

Grade **6** Lesson Package



heart healthy kids™
volume 2

Jeunes cœurs en santé^{MC}

volume 2



OVERVIEW OF LESSON PACKAGE FOR GRADE 6

General Information

STRUCTURE OF THE UNIT

This unit consists of an introduction (BLM 0), five lessons in Black Line Master format (BLM 1-5).

CONTENTS OF THIS PACKAGE

- Teacher Guide Pages
- Photocopiable Student Lessons, BLM 1-BLM 5
- Photocopiable Circulation Game, BLM 6
- Photocopiable Heart Talk Glossary, BLM 7
- Photocopiable Heart Fact Page, BLM 8

STRUCTURE OF STUDENT LESSONS

1. Each Student Lesson is provided in BLM format.
2. Each lesson is organized around the following headings:
 - Warm-up
 - Are you Ready?
 - Get Set
 - Go!
 - Cross the Finish Line
3. Each Go! section involves the student in making some artifact: a model, a picture, a chart. In most cases, the artifact can be taken home to share with their families.
4. The unit is are very much self-contained. Students should be able to progress through each lesson with minimal teacher guidance. It is suggested that a class discussion follow each lesson to wrap up any student questions.

YOU DON'T NEED TO BE AN EXPERT

All the information you and your students really need is either in this package or in the box. There's no need for the teacher to do extra research. At the same time, there is plenty of opportunity for students to do extra research.

YOU DON'T NEED SPECIAL MATERIALS

You won't have to prepare or scrounge for materials. Most activities don't require anything more than pens or paper. Everything else you'd need at school is in the box. And there are numerous opportunities for children to share activities with family by taking the lesson page home and interacting with adults.

YOU DECIDE HOW MUCH CLASS TIME TO USE

Children need not do the entire unit to benefit. It's well worth while to do, say, the introduction and one or two of the lessons you think your students would most enjoy. If you choose to do all five lessons, you might do one a day for a week, or one a week for a month.

The time required will depends on your objectives. Each lesson can stand on its own, if necessary. Or, each lesson can be enhanced to become the theme of a multidisciplinary study.

YOU DON'T NEED A LOT OF PREPARATION TIME

We've tried to keep this teacher guideline as concise and concrete as possible, so you won't have to wade through page after page to get to the heart of the matter. We've avoided jargon, and chosen the simplest possible language and the tightest possible format. The same is true of the Student Lessons.

THE LESSONS ARE MEANT FOR INDEPENDENT WORK

The five lessons are designed to help students learn how to learn from reference materials, from reading, from working together to answer questions, from connecting the learning that takes place in one lesson to the next.

INTRODUCING THE UNIT

See page 3 of this Teacher Guide.

OVERVIEW OF LESSON PACKAGE FOR GRADE 6

Contents at a Glance

	<i>Topic</i>	<i>Teacher Guide</i>
Overview of Grade 6 Lesson Package	General Information	page 1
Contents at a Glance	Contents	page 2
What You Don't Know About Your Heart...	Introduction to lessons	page 3

<i>Student Lesson</i>	<i>BLM</i>	<i>Title</i>	<i>Topic</i>
Lesson 1	BLM 1	<i>Circulation Game: Rules</i>	Structure and Function of the heart
Lesson 2	BLM 2	<i>Rule 1: Eat Good Food</i>	Nutrition for a healthy heart
Lesson 3	BLM 3	<i>Rule 2: Breathe Clean Air</i>	Air (oxygen) for a healthy heart
Lesson 4	BLM 4	<i>Rule 3: Move Your Body</i>	Exercise/fitness for a healthy heart
Lesson 5	BLM 5	<i>Emergency! Help for an Unhealthy Heart</i>	Using the 911 Emergency Service
	BLM 6	<i>Circulation Game: Picture</i>	Goes with Lesson 1
	BLM 7	<i>Heart Talk Glossary</i>	Goes with all Lessons
	BLM 8	<i>Handy Heart Facts</i>	Goes with all Lessons

Curriculum Expectations

Students will:

LESSON 2.

- describe the benefits of healthy eating for active living (H & PE -- Healthy Living)

LESSON 3.

- determine influences on the use and abuse of tobacco and consider them as part of a decision-making process to make healthy choices (H & PE -- Healthy Living)

NOTE: Based on the Province of Ontario's Curriculum Expectations

H & PE: Health and Physical Education, The Ontario Curriculum Grades 1-8

Sc & Tech: Science and Technology, The Ontario Curriculum Grades 1-8

Teacher's Guideline – Grade 6

INTRODUCTION *What You Don't Know About Your Heart Now Could Hurt You Later*

Teacher Preparation: Make copies of BLM 7 and BLM 8, one per student. These will be needed for all of the Lessons.

<i>Do or Say</i>	<i>Ask</i>	<i>Elicit</i>
Pull the stethoscope out of the box	Does anybody recognize this?	It's a stethoscope
Swing it	What's it for?	Listening to the heart
Choose a student "volunteer"	Show me how to use it	Get student to place earpieces in your ears, disc on own chest
Have student place stethoscope disc on their chest	What's that sound?	Heartbeat
Say: Yes, I hear it. Gee, it's noisy!	How does the heart make all that noise?	From pumping blood (from pushing blood around)
It sounds as if you people already know a few things about the heart	Where is your heart? What does it do? Where does the blood go? What does the blood do?	It's in your chest It pumps your blood Everywhere It keeps you alive

In this unit, you'll learn some of what you don't know.

- In Lesson 1, you'll play a game to learn the rules that control the movement of blood everywhere in the body. To help out, you'll get a copy of a Heart Glossary. [Pass out the photocopies now, during the introduction.] That's like a mini-dictionary of heart talk. You'll also get a page of Handy Heart Facts. [pass out the photocopies now.] The great thing is, you don't have to learn everything at once. And when you have a glossary and fact sheet handy, you don't have to memorize a lot of stuff. There are also lots of posters with helpful information.
- In Lessons 2-4, you'll learn about the "Big Three" rules for heart health. The rules themselves couldn't

be simpler: 1. Eat, 2. Breathe, 3. Move. But you need to learn what they mean.

- In Lesson 5, you'll learn how to help people whose hearts got hurt by what they didn't know, and make a Personal Emergency Chart for your home.

You'll be working in groups of three. [Assign the groups in your usual manner. We recommend one high achiever, one low achiever, and one from the middle of the pack.] Get together now with the rest of your group, and spend a little time looking at the materials that are available to help you with this unit.

We'll start on Lesson one [IN TEN MINUTES, AFTER RECESS, AFTER LUNCH, TOMORROW, MONDAY]

Answers to Questions for Grade 6 Lesson 1 The Circulation Game

Teacher Preparation: Make copies of BLM 1 and BLM 6 - one per group.

WARM UP

The cardboard won't be needed if students' desks are scratch resistant.

GET SET

1. Taping the pages down has two advantages:
 - It is the only way to keep them from getting mangled with three students in charge.
 - It allows all three students to consult all three pages at once.
2. Reassure students that you will not be asking them any details of Picture A.

GO!

- The Guru should be a good reader, and the Coach should be competent, but the Game Official does not have to be a good reader.

Answers:

4. Picture B is a simpler version of Picture A.
 - What's missing in B?

Nearly all of the small parts are gone. What's there does not look realistic.

- What's the same in B?

It has L, S, and H printed on it.

- Use Box C to identify the body parts in B. L = lungs; S = stomach; H = heart.

5-10. EMPHASIZE THAT THE PEN TIPS MUST STAY ON THE PAPER UNTIL THE RULES SAY IT CAN BE LIFTED OFF.

CROSS THE FINISH LINE

12. Picture B now has a lot of winding red and blue lines inside it. Get the Glossary Guru to help find the "official" name for these lines. Look to see if you can find lines like this on your body.

The "official" name is blood vessels. Students should be able to see some veins on the inside of their wrists.

13. Picture B stands for your circulatory system.

- a) What do you think circulatory means?

Something that goes around and around.

- b) What do you think system means?

Things that work together.

- c) Does the Glossary agree with you?

The words might not be the same, but the ideas should be.

14. According to the Glossary,

- a) What body part pumps your blood around your circulatory system?

The heart

- b) What body part(s) carry your blood around your circulatory system?

The blood vessels (arteries, veins).

- c) Where does the blood pick up food?

Near (but not in) the stomach.

- d) What does food do for your heart?

Supplies building materials and energy.

Your body?

The same.

- e) Where does the blood pick up oxygen?

From the lungs.

- d) What does oxygen do for your heart?

Gets energy out of the power food (carbohydrates).

Your body?

The same.

15. Compare Picture B to Picture A. Is B exactly the same as A?

No. B is much simpler.

Did B help you understand the main ideas in A?

We all hope the answer is yes.

Explain why B can be called a model of A.

B is something like A, some parts of it work the same way. So even though B is not the real thing, it can be called a model of the real thing. OF COURSE, A ITSELF IS A MODEL OF THE REAL THING. THE "REAL" REAL THING IS INSIDE THE LIVING BODY.

STUDENT WORKSHEET GRADE 6 LESSON 1

The Circulation Game

COACH'S CORNER: HERE ARE THE RULES

Inside your body, you have about five litres of a miracle liquid – blood. It keeps you alive by moving oxygen, food, and wastes around your body. But blood can't do all those jobs by itself. It needs the help of other body parts.

WARMUP

- Work in a group of three: one person for each photo copy below. Choose (1) A Coach (2) A Game Official (3) A Glossary Guru.
- If your table or desk is not scratch-proof, tape a piece of cardboard over it.

ARE YOU READY?

Each group needs three photocopies:

- (1) This Coach's Corner Page
- (2) Circulation Game Page
- (3) Heart Talk Glossary

- masking tape
- red pen or pencil
- blue pen or pencil
- ordinary pencil

GET SET

1. Tape the copies to your desk like this:

- | | | |
|---------------|--------------|-------------|
| 1. Coach's... | 2. Game Page | 3. Glossary |
|---------------|--------------|-------------|

2. On the Game Page, locate Picture A, Picture B, and Code Box C. (Don't let Picture A make you tense. You won't have to memorize it. It's just for comparison.)

3. Glance at the Glossary.

GO!

- Get the Coach to read these "rules" aloud.
 - Get the Guru to keep an eye on the Glossary.
 - Let the Game Official use the pens first. (The Coach and the Guru will each get a turn.)
 - Make sure everyone agrees on what to do.
4. Picture B is a simpler version of Picture A.
- What's missing in B?
 - What's the same in B?
 - Use Box C to identify the body parts in B.
5. Use red ink to stand for blood.
- Starting from the lungs, draw a red line to the top right corner of the heart. Do not raise your pen.
 - Trace the blood into the heart's bottom right corner.
 - "Pump" blood out of the heart to the nearest hand.

- Loop the blood next to (but not inside) the stomach.
 - Now send the blood to the nearest foot, up that leg and down the other leg.
6. The blood has now gone about halfway around the body. So it has given up half of its oxygen and food. It has also picked up waste from the body parts it has visited. To show this, change pens from red to blue.
7. Without raising your pen, run the "blue" blood:
- Up the same leg and the empty side of the body,
 - Out the empty arm to the hand,
 - Back to the neck, up and around the head
 - Down to the top left corner of the heart.
8. Don't lift the pen. Continue the blue line down to the heart's bottom left corner, then "pump" it up to the lungs. The lines will cross. That's okay.
9. The lungs lead to the outside air, so now the blood can pick up fresh oxygen. You're back to the start! So it's time to change pens from blue to red again.
10. The red ink stands for the same blood, refreshed and ready for another trip. But it won't necessarily follow exactly the same path the next time. Choose another path that visits all the same important places. Don't lift the red pen until the blood has gone about halfway around the body. Then change to a blue pen and keep running your inky blood through the circuit.
11. Repeat steps 5-10 two more times, but let the Coach and the Guru take a turn at using the pens.

CROSS THE FINISH LINE

The Guru can help find the answers in the Glossary

12. By now Picture B has a lot of winding red and blue lines in it. What do you think they stand for? Look through the glossary to find their "official" name.
13. Picture B is a simple model of your **circulatory system**. What do you think circulatory means? What do you think System means? Check your ideas in the Glossary
14. According to the Glossary,
- a) What body part pushes the blood around?
 - b) What body part(s) carry the blood around?
 - c) What does the blood pick up at the lungs?
 - d) What does blood pick up at the stomach?
 - e) What does (c) do for the body? What about (d)?
15. Compare Picture B to Picture A. Is B exactly the same as A? Did B help you understand the main ideas in A? Explain why B can be called a model of A.

Answers to Questions for Grade 6 Lesson 2

Eat a Variety of Foods

Teacher Preparation: Make copies of Student Worksheet BLM 2 as well as the Glossary and Heart Facts Page.

WARM UP

Work in a small group. You will need your worksheet, your Glossary page and a copy of Canada's Food Guide to Healthy Eating. (Note: When you see **bold print**, you'll know you can look up the word in the Glossary)

ARE YOU READY?

Healthy eating and **active living** will help ensure your maximum growth and development. As you work through the questions and activities below you will learn more about the great benefits of having a healthy lifestyle.

GET SET

1. What is Healthy Eating?

Healthy eating involves eating a variety of foods from the four food groups of Canada's Food Guide to Healthy Eating in the required amounts.

2. What is Active Living?

Active Living means participating in different physical activities as part of your everyday activities.

3. List some of the benefits of Healthy Eating.

Growth, healthy teeth and bones, plenty of energy, healthy body weight, overall good health, feeling good about yourself, fewer sick days.

4. How is Healthy Eating good for your heart?

Food provides the nutrients you need to have a healthy body. Eating a wide variety of foods from the four food groups will help all parts of your body grow

and function well.

5. List some of the benefits of Active Living.

More energy, stronger muscles and bones, better posture and balance, feeling good about yourself, healthy body weight, healthy heart and lungs, helps you sleep better, manages stress, having fun.

6. How is being active good for your heart?

The right type of activity is needed to maintain an efficient, healthy cardiovascular (heart) system.

7. List a couple of activities that are good for your heart.

Activities that are good for your heart should provide continuous movement to make the heart beat faster. Non-stop dancing, running, walking quickly, skipping, biking.

GO!

8. Look at your own eating and activity habits.

a) Keep a food record for a day. List exactly what you ate for Breakfast, Lunch, and Dinner and don't forget all those snacks. Use Canada's Food Guide to Healthy Eating to help you divide your food intake into the four food groups. If you ate more than 1 serving of a particular food, list the number of servings beside the food. Compare your results to the range of servings that you need from each food group: 5-10 Grain Products; 5-12 Vegetables and Fruit; 3-4 Milk Products; and 2-3 Meat Products and don't forget to include the Other Foods

b) Keep an Active Living Record for the day. Include all of your activities. Circle the activities that are 'good for your heart'.

<i>What and how much you ate</i>	<i>Grain Products</i>	<i>Vegetables & Fruit</i>	<i>Milk Products</i>	<i>Meat & Alternatives</i>	<i>Other Foods</i>
Breakfast					
Lunch					
Dinner					

CROSS THE FINISH LINE

9. Review your food record. Did you meet the minimum number of servings in each food group? If not, set a goal to work on increasing your intake, one food group at a time (e.g. this week, add one more serving of vegetables or fruit to your lunch).

10. Review your activity guide. Are you doing enough activity that is good for your heart? Set a goal to spend 30-60 minutes each day being active. List some of the activities that you can do to accomplish that.

STUDENT WORKSHEET GRADE 6 LESSON 2

Eat a Variety of Foods

WARM UP

Work in a small group. You will need your worksheet, your Glossary page and a copy of Canada's Food Guide to Healthy Eating. (Note: When you see **bold print**, you'll know you can look up the word in the Glossary)

ARE YOU READY?

Healthy eating and **active living** will help ensure your maximum growth and development. As you work through the questions and activities below you will learn more about the great benefits of having a healthy lifestyle.

GET SET

1. What is Healthy Eating?

2. What is Active Living?

3. List some of the benefits of Healthy Eating.

4. How is Healthy Eating good for your heart?

5. List some of the benefits of Active Living.

6. How is being active good for your heart?

7. List a couple of activities that are good for your heart.

GO!

8. Look at your own eating and activity habits.

a) Keep a food record for a day. List exactly what you ate for Breakfast, Lunch, and Dinner and don't forget all those snacks. Use Canada's Food Guide to Healthy Eating to help you divide your food intake into the four food groups and Other Foods category. If you ate more than 1 serving of a particular food, list the number of servings beside the food. Compare your results to the range of servings that you need from each food group:

5-10 Grain Products; 5-12 Vegetables and Fruit; 3-4 Milk Products; and 2-3 Meat Products and don't forget to include the Other Foods

b) Keep an Active Living Record for the day. Include all of your activities. Circle the activities that are 'good for your heart'.

<i>What and how much you ate</i>	<i>Grain Products</i>	<i>Vegetables & Fruit</i>	<i>Milk Products</i>	<i>Meat & Alternatives</i>	<i>Other Foods</i>
Breakfast					
Lunch					
Dinner					

CROSS THE FINISH LINE

9. Review your food record. Did you meet the minimum number of servings in each food group? If not, set a goal to work on increasing your intake, one food group at a time (e.g. this week, add one more serving of vegetables or fruit to your lunch).

10. Review your activity guide. Are you doing enough activity that is good for your heart? Set a goal to spend 30-60 minutes each day being active. List some of the activities that you can do to accomplish that.

Answers to Questions for Grade 6 Lesson 3

Breathe Clean Air

Teacher Preparation: Make photocopies of Student Worksheet BLM 3.

WARM UP

Show the Nutrition poster from the yellow box. Ask how students can share it so each group has a turn.

GET SET

1. You've breathed air all your life. What does clean air mean to you?

Answers will vary.

2. According to the glossary, what is oxygen?

It's a material found in air. The cells need it to extract energy from their "fuel" by "burning" blood sugar. [similarly, candle flames need it to keep burning.]

GO!

3. Use the instructions in the box below to construct a simple model of a human lung

How to Build a Model of a Human Lung

- Fold until it can't fold any more. More than 5 is difficult.
 - Unfold ...count ... Or multiply
5. folds gives 32 compartments (2x2x2x2x2) or 2 times itself five times.

What do the Parts of the Model Mean?

See student worksheet.

How to Operate a Model of a Human Lung

Expand and contract your model lung again. How many compartments will let oxygen through?

Half or 16 in a 32-compartment model lung.

How many can't?

The other half.

CROSS THE FINISH LINE

4. Get the Glossary Guru to help you find out how blood fresh from the lungs differ from blood that has just gone back to the lungs in:

(a) oxygen?

Fresh blood has more. Used blood has less.

b) waste?

Fresh blood has less. Used blood has more.

c) colour?

Fresh blood is bright red, "used" blood is dark red.

5. a) Compare hidden fat to second hand smoke. How are they alike?

Both are harmful.

Different?

It's easy to detect smoke with your senses. It's hard to detect hidden fat with your senses.

- b) Compare junk food to second hand smoke. How are they alike?

Both can affect the heart. Both contain harmful materials. Different?

Sometimes you can't help but inhale second hand smoke, because you have to breathe, even if the air isn't very clean. With less healthy foods, you have a choice. You don't have to eat it.

6. Why might smoking tobacco eventually cause a heart attack.

Even when a smoker inhales completely clean smoke-free air, the blood can't pick up a full load of oxygen. Half the compartments are blocked with tar. So the lung can only get half as much oxygen from a lungful of air. So the blood coming from the lung to the heart would not have enough oxygen to keep the heart muscle healthy.

7. Revisit the Game Page. What are the possible consequences if:

- a) Your feet don't get enough oxygen?

They'll get tired faster because the cells can't get enough energy out of their food.

- b) Your heart doesn't get enough oxygen?

It will get tired faster because the muscle can't get enough energy out of its food.

- c) Your heart gets dirty air from second-hand smoke along with the oxygen?

THE DIRT IN THE AIR COULD CONTAIN MATERIALS THAT MAY POISON OR HARM THE HEART AND KEEP IT FROM WORKING PROPERLY.

STUDENT WORKSHEET GRADE 6 LESSON 3

Three Big Rules for Heart Health. Rule 2: Breathe Clean Air

WARM UP

Continue to work in your group. You will need: a piece of paper, a red pen, an ordinary pencil, your Game Page, your Glossary Page, and a Smoking poster. (Note: If a word's in **bold print** you can look it up in the Glossary.)

ARE YOU READY?

Think about this. There are three "big rules." You started with heart healthy eating. Why look at breathing second? Because (a) Breathing is how your lungs bring air into your body; (b) air contains **oxygen**; (c) without oxygen, **carbohydrate foods** cannot give up the **energy** they contain even when broken

into bits, (d) oxygen is needed so **cells** can "burn" **blood sugar**.

GET SET

1. You've breathed air all your life. What does clean air mean to you? _____
2. According to the glossary, what is oxygen?

GO!

3. With members of your group, use a piece of paper to construct a lung model. Use the instructions in the box below.

How to Build a Pretend Lung

- Place the paper flat on your desk.
- Make a grid of red lines on one side.
- Turn the paper over. Fold it in half, clean sides in. Fold again. Continue until it can't fold any more. Unfold the paper, clean side up.
- How many compartments are there? (How could multiplying help you find out faster?)

What do the Parts of the Model Mean?

- The unfolded paper is a simple model of a human lung. The lung has compartments too.
- The paper stands for the lung's thin walls.
- Its clean side stands for the lung's inner surface, where the compartments trap clean air.
- The paper has a red grid on the back. Lung compartments have blood vessels on the back.

How to Operate a Model of a Human Lung

- Grip the paper model by its ends. Squeeze the ends together to contract the model lung. Pull them away to expand the model lung
- When a real lung expands, air presses into the thin walls. Oxygen pushes into the blood vessels
- Visualize oxygen pressing through the thin paper of your model. Imagine it entering the grid of red lines on the back. That's how your lungs work
- With a pencil, mark an X in every other compartment. X stands for **tar**. Expand and contract your model lung again. What percentage of the lung is blocked by tar from tobacco smoke? Why can't oxygen get through? What do you think the smoker would have to do to make up for the loss of lung capacity?

CROSS THE FINISH LINE

Work in your team to answer these questions on the back of this page, or in your notebook.

4. How does blood fresh from the lungs differ from blood that has just returned to the lungs, in (a) oxygen? (b) waste? (c) colour?
5. a) Compare hidden fat to second hand smoke. How are they alike? Different?
b) Compare unhealthy hidden fats to second hand smoke. How are they alike? Different?
6. Why might smoking tobacco eventually cause a heart attack?

7. Revisit the Game Page. What are the possible consequences if
 - a) Your feet don't get enough oxygen?
 - b) Your heart doesn't get enough oxygen?
 - c) Your feet get smoked filled dirty air from second hand smoke along with the oxygen?

Answers to Questions for Grade 6 Lesson 4

Move Your Body

Teacher Preparation: Make photocopies of Student Worksheet BLM 4. Check that the stethoscope is put together.

WARM UP

Show the Physical Activity poster from the box. Ask how students can share it so each group has a turn.

GET SET

1. You've been moving your body all your life. What does physical activity mean to you?

Answers will vary.

2. According to the glossary, what is fitness?

The glossary splits physical fitness into two parts: fitness and cardiovascular fitness. Together, they mean joints that bend freely, strong muscles that can work a long time, plus heart lung and blood vessels that can deliver oxygen-rich blood to muscles at a fast rate for a long time.

GO!

3. Use the instructions in the box to investigate your own heartbeat and pulse.

How to Use a Stethoscope

A Substitute Stethoscope for Home Use

If you suspect that some of your female students are uneasy about having another student hold the stethoscope disc on their chests, you may wish to turn the entire lesson into an at-home activity. A tube from a roll of paper towel makes an excellent **substitute stethoscope for home use**. Or you may wish to ask students to bring towel tubes from home. They are amazingly effective, and the user's hand need not touch the subject's body.

How to Take Your Own Pulse

Taking a wrist pulse involves a long learning curve.

Turn palm face up, place 2 fingers (not thumb) on wrist

My Heartbeat Chart

Beats per minute with stethoscope _____

Pulse when I wake up in the morning _____

Pulse when I'm sitting in school _____

Pulse before I start walking _____

Pulse after walking briskly for 5 min _____

Pulse after resting for 5 min _____

Pulse after running for 1 min _____

Pulse after resting for 5 min _____

Pulse before I start watching TV _____

Pulse after watching TV for 30 min _____

Pulse range for my age group _____

Am I inside the range? _____

CROSS THE FINISH LINE

4. How is your heart rate affected by: (a) Activity?

It makes my heart beat faster.

b) Rest?

My heart beats slower.

c) TV watching?

My heart beats slower.

5. a) The heart rate of a professional athlete is much lower than yours. Why?

(Two reasons.) Reason 1: The athlete is likely older and the Heart Facts Page shows that older people have lower heart rates than kids. Reason 2: The athlete exercises a lot. This exercises the athlete's heart, too, making it stronger. It likely doesn't have to beat as often to move the blood around.

b) What could you do to reduce your heart rate?

Get more aerobic exercise.

c) Why should you try.

A stronger heart is a healthier heart.

6. Whose heart beats faster: (Heart Facts Page)

a) An older human or a younger one?

Younger.

b) A very fit person or a fairly fit person?

A fairly fit person.

7. Running around makes your heart beat faster and work harder. How can that be good for you?

The heart is made of muscle, and muscle gets stronger when it works harder.

8. What was your favourite physical activity when you were young?

Answers will vary.

Do you still enjoy it?

Students this age are not likely to admit enjoying what they now think of as baby activities.

9. a) What is your favourite physical activity now?

Answers will vary.

Estimate how much time you spend on it.

They'll have to estimate because they probably don't measure that time nearly as closely as they measure TV time. Hardly any parent complains because a child is getting too much exercise.

b) Is (a) something you can keep on doing when you're an adult?

Answers will vary.

Explain why or why not.

FOR EXAMPLE, Far fewer adults than kids are involved in organized sports. So it might be difficult to go on playing girls' soccer as adults.

10. From the poster, list the advantages of being physically fit.

(i) more blood to your muscles; (ii) you have more energy; (iii) heart muscle gets stronger with exercise; you have more fun; you feel good about yourself; you sleep better; you will have a healthy body weight. Did you know about all of them? PROBABLY NOT.

11. Revisit the game page. What are the possible consequences if

a) Your legs don't get enough exercise?

Your leg muscles will likely get weak. You won't be able to walk or run as fast.

b) Your heart doesn't get enough exercise?

Your heart will likely get weak. It won't be able to pump blood as efficiently.

c) Your cardiovascular fitness is poor.

Your heart muscle can't deliver blood quickly. Running outside in a panic if the house caught fire could give an elderly couch potato a heart attack.



STUDENT WORKSHEET GRADE 6 LESSON 4

Three Big Rules for Heart Health. Rule 3: Move Your Body

WARM UP

Continue to work in your group. You will need: a watch or clock with a second hand, alcohol swabs, stethoscope. Heart facts page. your Game Page, your Glossary Page, and a Physical Activity poster. (Note: If a word is in **bold print** you can look it up in the Glossary.)

ARE YOU READY?

Think about this. The third “big rule” is the one every baby knows, but a lot of adults seem to forget. Move! It’s essential for **fitness**, which is essential for a healthy heart. Like all muscles, your heart gets stronger when you work it harder. In fact, measuring heart rate in various situations is a good way to evaluate fitness.

GET SET

1. You’ve been moving your body all your life. What does physical activity mean to you?
2. According to the glossary, what is fitness?

GO!

4. Use the instructions in the box to investigate your own heartbeat and pulse. Others can help with the timing, but you should listen to your own heartbeat and take your own pulse. (Note: People your age are at different stages of growth. There is a lot of variation from one person to another. This is natural and normal.)

How to Use a Stethoscope

- If there is only one stethoscope for the class, plan how you will share it so everyone gets a turn.
- Use the alcohol swabs to clean the earpieces.
- Press the metal disc firmly against your chest. You’ll probably hear your heart right away.
- Move the disc around until the sound is loudest. Doctors call this sound lub DUB. Do you hear why? Count the number of lubDUBs in a minute. Record this number in the chart on the right.

How to Take Your Own Pulse

- Turn you palms face up, place 2 fingers (not thumb) on wrist until you feel a throbbing. That’s your pulse. It tells you how fast your heart is beating. Count the number of beats in a minute.
- Read the chart on the right. Over the next couple of days, take your pulse in each situation.

My Heartbeat Chart

Beats per minute with stethoscope

Pulse when I wake up in the morning

Pulse when I’m sitting in school

Pulse before I start walking

Pulse after walking briskly for 5 min

Pulse after resting for 5 min

Pulse after running for 1 min

Pulse after resting for 5 min

Pulse before I start watching TV

Pulse after watching TV for 30 min

Pulse range for my age group

Am I inside the range?

CROSS THE FINISH LINE

Answer these questions on the back of this page, or in your notebook.

4. How is your heart rate affected by:
a) Activity? (b) Rest? (c) TV watching?
5. a) The heart rate of a professional athlete is much lower than yours. Why? (Two reasons.)
b) What could you do to reduce your heart rate?
c) Why should you try?
6. Whose heart beats faster: (Heart Facts Page)
a) An older human or a younger one?
b) A very fit person or a fairly fit person?
7. Running around makes your heart beat faster and work harder. How can that be good for you?

8. What was your favourite physical activity when you were young? Do you still enjoy it?
9. a) What is your favourite physical activity now? Estimate how much time you spend on it.
b) Is (a) something you can keep on doing when you’re an adult? Explain why or why not.
10. From the poster, list the advantages of being physically fit. Did you know about all of them?
11. Revisit the Game Page. What are the possible consequences if:
a) Your legs don’t get enough exercise?
b) Your heart doesn’t get enough exercise?
c) Your **cardiovascular fitness** is poor?

Answers to Questions for Grade 6 Lesson 5 Emergency!

Teacher Preparation: Make photocopies of Student Worksheet BLM 5. Borrow a phonebook from the school office or photocopy the emergency pages.

WARM UP

Show students the phone book. How will they share it so every group gets a turn?

GET SET

1. According to the glossary, what is a heart attack?

Death or damage to muscle so heart can't pump blood to rest of body; caused when clogged arteries block oxygen-rich blood from reaching heart.

2. According to the glossary, what is a stroke?

Death or damage to brain cells so brain can't send orders to rest of body; caused when clogged arteries block oxygen-rich blood from the heart.

GO!

3. If your community does not have a 911 service, students should discuss how they can get help otherwise.

<i>What the Operator Might Ask</i>	<i>How Would You Answer?</i>
What is your name? etc.	Kids are often kept surprisingly ignorant of family health matters. Good observation skills can't replace facts on a chart posted beside the telephone.

CROSS THE FINISH LINE

Discuss these questions as a class.

This suggestion is made because a group of three may not have sufficient collective experience to make good suggestions. In an entire class, at least a few students are likely to have had some family experience with heart attacks or strokes, or other medical emergencies such as asthma.

4. a) One of the symptoms of a stroke may be a sudden, extremely severe headache. Explain why the head would be affected.

The arteries to the head are blocked, so the head would not get enough food and oxygen. Note: a headache is not always a sign of a stroke. Some people (including kids) get migraines, which are very painful, but not the start of a stroke.

b) Would a person having a stroke always be able to describe what was happening?

No. Often, a stroke affects the part of the brain that controls speech.

c) How could you guess from a person's behaviour that a stroke might be happening?

The person's face might look surprised, or puzzled. The eyes might look as if they can't focus. An arm or a leg might suddenly go limp. The person might fall as a result.

5. a) You might expect chest pain to be the first sign of a heart attack. Why?

The heart is in the chest, and it is the first place where damage occurs.

b) In many cases, the first sign is actually a puzzling pain in the arm or shoulder. Often the person with the pain won't admit that it could mean a heart attack is starting. How could you tell an adult like this why it is NOT a good idea to "wait awhile and see"?

In fact, the onset of a heart attack often inspires a great sense of (i) fearfulness in the patient (ii) denial that this may be "the big one" and it stands to reason that a heart which is not pumping properly is not sending enough blood to the brain, so it's not surprising if the person is not thinking clearly. Students may wonder why a heart attack may cause a pain in the arm. This is an example of referred pain, and likely beyond your students for now. Tell them to ask a nurse or doctor. (Indeed, referred pain is beyond many doctors!)

6. Normally, you would not give personal information to a stranger over the phone. Why is it okay to give it to a 911 operator?

You have to trust somebody in an emergency, and your community has provided a service that works hand in hand with police, fire service, and hospitals. If you can't trust 911...who can you trust? You should always do

what the operator says. The paramedics can't get in easily if the door is locked. If the operator thinks there is a gas leak in the house, anyone who can still move should get out promptly. But don't ever hang up the phone until the operator tells you to. The operator may want you to keep reporting on the patient's condition.

7. At first, the adults you live with might not want to give you the information you need for your Personal Emergency Chart.

a) Explain why not.

They might have been brought up to think of their age as a kind of secret. Elderly folks especially think of some illnesses as shameful or embarrassing.

b) Explain how you could convince them.

Make them watch an episode of '911' on TV. Perhaps that will help them see that every responsible family

member should be able to help all the others. The adults like to think they'll always be in control, but they are much more likely to have a heart attack or a stroke than kids are.

8. Sick or injured people who appear unconscious may still be able to hear. But they won't be able to let you know that they hear you. Why is it important for you to keep talking to the person until help arrives?

The sick person is probably frightened. In fact, a sense of doom is a common symptom of an oncoming heart attack. The sound of a familiar voice that says help is coming can keep the sick person from panicking.



STUDENT WORKSHEET GRADE 6 LESSON 5

Emergency! Help an Unhealthy Heart – Call 911

WARM UP

Continue to work in your group, but make your own Personal Emergency Plan.

ARE YOU READY?

Think about this. There may be no reason to expect an heart emergency at your place. But that's the way of emergencies – no one expects them. So it's good to have a plan all thought out in advance. If you're the one in charge (and kids often are!) it will be important for you to keep your cool. The patient will be frightened enough. And a plan that works for a heart emergency will work for any emergency.

GET SET

1. According to the glossary, what is a **heart attack**?

2. According to the glossary, what is a **stroke**?

GO!

3. Most communities now have a 911 emergency service. Use the left side of the box below to help you think about the questions a 911 operator might ask. Use the right side to start making a Personal Emergency Chart to keep by the phone at home.

<i>What the Operator Might Ask</i>	<i>How Would You Answer?</i>
What is your name? (First and last).	Your name:
Where are you now?	What if you're not at home?
What is the street address?	My street address:
The nearest large intersection?	The nearest major intersection:
Who is sick or hurt? (First and last name.)	Do you know the last names of all adults at your home?
How old is the sick or hurt person?	Do you know how old everyone is?
Is the person awake? Breathing?	How could you tell whether someone was breathing?
How long has the person been sick or hurt?	If you weren't there at the start, you may not know.
What was he/she doing just before?	This is a test of your observation skills.
Has anything like this happened before?	This is a test of your memory. Were you paying attention?
Is the person taking any medication?	How can you find out?

CROSS THE FINISH LINE

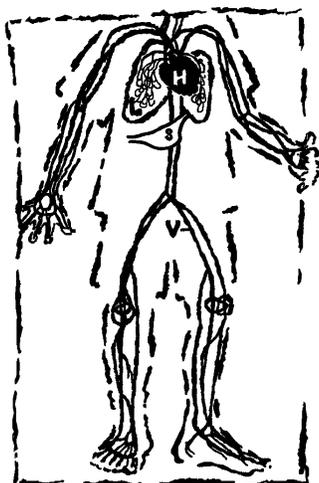
Discuss these questions as a class.

4. a) One of the symptoms of a stroke may be a sudden severe headache. Explain why the head would be affected.
 - b) Would a person having a stroke always be able to describe what was happening?
 - c) How could you guess from a person's behaviour that a stroke might be happening?
5. a) You might expect chest pain to be the first symptom of a heart attack. Why?
 - b) In fact, a heart attack often starts with a pain in the arm or shoulder. The person may not admit there's a serious problem. Explain why is it important NOT to "wait awhile and see."
6. Normally, you would not give personal information to a stranger over the phone. Why is it okay to give it to a 911 operator?
7. At first, the adults you live with might not want to give you the information you need for your Personal Emergency Chart.
 - a) Explain why not.
 - b) Explain how you would convince them to do it anyway.
8. Sick or injured people who appear unconscious may still be able to hear. Why is it important for you to talk to the person until help arrives?

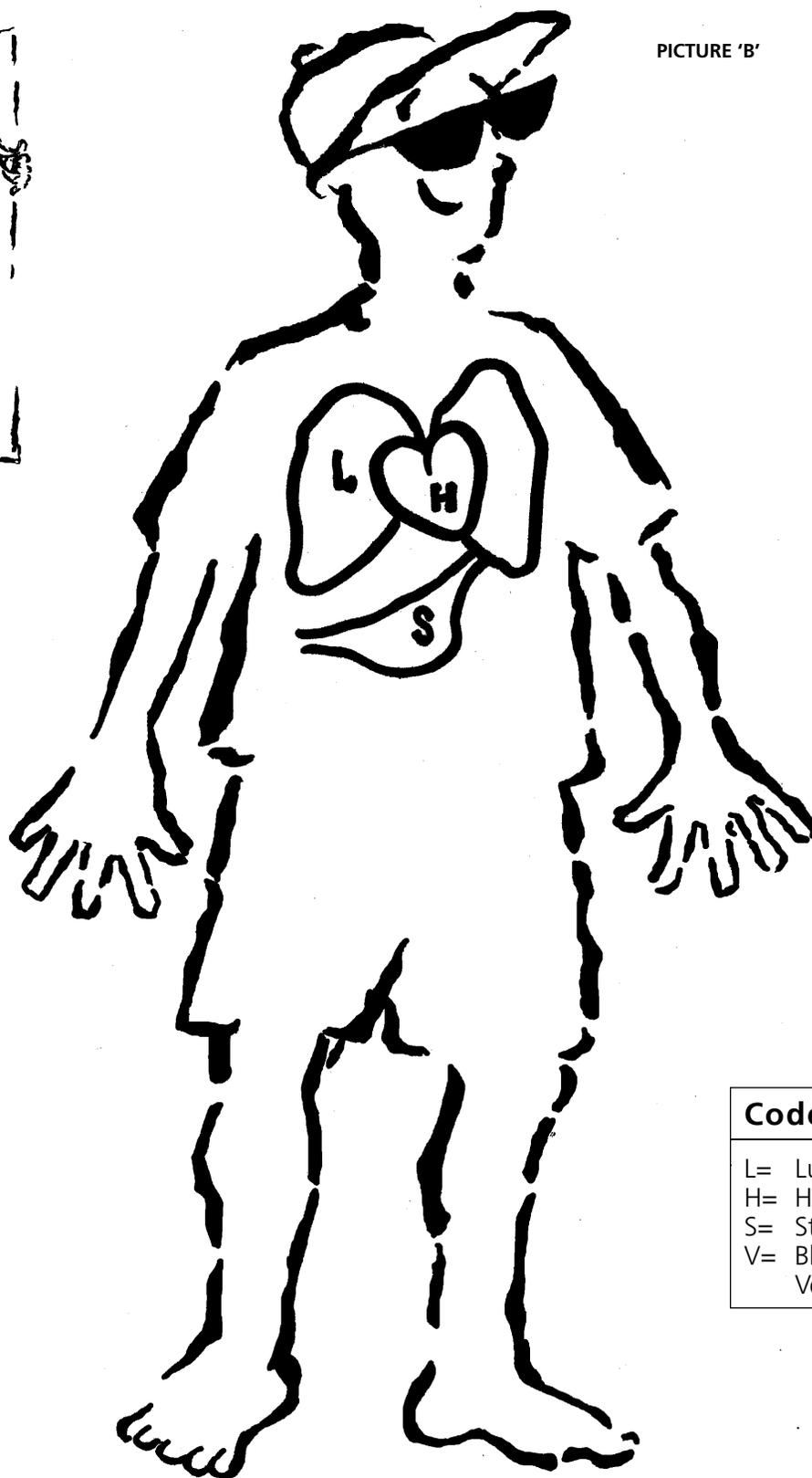


HEART
AND STROKE
FOUNDATION
FONDATION
DES MALADIES
DU COEUR

CIRCULATION GAME PICTURE



PICTURE 'A'



PICTURE 'B'

Code Box

L= Lungs
H= Heart
S= Stomach
V= Blood
Vessels

GRADE 6 HEART HEALTHY GLOSSARY

active living: Means participating in different physical activities as part of your everyday activities

active play: See aerobic exercise

aerobic exercise: Any game, activity, or exercise that makes your body take in extra air

arteries: Tubes that carry blood away from heart

blood sugar: The fuel that all cells run on; it comes from carbohydrates and is carried in the blood

blood vessels: Tubes that carry blood around body (see arteries, capillaries, veins)

blood: Liquid containing red blood cells

brain attack: See stroke

capillaries: Very narrow veins and arteries

cardiovascular fitness: Heart, lungs, and blood vessels are able to deliver oxygen-rich blood to muscles at a fast rate for a long time

cells: Tiny building blocks that make up all body parts: skin, bones, lungs, heart, and other muscles

chamber: Room-like compartment in heart, with two door-like openings to let blood in and out.

circulatory system: Includes a heart to pump blood and a network of tubes called blood vessels

energy: Provides body heat or makes things move

exercise: Any activity that makes muscles move

fitness: Joints bend freely; muscles are strong and can work a long time (see cardiovascular fitness)

food: Edible materials containing carbohydrates, proteins, fats, and other useful materials

fresh blood: Blood fresh from lungs is high in oxygen, low in wastes, and bright red in colour

healthy eating: Involves eating a variety of foods from the four food groups of Canada's Food Guide to Healthy Eating in the required amounts

heart: Muscular pump with four hollow chambers; upper chambers collect blood coming into heart; lower chambers pump blood forcefully away

heart attack: Clogged arteries block oxygen-rich fresh blood from reaching heart muscle, damaging muscle which then can't pump blood to rest of body

heartbeat: Repeated pumping action of heart; or sound made by that action, or the beats per minute

lungs: Hollow, thin-walled pouches inside chest; lined with blood vessels that absorb oxygen from air

muscle: Body part that exerts force by contracting (getting shorter and thicker) and lets go by relaxing

nicotine: Active (and addictive) ingredient in all tobacco, including so-called "smokeless" tobacco

oxygen: Material found in air, needed to extract energy from fuel; cells use it to "burn" blood sugar

pacemaker: Small bundle of cells in heart; it creates electric signals to control heartbeat automatically

plaque: Mix of dead cells and fat; sticks to arteries (like tooth plaque on teeth); blocks blood

pulse: Rhythm of heartbeat felt in wrist or throat

red blood cells: Solid, saucer-shaped cells, that pick up oxygen at lungs, and deliver it all over body

second-hand smoke: Mix of tobacco smoke exhaled by smoker plus smoke given off from the ends of burning cigarettes, cigars, or pipes

stomach: Part of the body system that breaks food into bits small enough for blood to carry

stroke: Clogged arteries block oxygen-rich blood from reaching the brain, which then can't send orders to rest of body (also called brain attack)

tar: Given off in hot tobacco smoke; gathers into sticky brown blobs when it cools in lungs

tobacco: Plant with nicotine-containing leaves that users smoke, chew, or sniff

used blood: Blood on its way back to lungs is low in oxygen, high in wastes, and dark red in colour

veins: Tubes that carry blood back to heart

GRADE 6 HANDY HEART FACTS

How much blood?

An adult's body holds about five liters (5 L) of blood.

Length of blood vessels

If stretched out – 96,000 km – enough to go around the world nearly four times!

Sample heart rates:

- mouse – 850 beats per minute
- newborn human – 140 beats per minute
- average for your age group – 70 - 100 beats per minute
- average adult – 60 - 100 beats per minute
- athletes as low as 40
- elephant – 35 beats per minute

How many red blood cells?

About 25 trillion (2,500,000,000,000) in an adult's body.

Size of red blood cells

This line is about 1 cm long: ___ 1250 red blood cells could fit along its length.

Smallest blood vessels

The smallest capillaries are so thin that red blood cells have to fold up to pass through.

Biggest blood vessel

That's your aorta. It is the main tube from your heart to the rest of your body. Use your forefinger and thumb to form a circle that's 2.5 cm across on the inside. That's the size of the opening inside an adult's aorta.

Size and shape of heart

To make a simple model of your heart, make a fist with your left hand. Cup your right hand around it. That's about the size and shape of your heart, no matter how big or small you happen to be.

Your heart has two sides

Each side of your heart has two hollow compartments, with walls made of muscle. The muscle pushes your blood through these compartments by squeezing repeatedly.

Your heart has four compartments

If you could look inside your chest at your own heart, you would see four compartments. Pause now to look at the simplified picture in BLM 9. The top compartments are both weak. They only have to push blood into the bottom compartments. The bottom left compartment is the strongest. It has to push blood out to the farthest parts of your body. The bottom right compartment is not as strong. It only has to push blood out to the lungs, not nearly as far away from the heart.

Why are the LEFT-hand compartments on the RIGHT side of the picture?

Looking at a picture of a heart is like looking at the front of another person's body. To test this idea, get a partner to stand facing you with both hands held up in the air. Now, clap your partner's left hand. Which of your hands was easiest to clap with? Now clap your partner's right hand. Which hand was easiest to use this time?

Why the heart goes lub DUB

If you listen to a heartbeat, you hear lub DUB, lub DUB. The lub sound is longer but softer. The DUB sound is shorter but louder. Both sounds are caused by the shutting of flaps that let blood in and out of the heart. The lub sound is made when both bottom compartments squeeze at the same time, and the IN-flaps slap shut. This prevents the blood from flowing backward. The DUB sound is made when both bottom compartments relax or let go at the same time, and the OUT-flaps slam shut. Again, this prevents the blood from flowing backward.

How many lub DUBs?

About 100 000 a day, on average.

HOW THE HUMAN HEART WORKS

In real life, the human heart has many parts. But you do not need to memorize all the parts to understand how the heart works. Just check out this simplified picture as you read the Handy Heart Facts on BLM 8.

SIMPLE MODEL OF THE HEART

