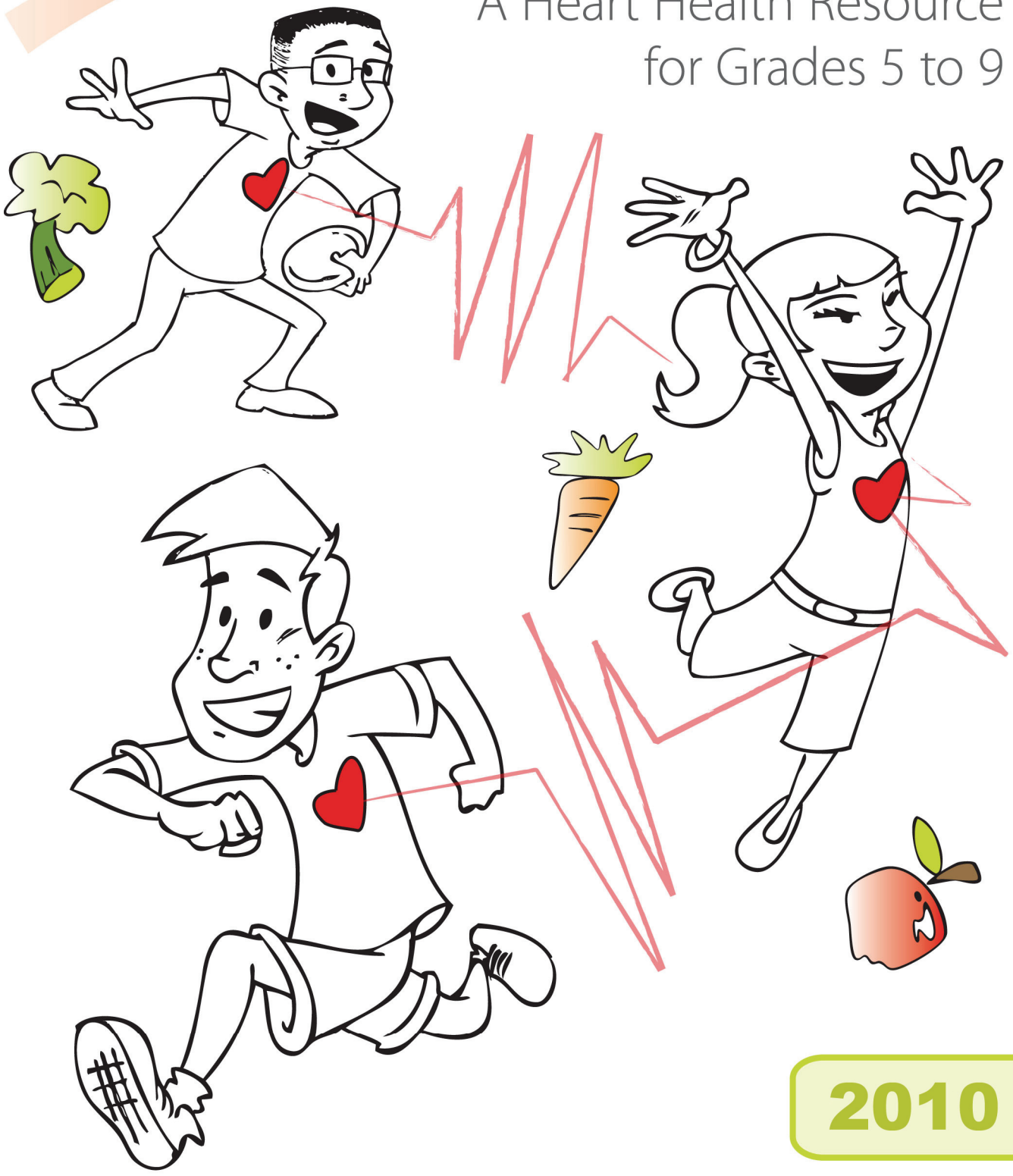
PUMPING it UP

A Heart Health Resource
for Grades 5 to 9



2010

A Heart Health Resource for Grades 5 to 9

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Several Web sites are listed in this resource. These sites are listed as a service only to identify potentially useful ideas for teaching and learning. The responsibility to evaluate these sites rests with the user.

Note: All Web site addresses were confirmed as accurate at the time of publication but are subject to change.

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Using This Resource

The Kindergarten to Grade 12 physical education program contributes to the development of life skills for the personal management of health, for the use of physical activity as a strategy for managing life challenges, and for a setting within which to practise the ability to work with others.[1]

Activities in this resource are designed for grades 5 to 9 and are intended to facilitate student learning of the prescribed outcomes of the *Physical Education Kindergarten to Grade 12 Program of Studies*. The aim of the physical education program is to enable individuals to develop the knowledge, skills and attitudes necessary to lead healthy, active lifestyles. This resource includes inquiry-based learning activities specifically focused on:

- General Outcome B: Benefits Health
- General Outcome D: Do It Daily … for Life!

The activities provided in this resource will help students understand and experience the health benefits that result from physical activity and may also be adapted for use in the Health and Life Skills K–9 Program. Ideas used in this resource have been adapted from *Heart Health: A Resource for Senior High School Physical Education.*

The Importance of Heart Health

Taking care of your heart is essential to your overall health and longevity. Research suggests that lifestyle habits adopted during youth generally extend into adulthood. Students have the opportunity to become healthy adults and reverse current physical inactivity trends, and this resource provides opportunities to explore learning about a healthy heart.

Current data indicates:

- 86% of Alberta children and youth do not meet the recommended physical activity guidelines for children and youth ([CAN PLAY], Canadian Fitness and Lifestyle Research Institute [CFLRI] 2007)
- Canadian youth face risks for a number of chronic diseases due to increasingly sedentary lifestyles. Over the past two decades, the number of overweight and obese children nearly tripled in Canada. Obese youth have a greater occurrence of hypertension, high cholesterol and Type 2 diabetes (Canadian Institute for Health Information 2004).

1. Alberta Learning, *Physical Education Kindergarten to Grade 12 Program of Studies* (Edmonton, AB: Alberta Learning, 2000), p. 1.

Physical activity does not have to be extreme to improve health. A goal of accumulating 60 to 90 minutes of activity per day can be reached by incorporating physical activities into daily routines. A number of 10-minute activity periods throughout the day can improve health.

Physical education classes provide opportunities for students to be physically active and engaged in seeking answers to real-world questions about their own health and fitness. Time spent being physically active during physical education classes should be maximized to provide opportunities for heart healthy physical challenges.

Focus on Heart Rate

Pumping It Up is grounded in the skill of listening to the language of the heart: the heartbeat. The activities in this resource aim to connect students to their personal heart rate information and offer insight into what these numbers mean. Students may listen to their hearts by manually taking their pulse (carotid or radial palpation), by learning to perceive their own exertion levels and/or by using heart rate monitors.

Ideas for high-school-aged students related to heart rate can be found in *Heart Health: A Resource for Senior High School Physical Education*, available at http://education.alberta.ca/teachers/program/pe/resources/hearthealth.aspx or for purchase from the Learning Resources Centre at http://www.lrc.education.gov.ab.ca.

Information regarding Heart Zones Training can be found at http://www.heartzones.com.

Inquiry-based Learning

The Inquiry Model

Inquiry-based learning is a process in which students are involved in their learning, formulate questions, investigate widely and then build new understandings, meanings and knowledge (Alberta Learning 2004). Physical education provides opportunities for students to pursue personal inquiries related to health and fitness. These inquiries can help instill a lifelong desire to perpetuate healthy, active lifestyles, thus supporting the goals of the Physical Education K–12 and Health and Life Skills K–9 programs of study.

The inquiry process can be viewed as having a series of phases: reflecting on the process, planning, retrieving, processing, creating, sharing and evaluating. The following describes how an inquiry process can be applied to the heart health activities described in this resource.

Reflecting on the Process	Throughout each inquiry, have the students pause to reflect on what they are doing in relation to the inquiry process; e.g., by writing in a learning log or by sharing in groups. Encourage them to share what is working and what is not working with others. See **Worksheet #18: Reflecting During the Inquiry Process** in the appendices. At the end of each inquiry, have the students review and comment on their learning and what they learned about the inquiry process. See **Worksheet #19: Reflecting After the Inquiry Process** in the appendices.
Planning	For each inquiry topic, have the students formulate further questions based on the topic. Before each activity, have the students: • generate specific questions related to the activity topic • discuss where they might find the information they need regarding the topic • discuss how they will present the information to their audience • discuss how they will know if they have done a good job.
Retrieving	Before each activity, ask the students to note what they already know and share this with their classmates. As they access information sources, discuss where the information came from and its authenticity and validity. Also discuss any possible biases that may exist.
Processing	During each activity, have the students consider how what they learned relates to the main inquiry question.
Creating	During each activity, have the students organize the information they have collected, put it into their own words and create their products.
Sharing	Have the students informally share and discuss the products created during the activities. You may wish to have the students organize for a more formal culminating presentation of their learning at the end of the inquiry topic.
Evaluating	After the students complete presentations of their learning, have them evaluate them. See **Worksheet #20: Presentation Evaluation** in the appendices.

The Inquiries

This resource includes smaller, specific inquiries that together form one larger general inquiry into heart health.

The first section is a self-reflection that allows the students to explore their understandings, feelings, beliefs and values related to heart health and physical fitness in general.

Following the self-reflection are four inquiries based on the following topics.

Inquiry #1 – How does nutrition affect my heart health?
Inquiry #2 – How does exercise affect my heart health?
Inquiry #3 – How can I make sure I am living an active lifestyle?
Inquiry #4 – How can we share what we have learned about heart health with others?

For each inquiry, key understandings and background information are provided. The learning activities to be completed by the students are described, and worksheets and information sheets are provided to support the activities.

Each inquiry builds on the learning achieved in the students' previous inquiries. The final inquiry involves sharing their accumulated knowledge with others outside of the class—an important phase of the inquiry process.

Student Self-reflection:

How Do I Feel about Physical Activity and Nutrition?

Key Understanding

Students gain an awareness of their own physical activity levels, their beliefs and values regarding physical fitness, and their own nutritional habits.

Creating a Heart Healthy Environment

- Encourage students to be active every day, progressing toward 90 minutes of activity most days of the week. See *Canada's Physical Activity Guide for Children* and *Canada's Physical Activity Guide for Youth* provided by the Public Health Agency of Canada at http://www.paguide.com.
- Create a bulletin board that promotes physical activity opportunities at school and in the community. Use the bulletin board to announce upcoming activities in physical education class.
- Encourage students to volunteer at community events (such as a Family Day run or swim meet) that promote physical activity.
- Be a role model of a healthy, active lifestyle.

Learning Activity

Have the students record their reflections regarding their beliefs and values related to physical activity and nutrition using **Worksheet #1: Physical Activity Reflection** and **Worksheet #2: Nutrition Reflection**. Consider having the students work individually and then share and discuss their responses in groups.

The worksheets can be completed at the beginning of a school year to help students gain an understanding of their practices, attitudes and values regarding physical activity and nutrition. They can also be used at the end of a term or school year and then compared to illustrate how students' practices, attitudes and values have changed as a result of heart health activities.

Worksheet #1:
Physical Activity Reflection

1. List five things that you do to improve your physical fitness.

2. List five things that you do that have a negative impact on your health.

3. What physical activities do you enjoy most?

4. What are your least favourite activities?

5. Do you think you are physically fit? Explain why or why not.

6. Do you prefer team activities or individual activities? Why?

7. What is your level of physical activity? Circle one of the options below.

- Fit? Hah! Where's the remote control?
- I have some work to do!
- Fair
- Good
- Very good
- Outstanding

Physical Activity Reflection: Adapted with permission from Alberta Education, "Value Assessment," *Physical Education Online*, http://education.alberta.ca/physicaleducationonline/HomeEducation/student/assess/assessv.htm (Accessed June 1, 2009).

Worksheet #1:
Physical Activity Reflection (continued)

8. Is physical activity important to you? Why or why not?

9. Do you do something physically active every day or most days of the week?

10. Is there an athlete or physically active person whom you admire? Why?

11. List the benefits of physical activity that are most important to you.

12. How could you improve your attitude toward active living?

13. How could you be motivated to try new activities?

14. If you could develop one habit or attitude related to your physical activity or health, what would it be? Explain.

Worksheet #2:
Nutrition Reflection

1. How do you decide what to eat every day?

2. Do you think it is important to eat a balanced diet? Why?

3. Rate the following foods from those you eat most often (1) to those you eat least often (4).

_____ breads and cereals	_____ meat and cheese
_____ fruits and vegetables	_____ sweets and fried foods

4. Do you think your food choices reflect a healthy lifestyle? Why or why not?

5. What types of drinks do you drink most often?

6. How often do you look at the labels on your food and drinks for information about the ingredients or nutritional values?

7. Do you think that what you eat and drink is affecting your energy level? How?

Inquiry #1

How Does Nutrition Affect My Heart Health?

Key Understandings

Without the proper nutrition and hydration, exercise alone cannot provide heart health. Learning how to eat from the four food groups, analyzing labels and keeping hydrated are all positive steps to improving your heart health.

Background Information

Healthy Eating

Following *Canada's Food Guide* is a good first step to attaining a healthy heart and eliminating some of the risk factors. Healthy eating involves choosing a variety of foods every day from each of the four food groups to ensure you are getting all of the essential nutrients. Limiting a diet to only a handful of foods within a food group, or avoiding one of the food groups altogether, makes it difficult to get the nutrients needed to maintain health. Fad diets that focus on eliminating food groups may result in weight loss initially but are very hard on internal organs and are often not sustainable as part of a healthy lifestyle. Eating foods from all of the food groups provides the energy required to live actively.

Eating a balanced diet from all food groups and making choices that include skim milk or low fat milk, soft margarine instead of blocks of butter or margarine, lean cuts of meat and plenty of vegetables and fruits can help maintain a healthy body and heart. Eating foods that contain polyunsaturated fats, such as Omega 3 and Omega 6, is essential for a healthy heart.

Many foods and beverages that contain high amounts of calories, fats, sugars and/or salt (sodium) do little to contribute essential nutrients to the body. Choosing foods that are high in calories and less nutritious can make it very difficult to achieve or maintain a healthy body weight. It is important, therefore, to limit the intake of foods not listed in *Canada's Food Guide*.

For more information …

Health Canada's Web site at http://www.hc-sc.gc.ca/ provides information and activities to support healthy eating. For more information on healthy eating and active living, including the *Alberta Nutrition Guidelines for Children and Youth: A Childcare, School and Recreation/Community Centre Resource Manual*, visit http://www.healthyalberta.com.

Nutrition Facts Labels

"Nutrition Facts" labels found on food and beverage products provide information on fat content, calories, cholesterol, sodium, protein, carbohydrates, vitamins and other nutrients. This information can be used to make healthy choices, thereby helping people maintain their ideal weight and keep their hearts healthy.

It is important to look at the serving size printed on food labels and keep in mind the amount of food that is included in each serving. "Portion distortion" can result in overeating. People often eat more than one serving without considering the extra calories that are consumed.

For more information …

Health Canada's Web site at http://www.hc-sc.gc.ca/fn-an/label-etiquet/nutrition/index-eng.php provides further information on food labelling standards.

Learning Activities

1A: Exploring Nutrition Guides

Brainstorm and discuss what the students know about nutrition and nutrition guides. Discuss the different food types and their importance. Have the students formulate questions to guide their inquiry; e.g.,

- *Who decides what goes in a nutrition guide?*
- *How many servings of each food group do I need? Why?*
- *What are my favourite foods in each food group?*
- *Why is each of the different groups of food important?*

Have the students find sources with answers to their questions and collect information. At the *Canada's Food Guide* Web site, have the students choose the foods that they like from within each food group and create personal food guides to print and add to.

1B: Exploring My Own Nutrition Choices

Have the students reflect on what they know about their own eating and drinking habits. Have the students formulate questions to guide their inquiry; e.g.,

- *Do I eat a balanced diet?*
- *What did I eat today from each food group?*
- *How much sugar and fat do I eat and drink?*

Have the students complete **Worksheet #3: What Did I Eat Yesterday?** Encourage the students to reflect on how the choices listed on their food logs align with *Canada's Food Guide*. Ask the students to record their daily intake for one week using **Worksheet #4: Weekly Food and Beverage Log**. Afterward, have the students reflect on what they have learned about their own eating and drinking habits and how they relate to the recommendations in *Canada's Food Guide*.

1C: Exploring Food and Beverage Labels

Have the students share in groups what they know about food and beverage labels. Have the students formulate questions to guide their inquiry; e.g.,

- *Why are foods and drinks labelled?*
- *What do nutrition labels tell me about what I'm eating?*

Give the students time to explore sources on the Internet that tell them about nutrition labels. Remind them that food labelling varies with different countries. Using **Information Sheet #1: How to Read a Nutrition Label**, review the information found on a nutrition label. As an extension, consider having the students contact a dietician at your local health authority or inviting a dietician as a guest speaker. Have the students share what they discovered as a class and summarize their findings. As a quiz or challenge, have the students examine the two labels in **Worksheet #5: Reading Nutrition Labels Challenge** and fill in their answers. As an extension, encourage the students to come up with their own nutrition label challenges and share them in groups.

1D: Nutrition Action Plan

This activity is a culmination of the students' learning throughout the inquiry. Have the students reflect on what they have learned about nutrition and their own eating and drinking habits. Have them think about changes they would like to make related to nutrition. Discuss how making changes in life requires commitment. Discuss the characteristics of a good goal; e.g., realistic, reasonable, measurable.

Have the students then complete **Worksheet #6: Nutrition Action Plan**. Discuss ways in which the students can involve their parents, guardians and/or entire families in their action plans. Have the students follow their action plans, then prepare presentations on their experiences and results for the class. What challenges did they face? Did they have to adapt their action plan along the way? After the presentations, have the students reflect on their presentations by writing in their learning logs and/or completing **Worksheet #20: Presentation Evaluation** (in the appendices).

Worksheet #3:

What Did I Eat Yesterday?

Let's look at what you ate yesterday. Write down what you ate and drank in the chart below. If you skipped a meal or a snack, note this in the chart.

	Food (Be specific; e.g., what was in the sandwich, what was on the pizza.)	**Beverages** (Be specific; e.g., what was in the smoothie, what kind of juice.)
Breakfast		
Snack		
Lunch		
Snack		
Dinner		
Snack		

1. Did I eat all three meals yesterday? YES NO
2. Did I eat the recommended number of portions for all four food groups? YES NO
3. Did I have snacks that were made up of two food groups? YES NO
4. What kind of drinks am I drinking? Do they contain sugar and/or caffeine?

   _____

   _____

   _____
5. What are three things that are good about my eating habits?

   _____

   _____

   _____
6. What are three things that I need to improve about my eating habits?

   _____

   _____

   _____

Worksheet #4:

Weekly Food and Beverage Log

Record what you ate and drank at each meal or snack every day for a week.

	Breakfast	Lunch	Dinner	Snacks
Monday				
Tuesday				
Wednesday				
Thursday				
Friday				
Saturday				
Sunday				

Then, total the number of servings you ate from each food category. How do your totals compare to the recommended number of servings from *Canada's Food Guide*?

TOTALS:	Fruit and Vegetables	Grain Products	Milk Products	Meat and Alternatives
Monday				
Tuesday				
Wednesday				
Thursday				
Friday				
Saturday				
Sunday				

Information Sheet #1:
How to Read a Nutrition Label

Health Canada Santé Canada

Interactive Nutrition Label: Get the Facts

You may have noticed that there is nutrition information on many food packages in the grocery store. Canada introduced a new system for providing nutrition information on food labels in 2003. These new regulations are applicable to almost all prepackaged foods, ensuring the Nutrition Facts table has a consistent "look", and making it easy to find and read. As of December 12, 2005, most companies are required to have a Nutrition Facts table on their food products.

To help you better understand the new food label, Health Canada has created a tool called the **Interactive Nutrition Label.** By exploring our new interactive tool, you can learn how to use nutrition information to make more informed choices about the foods you buy.

Crackers

1) **Nutrition Facts Table**

2) **Specific Amount of Food**

3) **% Daily Value**

4) **Core Nutrients**

5) **Nutrition Claims**

6) **List of ingredients**

Following **Eating Well with Canada's Food Guide** can also help you make healthy food choices.

You can access Eating Well with Canada's Food Guide at:
http://healthcanada.gc.ca/foodguide

How will the regulations be enforced?
The regulations will be enforced by the Canadian Food Inspection Agency (CFIA).

Labels provide information about serving size; e.g., if a package reads "Per 4 crackers," this means the information listed on the label is for four crackers only. It is important to look at the serving size on a label as you may eat or drink more than one serving; e.g., if you eat eight crackers, then you must double the amounts listed on the label (90 x 2 = 180 calories, 3 x 2 = 6 g of fat).

Health Canada, *Interactive Nutrition Label: Get the Facts*, http://www.hc-sc.gc.ca/fn-an/label-etiquet/nutrition/cons/inf_flash-eng.php.

Worksheet #5:
Reading Nutrition Labels Challenge

Look at the nutrition labels and fill in the blanks.

Nutrition Facts
Serving Size 18 Crackers (29g)
Servings Per Container About 9

Amount Per Serving	
Calories 120	Calories from Fat 35
	% Daily Value*
Total Fat 4g	**6%**
Saturated Fat 0.5g	**3%**
Polyunsaturated Fat 0g	
Monounsaturated Fat 1.5g	
Cholesterol 0mg	**0%**
Sodium 220mg	**9%**
Total Carbohydrate 21g	**7%**
Dietary Fiber 2g	**7%**
Sugars 3g	
Protein 2g	

Vitamin A 0% • Vitamin C 0%

Calcium 2% • Iron 4% • Phosphorus 10%

* Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:

	Calories:	2,000	2,500
Total Fat	Less than	65g	80g
Sat Fat	Less than	20g	25g
Cholesterol	Less than	300mg	300mg
Sodium	Less than	2,400mg	2,400mg
Total Carbohydrate		300g	375g
Dietary Fiber		25g	30g

Food item #1: Crackers

Serving size: _____

Calories: _____

Total fat: _____

Saturated/Trans fat: _____

Polyunsaturated fat: _____

Monounsaturated fat: _____

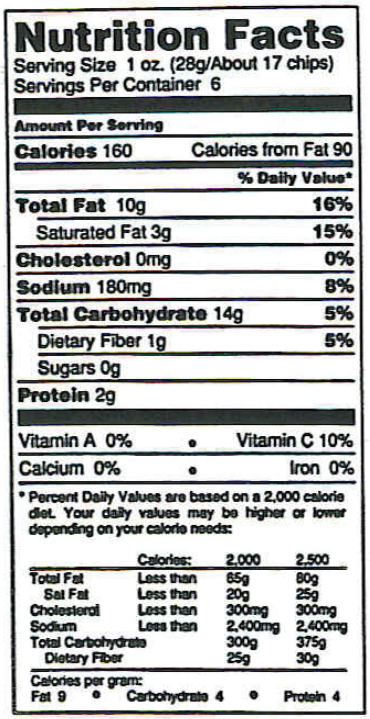
Sodium: _____

Total carbohydrates: _____

Dietary Fibre: _____

Sugars: _____

Protein: _____



Nutrition Facts
Serving Size 1 oz. (28g/About 17 chips)
Servings Per Container 6

Amount Per Serving	
Calories 160	Calories from Fat 90
	% Daily Value*
Total Fat 10g	**16%**
Saturated Fat 3g	**15%**
Cholesterol 0mg	**0%**
Sodium 180mg	**8%**
Total Carbohydrate 14g	**5%**
Dietary Fiber 1g	**5%**
Sugars 0g	
Protein 2g	

Vitamin A 0% • Vitamin C 10%

Calcium 0% • Iron 0%

* Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:

	Calories:	2,000	2,500
Total Fat	Less than	65g	80g
Sat Fat	Less than	20g	25g
Cholesterol	Less than	300mg	300mg
Sodium	Less than	2,400mg	2,400mg
Total Carbohydrate		300g	375g
Dietary Fiber		25g	30g

Calories per gram:
Fat 9 • Carbohydrate 4 • Protein 4

Food item #2: Chips

Serving size: _____

Calories: _____

Total fat: _____

Saturated/Trans fat: _____

Polyunsaturated fat: _____

Monounsaturated fat: _____

Sodium: _____

Total carbohydrates: _____

Dietary Fibre: _____

Sugars: _____

Protein: _____

Health Canada, *Interactive Nutrition Label: Get the Facts*, http://www.hc-sc.gc.ca/fn-an/label-etiquet/nutrition/cons/inl_main-eng.php.

Worksheet #5:
Reading Nutrition Labels Challenge (continued)

1. Which food item has the most total fat per serving?

2. Which food item contains more sodium?

3. Which food is better for you? Why?

Do the Math!

1. If you ate two servings of crackers, how much fat would you have eaten?

2. If you ate three servings of chips, how many calories would you have eaten?

3. If you ate half a serving of crackers, how much sodium would you have eaten?

4. If you ate two servings of chips, what percentage of your daily total fat would you have eaten?

Worksheet #6:
Nutrition Action Plan

My goal for improving my nutrition habits (e.g., cut how much sugar I eat in half, eat the recommended servings of fruits and vegetables each day):

What I will need to achieve this goal (e.g., help from your parents, nutrition information):

Steps I will take to achieve this goal:

When I hope to achieve my goal and how I will know I have achieved it:

Inquiry #2

How Does Exercise Affect My Heart Health?

Key Understandings

By interpreting and understanding what level of exertion (LOE) means and the benefits of exercising within various levels, students will be better able to plan and implement activities to improve their heart health.

Connecting their levels of exertion to heart rate information at different levels of intensity will help students better gauge the health, fitness or performance benefits they receive from physical activity.

Background Information

Heart Rate

Heart rate information can provide an excellent window into a person's exercise physiology. Connecting heart rate information to a measure of perceived exertion helps students identify their levels of effort. Heart rate information can be collected in a variety of ways:

- by palpation of carotid or radial pulse
- using a heart rate monitor
- by assessing the perceived level of exertion based on individual awareness of effort.

Levels of Exertion (LOE)

LOE is the basis for heart health and all five levels of exertion are explained in **Information Sheet #2: The Five Levels of Exertion (LOE)**. The LOE for each activity will differ from student-to-student. For example, volleyball may be a Level 1 LOE for a student who is playing it recreationally and a higher level for a student who is playing it competitively. A brisk walk may be Level 1 for a very active student and Level 3 for a more sedentary student. As students become more fit, both their LOE and their perceived LOE for a particular activity can change. By becoming aware of different levels of exertion, students will learn about their hearts. The following LOE table provides examples of effort and intensity.

Level 1 **Very Light Effort**	*Examples: strolling, dusting* This level burns few calories and causes minimal sweating, however, it still provides a health benefit and should, therefore, still be encouraged. Combine this level with Level 2 for someone just starting out or someone looking for health benefits more than performance benefits.
Level 2 **Light Effort**	*Examples: light walking, volleyball, easy gardening, stretching* For the fit individual, this level is used primarily for recovery workouts and for warm-up and cool-down. For the individual just getting back into action, this is an excellent level to work out in before moving into Level 3. Source of fuel is primarily fat but intensity is low, so overall total calories expended are low in comparison to higher levels.
Level 3 **Moderate Effort**	*Examples: brisk walking, biking, raking leaves, swimming, dancing* Level 3 is the main level for physical training. Activities at this level can be continued for long periods of time. Fuel source is balanced between carbohydrates and fat, and gradually shifts toward increased carbohydrates at the upper end of intensity.
Level 4 **Vigorous Effort**	*Examples: aerobics, jogging, hockey, basketball, fast swimming* In Level 4, maximum fat burning takes place. Many calories are spent in Level 4, with the major source of fuel being carbohydrates.
Level 5 **Maximum Effort**	*Examples: sprinting, racing* This level is used mostly during interval-style training of short-to-intermediate durations. Intensity is high and the body will feel very warm. Too much time in this level can lead to injury. Usually no more than 10 percent of total training time would be done at this level of intensity. Forty-eight hours of recovery is recommended after training in Level 5. Many calories are expended in Level 5, with the major source of fuel being carbohydrates.

With practice, students can more accurately identify the intensity level at which they are working. By creating their own scale or framework, students will be able to add detailed descriptions of how each level of intensity feels. For most healthy, active students, LOE can be determined by measuring the way they feel during an activity.

The LOE is more important for this age group than an understanding of maximum heart rate zones; however, a student who can connect his or her heart rate with the perceived LOE is better prepared to monitor heart health and fitness. This information can also help students maintain a predetermined pace or intensity level during an activity or event, even when they are not monitoring their heart rate.

For more information, see *Canada's Physical Activity Guide for Children* and *Canada's Physical Activity Guide for Youth* at http://www.paguide.com.

How to Use Heart Rate Monitors

Heart rate provides an objective gauge of exertion. Heart rate monitors are designed for wear during strenuous exercise. They measure and record the heart rate, giving instant feedback about the work level of the heart. Using a heart monitor can help users prevent stressing the body too much and maximize the efficiency of training while minimizing the opportunity for injury.

A strap, usually attached to the chest, continuously measures the heart rate during activity. This strap must have solid uninterrupted contact with the skin to operate correctly. Data is relayed to a receiver and provides feedback when the body is working outside the targeted heart rate zone. Some monitors do not require chest straps; instead, a finger touches the sensor to collect heart rate data.

Care and Maintenance of Heart Rate Monitors

- Wash the transmitter regularly after use with mild soap and water. Dry it carefully after washing. Elastic straps can be washed by machine on the gentle cycle provided they are placed inside a mesh bag. Hang to dry. With high usage, wash them once a week.
- Never store the transmitter wet. Sweat and moisture can keep electrodes wet and the transmitter activated, which shortens the battery life. Store the heart rate monitor in a cool, dry place. If it is wet, do not store it in any kind of nonbreathing material; e.g., a plastic bag or sports bag.
- Do not bend or stretch the transmitter. This may damage the electrodes.
- Keep the heart rate monitor out of extreme cold (below –10°C) and heat (above 50°C).
- Do not expose the heart rate monitor to direct sunlight for extended periods; e.g., leaving it by a window, including in a car.
- If the heart rate monitor is water resistant, do not operate the buttons under water, as water pressure can cause the receiver to leak.
- Always put the receiver on first so it doesn't hit the floor.
- If wearing a watch, place the receiver on the other wrist to reduce the possibility of interference.

Learning Activities

2A: How Does Activity Make Me Feel?

Select a group of activities that students are familiar with and that meet different exertion levels; e.g., walking, volleyball, basketball, swimming, boarding. Divide the students into five groups. Around the gym or in any open area, post the selected activities. Have all members of the groups perform the activity. After each activity, have the students brainstorm descriptors for how they feel. Have the students use **Worksheet #7: How Does Activity Make Me Feel?** to record this information. Rotate the student groups through all five activities. This is intended to be an exploratory activity, not a circuit training activity.

Come together as a class. Collect and record all the students' responses and facilitate a discussion on how intensity can differ for different individuals. For example, badminton may be at the maximum exertion level of activity for a nationally ranked player but for the average student, it may be a light effort level activity. Emphasize that everyone's intensity level or level of effort will be different for each activity.

2B: My Activities and Level of Exertion (LOE)

Distribute **Information Sheet #2: The Five Levels of Exertion (LOE)**. Review and discuss the levels in groups or as a class. Distribute **Worksheet #8: My Activities and Level of Exertion (LOE)**. Have the students complete the sheets individually. Encourage the students to include everyday activities such as gardening, walking the dog and shovelling snow. Invite them to share their results in groups. These charts can be included in the students' health or physical activity log books.

2C: Personal Intensity Scales

Distribute **Worksheet #9: Personal Intensity Scale (Perceived Level of Exertion)**. Choose one or two focus questions for the students to write in their scales; e.g.,

- *How is my breathing?*
- *Am I sweating?*
- *How long can I maintain the same intensity?*
- *Does this level of exertion allow me to focus on the activity?*
- *What am I feeling in other parts of my body, such as my head, stomach, arms and legs?*
- *Am I able to differentiate between intensity levels by listening to the rest of my body as well as my heart?*

Have the students perform a variety of different activities and answer the focus question(s). Encourage the students to record and recognize their own intensity levels during activities and describe how they feel as they do the activity. Emphasize that the level of exertion for the same activity may be different from student-to-student. Explain why there may be different responses for the same type of activities.

2D: Activity Circuits

Create activity stations designed to provide a variety of levels of exertion. Create or choose 10 activities from **Information Sheet #3: Amazing Race Activity Stations** or from the Canadian Active Living fitness circuit chart for elementary and secondary schools by Thompson Educational Publishing, Inc.[2] Guide the students through the stations step-by-step and set the number of seconds or repetitions for each exercise. Keep in mind the components of fitness: strength, endurance and flexibility.

Have the students list all the activities on their sheets. Supervise the students as they complete their activity circuit sessions. Have the students record their results on **Worksheet #10: Activity Circuit Stations** then answer the reflection questions. Check for understanding and determine the level of effort they are expending. Have the students complete the circuit at least one more time and reflect on any changes in their results.

2E: Heart Rate and Exercise

Distribute and review **Information Sheet #4: Calculating Your Heart Rate** and **Information Sheet #5: Heart Rate Monitors**. Have the students examine and experiment with heart rate monitors, if available. Ask the students to then take their heart rates at rest and during various activities; e.g., those from the personal intensity scales or activity circuit stations. Have the students then compare their heart rate results with their LOEs. Using the information they have collected, have the students create presentations that describe the relationships between heart rate, LOE and heart health.

Note: When gathering heart rate data via palpation during exercise, have the students use the 6-second count instead of the 15-second count. Consider having the students stop or slow down briefly to locate their pulses and count the six seconds for them.

2. Canadian Active Living Fitness Circuit Charts: Thompson Educational Publishing, Inc., *Canadian Active Living Fitness Circuit Charts: Elementary School and Secondary School Series* (Toronto, ON: Thompson Educational Publishing, Inc.).

Worksheet #7:

How Does Activity Make Me Feel?

With your group, move through the five different activity stations. Record the activity on your sheet at each station and perform the task. Think about breathing, body heating/sweating, ability to talk while performing the activity, how your muscles feel and your ability to concentrate and focus. Record your feelings in the chart below.

Activity	How I felt during the activity	Rate the activity from 1 (easiest) to 5 (hardest)

Information Sheet #2:
The Five Levels of Exertion (LOE)

Level 1: Very Light Effort

Example Activities	Description	Rating
walking, light yard work or housework, golf, yoga, tai chi, softball, doubles badminton, archery and fishing	the easiest and most comfortable level, burns few calories and can cause minimal sweating	1.5/10 *"very easy to easy"*

Level 2: Light Effort

Example Activities	Description	Rating
long slow cycling, walking, hiking, volleyball, table tennis, recreational sports, canoeing	called the "cruise level," "comfort level," "recovery level" or "fat burning zone" and can be sustained for extended periods of time	2 to 4/10 *"easy to somewhat hard"*

Level 3: Moderate Effort

Example Activities	Description	Rating
swimming, cycling, tennis, soccer, running, basketball, power walking, dancing, cross-country skiing	the main level for physical training, activities at this level can be continued for long periods of time	4 to 5/10 *"somewhat hard to hard"*

Level 4: Vigorous Effort

Example Activities	Description	Rating
various high intensity sports such as basketball, soccer, hockey, running, climbing stairs, wrestling, gymnastics	a beginner can maintain this level for up to 15 minutes; a trained athlete can maintain this level for up to 60 minutes	5 to 7/10 *"hard to very hard"*

Level 5: Maximum Effort

Example Activities	Description	Rating
sprints and high-speed intervals	high-performance training done during short intervals; intensity is high and the body will feel very warm	7 to 10/10 *"very, very hard to maximum effort"*

Worksheet #8:
My Activities and Level of Exertion (LOE)

Pick at least eight activities that you participate in on a regular basis. Determine at which level of exertion you perform the activity. Give a description of your activity, including how long you perform the activity and how you feel during it.

Activity	Level of Exertion	Description
Fast walking	*Level 3: Moderate effort*	*I walk really quickly (almost jog) from my house to my grandma's house three times a week. It takes me at least 30 minutes. Most times I sweat a little and sometimes I feel a little out of breath when I get there.*

Worksheet #9:

Personal Intensity Scale (Perceived Level of Exertion)

Fill in the focus question provided by your teacher. Perform the activities suggested. Use the chart to record your answers to the focus question for each activity.

Level	**Activity**	**Focus Question** (chosen by teacher)**:**
Level 1 (very light effort)		
Level 2 (light effort)		
Level 3 (moderate effort)		
Level 4 (vigorous effort)		
Level 5 (maximum effort)		

Possible activities: volleyball, soccer, basketball, running, softball, gymnastics, gardening, dusting, strolling, easy gardening, stretching, brisk walking, biking, raking leaves, in-line skating, dancing, water aerobics, aerobics, jogging, hockey, lane swimming, recreational swimming, fast dancing, sprinting, jogging, skating, shovelling, hiking.

Worksheet #10:
Activity Circuit Stations

List the circuit stations you will complete, along with today's date. After completing each station, write the level of exertion (LOE) in which you worked and the health fitness factors (HFF). Write a description of how you felt during the activity. On your second time around, go for your personal best by trying to improve your time or the number of repetitions completed.

Health Fitness Factors (HFF): C = Cardio, **S** = Strength, **F** = Flexibility

		Round 1	**Round 2**
		Date:	**Date:**
Circuit Station Activity		**Description**	**Description**
1.	LOE: HFF:		
2.	LOE: HFF:		
3.	LOE: HFF:		
4.	LOE: HFF:		
5.	LOE: HFF:		
6.	LOE: HFF:		
7.	LOE: HFF:		
8.	LOE: HFF:		
9.	LOE: HFF:		
10.	LOE: HFF:		

Worksheet #10:
Activity Circuit Stations (continued)

Reflecting on the Activity Circuit Stations

1. At which level of exertion did you spend the majority of time for each activity?

2. Was there any particular level that you feel you did not participate in today? Why?

3. How might you change the activities to increase your level of exertion? How might you change the activities to decrease your level of exertion?

4. If you could create three new stations, what would they be? What level of exertion do you think that you would achieve at each of these new stations?

Information Sheet #3:
Amazing Race Activity Stations

The following activities are taken from Ever Active Schools' Amazing Race Challenge. For the complete Amazing Race Challenge, see the resources section at http://www.everactive.org.

BEAN BAG FROG LEAP

Equipment: *4 or 5 playground balls, 10 beanbags, 9 poly spots or other targets*

Each of the 10 frogs (beanbags) must land on a numbered poly spot. Each team member must take a turn holding a frog on top of a playground ball behind the indicated line, and bouncing the ball to propel the frog in an attempt to have it land on a poly spot.

Variation: Vary the distance from which the beanbags need to be bounced. Place the poly spots at various heights (use a table, couch, chair). Use square beanbags or beanbags of various sizes and shapes to increase or decrease the level of difficulty.

THE ROPE TURN

Equipment: *long skipping rope*

Each member of your team must run through a turning rope twice without touching the rope or the turners. Each team member must first run through the rope individually. The second time through the rope, students must be linked with one other teammate as they run through the rope. The rope must spin continuously. The turners must also run through. Should the rope touch a team member, the entire team must begin again.

CROSSING SYLVAN LAKE

Equipment: *pylons to identify the "lake" boundaries, 3 to 7 poly spots or rubber-backed carpet sections, a piece of rope (optional)*

Each team must cross the "lake" by stepping only on poly spots. Before the first team member steps onto the first poly spot, the team members must all join hands to form a line or use a long piece of rope.

One teammate's foot must be on a marker at all times or the marker will float away. Markers can be passed to the front of the line. Should any team member touch the "water" or let go of the team rope or break the handhold, the entire team must return to the start and begin again.

Variation: Add or remove the number of poly spots available to the group to increase or decrease the level of difficulty. Challenge the group to cross the lake once and come back.

GUTTER BALL RACE

Equipment: *bucket or container, small ball, gutters (PVC piping, empty paper towel or toilet paper rolls cut in half lengthwise)*

Join the gutter side pieces together to form a gutter from the start line to the bucket. Should the ball touch a team member's body or fall to the floor, the entire team must return to the start and begin again.

Variation: Provide short and long gutters, or provide empty paper towel, poster or toilet paper rolls that have not been cut in half to increase the level of difficulty.

DETOUR!

Equipment: *pylons or rope to identify boundaries, 4 to 8 foam footballs*

BLIND SIGHTED CATCH

One team member will be blindfolded and must catch 20 sponge footballs thrown by the remaining team members standing four metres away. All team members must take a turn throwing a football.

BLIND SIGHTED THROW

All team members but one will be blindfolded. The person who is not wearing a blindfold must catch 20 sponge footballs thrown by the remaining team members standing four metres away. All team members must take a turn throwing a football.

PEANUT BUTTER JELLY

Equipment: *nylon stocking or strips of material to attach the legs*

Teams must stand in a line shoulder-to-shoulder, connecting their legs to their teammate's legs beside them. Once all legs have been connected, the teams must travel to the designated end line, cross the line and return back to the start. Should any team member fall to the ground, the entire team must return to the start and begin again.

MAGIC 15

Equipment: *a variety of multiplication, addition, subtraction and division signs printed on cards in an envelope, a deck of playing cards placed face down in a hoop at least 10 metres away*

Teams must travel from the start line to the cards, where one team member will choose a card. The team will then bring the card back to the start line and repeat the process until each team member has chosen a card. Using the cards your team has collected, as well as the operation cards found in the envelope, the challenge is to create an equation to which the answer is 15. You may add, subtract, multiply or divide the numbers, and your team has the option of eliminating one card.

RING IT

Equipment: *10 quoits, rubber rings or rolls of masking tape, 2 pylons, pylons or markers to indicate boundaries*

Two catchers on each team must each catch five rings on a pylon thrown by team members three metres away. All team members must take a turn throwing a ring.

Variation: Challenge the throwers or catchers to blindfold themselves or catch the rings on their arms instead of the pylon.

LEADER OF THE PACK

Equipment: *equipment to create an obstacle course; e.g., chairs, hoops, pool noodles, elastics*

One leader from each team must let go of the team rope while all team members are blindfolded. Without touching the team members, the leader will lead the group through the obstacle course.

Information Sheet #4:
Calculating Your Heart Rate

Finding Your Pulse

Wrist: This pulse site is on the radial artery at the wrist, in line with the thumb. Use the fingertips of your first two or three fingers to take your pulse. Keep your hand below your heart. Many people find a pulse in this location right where they wear their watchbands.

Neck: This pulse site is on the carotid artery located just to the side of the larynx. Use light pressure from the fingertips of the first two fingers, not the thumb, to take your pulse. Never try to take your pulse on both sides at once.

Calculating Your Heart Rate

1. Find a stopwatch, watch or wall clock that displays time in seconds.
2. Practise taking your resting pulse first. If you know how to find your pulse while sitting or lying quietly, it will be much easier to find during exercise. Use one of the following counts to calculate your heart's beats per minute (bpm):

    - Count your heart beats for **six seconds**. Multiply the number of heart beats by **10** to get your bpm.
    - Count your heart beats for **10 seconds**. Multiply the number of heart beats by **6** to get your bpm.
    - Count your heart beats for **15 seconds**. Multiply the number of heart beats by **4** to get your bpm.

Keep moving while taking your heart rate. Your heart rate will drop within 15 seconds if you stop moving.

If you are having a hard time finding your pulse while exercising, find it before you begin exercising and draw an **x** on the pulse spot.

Reprinted from C. Kennedy-Armbruster and M. M. Yoke, *Methods of Group Exercise Instruction*, 2nd ed. (Champaign, IL: Human Kinetics, 2009), p. 90.

Information Sheet #5:
Heart Rate Monitors

Heart rate monitors pick up the electrical signals given off by the heart and report the average number of times the heart contracts in a minute. Heart rate monitors typically consist of three parts:

- **chest belt**: an elastic belt worn across the chest that holds the transmitter in the correct position
- **transmitter**: attached to the chest belt and worn in front of the body with the label centred on the chest; it picks up the signal from the heart and transmits it to the receiver
- **wrist receiver**: similar to a wrist watch; it receives the transmitter signals and displays the heart rate.

transmitter and elastic strap

receiver

How to Use a Heart Rate Monitor

1. Attach the transmitter to the elastic strap.
2. Adjust the chest belt strap length to fit snugly. Comfortably secure the strap around your chest just below the chest muscles and buckle it.

   Boys: Chest strap and transmitter should sit across the nipple line.
   Girls: Chest strap and transmitter should sit just below the breasts.

3. Lift the transmitter off your chest and moisten the grooved electrode areas on the back.
4. Check that the wet electrode areas are firmly against your skin and that the logo is in a central, upright position.

Troubleshooting:

Remember to:

- moisten the electrodes
- adjust the chest straps to fit correctly
- place the receiver at least one metre away from another receiver to avoid cross-talk; interference can also result from other electronic equipment, such as cell phones, wireless Internet, power lines and electronic consoles on cardio equipment
- position the wrist receiver and chest transmitter within one metre of each other
- check the placement of the chest transmitter across the chest.

Adapted from Polar FT4, Fitness and Cross-Training Heart Rate Monitor: Production information, 2009, http://www.polarca.com/ca-en/products/get_active/fitness_crosstraining/FT4 (Accessed January 4, 2010).

Inquiry #3

How Can I Make Sure I Am Living an Active and Healthy Lifestyle?

Key Understandings

Any movement that elevates the heart rate benefits the heart. The health of the heart is improved by participating in activities at levels of exertion 1 and 2. To improve the fitness of the heart, a higher level of exertion is required (levels 3, 4 or 5).

Background Information

Not all physical education classes are expected to provide a high intensity experience; e.g., yoga and tai chi can provide excellent fitness benefits but do not demand high intensity cardiovascular workouts. However, all students can benefit from being engaged in motivating and energizing activity during physical education class. Students can be challenged to attain those outcomes related to cardiovascular fitness (General Outcome B) as well as effort outcomes (General Outcome D) through daily activity experiences, including physical education class.

Discuss and implement strategies to ensure that cardiovascular health benefits are achieved in physical education class, such as:

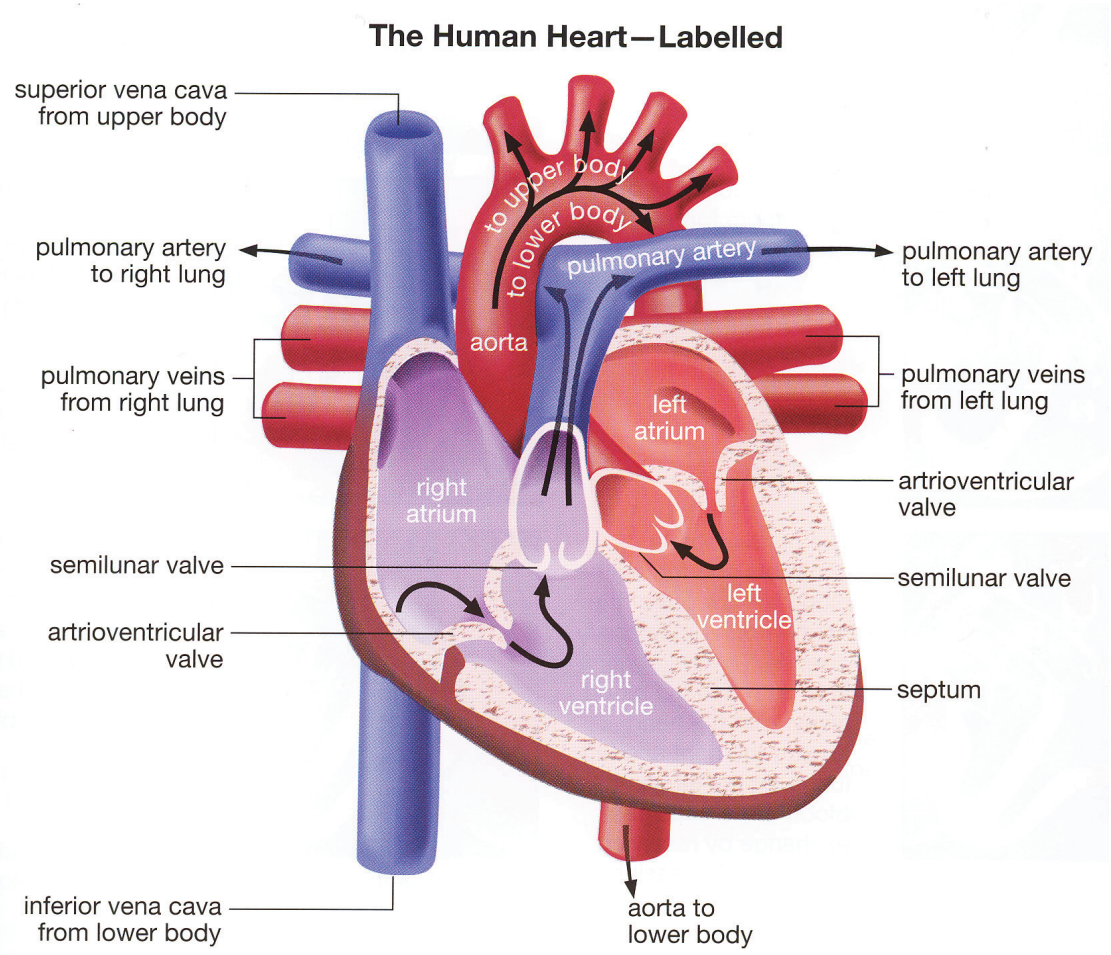
- At the beginning of class, begin moving as soon as students enter the activity area. Provide a variety of equipment to assist them.
- Have sufficient equipment available for every student to minimize wait time and lineups.
- Create small teams to increase the opportunity for movement; e.g., three per team volleyball creates more opportunities than six per team volleyball.
- Create a work-to-rest ratio of 2:1 when it is not conducive for the entire class to move at the same time.
- Modify the rules or equipment so students increase the intensity of their activities.
- Identify ways to create more movement time and less management and transition time.

The Heart Muscle

The heart is the most important muscle in the body. It is an efficient, resilient pump that makes blood flow through the body over an entire lifetime. The heart muscle itself is made up of four chambers, two valves and two separate pumps. There are two sides to the heart, allowing it to function as a dual-action pump. The heart's job is to contract and force blood into the chambers (through the valves) to send blood to the lungs for oxygen, receive oxygen-rich blood from the lungs (through the valves and chambers) and to pump the oxygen-rich blood to the rest of the body.

The rhythm of a complete heartbeat is driven by electrical activities originating from the pacemaker, a bundle of specialized nerve tissue that receives messages. It independently creates its own electrical signals, beating away until there is a need to make a change in the heart rate, measured in beats per minute (bpm); e.g., if cells need more oxygen, the brain automatically speeds up the contraction rate of the heart, which in turn increases blood flow. Exercise induces a need for more oxygen to the muscles, thus increasing the heart rate to supply the cells in the muscles with oxygen. Improving your fitness level allows your heart to pump blood at a faster rate and provide oxygen to body parts more efficiently.

The Heart Muscle



Learning Activities

3A: Am I exercising my heart during physical education class?

Provide the students with pedometers to wear during physical education class. During class time, have the students find their heart rates using heart rate monitors or by taking palpation readings. For information on how to take heart rates, see information sheets #4 and #5. Have the students record their heart rates and pedometer data on **Worksheet #11: Activity During Physical Education Class**.

Have the students work in pairs or groups to answer the questions at the bottom of **Worksheet #11**. Allow time for class discussion of the answers.

After the students have gathered data from several physical education classes, have them compute an average heart rate, pedometer reading and LOE by dividing the total numbers by the number of classes. After determining their average heart rates, pedometer reading and LOE during physical education class, ask the students to use this information to determine what type of cardiovascular benefits they are receiving in physical education class. Discuss that the health of the heart is improved by participating in activities at LOE 1 and 2 and to improve the fitness of the heart, a higher LOE is required (levels 3, 4 or 5).

Achieving Optimal Cardiovascular Fitness Category IV	**Improving Cardiovascular Fitness Category III**	**Maintaining Cardiovascular Fitness Category II**	**Basic Health Benefit Category I**
Upper LOE 4 and some time spent in LOE 5	LOE 3	Upper LOE 2	Lower LOE 2 or LOE 1

3B: Personal Fitness Program

Distribute **Information Sheet #6: Components of Fitness** and **Information Sheet #7: FITT Principle**. Read and discuss the information as a class or have the students read and discuss the information in groups. Discuss how this information relates to what they already know about physical fitness and heart health.

Have the students reflect on their results from Activity 3A and what physical activity goals they may have by filling out **Worksheet #12: My Personal Physical Activity Goals**. Provide the students with a list of exercises and activities representing the three components of fitness: cardiovascular endurance, strength and flexibility. Using **Worksheet #13: My Fitness Program** and information sheets #6 and #7, have the students create their own personal fitness programs to complete during class time over the next several weeks.

Have the students record their results for Round 1 of their fitness programs on **Worksheet #14: My Fitness Program Results**. After completing the first round, have the students complete a second round of their fitness program. Have the students record their results for the second round and compare them to those from the first round. What changes do they see? Can they account for those changes?

3C: Extracurricular Weekly Activity Log

Have the students record their physical activity information using **Worksheet #15: My Weekly Activity Log** over a period of a few weeks or months. Have the students periodically review their logs and note such things as:

- progress made
- best week: why was it the best?
- worst week: why was it the worst?
- whether they are focusing on all three components of fitness.

3D: Circuit Station Challenge

Note: The first round of this activity can be completed before the students start their personal fitness programs. The second round could be performed halfway through their programs and the third round after completing their programs.

Divide the students into pairs based on similar physical activity goals and have them complete a variety of circuit station activities; e.g.,

1. Sit-ups: as many as they can do with good form
2. Basketball hoops (from the middle of the key): number of baskets in one minute
3. Wall push-ups: as many as they can do with good form
4. Wall sits: amount of time they can last
5. Chin-ups: as many as they can do with good form
6. Tuck jumps: as many as they can do with good form
7. Lunges with dumbbells: as many as they can do with good form
8. Wall jumps: as many as they can do with good form
9. Running (around the gym): amount of time per lap
10. Dips: as many as they can do with good form.

Have the students record their results with their partners on **Worksheet #16: Circuit Activity Challenge**. At a later date, have the students complete the circuit challenge again and compare their results.

Worksheet #11:
Activity During Physical Education Class

	Activities	Heart Rate	Pedometer Reading	LOE
PE Class #1				
PE Class #2				
PE Class #3				
PE Class #4				
PE Class #5				
	TOTAL			
	Divided by number of classes =			

1. Which activity raised your heart rate the most (made your heart work the most)?

   _____

2. Which activity produced your lowest heart rate (made your heart work the least)?

   _____

3. How could you get your heart rate higher on your least active activity?

   _____
   _____
   _____
   _____

4. The higher my heart rate, the _____ my pedometer reading.

5. The higher my heart rate, the _____ my LOE.

Information Sheet #6:
Components of Fitness

Strength

Strength training is exercise that uses resistance, e.g., weights, elastic bands, to strengthen muscles, ligaments, tendons and bones. The benefits of strength training include increases in muscle size and tone, increases in muscular strength, and increases in tendon, bone and ligament strength. Strength exercises improve general strength and increase how much muscle a person has, while helping burn calories and keeping blood sugar balanced.

Cardiovascular Endurance

Cardiovascular endurance is the ability of the heart, lungs and blood to supply oxygen and fuel to the body over a long period of time. Endurance exercise increases the heart rate and breathing, thereby helping to condition the heart, lungs and circulatory system.

Flexibility

Flexibility is the range of motion in a joint or combination of joints. The main purpose for improving flexibility is to help prevent injuries. Flexibility helps prevent muscle tears and ligament strains and soreness. Flexibility exercises or stretching improve overall body tone and conditioning. Flexibility and stretching exercises help to lengthen the muscles and extend how far a joint can move.

Warm-up

The main purpose of a warm-up is to raise body and muscle temperatures. After muscles have been warmed up, stretching helps a person be more flexible.

Cool-down

During the cool-down, stretching and moving joints help to prevent strains and muscle tears.

Fitness information provided by the Be Fit for Life Network. For further information on fitness ideas and resources, see http://www.provincialfitnessunit.ca/about-bffl.

Information Sheet #7:
FITT Principle

FITT = Frequency, Intensity, Time, Type

Frequency Frequency is how often you exercise. After any exercise is performed, your body needs rest time to rebuild and repair itself. You must keep this in mind when deciding how frequently you will perform each different exercise.

Intensity Intensity is the amount of effort or work that it takes to do the workout. The intensity relates to the level of exertion scale: Level 1 is the least intensity and Level 5 is the most intensity. You should exercise at a variety of different intensities.

Time Time is how long each individual exercise session should last. Time will vary based on the intensity and type of exercise.

Type Type is the kind of exercise you will be doing; e.g., exercises that focus on cardiovascular endurance such as jogging or skipping, exercises that focus on flexibility such as yoga or gymnastics, or exercises that focus on strength training such as push ups or sit ups. You should combine a variety of activities in your routine based on your goals.

Components of Fitness	Cardiovascular Endurance	Flexibility	Strength
Frequency	4–7 times a week	4–7 times a week	2–4 times a week
Intensity	Moderate to vigorous	Stretch to feel tension (no pain)	Until your muscles are tired
Time	20 minutes +	Holds each stretch for 30–60 seconds	As long as it takes
Type	Jogging	Static stretching	Stacking boxes

Worksheet #12:

My Personal Physical Activity Goals

1. I will achieve the following training/fitness goal in the next three weeks:

2. To reach my goal, I will:

3. The possible barriers to achieving my goals are:

4. I will overcome these barriers by:

5. I will know if I am successful when:

6. I chose this goal because:

Worksheet #13:
My Fitness Program

Create a fitness program to complete during physical education classes. Your teacher will provide you with a list of activities to choose from for each category.

	Cardiovascular Endurance	Flexibility	Strength
Class #1			
Class #2			
Class #3			
Class #4			
Class #5			

Worksheet #14:

My Fitness Program Results

After completing one round of your physical education class fitness program, fill in your best results in the chart below. Repeat this process at a later date (Round #2) and compare your results for the two rounds.

There are many factors that affect fitness levels. Avoid comparing your results with those of others, as everyone will have different results. Strive for your own personal best!

	Date:	**Date:**
Endurance Activities:	**Round #1**	**Round #2**
Flexibility Activities:	**Round #1**	**Round #2**
Strength Activities:	**Round #1**	**Round #2**

Worksheet #15:

My Weekly Activity Log

Aim for: Strength Activities: 2–4 times/week; Flexibility Activities: 4–7 times/week; Cardiovascular Endurance: 4–7 times/week.

Date	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Physical Activity(ies)							
Minutes of Activity and/or Repetitions Completed							
How Hard I Worked (Level of Exertion)							
How I Felt							

Worksheet #16:
Circuit Activity Challenge

Partner 1: _____ Partner 2: _____

1. List the circuit station activities along with today's date.

2. Work with a partner to enter your results after completing each station; e.g., 10 sit ups, 15 lunges, 5:15 lap.

3. Each time you complete a circuit station activity, go for a personal best by trying to improve your results.

	Date:		**Date:**		**Date:**	
Circuit Station Activities	**1**	**2**	**1**	**2**	**1**	**2**
1.						
2.						
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						

Inquiry #4

How Can We Share What We Have Learned about Heart Health with Others?

Key Understandings

Education is a key component in helping reverse the increase in chronic heart disease. Helping students improve their personal lifestyle practices is one way schools can make a societal change in health behaviours.

Background Information

Strong evidence exists that physical activity contributes to the overall well-being of individuals. People of all ages can substantially improve their health and quality of life by including a moderate amount of physical activity in their daily routines. It is important, therefore, that the message students are getting from school is shared and continued as much as possible at home and in the community. Student learning can be enhanced through active, hands-on engagement in activities that communicate heart health messages to others.

Learning Activities

4A: Heart Health Fair

Have the students work in groups of three or four to create interactive displays for a heart health fair. This could include displays by students in physical education, science and health and life skills classes. Heart health fairs could be scheduled during school hours, an open house, lunch hour, heart month or in conjunction with a major event at the school such as parent–teacher–student conferences. Involve other members of the staff and organizations or professionals within the community; e.g., school nurse, Heart and Stroke Foundation, local fitness centres, regional health unit, cardiologists, physiologists, dieticians.

Activity-oriented health fairs inspire more learning than passive look-and-see health fairs. If local community agencies are coming to help, ask them to come prepared to provide a hands-on teaching activity in their booth. These booths should provide something to do that will teach at least one important point about their subject. Some interactive display ideas include:

- **One-minute Heart Rate Recovery**
  Participants do moderate activity for approximately two minutes and note their exercise heart rates with heart rate monitors or pulse palpitation. Have participants rest for one minute and take their heart rates again. The difference between these two measurements is recorded as the one-minute recovery time. Students can interpret results with participants.

- **Resting Heart Rate**
  Participants have their heart rates taken in a horizontal position, while sitting and while standing. In each case, encourage participants to relax and bring their heart rates to as low a level as possible. Record findings. This activity works best using heart rate monitors. Students can interpret results with participants.

- **Talk Test**
  Participants note the highest heart rate they can sustain during physical activity while carrying on a conversation. Students then interpret results with participants.

- **Heart IQ**
  Students make up quizzes or go online to locate samples. Participants then take in a mini-quiz to test their heart IQ.

- **Stress and Your Heart**
  Students obtain participants' heart rates prior to exercise and post-exercise for the following activities. Identify which activities help lower participant heart rates:
  - yoga
  - breathing exercises
  - listening to soothing music
  - alternate muscle contraction for relaxation effect.

- **Eating for Your Heart**
  Students promote the importance of proper nutrition for the health of the heart. Topics could include:
  - reading food labels
  - types of fat
  - sodium intake
  - carbohydrates: simple versus complex
  - fibre intake
  - five fruit and vegetable servings a day
  - fast food and vending machines
  - hydration and beverages; e.g., caffeine, sport drinks, water
  - serving size: nutrition-label serving size versus food-guide serving size.

Once students have chosen their stations, have them develop a plan using **Worksheet #17: Heart Health Fair Planner**. Offer assistance during the planning stage and review the plans to ensure they are reasonable. Have the teams delegate responsibilities to each team member, including publicizing the event.

Worksheet #17:
Heart Health Fair Planner

Name of Interactive Booth: _____

Team Members	Responsibilities

Key understandings related to heart health that we want the participants to learn:

_____

_____

_____

Equipment required:

_____

_____

Location requirements (e.g., plug-ins, space, access to stairs, Internet access):

_____

Step-by-step description of what participants will be doing:

_____

_____

_____

_____

Do we need to contact experts in the area for more information or support? If so, who?

_____

Draw a diagram of your display set-up on the back of this page.

Support Resources

Note: The following resources are listed as a service only to identify potentially useful ideas for teaching and learning. The responsibility to evaluate these resources and sites prior to selection rests with the user, in accordance with any existing local policy. All Web site addresses were confirmed as accurate at the time of publication but are subject to change.

Alberta Education Authorized Resources

Allen, Lynn (ed.). *Physical Activity Ideas for Action: Elementary Level*. Champaign, IL: Human Kinetics, 1997.

Allen, Lynn (ed.). *Physical Activity Ideas for Action: Secondary Level*. Champaign, IL: Human Kinetics, 1997.

Burk, Maggie. *Station Games.* Champaign, IL: Human Kinetics, 2002.

Hare, S. and D. Drummond. *Liking the Me I See in the Mirror: An Educational Resource Manual for Teachers on Body Image and Self-esteem.* Edmonton, AB: Food and Nutrition Services, Grey Nuns Community Hospital, 2001.

Hare, S. and D. Drummond. *Liking the Me I See in the Mirror: A Family Workbook for Parents and Their Children on Building Body Friendly Homes*. Edmonton, AB: Food and Nutrition Services, Grey Nuns Community Hospital, 2001.

Other Materials

Heart Zone Training Chart. Available for purchase from the Learning Resources Centre at http://www.lrc.education.gov.ab.ca. LRC# 608896, $24.80 at time of publication.

Heart Rate Monitors can be rented from local Be Fit for Life Network locations. See Web site at http://www.befitforlife.ca for locations.

Pedometers with Safety Straps and Storage Tray (sold in sets of 30) available for purchase from the Learning Resources Centre at http://www.lrc.education.gov.ab.ca. LRC #620634, $383.50 at time of publication.

Web sites

Alberta Education
http://education.alberta.ca/apps/physicaleducationonline
This site provides information to support implementation and student learning of the K–12 Physical Education Program of Studies. The site is divided into three major sections: Program of Studies, Teacher Resources and Home Education.

Alberta Milk
http://www.albertamilk.com
This site offers valuable information for students, parents and teachers on various topics such as hydration, calcium and bone health, serving sizes, reading labels and much more. There are interactive tools on the site along with several free downloads for all users to try.

Alberta Egg Producers
http://www.eggs.ab.ca
This site offers a variety of tools for teachers of all grades as well as valuable information for students and their parents to try at home.

American Heart Association
http://www.americanheart.org
This site provides information on fighting heart disease and stroke, and offers information on the structure and function of the heart, risk factors of heart disease and tips for maintaining a healthy heart.

Be Fit for Life Network
http://www.provincialfitnessunit.ca/about-bffl/
This site provides information on how to utilize the active living services and programs of the Be Fit for Life Centres around the province for your community, workplace and school.

Canadian Fitness and Lifestyle Research Institute
http://cflri.ca
This site includes research on physical activity of Canadians over the past 10 years, tips for being active, resources, research projects and news releases. Also included is a Heart Health Quiz to help students assess their cardiac risk.

Canada's Physical Activity Guide to Healthy Active Living
http://phac-aspc.gc.ca/pau-uap/paguide/ (Call 1–888–334–9769 to order the guide.)
This site contains a number of guides, based on various age groups, to help people make wise choices about physical activity.

Dieticians of Canada
http://www.dietitians.ca
This site includes activities to support understanding of nutrition. It includes a nutrition challenge game, a personal nutrition profile, a make-a-meal feature and other interactive activities.

Edmonton 2001 8th IAAF World Championships in Athletics: *Our Schools in Action.*
http://education.alberta.ca/physicaleducationonline/edmonton2001/posters.asp
This site has downloadable teacher resources, including Run, Jump, Throw posters for circuits.

Ever Active Schools
http://www.everactive.org
The Ever Active Schools program provides professional development and support for health and physical education to school communities. There is also a program to encourage, identify and recognize schools that value and promote positive healthy behaviours and practices, as well as physical activity opportunities, through initiatives that affect the entire school community.

Gatorade Sports Science Institute
http://www.gssiweb.com
This is a sport science site complete with the latest research on nutrition, sport performance, injuries and hydration.

Health Canada
http://www.hc-sc.gc.ca
This site includes resources related to heart health such as a Healthy Heart Kit and *Canada's Food Guide.*

Heart and Stroke Foundation of Canada
http://ww2.heartandstroke.ca
This site includes the latest research, resources on heart health, a calculator for beats per minute (bpm) and waist-to-hip ratio measurement, and various other tools.

The Human Heart: An Online Exploration
http://sln.fi.edu/biosci/heart.html
This is an information site on the heart, complete with images. It includes information on the development, structure and function of the heart, as well as tips for heart health.

Heart Zones
http://www.heartzones.com
This site includes information on Heart Zones Training—an approach that uses maximum heart rate and a five-zones concept to facilitate individualized training. It also includes information about training seminars, training tips, an e-newsletter and list of resources; e.g., wall charts, DVDs, CD–ROMs, books, heart rate monitors.

Human Kinetics
http://www.humankinetics.com
Human Kinetics is a leader in the distribution and publishing of books, journals, software, videos and distance learning in physical activity.

Kids Health, "Your Heart and Circulatory System"
http://kidshealth.org/kid/htbw/heart.html
This information site, written for a youthful audience, includes information about how the heart works.

Thompson Educational Publishing, Inc.
http://www.thompsonbooks.com/health
Along with numerous other resources for teachers, this company is the producer of the Elementary and Secondary Fitness Circuit Charts.

Appendices

Worksheet #18: Reflecting During the Inquiry Process

Worksheet #19: Reflecting After the Inquiry Process

Worksheet #20: Presentation Evaluation

Worksheet #18:

Reflecting During the Inquiry Process

Use the following questions, and others provided by your teacher, to reflect during each phase of the inquiry process. Write your answers in a learning log or journal.

Planning	Does my plan include all of the phases of the inquiry process? What are some possible ideas about my topic that I am interested in? What am I feeling now about my inquiry?
Retrieving	What sources of information have been useful? What searching strategies have been most useful? What am I feeling at this phase about my inquiry? How can I deal with these feelings in a positive way?
Processing	What is the focus of my inquiry? How does my inquiry relate to or impact me? My family? My community? What am I feeling at this phase about my inquiry?
Creating	How might I organize my information and ideas? How will I know when my work is finished? What am I feeling at this phase about my inquiry?
Sharing	How can I make my product/presentation the best possible based on what I know about my audience? How will I get the response I want from my audience? What am I feeling at this phase about my inquiry? How can I deal with these feelings in a positive way?
Evaluating	What have I learned about the topic of my inquiry? What have I learned about the inquiry process? How can I use what I have learned elsewhere? What am I feeling now about my inquiry? How have my feelings changed during the inquiry process? What have I learned about dealing with my feelings during the inquiry process?

Worksheet #19:
Reflecting After the Inquiry Process

1. What strategies did I learn for finding the answers to questions?

2. What successes have I had?

3. What challenges have I faced?

4. What has surprised me?

5. What have I learned about how I learn best?

Worksheet #20:
Presentation Evaluation

1. What worked well?

2. What didn't work?

3. What would I do next time?

4. What did the audience tell me?

5. What have I learned about the topic?

6. How could I make better use of my time?

Worksheet #20:
Presentation Evaluation (continued)

7. What did I like about the other presentations?

8. What did I learn from the other presentations?

9. What inquiry strategies have I learned that will help me in the future?

10. What questions haven't I answered?

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