This resource has been created in order to assist teachers in selecting activities that fit the curriculum for the Grade 5 “Human Body Systems” Science Unit. These activities and resources are meant to supplement the various resources teachers and schools already own and use. Student handouts have been included in this binder for ease of access. I have included many of my favourite activities. The online version of this resource is also available at PSSD and it is hoped that teachers will add to the resource over time as they find effective methods for teaching the outcomes.

There are at least two ways to use this kit:

1. You can use the “Project Booklet” in conjunction with the blackline masters for “The Student Journal” to act as a base for your unit. For these activities, all materials you will need to conduct the experiments are in the kit (though over time some of the disposable items may need to be replaced). Select video, internet sites, extra handouts, and book resources from the kit to supplement as desired. Note: a PDF version of the “Project Booklet” and “Student Journal” can be found online at spiritsd.ca if you have projector/SmartBoard technology and wish to project the images. I have included a CD as well.

or 2. You may simply choose from the activities provided below in the Outcomes and Indicators chart format. Add to these activities provided in the handouts, books, and online recommended resources. Be sure to check out the “Website and Video” chart below for great activities for introduction or reinforcement of concepts. Please feel free to add copies of your favourite additional activities behind the final tab in the binder. After all, this is all about sharing!
**OUTCOME: HB5.1 Analyze personal and societal requirements for, and the impact of, maintaining a healthy body.**

<table>
<thead>
<tr>
<th>Question</th>
<th>Activity</th>
</tr>
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</table>
| How does First Nations teaching about balance help us understand the importance of maintaining a healthy body? | 1. Use the Cree introduction on this site to introduce the four parts: spiritual, physical, emotional, mental aspects of self to be brought into balance: [http://www.fourdirectionsteachings.com](http://www.fourdirectionsteachings.com)  
   *Be sure to read the biography of Mary Lee from Pelican Lake, SK. She dictates the Cree portion of this site. (copy in Appendix #1 & 2)  
   2. Medicine Wheel - sit in a circle - use a talking circle to establish norms and discuss respect - lead into understanding/discussion of achieving balance (see Saskatchewan SCIENCE 5: Human body Systems p. 7 for details).  
   3. Use the handout in the “Student Journal” to allow students to explore what they do and need to do in order to maintain a healthy balance. |
| What is the integumentary system? How do I best influence the health of this system? | 1. In small groups, have students build a model of “The Skin” from The Body Book: Easy-To-Make Hands-On Models That Teach. These can be discussed, coloured, and put on display. Some discussion is provided in the book.  
   2. Use Appendix sheet #15 handout word find to check understanding of parts of the skin. |
| How have technological advances contributed to the improvement of health? | 1. “People, Places & Things That Help” section of [www.kidshealth.org](http://www.kidshealth.org)  
   2. Use handout “Making and Using a Gel Person to Teach Human Anatomy” (materials not in kit) from Appendix ##18. Students make a gel person and then learn about how technology makes it possible to study the human body through x-rays, CT scans, and MRIs. |
| What are common diseases which could be avoided with better lifetime care of our bodies? Which systems do these diseases affect? | 1. See “Everyday Illnesses & Injuries” at [www.kidshealth.org](http://www.kidshealth.org) for common childhood diseases. (Includes current topics such as nut allergies).  
   2. Research common adult diseases. What can be done to prevent these? What system(s) is(are) affected? See the research sheet in appendix #17 or have students make posters)  
   3. Following discussion/research about ways to keep our bodies healthy, have students make a mini-book about “How to Keep My Body Safe” from Appendix #23. |
### How are the diets of people in different communities and countries compare to the diet in the Canada Food Guide?
Do different people in Canada have different diets? How does this work with the Canada Food Guide?

1. In groups, discuss what is required for healthy food consumption according to Canada’s Food Guide. Compare personal diets to those of people who live in different communities to Canada’s Food Guide. To do this look at the variety of Canada’s Food Guide versions included in the kit.
2. In particular (if not already used as main copy) spend time looking at Canada’s Food Guide – First Nations, Métis, and Inuit. Discuss the similarities and differences. Copies of each of the guides are found in the Appendix #21. Refer to “Q & A about “Eating Well with Canada’s Food Guide - First Nations, Inuit and Metis” to lead discussion. See Appendix #20 for this document.
3. Have students make a week-long plan (using one of the guides) for lunches and snacks (see “Student Journal” handout).

### What is an appropriate level of activity for someone my age?

### What is proper hygiene? Why is it important?

### Why is the Canada Food Guide important? How do I use it?

### What are nutrition labels? Do I have a role in food choices?

1. Use the websites below to teach about nutrition labels.
2. Have students bring empty food containers and boxes to school. Bring lard and sugar. Have students measure and discuss how much fat and sugar is in the foods they eat. Talk about healthy choices.
3. To help students understand the adverse affects of significant amounts of pop on their bones, conduct the “How Does Pop Affect My Body?” experiment (Appendix #19). You may choose to do this over a weekend as a class instead. Remove the bones and have a discussion about the positive effects of calcium and the negative effects pop has on bones (milk-strong, whiter; pop - brown and shrunken).
4. Check out the online resource: Canadian Physical Activity Guidelines (copies may be ordered) [http://www.csep.ca/english/view.asp?x=804](http://www.csep.ca/english/view.asp?x=804)

### OUTCOME: HB5.2 Investigate the structure, function, and major organs of one or more human body systems such as the digestive, excretory, respiratory, circulatory, nervous, muscular, and skeletal systems.

<table>
<thead>
<tr>
<th>INDICATORS (Questions related to indicators)</th>
<th>EXAMPLE ACTIVITIES:</th>
</tr>
</thead>
</table>
| How do body systems work?                   | 1. Check out the “Project Journal” and “Website and Video” chart for great activities.  
2. Use “How the Body works: The Digestive System” and “How the Body Works: The Endocrine System” handouts from Appendix #3 & 5.  
3. The “Stomach Acid Experiment” handout in Appendix #4 gives students a great opportunity to learn about acids in our system. You will need to gather materials ahead of time. |

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*GRADE FIVE SCIENCE  HUMAN BODY SYSTEMS*
**Outcome:** HB5.3 Assess how multiple human body systems function together to enable people to move, grow, and react to stimuli.

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Example Activities:</th>
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<tbody>
<tr>
<td>What questions do I have about Human Body Systems?</td>
<td>1. Use an “Inquiry Board”. At the top, place the heading “I am curious about . . . “. Have post-it notes available throughout the unit so that any time a child thinks of a question, s/he can immediately post it on the Inquiry Board (with name). Near the end of the unit, check to see which ones have not been covered and group these according to topic. Group the questions according to topic. Place children with similar questions in the same group. Allow research time. Allow one or two periods for groups to present. I am always amazed at the creativity! PowerPoint presentations, videos, posters, dramas, reports, etc all appear magically on these days. You may get questions such as: How are the various systems connected to each other? Could one system live without the other systems? If not, why not? Why do we need to eat? Could we breathe without a diaphragm? Which organs work hard during exercise? Why do people sometimes become paralyzed due to an injury? How will my body change as I get older?</td>
</tr>
</tbody>
</table>
| How can I physically demonstrate how my heart and lungs work together? | 1. Appendix #9 is a handout for term familiarity with the heart. Appendix #6 & 7 are handouts re: the lungs and respiratory system (labeling and crossword).  
2. Use “Follow the Blood Cells” from Appendix #10. You will need blue and red cards (or balls and buckets) for this activity.  
3. Have four students dramatize being the four chambers of the heart. The must learn to work together to open and close valves. Another two students could act as “arteries” and “veins” and actually feed “blood” (small items) into the heart. Be creative.  
4. Once students are feeling comfortable with being creative, have groups dramatize another body system.  
5. Have students create the “Word Cycle” from Appendix #12 to show the interrelationship between the Circulatory and Respiratory Systems. |
| --- | --- |
| How does the nervous system work together with other body systems to react to stimuli and control body functions? | 1. Using the handout at Appendix #14, have students become familiar with the structure of neurons.  
2. Use “The Nervous Security System” activity from Appendix #13 to help students understand the function of the nervous system.  
3. Now have students relate what they have learned about the nervous system “security system” to one or more of the other human body systems in poster form. (ie. hand touches hot stove, heat and pain sensors react, neurons send messages to brain, brain processes danger, message sent to muscles to retract hand and to voice to say “ouch”, visual image sent to the brain, the brain problem solves and sends messages to muscles to move to sink to cool hand under water, brain sends message to cells to begin process of healing, etc) |
| What happens to the food I eat? How is it absorbed by the body? | Digestive System - shows different foods as they travel through the system [http://kitses.com/animation/swfs/digestion.swf](http://kitses.com/animation/swfs/digestion.swf) |
| What advances in medicine have been made to enhance human body systems and allow longer life or more effective functioning? | 1. See fascinating article re: an artificial heart at [http://www.pbs.org/wgbh/nova/body/artificial-heart-frazier.html#](http://www.pbs.org/wgbh/nova/body/artificial-heart-frazier.html#)  
2. See age-appropriate simple description of treatment for cardiac arrest. You may want to stop the video before the transplant video if you have some children who are queasy. [http://www.newtonsapple.tv/video.php?id=1164](http://www.newtonsapple.tv/video.php?id=1164) |
<table>
<thead>
<tr>
<th>Topic</th>
<th>Websites and Videos</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Introduction</strong></td>
<td>National Geographic Video: Human Body 101</td>
</tr>
<tr>
<td><strong>Skeletal System</strong></td>
<td>Video: Brain POP movie - Bone Structure</td>
</tr>
<tr>
<td></td>
<td>Bill Nye the Science Guy: Bones</td>
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<td></td>
<td><a href="http://www.youtube.com/watch?v=o6uog6zt79Y&amp;list=UUjYM-YemQPCooH9U378GcVw&amp;index=17&amp;feature=plcp">http://www.youtube.com/watch?v=o6uog6zt79Y&amp;list=UUjYM-YemQPCooH9U378GcVw&amp;index=17&amp;feature=plcp</a></td>
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<tr>
<td></td>
<td>Video/interactive: The Skeleton</td>
</tr>
<tr>
<td></td>
<td>Video: Brain POP movie - How Joints Work</td>
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<tr>
<td></td>
<td>Video: Bone Marrow (excellent)</td>
</tr>
<tr>
<td></td>
<td>Video: Skull Bones (technical, but a well-prepared computer generated view)</td>
</tr>
<tr>
<td></td>
<td>Video: The Spine (excellent)</td>
</tr>
<tr>
<td></td>
<td>Game (good for SmartBoard or individual use)</td>
</tr>
<tr>
<td></td>
<td><a href="http://www.abcya.com/skeletal_system.htm">http://www.abcya.com/skeletal_system.htm</a></td>
</tr>
<tr>
<td><strong>Muscular System</strong></td>
<td>Bill Nye the Science Guy: Bones and Muscles</td>
</tr>
<tr>
<td>Part 1</td>
<td><a href="http://www.gamequarium.org/cgi-bin/search/linfo.cgi?id=7673">http://www.gamequarium.org/cgi-bin/search/linfo.cgi?id=7673</a></td>
</tr>
<tr>
<td>Part 2</td>
<td><a href="http://www.gamequarium.org/cgi-bin/search/linfo.cgi?id=7674">http://www.gamequarium.org/cgi-bin/search/linfo.cgi?id=7674</a></td>
</tr>
<tr>
<td>Part 3</td>
<td><a href="http://www.gamequarium.org/cgi-bin/search/linfo.cgi?id=7675">http://www.gamequarium.org/cgi-bin/search/linfo.cgi?id=7675</a></td>
</tr>
<tr>
<td>Topic</td>
<td>Websites and Videos</td>
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</tr>
</tbody>
</table>
| Digestive (and Urinary) System | Teacher reference only: [http://www.youtube.com/watch?v=nJVbFIyycKo](http://www.youtube.com/watch?v=nJVbFIyycKo) Video to illustrate kidney experiment (do not show to students - seemingly intentional misspelling of the word “function” in the title.)  
experiment - [http://www.galaxy.net/~k12/body/digest.shtml](http://www.galaxy.net/~k12/body/digest.shtml) stomach acid (run off)  
Video: Part 2 - Bill Nye the Science Guy - Respiration [http://www.youtube.com/watch?v=S5zX15HD8pk](http://www.youtube.com/watch?v=S5zX15HD8pk) or [http://www.gamequarium.org/cgi-bin/search/linfo.cgi?id=7671](http://www.gamequarium.org/cgi-bin/search/linfo.cgi?id=7671)  
Video: Part 3 - Bill Nye the Science Guy - Respiration [http://www.youtube.com/watch?v=n8LjpGnTWuU&feature=related](http://www.youtube.com/watch?v=n8LjpGnTWuU&feature=related) or [http://www.gamequarium.org/cgi-bin/search/linfo.cgi?id=7672](http://www.gamequarium.org/cgi-bin/search/linfo.cgi?id=7672)  
Video: Blood [http://www.youtube.com/watch?v=fJtxXnx8Cw&list=UUjYM-YemQPc0oH9U378GcVw&index=22&feature=plcp](http://www.youtube.com/watch?v=fJtxXnx8Cw&list=UUjYM-YemQPc0oH9U378GcVw&index=22&feature=plcp)  
Video: Lung capacity - teacher reference for experiment [http://www.youtube.com/watch?v=RmqfJ58yK88](http://www.youtube.com/watch?v=RmqfJ58yK88)  
<table>
<thead>
<tr>
<th>Topic</th>
<th>Websites and Videos</th>
</tr>
</thead>
</table>
| **Circulatory System** | Video: Brain POP movie - Circulatory System  
Video: Animated heart  
www.medtropolis.com/VBody.asp  
Blood and Circulation  
Various heart activities (interactive)  
http://www.smm.org/heart/heart/top.html  
Video of heart pump experiment in action  
Video: Heart Circulation and Heart Attack symptoms and treatment  
http://www.newtonsapple.tv/video.php?id=1164  
Video: “Map of the Human Heart” (shows how blood moves through the heart  
http://www.pbs.org/wgbh/nova/body/map-human-heart.html  
Video: good animation of heart function  
http://www.sciencekids.co.nz/videos/humanbody/heart.html  
Video: Bill Nye - The Heart (or youtube versions)  
Part 1  
http://www.gamequarium.org/cgi-bin/search/linfo.cgi?id=7679  
Part 2  
http://www.gamequarium.org/cgi-bin/search/linfo.cgi?id=7680  
Part 3  
http://www.gamequarium.org/cgi-bin/search/linfo.cgi?id=7681 |
| **Integumentary System** | Bill Nye the Science Guy: Skin  
Bill Nye Part 1  
http://www.gamequarium.org/cgi-bin/search/linfo.cgi?id=7853  
Bill Nye Part 2  
http://www.gamequarium.org/cgi-bin/search/linfo.cgi?id=7854  
Bill Nye Part 3  
http://www.gamequarium.org/cgi-bin/search/linfo.cgi?id=7855  
Video: Human Skin (short)  
http://www.sciencekids.co.nz/videos/humanbody/skin.html |
<table>
<thead>
<tr>
<th>Topic</th>
<th>Websites and Videos</th>
</tr>
</thead>
</table>
| Nervous System        | The Brain and Central Nervous System  
http://www.youtube.com/watch?v=vGxho71tScM&feature=related  
Bill Nye the Science Guy: The Brain  
http://www.youtube.com/watch?v=Camj8085Te0&list=UUjYM-YemQPCooH9U378GcVw&index=11&feature=plcp  
or  
Video: The Brain (quite graphic) but well done (preview)  
Neuro-Jeopardy PowerPoint Game (downloadable) *also easy format to revise for other jeopardy games you want to create. Read instructions carefully prior to beginning.  
http://faculty.washington.edu/chudler/jeopardy.html  
Brain Alphabet: Each letter is a close-up of gyri (bumps) and sulci (grooves) found on the surface of the human brain. You can download these letters into a zip file and students can use them to spell their names or nervous system terms. Very cool!  
http://faculty.washington.edu/chudler/alpha.html  
Great site: http://faculty.washington.edu/chudler/experi.html |
| Healthy Choices       | Interactive Website: Cree understanding of balance  
http://www.fourdirectionsteachings.com/  
Canada’s Food Guide website: includes interactive sites, PowerPoint shows, and PDF printable files.  
Nutrition Facts Table and Nutrition Labels - Interactive site  
Canadian Physical Activity Guidelines (copies may be ordered)  
http://www.csep.ca/english/view.asp?x=804 |
<table>
<thead>
<tr>
<th>Topic</th>
<th>Websites and Videos</th>
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<tbody>
<tr>
<td>General Human Body</td>
<td>Comprehensive Listing of Body System websites and video:</td>
</tr>
<tr>
<td></td>
<td>List and Connections for Body Systems Interactive</td>
</tr>
<tr>
<td></td>
<td><a href="http://classroom.jc-schools.net/basic/scianatomy.html">http://classroom.jc-schools.net/basic/scianatomy.html</a></td>
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<tr>
<td></td>
<td>Excellent site: covers many topics including illnesses &amp; injuries</td>
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<td></td>
<td><a href="http://kidshealth.org/kid/">http://kidshealth.org/kid/</a> (avoid USA food pyramid pages) - many have downloadable audio for DI kids</td>
</tr>
<tr>
<td></td>
<td>Many excellent sites covering lots of topics:</td>
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<td></td>
<td><a href="http://science.k12flash.com/humanbody.html">http://science.k12flash.com/humanbody.html</a></td>
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<tr>
<td></td>
<td>“The Human Body” games and activities (audio files available to read information to students who need it.)</td>
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<tr>
<td></td>
<td>Other “Brain POP” movies</td>
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<tr>
<td></td>
<td>Comparisons of Cell Types:</td>
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<tr>
<td></td>
<td>The Cell Cycle:</td>
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<tr>
<td></td>
<td><a href="http://highered.mcgraw-hill.com/sites/0072495855/student_view0/chapter2/animation__how_the_cell_cycle_works.html">http://highered.mcgraw-hill.com/sites/0072495855/student_view0/chapter2/animation__how_the_cell_cycle_works.html</a></td>
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<td></td>
<td>Virtual Electron Microscope - view slides interactive</td>
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<td></td>
<td>Video: HIV/AIDS - excellent video if you want to teach health unit simultaneously</td>
</tr>
<tr>
<td></td>
<td>Video: More Newton’s Apple excellent health choices</td>
</tr>
</tbody>
</table>
CONTENTS OF THIS “HUMAN BODY SYSTEMS” KIT FOR GRADE FIVE

BINDER

One binder which contains the authors suggested activities, resources, and activity sheets.

BOOKS


PAMPHLETS (additional copies can be ordered from http://www.hc-sc.gc.ca/fn-an/food-guide-aliment/index-eng.php)

1. Canada Food Guide (numerous copies as indicated below):
   - 25 English
   - 5 French
   - 4 Plains Cree
   - 4 Ojibwe
   - 4 Inukitut
   - 4 Woods Cree
   - 5 First Nations, Inuit and Metis (each of English and French Versions)
MATERIALS
1. 3 copies of “THE HUMAN BODY Grade 5 Science Project Book” (laminated) - a PDF version of the book can be found on the enclosed disc or PSSD website. Use this with your projector or SmartBoard.

2. Blackline Masters for “THE HUMAN BODY Grade 5 Science Student Journal” - a PDF version of this journal can be found on the enclosed disc or PSSD website. Run off as many copies as you need. Please return the first generation laser copy to the plastic sleeve.

4. CD - with “Circulatory Rap” song and PDF copies of booklets

SUPPLIES FOR DOING EXPERIMENTS

Supplies for making 5 models of the digestive system and several other models for demonstration.

Plastic tubing:
- 5 lengths of 1/2” tubing with soap bottle attached (large intestine, rectum, anus)
- 5 lengths of 3/8” tubing (small intestine)
- 5 short lengths of 1/2” braided tubing (esophagus)(stethoscope)

- 1 tennis ball
- 10 funnels
- 1 T-joint for the Lung Model (with short plastic tubing - trachea)
- 1 glass for the Heart Pump
- 1 large plastic container (for chest cavity in Lung Model)

Kidney Experiment Package - 2 - 1/4” fish tubing segments, 2 water bottles
Spine Model - spools, foam discs, pipe cleaner (assembled)

Consumables:
- pastry bags and tips (for the Digestive System model) - reusable
- balloons for the Heart Pump
- balloons for the diaphragm
- small balloons for the Lung Model
- plasticine
- coffee filters
- elastics
- straws
- toothpicks
Resources used in the creation of the Project Book and Student Journal

WEBSITES (aside from those in the website list)

Medicine Wheel  http://www.strongheartinc.com/worldviews.html

The Brain  http://www.alz.org/braintour/3_main_parts.asp


BOOKS (aside from those already listed and in the kit)

APPENDIX

1. “Four Directions Teachings” materials (biography of Mary Lee, teachings and exercises)
2. “How the Body Works: Skeleton” handout
3. “How the Body Works: The Digestive System” handout
4. “Stomach Acid Experiment” handout
5. “How the Body Works: The Endocrine System” handout
6. “How the Body Works: The Lungs” handout
7. “The Respiratory System” crossword
8. “What is Your Lung Volume” activity
9. “Heart Diagram”
10. “Follow the Blood Cells” game for the gym
11. “I am Joe’s Heart” article
12. “Word Cycle” review
15. “How the Body Works: Skin and Hair” handout
17. “Research Project: Diseases, Cause and Prevention” grid
18. “Making a Gel Person: Understanding imaging” technology activity
20. “Q & A about Canada’s Food Guide - First Nations, Inuit and Metis” for discussion
21. Copies of Canada’s Food Guide (English & French with serving size charts; English and French First Nations, Inuit and Metis; Plains Cree; Woods Cree; Inuktitut; Ojibwe)
22. Layered Book - sample format - for an independent research report into one of the human body systems.
Hi, my name is Roxanne Bitner. I created this Grade 5 “Human Body Systems” Science Kit for Prairie Spirit School Division teachers because I believe science provides a great opportunity for hands-on learning. The problem is that we teachers have so much to do each day that it is difficult to find all the resources, funds, and materials we need to pull it all together.

The easiest way to teach this unit is to use the “Project Book” together with the “Student Journal”. All the supplies necessary to complete the experiments in the “Project Book” are in the kit. If you have a projector in your classroom, you can download the PDF versions from the website or CD enclosed in the kit. Numerous resource books are provided so that you can add activities. The Outcomes and Indicators chart in the binder has more activity ideas and videos from which you can choose, and, of course, use what you already know works with your students.

I hope that you and your students enjoy the unit as much as we did.