get a Move On!

When you ride your bike, play soccer, swim, or do push-ups, you are doing exercise. You've probably heard that exercise is good for you. But do you know exactly *why* it is good for you?

During exercise, your body works harder. Over time, this extra work makes your whole body, including your brain, stronger!

There are four main types of exercise. Each one affects body systems in different ways. All four are important to your health.

Read about them on page 3.



Cycling is a fun form of exercise.



Read-Think-Write

Write your answers on separate paper. Use details from the text as evidence.

- 1 What are the four main categories of exercise described in the book?
- 2 What is *range of motion*, and which category of exercise is best at increasing it?
- 3 Why does the book mention oxygen so often?
- 4 What are the three main body systems discussed in the book, and why is each system important during exercise?
- 5 How might a person's health improve if he or she performed all four kinds of exercise regularly for one year?



FOCUS Question

How does exercise affect your body's systems? Create a chart that includes the four categories of exercise discussed in the book. Give one example of each type of exercise. Then describe how each exercise benefits certain body systems.



Four Categories of Exercise

Aerobic exercise is any exercise that makes you breathe faster than normal. It makes your heart beat faster. Dancing and jumping rope are aerobic exercises.



Stretching involves moving muscles to their full length. Yoga is a kind of stretching exercise.



Strength training involves lifting, pushing, or pulling weight. It involves short bursts of hard exercise. Push-ups and lifting weights are examples of strength training.



Stability training involves keeping parts of your body steady while you move other parts. Walking on a balance beam and yoga are examples of stability training.





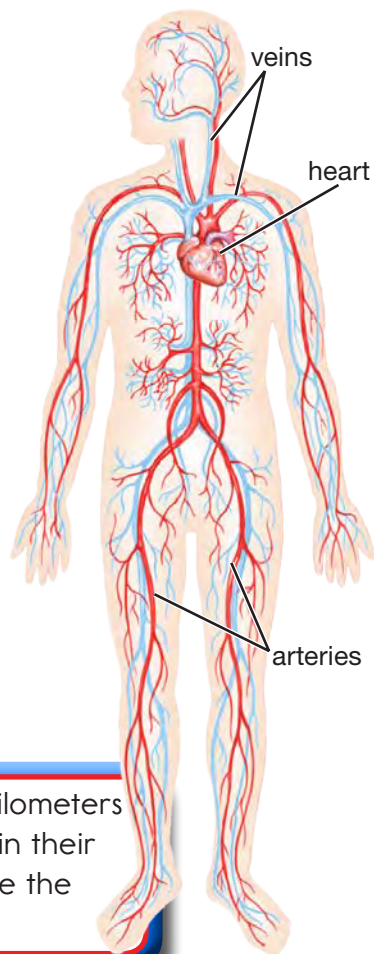
Healthy Heart

Your heart works all the time because your body needs oxygen to stay alive. When you are active, your heart works even harder. That's because your muscles need extra oxygen.

Circulatory system to the rescue! This body system includes the heart, blood vessels, and blood.

During exercise, especially activities like running and swimming, your heart beats faster to pump more blood to muscles. Blood vessels become wider. As a result, they can carry more blood and oxygen to cells in your muscles.

THE CIRCULATORY SYSTEM



Do You Know?

Humans have about 96,560 kilometers (60,000 mi.) of blood vessels in their bodies. That's more than twice the distance around Earth!



Other Benefits of Exercise

Your brain is not a muscle, but exercise is good for it, too. Your brain is part of your *nervous system*. Chemicals released during exercise help you think more clearly. These chemicals help you pay attention and remember things.

Exercise requires energy, but it also gives you energy. Daily activities become easier over time. Exercise is good for your *immune system*, too. Being in shape helps you fight illnesses.

Lastly, exercise gets rid of stress. It helps you relax and be happier!



Exercise can be a great way to make new friends.

Exercise Tips

1. Warm up before you exercise and cool down afterward.
2. Drink plenty of water before, during, and after you exercise.
3. Don't push too hard when you exercise. Know when to stop so you can prevent injuries.

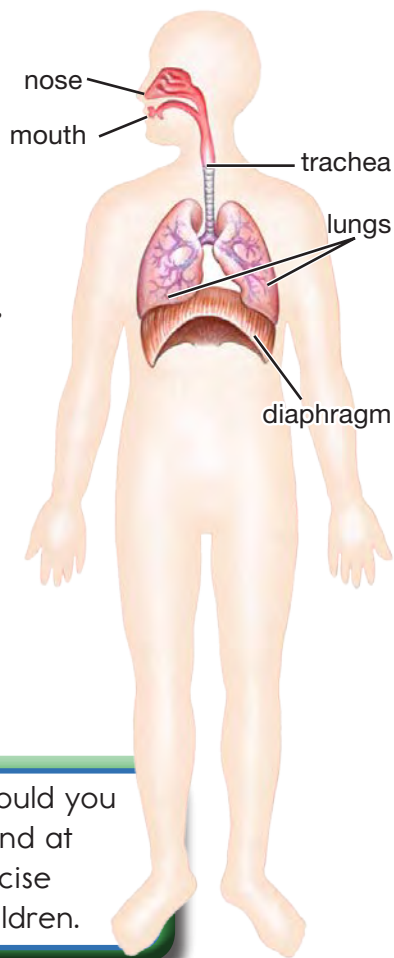


Deep Breaths

Breathing is important to every kind of exercise. When you inhale, oxygen fills your lungs. The *respiratory system* includes your lungs and *diaphragm*, a strong muscle under your rib cage.

During exercise, you breathe faster and deeper to get more oxygen. With regular exercise, your diaphragm and the muscles between your ribs become stronger. This allows for deeper breaths, which bring even more oxygen into the body. All exercise makes the lungs stronger—and healthier, too.

THE RESPIRATORY SYSTEM



Science in Your World

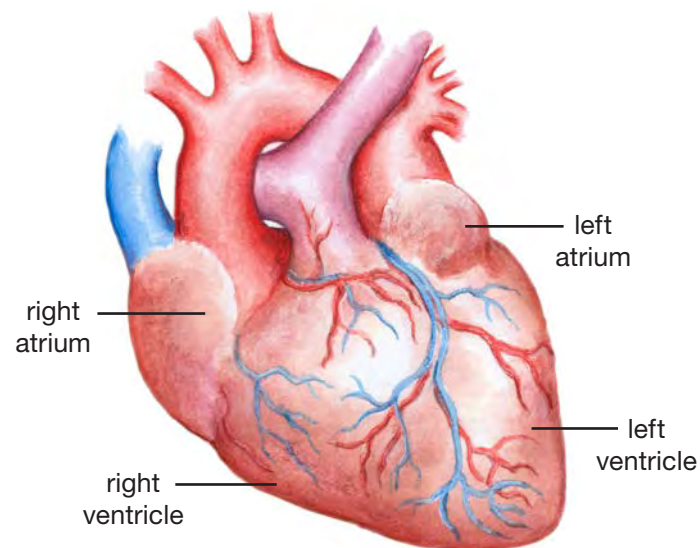
How much exercise should you get? Experts recommend at least one hour of exercise every day for most children.



If you exercise regularly, your heart muscle becomes stronger. Your heart can pump more blood with each beat. Each beat then delivers more oxygen to your cells. A stronger heart doesn't need to beat as many times each minute. It doesn't have to work as hard when you are resting. This is why exercise is so good for your heart.

Regular aerobic exercise can also cause new *capillaries* to grow. These tiny blood vessels carry oxygen to every cell. Your muscles get more oxygen, even when you are not exercising.

THE HUMAN HEART



The heart has four parts, called *chambers*, that work together to pump blood throughout the body.

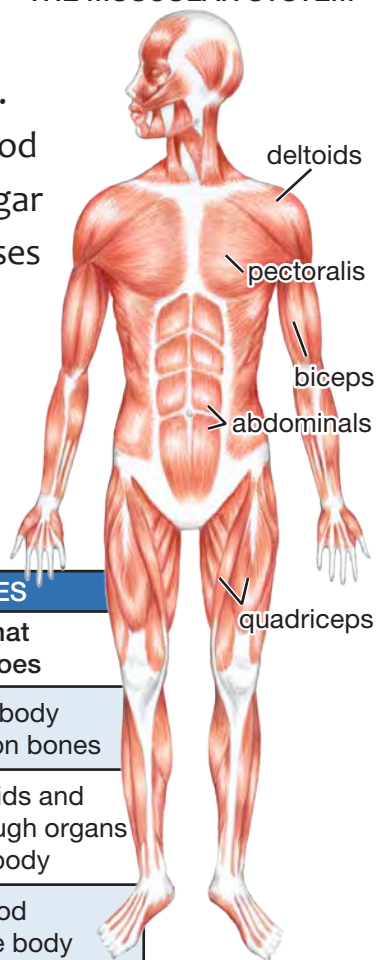


Muscle Power

Skeletal muscles are the ones attached to your bones. When you exercise, these muscles do most of the work. They allow your body to run, jump, stretch, and move things. Exercise helps skeletal muscles in many ways.

THE MUSCULAR SYSTEM

During exercise, more blood flows to the skeletal muscles. In addition to oxygen, the blood delivers *glucose*, a type of sugar used for energy. Some exercises cause your muscles to work and move faster than your body can produce glucose. Your muscles can get sore as a result.



THREE TYPES OF MUSCLES

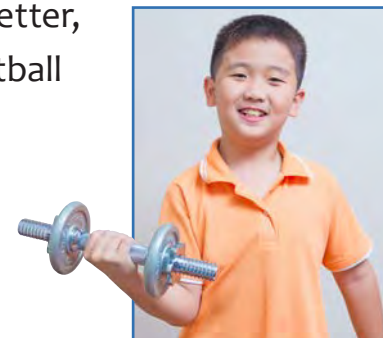
Type of Muscle	Location in Body	What It Does
Skeletal muscle	Attached to bones	Moves the body by pulling on bones
Smooth muscle	Many internal organs	Moves liquids and solids through organs within the body
Cardiac muscle	Heart	Pumps blood through the body



Strength training makes skeletal muscles stronger and sometimes larger. Bigger muscles help the body burn more fat both during and between workouts. Strength training makes bones stronger, too.

Stretching exercises make skeletal muscles longer and ready to move. Over time, stretching helps your body move farther in different directions. This is called *range of motion*. Stretching also helps athletes perform some actions better, such as dunking a basketball or pitching a softball.

Stability training helps muscles keep the body in good posture. It also makes balancing, bending, lifting, and reaching easier.



Strength training can be done with weights, machines, bands, or just body weight.



Plank exercises help build a strong *core*—the muscles that support and control your spine.