

Investigating Physical Fitness

WHAT YOU NEED



pastel-colored stick
of chalk

Find Out

Do this activity to find out how physically fit your classmates are based on the amount of time spent doing different activities.

Process Skills

Observing
Communicating
Classifying
Interpreting Data

Time

- 5 minutes each day for two weeks
- 30 minutes on the last day of the second week

WHAT TO DO



1. Every day **record** the amount of time spent doing different activities. **Classify** these activities and **record** the time spent doing each on the chart.
2. At the end of two weeks gather all the charts and total each column on the chalkboard. This is the master chart.

3. **Analyze** and **record** how much time the students in your class spent doing each activity. **Determine** which activities are good for health and fitness and which do not promote physical fitness.

Time Spent Doing Activities

Day	Reading	Exercise	Sleep	Homework	Chores	Television	Other
1	Answers in the chart will vary.						
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							

Conclusions

1. Based on the master chart, do you think your class has a healthful balance of exercise, work or study, and relaxation?

Answers will vary depending on the data. A healthful balance will include regular exercise, a reasonable amount of study or work, and good relaxation and sleep. Address differences in student conceptions regarding which activities are classified as exercise, work or study, and relaxation.

2. What activities promote physical fitness and which do not?

Activities that promote physical fitness are those that involve bodily movement for an extended period of time and allow for plenty of sleep; activities that do not promote physical fitness are those that do not involve bodily movement or sleep. Address student conceptions of what physical fitness is and which activities increase their level of physical fitness.

3. What changes would you make in your own habits for better fitness?

Answers will vary depending on each student's activity level. Changes could be to have better sleep and eating habits and to exercise regularly.

New Questions

1. Why is it important to have good fitness habits?

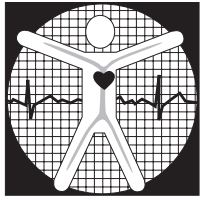
The sooner you use good fitness habits, the healthier your body will become. It is also easier to start healthful habits when you are young.

2. How do the foods you eat affect physical fitness?

Your body can use healthful foods in a more efficient manner and provide more nutrients for your body. Junk foods are stored as fat and lack most nutrients.



Name _____



ACTIVITY

Investigating Muscles and Bones

Predict what parts of the muscular and skeletal systems you will see in the chicken leg and thigh.

Answers will vary. Students might mention muscles, bones, joints, ligaments, and cartilage.

What muscles and bones in the leg and thigh do you see? Draw and **label** what you observe. **Record** what happens to the muscles when you bend and straighten the leg and thigh at the joint.

Students should see the movement in opposing muscles.

Draw and **label** the bone joints, ligaments, and cartilage that you observe. **Classify** the parts you saw under the correct system.

Skeletal System
bones, joints, cartilage

Muscular System
muscles, tendons

Conclusions

- ① What kind of joint did you find between the thighbone and the lower leg of the chicken?
the hinge joint

- ② What parts did you find around the joints of the bones?
ligaments, fluid, cartilage and tendons

How do these parts function?

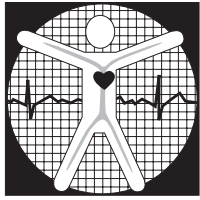
Ligaments hold together bones in movable joints. Cartilage keeps the ends of bones from grinding against each other. Fluid keeps the area between bones slick and smooth to help cartilage move easily. Tendons attach muscles to bones.

Asking New Questions

- ① Identify which muscles contract and relax when a chicken lifts its leg to walk.
Muscles on the top of the thigh contract when the muscles at the back of the thigh relax. The other muscles in the chicken leg also work in pairs.

- ② **Infer** how your leg is similar to a chicken leg in the way it moves.
Both are moved by muscle contraction, and both have hinge joints.

Name _____



ACTIVITY

Investigating Strength and Endurance

How much water does the plastic jug contain?

4000 mL

How much water can you lift with your arm bent at the elbow? What is the mass of the jug?

Answers will vary.

How much water can you lift above your head? What is the mass of the jug?

Answers will vary.

How many times can you lift the jug with your arm bent at the elbow in two minutes or until your muscles feel tired?

Answers will vary.

Name _____

Conclusions

- 1** How was your muscles' endurance investigated?
Endurance was observed when muscles exerted force over a period of time, particularly when the jug was lifted as many times as possible in two minutes (Step 7).

- 2** How was your muscles' full range of motion used?
The full range was used when the jug went from the side of the hip to above the head (Step 5).

- 3** How did the amount of weight that you could lift change as you explored strength, flexibility, and endurance?
Answers will depend on students' levels of fitness and may reflect that they could lift more once than they could lift above their heads or lift for two minutes.

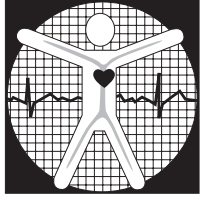
Asking New Questions

- 1** Develop a testable question. Plan and conduct a simple investigation based on this question and write instructions that others can follow to carry out the procedure.
Student-developed questions and investigations will vary.

- 2** Identify the dependent and controlled variables in the investigation.
Reports will vary but should be well organized and clearly written.

- 3** Prepare a report of your investigation that includes the tests conducted, data collected, or evidence examined, and the conclusions drawn.
Variables and explanations will vary according to students' investigations.

Name _____



ACTIVITY

Converting Energy

What happened when the baking soda and vinegar combined?

The vinegar fizzed. The balloon inflated.

Activity Journal

Lesson 3 • Energy in Your Body

Name _____

Conclusions

1 **Infer** where the potential chemical energy was stored.
in the vinegar and baking soda

2 What object did the kinetic mechanical energy move?
the balloon

Asking New Questions

1 How was the energy conversion in the activity like the energy conversion that takes place in your muscles?
In both the activity and respiration, chemical energy is converted to kinetic mechanical energy.

2 What activity do all cells perform that converts potential chemical energy into kinetic mechanical energy?
respiration