

## Teacher's Guide: Powering Your Body with Exercise

Recommended Grade Level: 5-8

*(also applicable to grades 9-12 for students requiring significant support in learning)*

Suggested Time: About 50-60 minutes spread over one or more class periods, plus additional time to complete a writing assignment

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### Goals

Following are the big ideas that students should take away after completing this lesson:

- Regular physical activity is important to improve and maintain your health.
- Physical activity can help both your body and your mind.
- Changes occur within your body when you exercise.

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### Vocabulary

(See definitions on page 6.)

- aerobic
- blood vessels
- diabetes
- fitness
- respiration

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### Key Literacy Strategies

Following are the primary literacy strategies students will use to complete this activity:

- Determining important information (screens 2, 5, 7, 9, and 10)
- Making connections (screens 4 and 8; writing assignment 3)
- Categorizing basic facts and ideas (screen 12)
- Constructing summaries (writing assignments 1 and 2)

Note: In addition to the key literacy strategies listed above, students will also use each of these strategies to complete this lesson:

- Monitoring comprehension
- Synthesizing
- Making predictions
- Developing vocabulary
- Connecting prior knowledge to new learning
- Developing a topic in writing
- Identifying and using text features (photographs, captions, diagrams, and/or maps)

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### Overview

*Powering Your Body with Exercise* is a student-directed learning experience. However, while students are expected to work through the lesson on their own, teachers should be available to keep the lesson on track, organize groupings, facilitate discussions, answer questions, and ensure that students meet all learning goals.

The following is a summary of the lesson screens:

- Screen 1: Students learn that they will be studying why exercise is good for them.
- Screen 2: Students read a brief summary about the health benefits of physical activity and then watch a short video about high school kids exercising to stay in shape. After watching the video, they list three types of physical activities that are good for their health.
- Screen 3: Students learn what the goals are for the lesson, which strategies they will be using to complete the lesson, and the important vocabulary words they will use during the lesson.
- Screen 4: Students read about the four basic types of physical activity: aerobic, muscle-strengthening, bone-strengthening, and stretching. They then write one to two sentences about the type of physical activity they currently do—or would like to do—and why.
- Screen 5: Students read about how exercise changes your body inside and out. They then watch a video that shows how a group of people who ran the Boston Marathon improved their fitness levels. After viewing the video, students list three changes that occur in the body as a result of exercise.
- Screen 6: Students read about structures inside cells called mitochondria and how they produce energy, and then watch a short video showing where exactly they are found. They continue reading about how mitochondria increase in number and size when we exercise and learn how exercise strengthens the muscles, heart, and lungs.
- Screen 7: Students read about why making exercise a part of their everyday life can help them feel happier and more relaxed. They watch a video about Minnie, a young woman who is starting to use exercise to improve her life and manage her diabetes. After watching the video, they write one to two sentences about what Minnie learned about the value of exercise in her life.
- Screen 8: Students read about some different activities that they may like already and can do for exercise, as well as how much exercise is recommended for their age group. They then write about what inspires them to exercise, or what gets in their way.
- Screen 9: Students read a passage describing some of the different measurements and tools that doctors or health care providers use to determine a person's fitness level and then write about how these measurements can be used to improve one's health.
- Screen 10: Students answer three multiple-choice questions to show their comprehension of some of the different ways in which the body responds to exercise.
- Screen 11: Students complete an interactive vocabulary activity, and then choose two words from the vocabulary list and write a new sentence for each word. These tasks demonstrate their understanding of the meanings of the words.
- Screen 12: Students use an interactive activity to arrange information on a concept map according to whether it describes a mental or physical benefit from exercise or is a symptom of not getting enough exercise.
- Final  
Assignment: Students select and complete a writing assignment about the lesson topic.

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## Before the Lesson

- ❑ Go through each screen of the lesson, including all the interactive activities, so that you can experience ahead of time what students will be doing. As you go through each screen, jot down your own expectations for students' responses.
- ❑ Determine if students will be working individually or in pairs on the lesson. Some students may be able to work independently with little or no support. Students who are less familiar with the subject area or who struggle with literacy skills may benefit from working with another student. An effective way to do this is to pair a stronger student with a less able reader. You can also have students work individually on certain tasks and in pairs on others, depending on their experience and needs. If students will be working in pairs on any portion of the lesson, let them know if they will be expected to type in their notes individually or together.
- ❑ Provide instruction on key vocabulary (vocabulary words are defined in the lesson on screen 3, and on page 6 of this guide).
- ❑ Determine what students already know about the health benefits of exercise. You may want to start the discussion with some questions: What exercise do you like to do? What exercise do you not enjoy? What do you think are the benefits of exercise? Record their ideas on a chart. This will give you a sense of the background knowledge and possible misconceptions that students have before beginning this lesson. If time allows, return to the chart after students have completed the lesson to add new learning and correct misconceptions. Note: You may want to record their new learning in a different-colored ink so they can see how much they've learned.
- ❑ Arrange computers with Internet access so students can work individually or in pairs.
- ❑ Before students begin, suggest a timeline for completing the lesson, mention the different types of media they will encounter, and let them know how you expect them to submit their work. You may want to provide an outline of this information on a chart, chalkboard, or whiteboard, or as a handout.

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## Lesson Assessments

The following are descriptions of the lesson features that will be part of the packet of materials that students will submit. Students will use the packet for reference when writing their final assignment. It also serves as a formative assessment tool to monitor students' work as they are progressing through the lesson.

- **Notes** - Students take notes on screens 2, 4, 5, 7, 8, and 9. If time allows, review their notes before students begin their writing assignment.
- **Multiple-choice questions** - Students complete the three questions on screen 10. Walk around to make sure students answer all three questions before they continue. If students click to go to the next page before they finish, their work will not be saved.
- **Match It!** - Students complete an interactive vocabulary activity on screen 11. They begin by dragging the vocabulary terms into the correct sentences. After they finish and save their work, they will be able to check their answers against an answer key. When they

are done, they will be asked to choose two vocabulary words and write a new sentence for each word. Sentences should demonstrate a clear understanding of the meaning of each word. An inappropriate response would be “It is good to do aerobic activities.” An appropriate response would be “Aerobic activities make your heart and lungs stronger.”

- **Arrange It!** - Students complete the concept map activity Arrange It! on screen 12. Students will categorize information according to whether it describes a mental or physical benefit of exercise or a mental or physical problem associated with inactivity, or too little exercise. Students will not be able to check their answers online, so you will need to provide them with correct answers when they are finished with the lesson. You can choose to review the answers as a class or return the corrected packet of materials to students before they begin the final assignment.

Following are the terms students will drag and drop onto the concept map in the appropriate category:

### **EXERCISE**

#### **Physical Benefits:**

- disease management/prevention
- stronger muscles, heart, and lungs
- weight control

#### **Mental Benefits:**

- self-confidence
- stress relief
- happier

### **INACTIVITY**

#### **Physical Problems:**

- heart disease
- overweight
- diabetes

#### **Mental Problems:**

- sadness, depression
  - high stress level
  - low self-image
- **Final Assignment** - Students complete one final writing assignment. You can choose to let students make their own selection or assign one according to your goals for the lesson. Use the rubric on page 7 to assess the writing assignments.

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### **Lesson Aids and Extensions**

Use the following suggestions to help students if they are stuck on a particular screen, to prepare students for completing their writing assignments, and as follow-up discussions to reinforce learning after students have completed the lesson.

- **Watching Videos** - Encourage students to watch the videos more than once. After the initial viewing, provide students with a specific content focus to frame their next viewing(s) of the video. This will help them draw connections between the main topic and the information that the videos have to offer.
- **Participating in Discussions** - Organize class discussions or encourage students to talk about their questions in pairs. You may want to use the following discussion starters:
  - o How physically active are you during the day? Do you think you're getting enough daily exercise?
  - o What do you think happens inside your body when you exercise?
  - o How do you feel after you exercise or are physically active?
  - o What are the benefits of exercising? What problems could you have if you do not exercise?
  - o Have you ever dreamed of running in a marathon? Why or why not?
- **Reading the PDF Text** - Before they read the PDF text on screen 9, ask students to write down or discuss some of the measurements that doctors take when they are giving someone a checkup and why they might be important indicators of health.
- **Sharing Student Work** - It may be motivational, and a further learning opportunity, for students to post their final essays so that their classmates, peers, and/or parents can see them. This may also provide an opportunity for students to comment on and discuss each other's essays.
 

If you do not already have access to an online writing community, Teaching Matters™ provides TeXT, free classroom publishing tools that allow teachers and students to create and publish their own online eZine. More information and a free signup are available at Teaching Matters: TeXT (<http://text.teachingmatters.org>).
- **Reflection and Self-Assessment** - After students have turned in their writing assignments, you can choose to have them assess their learning. Bring students together as a whole class or in small groups to discuss the questions below. You may want to return to the chart of their ideas developed before the lesson and record their new learning. You may also have students respond individually to the questions and then convene the class to discuss the chart.
  - o What did you learn?
  - o What was surprising?
  - o What questions do you still have?
  - o What was the easiest for you to understand and do?
  - o What was the most difficult?

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## Vocabulary Definitions

### **aerobic**

Using oxygen. Aerobic exercise makes your heart and lungs work harder so that your muscles have enough oxygen when you are active.

### **blood vessels**

The system of tubes through which blood flows in the body. There are three major types of blood vessels: 1) arteries, which carry blood from the heart to the body; 2) veins, which carry blood from the body to the heart; and 3) capillaries, the tiny vessels that connect the smallest arteries with the smallest veins.

### **diabetes**

A condition in which the body cannot convert—or change—sugar in the blood into the energy that cells need.

### **fitness**

A measure of how healthy you are based on several characteristics, such as strength, flexibility, and endurance (the ability to keep doing something despite being tired).

### **respiration**

In living cells, the process through which oxygen is taken in, carbon dioxide and water are given off, and energy is released.

## Final Assignment Rubric Powering Your Body with Exercise

1. Explain the ways exercise can change the body. In your essay, be sure to list some of the measures used to determine fitness.
2. Write a newspaper article to convince people to exercise more. Include specific reasons why some people don't exercise, and suggest one or two ways to help them get past any excuses.
3. Keep a log of your physical activity over the next week. For each entry, describe how this activity is good for your health. What else could you do to improve your overall fitness?

4	3	2	1
<p>Provides a clear and accurate response to the question. Ideas are elaborated, with three or more relevant supporting details from the reading passage, video, and other materials in the lesson.</p>	<p>Provides an adequate response to the question. Topic and ideas are generally well organized, with two relevant supporting details from the reading passage, video, and other materials in the lesson.</p>	<p>Provides a generally accurate response, with one supporting detail from the reading passage, video, and other materials in the lesson.</p>	<p>Provides an inaccurate response to the question or fails to address the question. May include misinterpretations. Understanding of the topic is not apparent.</p>
<p>Uses at least three vocabulary words (or a form of the vocabulary words) from the lesson, and uses them all correctly.</p>	<p>Uses two vocabulary words (or a form of the vocabulary words) from the lesson, and uses them both correctly.</p>	<p>Uses one vocabulary word (or a form of the vocabulary word) from the lesson, and uses it correctly.</p>	<p>Does not use any vocabulary words, or uses vocabulary words incorrectly.</p>

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## Scoring the Rubric

Here are two suggestions for scoring the final assignment rubric. Select the option that best meets your needs or develop your own grading system.

**Option 1:** This option provides one score for each submitted assignment.

Assign a score of 4 or below for the written response (first row of the rubric) and a score of 4 or below for the use of vocabulary (second row of the rubric), for a total maximum score of 8. The interpretation of scores is as follows:

Score	Grade	Narrative Interpretation
7-8	A	Excellent
5-6	B	Good
4	C	Adequate (Fair)
3 or below	D	Minimal

**Option 2:** This option provides two scores for each submitted assignment: one for written content and one for the use of key vocabulary. An advantage of separate scores is that you can weight students' comprehension and composition differently than you do their knowledge of vocabulary. It can also help you identify specific needs for future instruction.

Assign a score of 4 or below for the written response (first row of the rubric) and a score of 4 or below for the use of vocabulary (second row of the rubric) and then score them separately. The interpretation of scores is as follows:

Score	Grade	Narrative Interpretation
4	A	Excellent
3	B	Good
2	C	Adequate (Fair)
1	D	Minimal

The final grade may look like this: A/B (A for content and B for vocabulary use).