

name _____

Time Frame

2-3 class periods

Overview

In this lesson, students will investigate the benefits of physical activity; practice measurement and data analysis skills; and write an argument to persuade someone their age to exercise.

Objectives

- Students will rank a series of physical activities by the number of calories burned by doing them.
- Students will do a series of mathematical calculations using their pulse points before and after exercise and identify the relationship between physical activity and heart rate.
- Students will identify the main idea of a text and answer a series of text-based questions.
- Students will identify the benefits of physical activity.
- Students will write an argument that supports a claim about physical activity.
- Students will research the number of calories in a recent lunch and determine the type and duration of physical activities that could burn those calories.

Materials

- Music source
- Stopwatches
- Jump rope
- Seven index cards that each say one of the following: vigorous aerobic, moderate aerobic, muscle strengthening, do more, do enough, do less
- “Fitness Fans Are on the Move” **Nutrition News** article (one per student)
- “Just Get Moving” **Nutrition News** letter to the editor (one per student)
- You Be the Editor student handout (one per student)
- Access to the Internet



Lesson Background

Exercise, along with a well-balanced diet and proper rest, is one of the basic needs of a healthy lifestyle. Much of modern society seems to revolve around reducing exercise. In general, we ride more in cars and buses than we walk or bike and we spend more time sitting in front of televisions, computers and video games than we do playing active games or sports. At the same time, portions have grown. This adds up to more calories eaten and fewer used in physical activity.

As a result, according to the American Heart Association, one in three kids is overweight or obese. The rates are even higher among minority and economically disadvantaged children. Despite the general need for U.S. citizens to shape up, though, some tolerance of individual differences is needed. It's important to remember that people come in different shapes and sizes. A child's ideal weight is one that is right for that child's individual body type and size. Sometimes being overweight is hereditary, resulting in some children gaining weight more easily than others. Children also grow in irregular spurts, sometimes changing their proportions of height to weight seemingly overnight. In other cases, poor eating habits learned in childhood tend to last throughout life. In any case, it's important to be extremely sensitive when discussing weight, body type and size.

The good news is that it's possible to learn new habits, especially with family support, acceptance and encouragement and particularly when family members serve as positive role models. Gaining or losing weight depends on how many calories are eaten versus how many calories are burned through physical activity. By eating smaller portions of a well-balanced diet and taking more time to play and exercise, an overweight person can lose weight. A myth about exercise is that you have to be an athlete or take part in serious physical training to get benefits. All it takes is physical activity (even something as simple as walking) for 30 minutes for adults and 60 minutes for children throughout the day.

These activities should be age-appropriate, enjoyable and offer variety. The 2008 Physical Activity Guidelines for Americans focus on three types of activity: aerobic, muscle-strengthening and bonestrengthening.

- Aerobic activity makes our heart beat faster and makes us breathe harder than usual. Over time, regular aerobic activity makes our heart and lungs stronger and able to work better. Aerobic activity can be vigorous, moderate or light.
- Muscle strengthening activities improve the strength, power and endurance of our muscles.
- With bone-strengthening activities, our feet, legs or arms support our body's weight, and our muscles push against our bones. This helps make our bones strong.



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According to the Guidelines, most of the 60 minutes each day should be either moderate or vigorous aerobic physical activity.

Encourage your students to talk with their parents about eating sensibly and exercising. Also remind students that they should talk with their doctors or registered dietitians before deciding they need to lose or gain weight. Height-weight charts and body-mass-index (BMI)-by-age calculators are useful tools, but they may not tell the whole story about a child's ideal weight. It's particularly important to stress gradual weight loss and to avoid encouraging girls to become so weight-conscious that they resort to eating disorders, such as anorexia and bulimia.

Engage (20-30 minutes)

1. Ask for four volunteers to come to the front of the room. Tell volunteers that they will all perform a task for 30 seconds. Assign one student to jump rope, one to walk around the room, one to do sit-ups (you may need to model a sit-up) and one to sit still.
2. Play music and time students for 30 seconds. Ask volunteers to describe how they physically feel after their tasks. Are they tired? Out of breath? Sore? Energized? Challenge other students to identify similarities and differences among the answers.
3. Explain that all four students were burning calories that they consume from food and drinks. Burning calories means breaking down the nutrients in what we eat and drink to release energy. Even the student who sat still was burning calories by his or her normal body functions like breathing. Some physical activities burn more calories than others and some have additional health benefits. Ask students to put the four volunteers in order from those they believe burned the most calories to those who burned the least (jump rope, walking, sit-ups, sitting still).
4. Then distribute the seven index cards to seven additional volunteers and ask them to read each card. Explain that each card either describes a type of activity or how often we should do the activity. Ask each volunteer to hand his or her card to the exercise volunteer that they believe matches the word or words on their card. More than one card can match the same exercise. As students select an exercise volunteer to match their card, they must justify their answers. They can ask for input from other students if they are unsure.

Answers are:

Jump rope - vigorous aerobic, do more.

Walking - moderate aerobic, do more.

Sit-ups - muscle-strengthening, do enough.

Sitting - do less.



Explore (20 minutes)

- Direct students to locate their pulse points, either on their wrists or neck. Once everyone has located their pulse points, challenge students to count the number of times they feel a pulse beat in 6 seconds. Time them for 6 seconds and have them write down the number of beats. Then, ask students how many seconds are in a minute and what calculation could help them determine how many beats they would have in a minute. Using this calculation, challenge them to calculate their pulse beats for one minute.
- Draw the following table on the board and collect the pulse rates of students while resting.

Range of pulse rate	Heart rate before activity Number of students	Heart rate after activity Number of students
Less than 60		
60 – 70		
71 – 80		
81 – 90		
91 – 100		
101 – 115		

- Direct students to pair up with another student and determine which partner will go first. Ask that student to select one of the activities from the beginning of the lesson to do for one minute to see how the exercise impacts their heart rate. Their partner will then time them using a stopwatch. Before starting the stopwatch, ask students to predict what will happen to their heart rate. Will it increase? Decrease? By how much? Have students time their partner for one minute and direct them to once again measure their heart rates and record the results. If you have time, let students rest for a few minutes, repeat the exercise and measure their heart rates again so they see that their heart rate goes back to normal. Switch partners and repeat the exercise.

8. Then, direct all students to do the following:

- Determine by what percentage their heart rate changed.
- Combine information to determine the mean, median and mode percentage change for the class.
- Graph the percentages change for the class, in total and by activity.

9. Discuss the results with students. Which activities produce the greatest change in heart rate? The smallest? What conclusions can students draw about which activities give the heart the greatest work-out?

10. Ask students why they think most of our daily physical activity should be aerobic. Explain that aerobic activity makes our heart beat faster and makes us breathe harder than usual. Over time, regular aerobic activity makes our heart and lungs stronger and able to work better.

Explain (20 minutes)

11. Distribute the **Nutrition News** article, “Fitness Fans Are on the Move,” and direct students to read the article independently.

12. Ask a student or combination of students to re-read the article aloud.

Ask the following questions:

- What is the title of the newspaper article?
- What main point do you think the author of this article is trying to make? Accept all answers and ask students to determine which answer they think best represents the main point.
- Authors often use evidence to support their main points. Highlight the evidence in the article that supports the main point.
- After the lead paragraph, newspaper articles typically give additional details about the main topic in subsequent paragraphs. In paragraph four, what transition word leads readers from the details in paragraph three to the details in paragraph four? What is the main idea of paragraph four? How does the information in paragraph four help support the main topic?
- Based on the article, what benefits does exercise give us?
- What do the marks around the words in the second sentence in paragraph one mean? Why does the author use those marks? Who is saying those words? Why do you think the author uses words from someone else in the article?

- Why do you think the author also includes quotes from Maya’s mom?
- What is the difference between the way the author wrote “everybody” and “every body” in the last sentence? Why do you think the author used those two words next to each other? What do the dashes around “and every body” mean?

13. Then, distribute the Editorial Section for **Nutrition News**, and direct students to read the editorial independently. Explain that this story is an editorial which is a very specific type of writing. Do a second reading of the editorial out loud. Then, ask students the following text-based questions;

- What is the main point of the editorial?
- Is the main point of the editorial similar or different from the main point of the news article?
- Based on this article, do you think editorials are typically fact or opinion? What information from the article supports your answer?
- How does the structure of the editorial differ from the structure of the news article?
- What unique points about physical activity did they learn from the news article vs. the editorial?

Elaborate (60 minutes)

14. To help students investigate the ratio of calories consumed to calories burned, ask students to write down everything they ate for lunch yesterday. For example:

- One slice of cheese pizza
- Small red apple
- One chocolate chip cookie
- Cup of grape juice

15. Direct them to the United States Department of Agriculture’s Calorie Counter at http://www.newcaloriecounter.com/articles/government/usda/usda_national_nutrient_database_for_standard_reference.html to research the number of calories they consumed at lunch.

16. Then, using information from the sidebar in the **Nutrition News** article, encourage them to list activities they could do and the corresponding length of time they would need to burn the same number of calories they consumed.

17. Ask them to present their calories consumed and calories burned to a partner.

Evaluate (70-100 minutes)

18. Distribute the “You Be the Editor!” activity sheet. Read the directions, which ask students to respond, as editor of the **Nutrition News**, to a letter from a student who asks why they should exercise. Their letter must include a specific claim about exercise and at least three pieces of evidence, from their own experience or from what they learned in the lesson, to support their claim.
19. Give students ample time to complete their writing map and a rough draft.
20. Once their rough draft is finished, direct students to meet with two to three other students in a peer review group to discuss their rough drafts. Have each student read his or her article aloud and ask the peer review group to provide specific, constructive feedback including:
 - Whether there is a specific claim about exercise in the letter.
 - Whether the claim is supported by at least three pieces of evidence.
 - Whether ideas are logically grouped.
 - Whether punctuation is used correctly and their article is error-free.
21. Have students complete their final drafts and share them with the class.
22. After all students have read their arguments to the class, poll students to determine which arguments they believe to be most compelling and why. Ask the top three vote-getters to re-read their arguments and challenge students to identify common reasons why these three stood out and how the arguments would persuade kids their age to be more physically active.

Standards

CCSS ELA Standards

- **CCSS.ELA-Literacy.CCRA.R.4-6.1** - Read closely to determine what the text says explicitly and to make logical inferences from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text.
- **CCSS.ELA-Literacy.CCRA.R.4-6.2** - Determine central ideas or themes of a text and analyze their development; summarize the key supporting details and ideas.



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- **CCSS.ELA-Literacy.CCRA.W.4-6.1** - Write arguments to support claims in an analysis of substantive topics or texts using valid reasoning and relevant and sufficient evidence.
- **CCSS.ELA-Literacy.CCRA.W4-6.4** - Produce clear and coherent writing in which the development organization and style are appropriate to task, purpose and audience.
- **CCSS.ELA-Literacy.CCRA.W4-6.5** - Develop and strengthen writing as needed by planning, revising, editing, rewriting or trying a new approach.
- **CCSS.ELA-Literacy.CCRA.W4-6.9** - Draw evidence from literary or informational texts to support analysis, reflection and research.
- **CCSS.ELA-Literacy.CCRA.SL4-6.1** - Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas and expressing their own clearly and persuasively.
- **CCSS.ELA-Literacy.CCRA.SL4-6.3** - Evaluate a speaker's point of view, reasoning and use of evidence and rhetoric.
- **CCSS.ELA-Literacy.CCRA.SL4-6.4** - Present information, findings and supporting evidence such that listeners can follow the line of reasoning and the organization, development, and style are appropriate to task, purpose and audience.

CCSS Math Standards

- **CCSS.Math.Content.4.MD.A.1** - Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table. ***For example, know that 1 ft is 12 times as long as 1 in. Express the length of a 4 ft snake as 48 in. Generate a conversion table for feet and inches listing the number pairs (1, 12), (2, 24), (3, 36).***
- **CCSS.Math.Content.6.SP.B.5** - Summarize numerical data sets in relation to their context, such as by:
 - a. **CCSS.Math.Content.6.SP.B.5a** - Reporting the number of observations.
 - b. **CCSS.Math.Content.6.SP.B.5b** - Describing the nature of the attribute under investigation, including how it was measured and its units of measurement.
 - c. **CCSS.Math.Content.6.SP.B.5c** - Giving quantitative measures of center (median and/or mean) and variability (interquartile range and/or mean absolute deviation), as well as describing any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data were gathered.
 - d. **CCSS.Math.Content.6.SP.B.5d** - Relating the choice of measures of center and variability to the shape of the data distribution and the context in which the data were gathered.





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National Science Education Standards

- **4FSPSPS.2** - Individuals have some responsibility for their own health.
- **4FSPSPS.3** - Nutrition is essential to health.



NUTRITION NEWS

Fitness Fans Are On The Move!

By Skip N. Jump
Nutrition News Sports Reporter

Maya Throwgood, pitcher for the Fitford Fireballs, says the key to saying in shape is no secret. She and her friends exercise whenever they can. “You don’t have to be an athlete to benefit from exercise “says Maya. “Even walking or riding a bike helps burn extra calories. My friends and I walk a lot, instead of jumping into the car.”

The food we eat gives us energy that’s measured in calories. If we eat more calories than our bodies use, we gain weight. When we use more calories than we eat, we lose weight. Eating sensibly means watching what foods and how much of them we eat. Smart food choices and exercise work together for good health. Maya tells us, “Staying active and eating sensibly works better than fad diets.”

Nutrition News asked Maya if it’s true that we use calories just sitting around. “Yes, everybody uses calories all the time,” Maya laughs. “But our bodies use more calories when we are

running, playing ball or doing some other exercise.” The chart below shows some common activities and exercises and how many calories they use, based on a person who weighs 80 pounds doing each activity for 30 minutes.

According to Maya, there are more reasons to exercise than just burning calories. “Gosh, there are so many reasons my friends and I exercise,” says Maya. It makes us stronger, helps our heart and lungs, gives us more energy, helps us stand straighter, helps us sleep better, helps us make new friends and just makes us feel all around better!!

Maya’s Mom adds, “She doesn’t realize it, but exercise also helps keep her healthy and even builds her self confidence!

For all fitness fans in the making, Maya adds, “Before beginning any kind of exercise routine, check with your family doctor to find out what’s best for you. Everybody – and every body – is different.”

30 minutes of Activity **Calories Burned (for an 80lb person)**

Baseball.....	91 calories
Basketball (half court).....	109 calories
Bicycling (light effort)	109 calories
Dancing	100 calories
Dusting	45 calories
Football	145 calories
Gardening.....	91 calories
Housecleaning.....	64 calories
Ice skating	127 calories
Ironing.....	42 calories
Jogging	127 calories
Karate	182 calories
Lacrosse	145 calories
Making the bed	38 calories
Raking	73 calories
Rollerblading/skating	127 calories
Soccer.....	127 calories
Swimming	109 calories
Tennis (singles)	145 calories
Walking the dog	64 calories
Washing the car	82 calories
Washing the dishes.....	42 calories
Yoga	73 calories

Source: Calorie Control Council



NUTRITION NEWS

Editorial Section

Fitford Residents Sound Off: Just Get Moving

Dear Nutrition News Editor:

Thanks for printing “Fitness Fans Are On the Move!” It was a great article. For me, though, regular exercise does more than help control my weight. It helps preserve and build up my muscle and bone tissues and it increases my flexibility. Studies show that active people live longer, too! But you don’t have to be an athlete or a bodybuilder to benefit. Everyday activities like gardening, walking and household chores, even putting canned groceries up on shelves, can add to good health if you do it for an hour a day, at least four to five days a week. In fact, here is a list of great activities you can do anytime to stay in shape and in good health:

- Dance to music – any kind
- Do gymnastics
- Do jumping jacks, sit-ups and other exercises
- Go bowling
- Have a race down the sidewalk
- Hike or climb hills

- Jump over hurdles or jump to see how high you can go
- Lift groceries, such as food cans
- Play a ball game – baseball, basketball, football, golf, racquetball, soccer, tennis, volleyball
- Ride a bicycle
- Rollerblade, roller skate or ice skate
- Row a boat
- Skateboard
- Ski – cross country or Alpine
- Stretch to see how high you can reach
- Toss and catch a ball or Frisbee®
- Walk the dog
- Walk to school or to the public library and back home again
- Whirl a Hula-Hoop™ around your hips

I hope other readers find these ideas helpful.

*Sincerely,
Ima Ten
Fitford Fitness Fan*

"You Be the Editor!" Handout

A letter to the editor of a newspaper is often written to express an opinion about a previous article or event in the news. The editor sometimes includes a letter in response. Imagine that you are the editor of **Nutrition News** and you receive the letter below. Your task is to write a letter back. Your letter must include a specific opinion or claim about the topic, at least three supporting pieces of evidence to support your opinion or claim and a concluding sentence.

Step One: Read the letter below:

Dear Nutrition News Editor,

I am writing to respond to your article called, "Fitness Fans on the Move." I think exercise is silly for kids our age. If adults want to exercise, that's fine for them. But there is really no reason that kids our age need to exercise. Don't you agree?

*Sincerely,
I.M. Lazy*

Step Two: Write a claim about exercise for your letter back to I.M. Lazy. Your claim should be the general point that you want to support or argue:





Step Three: Write at least three pieces of evidence that support your claim. The evidence can come from what you learned in the lesson, your own experience or additional research.

Step Four: Write details and examples to support your evidence. These can also come from what you learned in the lesson or your own research.

Step Five: Write a concluding sentence to restate your claim in a different way





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Step Six: Put together your information to write a rough draft.



Step Seven: Meet with a peer group and read aloud your letter to them. Ask them for constructive feedback.

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Grades 4-6

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Step Eight: Rewrite your letter into its final published format.

