



Connections to Curriculum

- ✓ Scientific Inquiry
- ✓ Decision Making
- ✓ Group Work
- ✓ Personal Perspectives/ Reflection
- ✓ Working in Science
- ✓ B11-6-04 Identify and analyze social issues related to the process of dying.

Senior Years Science Teachers' Handbook

Chapter 4: Science-Technology-Society-Environment Connections

- ✓ 4.14 Case Studies of STSE Issues
- ✓ 4.15 Evaluating Medical Technology

Chapter 10: Building a Scientific Vocabulary

- ✓ 10.4 Level One Strategies
- ✓ 10.9 Level Two Strategies
- ✓ 10.22 Three-Point Approach for Words and Concepts

Unit 6

Wellness and Homeostatic Changes

Organ Donation in Relation to Society Lesson Plan

Objectives

Students will

- research the various modalities used for organ donation
- summarize printed information and present conclusions
- contemplate their place in society in relation to the issue of organ donation
- examine organ donation campaigns in the media

Materials

- poster/chart paper and markers (amount depends on class size and small group size; enough for two rotational graffiti exercises and poster creation)
- scissors, glue, tape, coloured pencils, et cetera (materials needed for poster creation)
- website information for each of the following topics: Xenotransplants, Religious and Aboriginal Views on Donation, Living Donations, Preparing to Receive an Organ Transplant, Deciding to Become an Organ Donor
- online Information Organizers (BLM 6.1A–6.1G) (one per group of students)
- Concluding Summary (BLM 6.2) (one per student)
- Organ Donation Campaigns in the Media (BLM 6.3) (one per student)

Teacher Preparation

Prepare two class sets of chart paper to be used for rotational graffiti. (Note: In the interest of sustainability, it may be convenient to simply turn the page over to reveal the new topic).

1. Class Set #1—Most Important Inventions/Innovations of the Last 100 Years. Divide chart paper in half. On one half print WORDS and on the other half print PICTURES. Repeat for each group in class.

(continued)

2. Class Set #2—Most Important Innovations in Medicine of the Last 100 Years.

Divide chart paper in half. On one half print WORDS and on the other half print PICTURES. Repeat for each group in class.

Anticipatory Set

1. Divide the students into small groups (three to four students per group).
2. Hand out chart paper and markers to each group.
3. Ask students to brainstorm what they feel are the most important inventions/innovations of the past 100 years. Ask them to draw under the PICTURES heading. Give them a time limit of two to three minutes. (*Note: Expected responses include mp3 players, cell phones, automobiles, the personal computer, etc.*)
4. After two to three minutes, ask the groups to rotate their sheets. Give students a moment to look at their classmates' drawings.
5. Ask students to list all the drawings they see under the WORDS heading. When completed, instruct students to add to the list with other inventions they feel are important. Allow two to three minutes.
6. When completed, discuss the findings. Any consistencies among the groups?
7. Collect the chart paper and hand out the new set.
8. This time, ask students to list under the WORDS heading the most important advances in medicine in the past 100 years. Allow two to three minutes (*Note: Expected responses include cancer treatment, vaccinations, artificial limbs, organ transplants*).
9. After two to three minutes, ask the groups to rotate their sheets. Give students a moment to look at their classmates' list and then instruct the students to diagram the innovations on the sheet under the heading PICTURES.
10. Again, when students are finished, discuss the findings.

Lesson

1. Assign one of six topics to each group of students. Inform them that each topic relates to a major advancement in modern medicine: organ donation. For each topic, provide appropriate website addresses, such as those on pages 62 to 63, for students to visit when researching their topic.
2. Within their groups, students review websites, summarize information by answering questions provided on the appropriate Information Organizer (BLMs 6.1A–6.1G), and create an attractive poster.
3. Assign a time limit.

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4. When posters are completed, ask students to hang them on the wall.
5. After all of the posters are on the wall, ask students to participate in a gallery walk where they will fill in the information they discover on their Concluding Summary Sheet (BLM 6.2).

Extension

1. Hand out Organ Donation Campaigns in the Media (BLM 6.3).
2. Ask students to select a campaign to examine.
3. Group students according to their selection of campaigns.
4. After group discussions, each group presents its findings.
5. In groups or individually, students create a media poster, web page, or advertisement promoting organ donation to young Canadians.
6. Students present their posters, web pages, or advertisements to the class, explaining the reasons for their choice of imagery and design elements.

Selected Websites from which to Gather Information

Xenotransplants

- Health Canada. “Xenotransplantation.” *Science and Research*. 17 Jan. 2006. <www.hc-sc.gc.ca/sr-sr/biotech/about-apropos/xeno-eng.php> (19 July 2010).

This Health Canada website explains the medical definition and importance of xenotransplants. Easy to read and understand, this website explains which animals are suitable candidates for xenotransplantation and the risks and regulatory procedures for the process in Canada and in other countries.

Religious and Aboriginal Views on Organ Donation

- The Canadian Council for Donation and Transplantation. *Diverse Communities: Perspectives on Organ and Tissue Donation and Transplantation—A Summary Report*. Edmonton, AB: The Canadian Council for Donation and Transplantation, 2005. Available online at <www.ccdt.ca/english/publications/final-pdfs/Diverse-Communities.pdf>.

This document addresses the values, attitudes, and beliefs of organ transplantation of various diverse Canadian communities such as Aboriginal, South Asian, and Chinese. For this learning activity, students should focus on the Aboriginal ideals found on pages 10 to 12 of this document.

- The Canadian Council for Donation and Transplantation. *Faith Perspectives on Organ and Tissue Donation and Transplantation: Report*. Edmonton, AB: The Canadian Council for Donation and Transplantation, 2006. Available online at <www.ccdt.ca/english/publications/final-pdfs/Faith-Perspectives.pdf>.

This report presents the research identifying over 25 major religions in Canada and their positions (support, accept, neutral, or against) on organ donation. Students should refer to pages 7 to 12 for this learning activity.

The Donation Process

- Transplant Manitoba. “The Organ Donation Process.” <www.transplantmanitoba.ca/DonationProcess.html> (19 July 2010).

Transplant Manitoba’s page describing the organ donation process is divided into small, easy-to-read sections (mechanism or injury, what happens in the emergency room and ICU, definition of death, etc.) for student research.

Living Donations

- Transplant Manitoba. Adult Kidney Program. *Being a Living Kidney Donor*. Winnipeg, MB: Transplant Manitoba, 2006. Available online at <www.transplantmanitoba.ca/documents/LivingDonorPamphlet.pdf>.

Besides explaining the procedure that the donor and recipient go through while being part of a living organ donation, this document explains the physiology and importance of kidney function, the treatment options before a transplant, and compatibility.

Preparing to Become a Living Organ Donor

- Transplant Manitoba. “Adult Kidney Transplant Program.”
<www.transplantmanitoba.ca/documents/LivingDonorPamphlet.pdf> (20 July 2010).

This website discusses the pre- and post-transplant processes that a living donor will face. Links to various pamphlets, including the one mentioned above under Living Donations, are provided for further information.

Preparing to Receive an Organ Transplant

- Healthwise Incorporated. “Organ Transplant.” *Health.com*. 24 Jan. 2008.
<www.health.com/health/library/topic/0,,ty7522_tb1065,00.html> (20 July 2010).

Information from Health.com explains the entire organ donation process, including how loved ones can prepare for the procedure, factors that increase the chance for a successful transplant, and how a patient can get on an organ transplant waiting list.

Deciding to Become an Organ Donor

- Canadian Institute for Health Information. “Canada’s Organ Donation Rate Still Too Low to Meet the Need, Reports CIHI.” 14 Apr. 2004.
<www.cihi.ca/cihiweb/dispPage.jsp?cw_page=media_14apr2004_e> (20 July 2010).

This CIHI (Canadian Institute for Health Information) article summarizes wait-list times for many organ transplants. These figures are then used to explain the importance of being an organ donor.

- Transplant Manitoba. “The Organ Donation Process.”
<www.transplantmanitoba.ca/DonationProcess.html> (19 July 2010).

Transplant Manitoba’s page describing the organ donation process is divided into small, easy-to-read sections (mechanism of injury, what happens in the emergency room and ICU, definition of death, etc.) for student research.

Information Organizer: *Xenotransplants*

1. What is a xenotransplant?

2. List three purposes of xenotransplants.

- _____
- _____
- _____

3. List three of the potential risks of xenotransplantation.

- _____
- _____
- _____

4. Why are pigs the animal of “choice” for xenotransplants (at this time, hearts only) rather than apes, which are genetically more similar to humans?

5. Summarize what other countries are doing in the biotechnological field of xenotransplantation.

As a group, use this information to create an informational poster about your topic based on your teacher’s instructions.

Group Members:

Information Organizer:
*Religious and Aboriginal Views
on Organ Transplantation*

1. List and briefly explain the views about traditional Aboriginal values and beliefs in regard to organ transplantation and donation.

2. Choose from among the different religious traditions of Canada, and identify the respective positions of three of them on the issue of organ transplantation and donation.

- ---

- ---

- ---

3. Using the three religious traditions your group has chosen, list the proposed methods/activities for involvement in organ transplantation and donation for each.

- _____

- _____

- _____

4. As a group, have you determined if there are similarities or contrasts among the various religious and Aboriginal groups in terms of organ donation and transplantation? Use these similarities to create a conclusion statement.

As a group, use this information to create an informational poster about your topic based on your teacher's instructions.

Information Organizer: *The Donation Process*

1. a. Define “clinical death” as a condition in relation to organ donation.

- b. Individuals become viable donor candidates when they have reached a state of “brain death.” What is meant by brain death, and what are some events that can cause it?

2. How are Transplant Manitoba—Gift of Life Program and the Donor Coordinator involved in the donation process after brain death is determined?

3. What role does the donor’s family play in the donation process?

4. Suitability, organ placement, organ recovery, and follow-up are important steps in the donation process. Briefly summarize these steps.

Suitability: _____

Organ Placement: _____

Organ Recovery: _____

Follow-Up: _____

As a group, use this information to create an informational poster about your topic based on your teacher’s instructions.

Group Members:

Information Organizer: *Living Donations*

1. What is a living donation?

2. Who makes a “good candidate” for becoming a living donor?

3. List five advantages of living donations.

- ---
- ---
- ---
- ---
- ---

4. If there is a desire to do so, how does one become involved in the living donation process?
(Please list four steps.)

- ---
- ---
- ---
- ---

5. What are the risks involved, if any, to the potential living donor?

*As a group, use this information to create an informational poster
about your topic based on your teacher's instructions.*

Information Organizer: *Preparing to Become a Living Donor*

1. What type of living organ donation is currently being performed regularly in Manitoba?

2. What causes kidney failure and what are some steps taken to treat it? Summarize the treatments.

3. What types of tests must living donors participate in?

4. Summarize the steps involved in the surgery living donors are involved in.

5. What are the risks involved, if any, to the potential living donor?

As a group, use this information to create an informational poster about your topic based on your teacher's instructions.

Information Organizer: *Preparing to Receive an Organ Transplant*

1. What can cause organs to fail so that organ transplantation would be the only option?

2. How might an organ recipient's immune system react to an organ transplant?

3. List the five basic tests that recipients go through before a transplant.

- _____
- _____
- _____
- _____
- _____

4. Summarize factors that may increase the chance for a successful organ transplant.

As a group, use this information to create an informational poster about your topic based on your teacher's instructions.

Group Members:

Information Organizer: *Deciding to Become an Organ Donor*

1. As a group, discuss why it is important to consider becoming an organ donor. Write your ideas below.

2. Which organ has the highest percentage of recipients on the waiting list? followed by? and then?

3. Summarize certain key steps needed before you can become an organ donor.

1.

2.

3.

4.

5.

4. How do you become an organ donor in Manitoba?

As a group, use this information to create an informational poster about your topic based on your teacher's instructions.

Concluding Summary

After analyzing each of the posters created by your classmates, write a conclusion statement based on what you have learned about each topic. When you are finished, hand this in to your teacher.

Topic	Conclusion Statement
Xenotransplants	
Religious and Aboriginal Views on Organ Donation	
The Donation Process	
Living Donation	
Preparing to Become a Living Donor	
Preparing to Receive an Organ Transplant	
Deciding to Become an Organ Donor	

Organ Donation Campaigns in the Media

Background for Students

Internationally, there have been media campaigns to promote awareness of—and the critical need for—committed organ donors. Some of these media efforts have involved techniques that some observers have described as “shock doctrine” or appeals to a culture of fear about considering donation as a decision.

It is important for you, as students of science, to understand that the medical aspects of organ donation are embedded in the larger culture that surrounds you. It is an important attribute of science education to note the connections among science, society, and the cultural environment that we live in.

The online sources listed on page 74 provide examples of images and information that take you on an international examination of some recent advertising campaigns from around the world that make use of (in some cases) graphic imagery and connect this imagery to the need for organ donors.

Online Learning Activity:

1. Select ONE image (or video clip) from an online source that seems to hold a particular interest for you (see the sample web sites at the end of this activity if you need a starting point in your search). Write down a few comments in the space here that indicate what it was about the imagery that made an impression on you and that encouraged you to select it.

2. Gather with a group of classmates who also selected the same image as you did (unless you find that your choice was unique and you are working on your own).
3. Enter into a discussion about the elements contained in the image. Provide brief responses to the following:
 - a. Does the image do something specific to promote organ donation to you?

- b. Are there any characteristics of the image that might actually discourage you from considering organ donation?

- c. If the image does not contain a written message, as a group write a short message that matches the content of the image **and** says something about the importance of considering organ donation.

4. Be prepared to present your group's findings to the class.
5. Prepare YOUR OWN media poster that promotes a positive message about organ donation among *young* Canadians.

Online Sources for International Organ Donation Public Campaigns

Fédération des Associations pour le Don d'Organes et de Tissus humains (in French):
<www.france-adot.org/>

NHS Blood and Transplant (UK):
<www.organdonation.nhs.uk/ukt/adverts/adverts.jsp>

Organ Donor Campaign (UK):
<www.organdonorcampaign.co.uk/>

Donate Life: Organ and Tissue Donation Blog:
<http://donatelife-organdonation.blogspot.com/2009/07/international-organ-donation-awareness_14.html>

National Kidney Foundation:
<www.kidney.org/>

Trillium Gift of Life Program:
<www.giftoflife.on.ca/>

Coloribus Global Advertising Archive:
<www.coloribus.com/>

This site provides access to hundreds of images taken from advertising campaigns. Use “organ donation” as your search keywords—some images are very provocative.