

## **Title: Active or Not, Here It Comes!**

**Section:** Physical Activity

**Investigative Question:** What is considered physical activity?

### **Description of Content:**

The goal of this section is to expand students' understanding of physical activity beyond organized sports. By extending their view of physical activity, students will recognize that organized sports (e.g., playing on the football or soccer team), less competitive or personal fitness activities (e.g., swimming with friends or weight training), lifetime sports (e.g., golfing or walking), and some everyday activities (e.g., walking their dog, dancing to their favorite song, or mowing the lawn) are all forms of physical activity. As students' understanding grows, they will determine that they already participate in physical activities to some extent and gain confidence to expand upon their activities.

### **Relevant Standards:**

National educational standards that correspond to this activity appear below. Grades 5-8 and grades 9-12 standards are listed to address those middle schools that include ninth grade.

#### *National Science Education Standards*

##### Grades 5-8, Standard F

- Regular exercise is important to the maintenance and improvement of health. The benefits of physical fitness include maintaining a healthy weight, having energy and strength for routine activities, good muscle tone, bone strength, strong heart/lung systems, and improved mental health. Personal exercise, especially developing cardiovascular endurance, is the foundation of physical fitness.
- Individuals can use a systemic approach to thinking critically about risks and benefits. Examples include applying probability estimates and comparing them to estimated personal benefits.
- Important personal and social decisions are made on perceptions of benefits and risks.

##### Grades 9-12, Standard F

- Personal choice concerning physical fitness and health involves multiple factors. Personal goals, peer and social pressures, ethnic and religious beliefs, and understanding of biological consequences can influence decisions about health practices.

## *Benchmarks for Science Literacy*

### Chapter 6, Benchmark E, Grades 6-8

- Regular exercise is important to maintain a healthy heart/lung system, good muscle tone, and bone strength.

## *National Health Education Standards*

### Grade 5-8

#### Standard 1

- Students will be able to reduce the risks related to adolescent health problems.

#### Standard 3

- Students will explain the importance of assuming responsibility for personal health behaviors.
- Students will analyze a personal health assessment to determine health strengths and risks.

#### Standard 6

- Students will apply strategies and skills needed to attain personal health goals.

### **Objectives:**

Students will:

- Describe the health benefits associated with physical activity.
- Relate physical activities to a wide range of events besides organized sports.
- Maintain an accurate log of data on personal physical activity.

### **Ideas Commonly Held by Students:**

These ideas, drawn from the literature, represent some of the ways adolescents think and act with respect to their environment in general, and physical activity in particular. They are important considerations when developing lessons around the activities that follow.

- Mastering physical skills or being physically competent is extremely important to young children (Harter, 1981).
- Boys perceive the physical domain as the most important (more important than academic and social) in terms of displaying competence (Eccles and Harold, 1991).
- Girls participate in physical activity primarily “to have fun,” followed by (in order of occurrence) “to stay in shape,” “I like it,” and “to learn new skills” (Kientzler, 1999).

- Verbal encouragement alone does not have a strong effect on girls' participation. Modeling is most important (Kientzler, 1999).
- Girls who do not report participating regularly in physical activity demonstrate much less knowledge about the benefits of physical activity than regular participants do (Kientzler, 1999).
- Girls who are physically active have higher perceptions of their athletic and academic ability than girls who are not as active or who are inactive (Kientzler, 1999).
- Euro Americans make more "ME" endorsements (i.e., the sport they could "see themselves" involved in) for swimming, rowing, hockey, water skiing, and bowling. Feel most competent in baseball/softball (Harrison, Lee, and Belcher, 1997).
- African Americans make more "ME" endorsements only for basketball and feel most competent by a ratio of 4 to 1 (Harrison, Lee, and Belcher, 1997).
- In many instances, minority students do not desire to participate in a variety of organized sports and physical activities, perhaps because the students do not see the activities as self-defining (Ennis, 1995).

**Materials:**

2" X 8" strips of construction paper

Markers

Video showing physical activity

Copies of Scenario worksheet (page 9)

Copies of Physical Activity Log (page 10, 11, and 12)

**Safety:**

Ample space will be needed for students to actively participate.

Be cautious of students that are overly sedentary; they could develop health problems if they partake in strenuous activities too rapidly. Also, be aware of pre-existing health conditions that could inhibit a student's ability to participate. Try to make adjustments in the suggested activities to accommodate students who are more sedentary.

Be sure that you remind students that before performing physical activity, they should warm-up and stretch the muscle groups to be used. A warm-up is a physical activity that raises the temperature of the blood, muscles, tendons, and ligaments. Warm-ups prepare the body for vigorous physical activity by gently using the muscles to be worked in a manner that mirrors the activity to be undertaken, gradually raising the pulse and warming the joints.

Students should also cool-down after physical activity. A cool-down is a gentle physical activity that helps the body return to its normal state after vigorous activity. Cool-downs decrease the pulse gradually while helping to reduce stiffness.

**Procedure:**

*Engagement (time ~ 5-10 minutes)*

1. Read students the following definitions of “exercise,” “physical activity,” and “physical fitness”:

**Exercise** is planned, is structured, and provides for repetitive bodily movements. It is done to improve or maintain one or more components of physical fitness.

**Physical Activity** is any bodily movement produced by skeletal muscles that results in energy expenditure and is positively correlated with physical fitness.

**Physical Fitness** is a set of attributes that people have or achieve relating to their ability to perform physical activity. The health-related components of physical fitness include the following: (1) body composition, (2) cardiovascular endurance, (3) flexibility, (4) muscular endurance, and (5) muscular strength.

2. List some activities on the board (see the BAM.gov activity cards in the Physical Activity section for ideas) and ask students to vote if they are examples of exercise or physical activity.

*Exploration (time ~ 20-25 minutes)*

1. Place students in groups of three or four and have them brainstorm and list everything that can be considered physical activity. Ask them to think of activities that work different body parts. Remind them that the activities may work more than one section of the body. Students may also review the BAM.gov site’s activity cards in the Physical Activity section to help them think of activities.
2. Provide students with strips of paper (2” X 8”) and have them write the activities on the strips of papers.

*Explanation (time ~ 30 minutes)*

1. List the main body sections and systems on the board or wall and allow the students to organize their activities by these headings. This list may include the following body parts/systems: heart/lungs, shoulders, arms, abdomen, legs, etc.
2. Discuss the student’s classification of the activities and clarify any concerns. Students also may check the BAM.gov activity cards in the Physical Activity section for information on the parts of the body certain activities work.

3. Play a video showing physical activity. Have students analyze the actions shown and determine which parts of the body they work. Students should be encouraged to attempt the motions to help them determine the effect.
4. Ask students if they would like to revise their classifications and discuss the accuracy of their classifications.

*Elaboration (time ~ 10-15 minutes)*

1. Hand out the scenario (see page 9) and have students complete the worksheet on their own. Discuss the motions involved such as climbing, stretching, lifting, etc.

Analysis questions

1. Are these actions physical activity? Why?
2. Which body parts do the actions work? How do you know?
3. What other things that you do in the day may be classified as physical activity?

*Evaluation (time ~ 10 minutes per day for 3 days, outside of class)*

1. Students will keep a log (page 10, 11, and 12) of their personal physical activities for three days. Students will calculate the amount of time spent doing each type of physical activity and analyze their physical activity level. Students will also express health benefits recognized through the analysis of their physical activity log.

*Note to teachers:*

The minimum guideline specifies that children in middle school should participate in physical activity five days per week, for a combination of 60 minutes per day. They should make sure to participate in a variety of different activities.

Analysis Questions

1. What are the benefits associated with your physical activities?
2. What body areas should you work to enhance your physical activity level? Why?
3. Explain your understanding of your physical activities and their relationship to what is considered optimal activity level?

Students overall evaluation for this activity can be based on the performance descriptors scheme below.

**Performance Descriptors:**

<b>Rating</b>	<b>Performance Descriptor</b>
<b>4</b>	Students understand that physical activities incorporate a wide range of events besides organized sports, and can give examples of activities that work different parts of the body. Students demonstrate an understanding of the health benefits associated with physical activity.
<b>3</b>	Students understand that physical activities incorporate a wide range of events besides organized sports. Students demonstrate an understanding of the health benefits associated with physical activity.
<b>2</b>	Students understand that physical activities incorporate a wide range of events. Students demonstrate an understanding of the health benefits associated with physical activity.
<b>1</b>	Students recognize that sporting events are classified as physical activity and are beneficial to your health.

**Web Resources:**

[www.bam.gov](http://www.bam.gov)

*BAM!* is brought to you by the Centers for Disease Control and Prevention (CDC), an agency of the U.S. Department of Health and Human Services (DHHS). *BAM!* was created to answer kids' questions on health issues and recommend ways to make their bodies and minds healthier, stronger, and safer. *BAM!* also serves as an aid to teachers, providing them with interactive activities to support their health and science curriculums that are educational and fun.

[www.kidshealth.org](http://www.kidshealth.org)

KidsHealth provides health information about children from before birth through adolescence, presented on separate areas for kids, teens, and parents. The site was created by the Nemours Foundation's Center for Children's Health Media and all of its information is doctor-approved.

[www.nlm.nih.gov/medlineplus/exercisephysicalfitness.html](http://www.nlm.nih.gov/medlineplus/exercisephysicalfitness.html)

MedlinePlus is a site maintain by the National Library of Medicine, National Institutes of Health. The “Exercise and Physical Fitness” page offers many links to web pages with information on physical activity and health.

<http://exchange.co-nect.net/Teleprojects/project/Fitness>

This site allows for an assessment of personal physical activity relative to other students, and the opportunity to participate in a online web-quest to track the results of their physical activity.

[www.cdc.gov/HealthyYouth/physicalactivity/pdf/facts.pdf](http://www.cdc.gov/HealthyYouth/physicalactivity/pdf/facts.pdf)

CDC's physical activity and the health of young people fact sheet. Includes links to other related CDC resources.

[www.cdc.gov/nccdphp/sgr/adoles.htm](http://www.cdc.gov/nccdphp/sgr/adoles.htm)

This page provides a fact sheet on adolescents and young adults from the Surgeon General's Report on Physical Activity and Health.

<http://library.thinkquest.org/12153/basics.html>

This site offers physical activity definitions, as well as information on warming-up before, and cooling-down after, physical activity.

[www-nehc.med.navy.mil/hp/fitness/index.htm](http://www-nehc.med.navy.mil/hp/fitness/index.htm)

NEHC Physical Fitness Homepage for the Navy Environmental Health Center, Norfolk, VA. Contains links for posters, physical tests, nutrition guides, and physical activity planning guides.

[www.nih.gov/health/exercise](http://www.nih.gov/health/exercise)

This online pamphlet from the National Institutes of Health and the National Heart Lung and Blood Institute offers information on how physical activity can benefit the body, with special focus on the heart and lungs. It also outlines ways to start and maintain a physical activity routine.

[www.cdc.gov/excite/](http://www.cdc.gov/excite/)

The Excellence in Curriculum Integration Through Teaching Epidemiology (EXCITE) site provides a collection of teaching materials developed by the Centers for Disease Control and Prevention (CDC) to introduce students to public health and epidemiology, the science used by "Disease Detectives" everywhere. Students will learn about the scientific method of inquiry, basic biostatistics, and outbreak investigation. EXCITE adapts readily to team teaching across a variety of subjects, including mathematics, social studies, and even history and physical education.

### **Text Correlations:**

Prentice Hall *Science Explorer – Human Biology and Health*, pages 21-28

Glencoe *Teen Health*

Glencoe *Science Voyages*

Southwestern Publishing *Science Probe I*, Chapter 10

Centerpointe Publishing *Science: Essential Interactions*

## References:

Eccles, J. S. and Harold, R. D. (1991). Gender differences in sport involvement: Applying the Eccles' expectancy-value model. *Journal of Applied Sport Psychology*, 3, 7-35.

Ennis, C. D. (1995). Teachers' responses to noncompliant students: The realities and consequences of a negotiated curriculum. *Teaching and Teacher Education*, 11, 445-460.

Harrison, L., Lee, A., and Belcher, D. (1997). *Self-schemata for movement activities: The influence of race and gender*. Paper presented at the annual meeting of the American Educational Research Association, Chicago.

Harter, S. (1981). A model of intrinsic mastery motivation in children: Individual differences and developmental change (pp. 215-255). In W. Collins (Ed.), *Minnesota symposium on child psychology*. Hillsdale, NJ: Erlbaum.

Kientzler, A. L. (1999). Fifth-and seventh-grade girls' decisions about participation in physical activity. *The Elementary School Journal*, 99(5), 391-414.



## Scenario

When you arrive home from school, your mother surprises you with three concert tickets for your favorite group. She wants to chaperone, but tells you that you may bring a friend. You invite your friend and the three of you set off for the show! The only problem is that parking is going to be very limited and the seats are very high up in the concert hall—the “nosebleed” seats.

1. List everything you do to get to your seats to enjoy the concert. This includes walking from the parking space, finding your seat, etc.
2. Explain the motions needed to complete these physical activities.
3. Relate the motions to the different body parts that they work.

# Physical Activity Log

Day 1

Activity	Time	Body Parts Worked	Effect

**Day 2**

<b>Activity</b>	<b>Time</b>	<b>Body Parts Worked</b>	<b>Effect</b>

**Day 3**

<b>Activity</b>	<b>Time</b>	<b>Body Parts Worked</b>	<b>Effect</b>