

## Supplementary Materials

### Using the Supplementary Materials

This guide includes materials intended to enhance the lesson activities. Most are suitable for use as homework exercises and should be copied as required. Some suggestions as to how they may be used are provided below. These materials are provided as black-line masters.

**A Decision to Share**—This illustrated story could be used to deliver information in all classes, act as an icebreaker, or provide a starting point for community/service learning activities—such as submitting this illustrated story to the school newspaper or using it as a model for students’ own illustrated stories. It is particularly appropriate for ESL students.

**Donation Crossword**—In addition to being used as homework or as a class activity in a biology or English class, this crossword could serve as a model for students to design their own donation crossword.

**Transplantation Timeline**—Use as a research project in health, biology, social studies, or English classes. Have students research a medical pioneer or legislative development listed in this timeline.

**Follow-Up Questions for *Medicine’s Modern Miracle* Video**—This could be an in-class or homework activity for any class that watches this video.

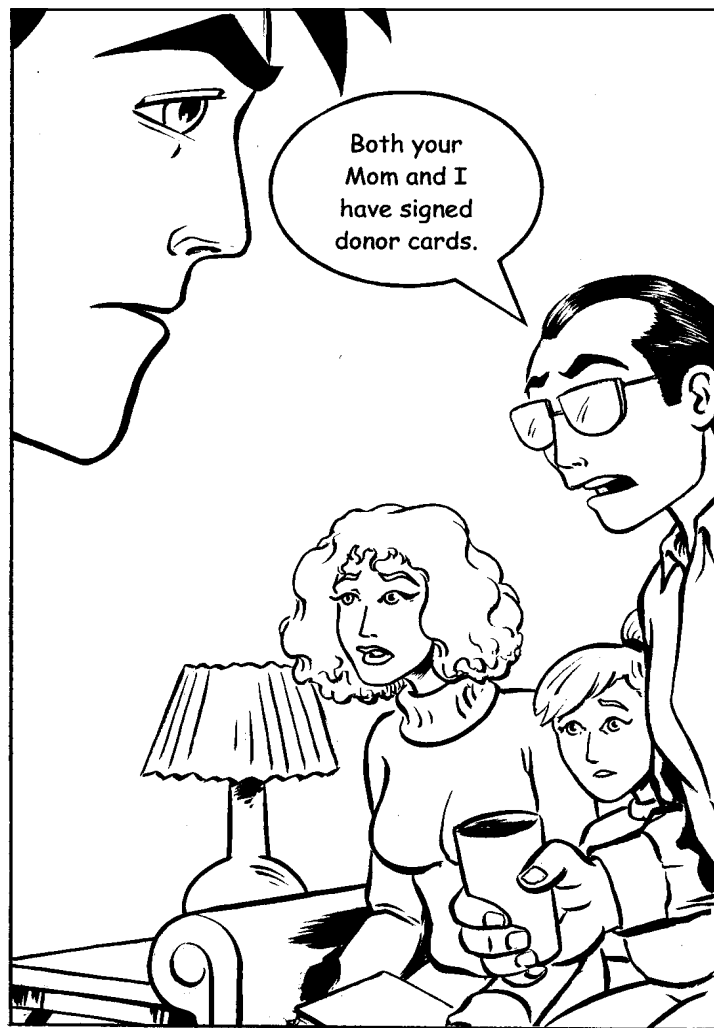
**Careers Associated With Transplantation**—This description of potential careers in the field of organ and tissue donation and transplantation could be used as a handout in guidance offices.

**Community/Service Learning Activities**—These include activities appropriate for students interested in further exploration of the topic of organ and tissue donation, as well as for students who would like to become involved in educating their communities about donation.

# A Decision To Share



Blindwolf Studios



About a year, later, Tony is involved in a terrible accident.



Did you see what happened?

It was terrible. The car swerved to avoid a deer and skidded into the tree.

The 80's Baroque style



It's a bad one! Looks like major head injuries. We'll arrive at ER in 12 minutes.

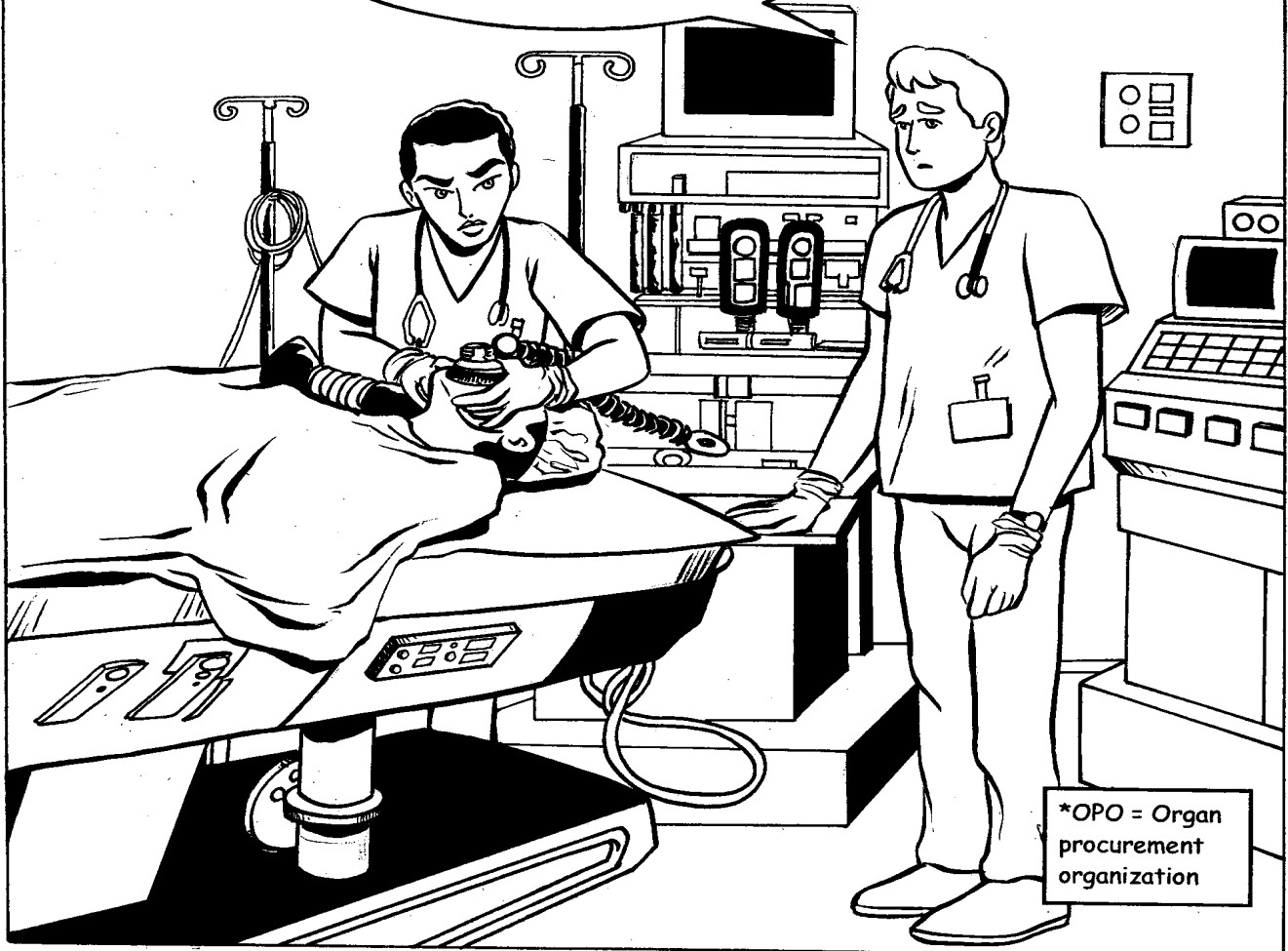
## 5.1 A Decision to Share

Later that day in intensive care.

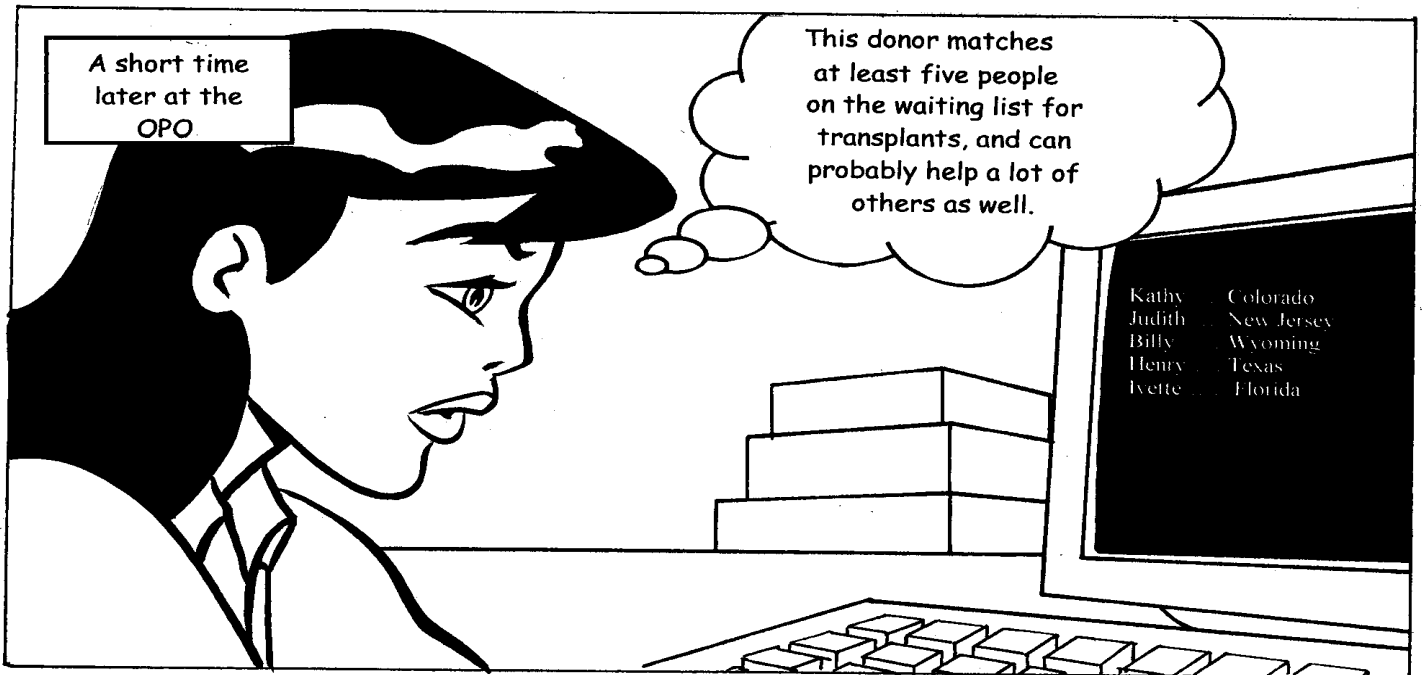
We tried our best, but there's no sign of brain activity. We're keeping the rest of the body functioning on machines.



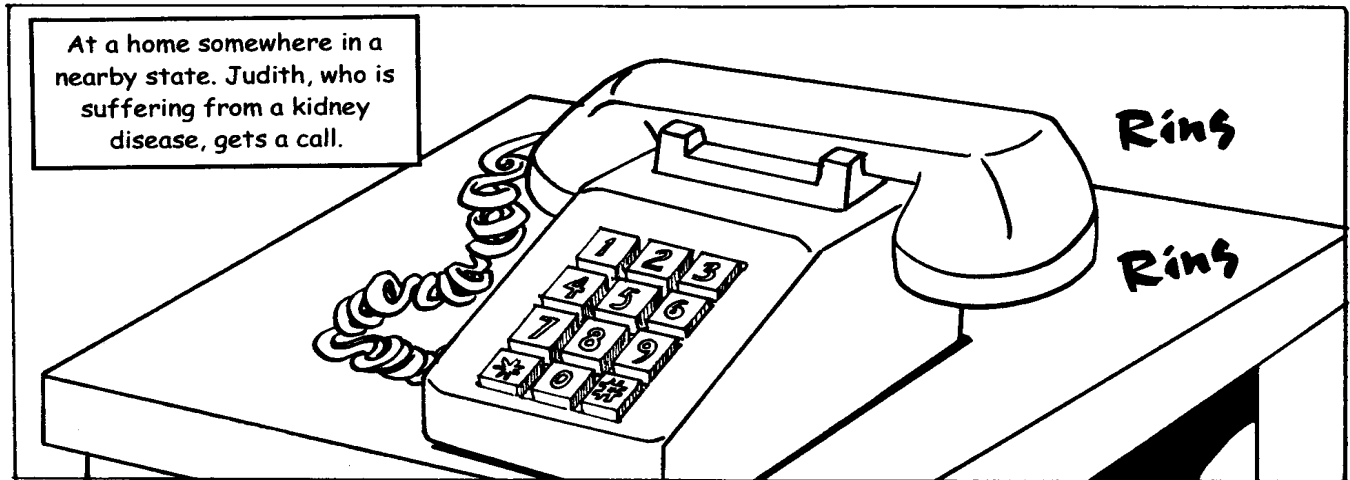
I'll inform the next of kin and then the OPO.\* They'll send someone over to talk with the family about donation."

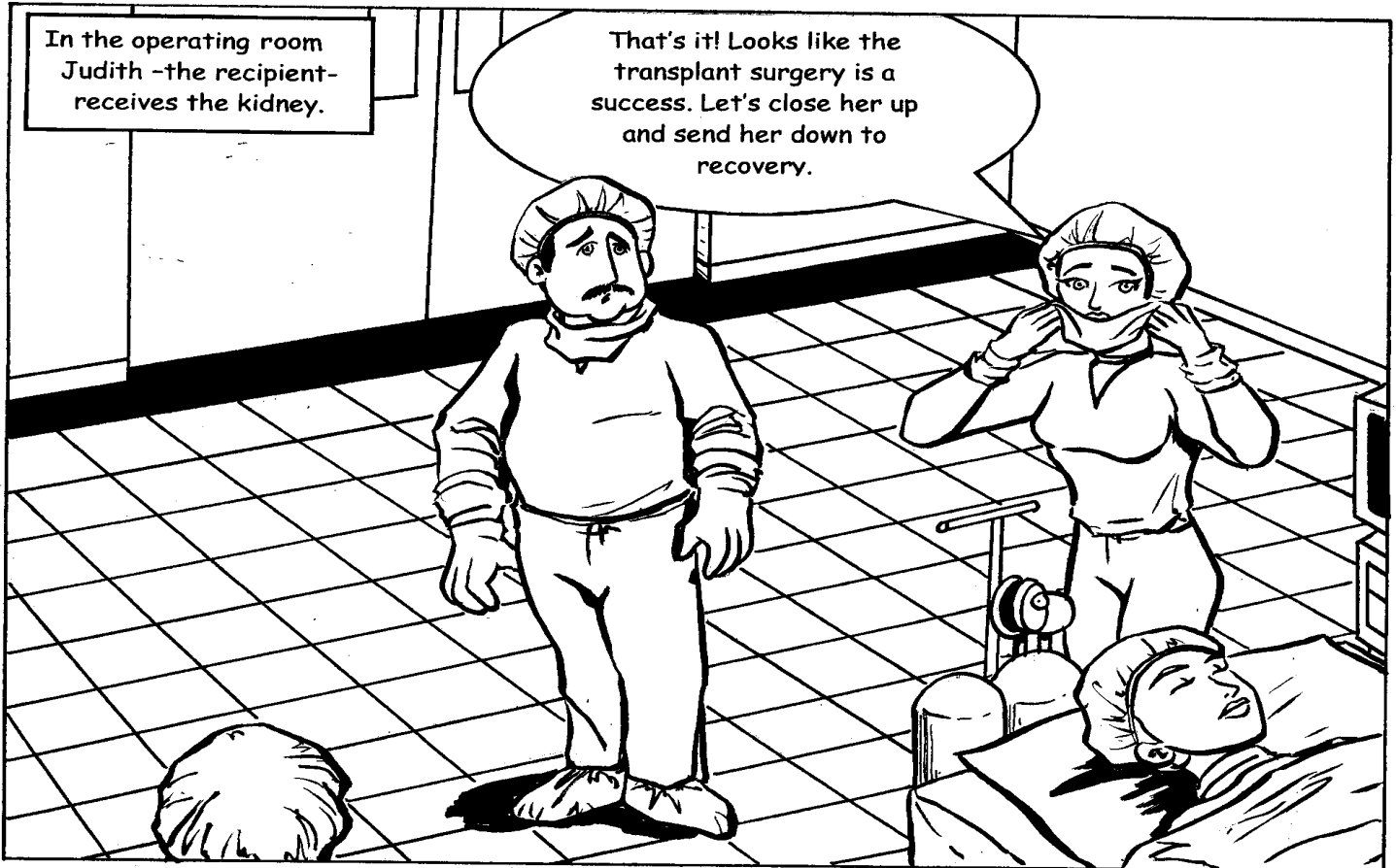
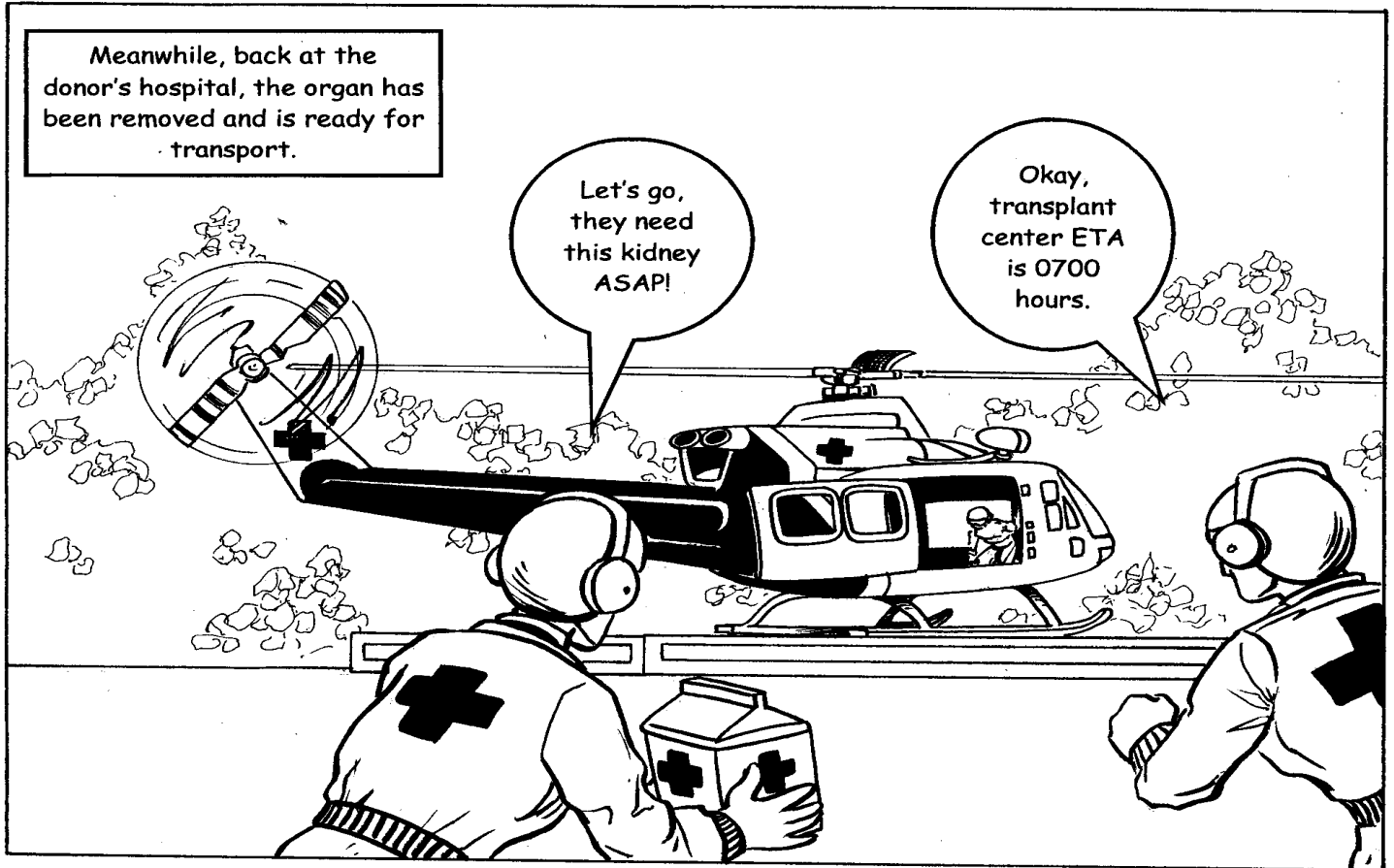


\*OPO = Organ procurement organization

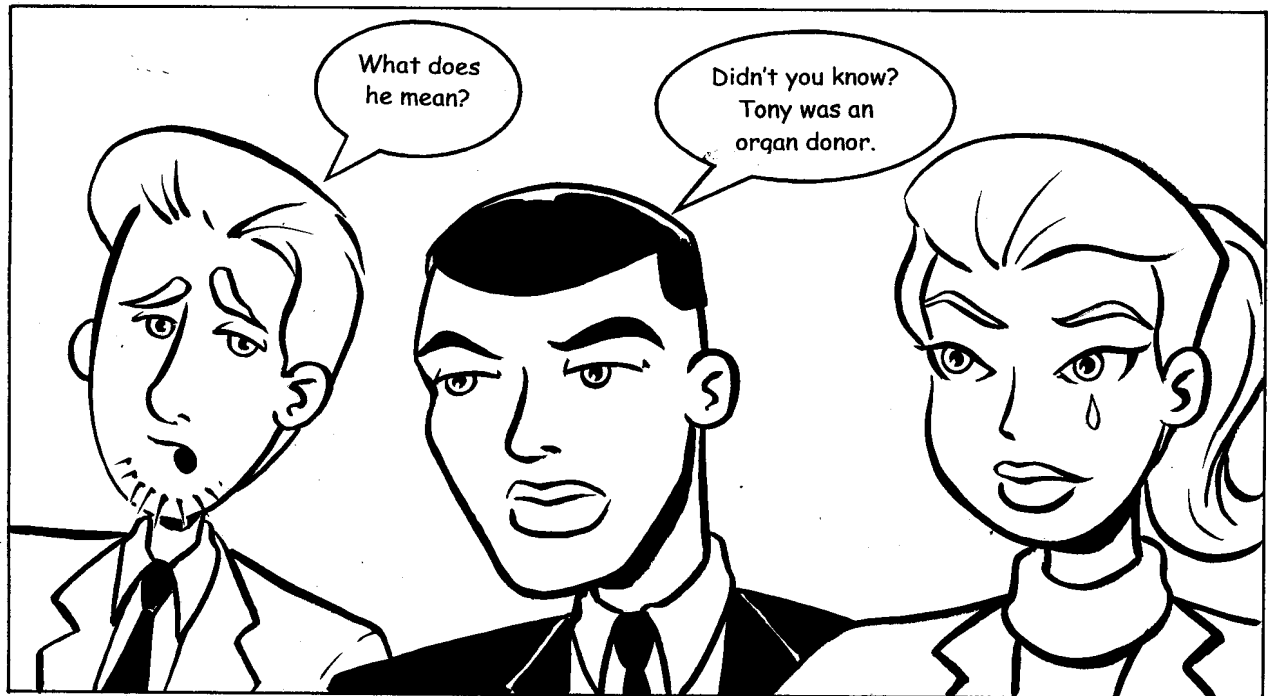
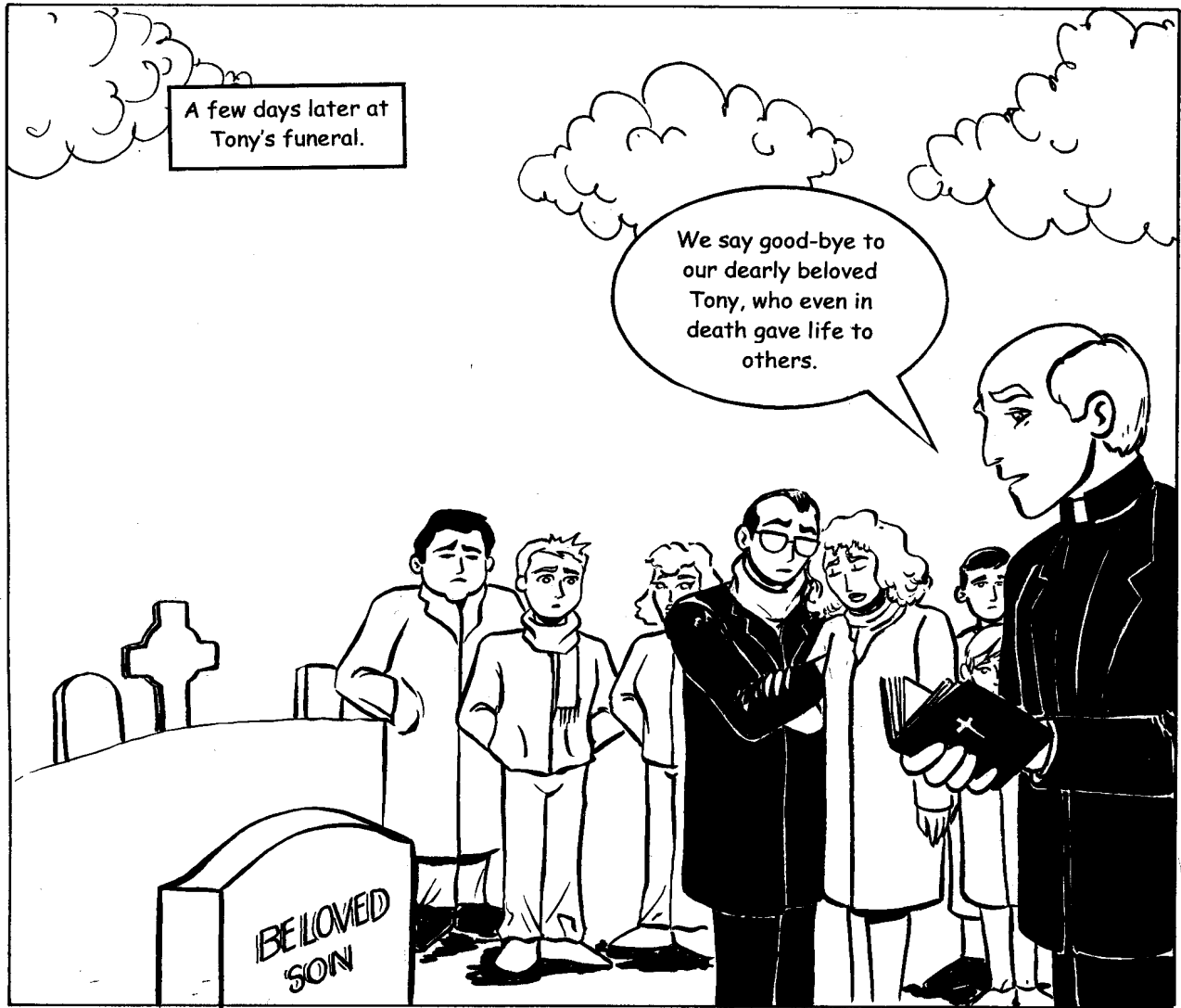


## 5.1 A Decision to Share

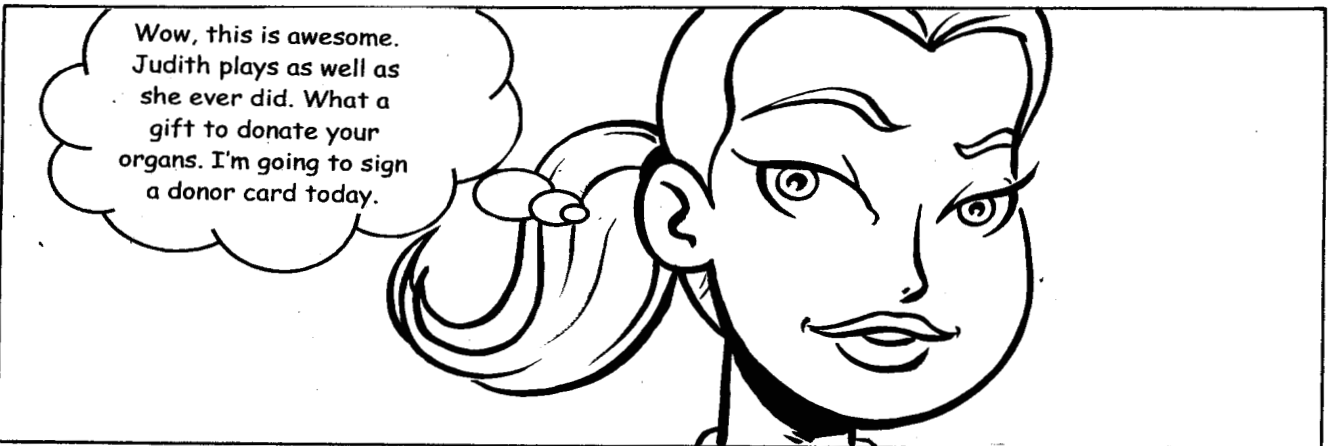
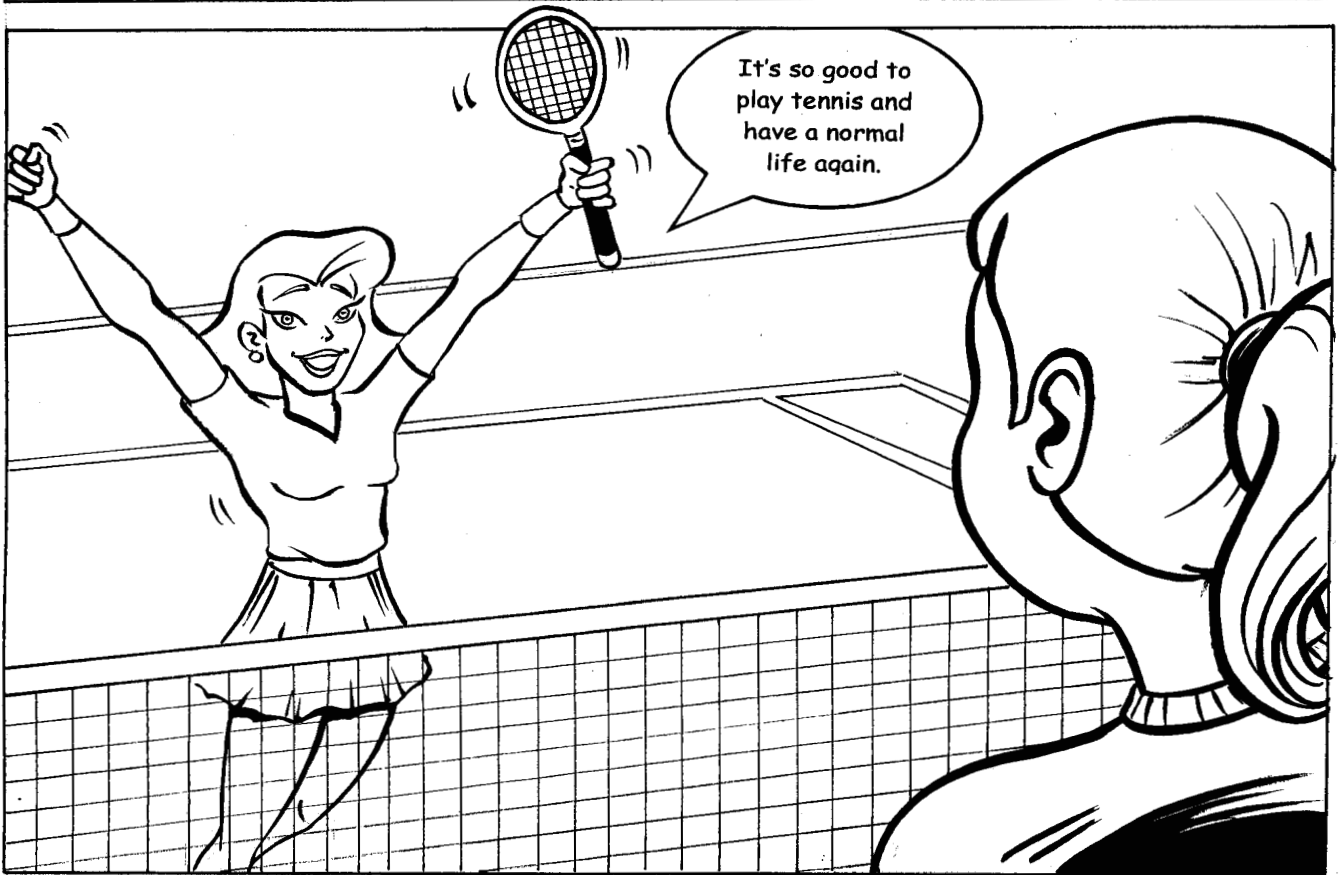
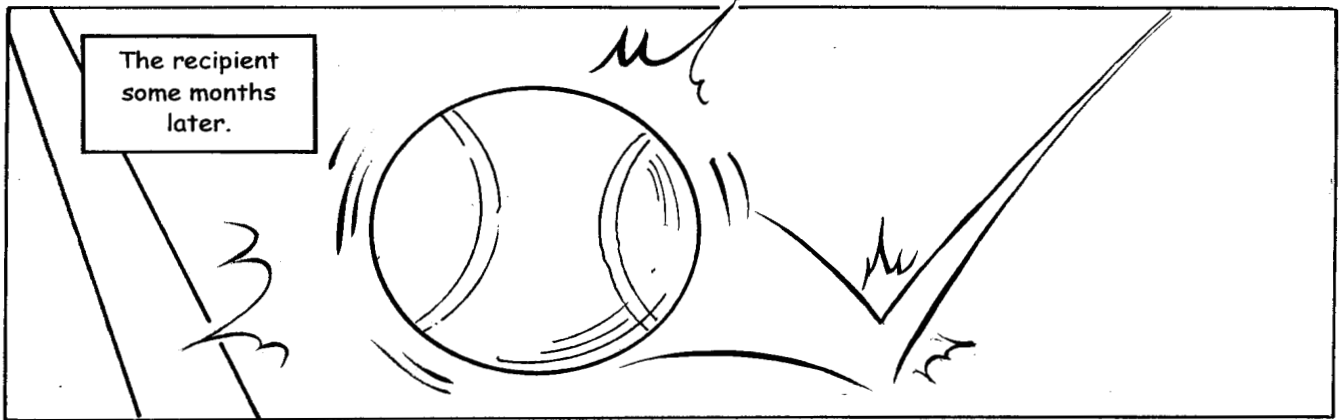




## 5.1 A Decision to Share







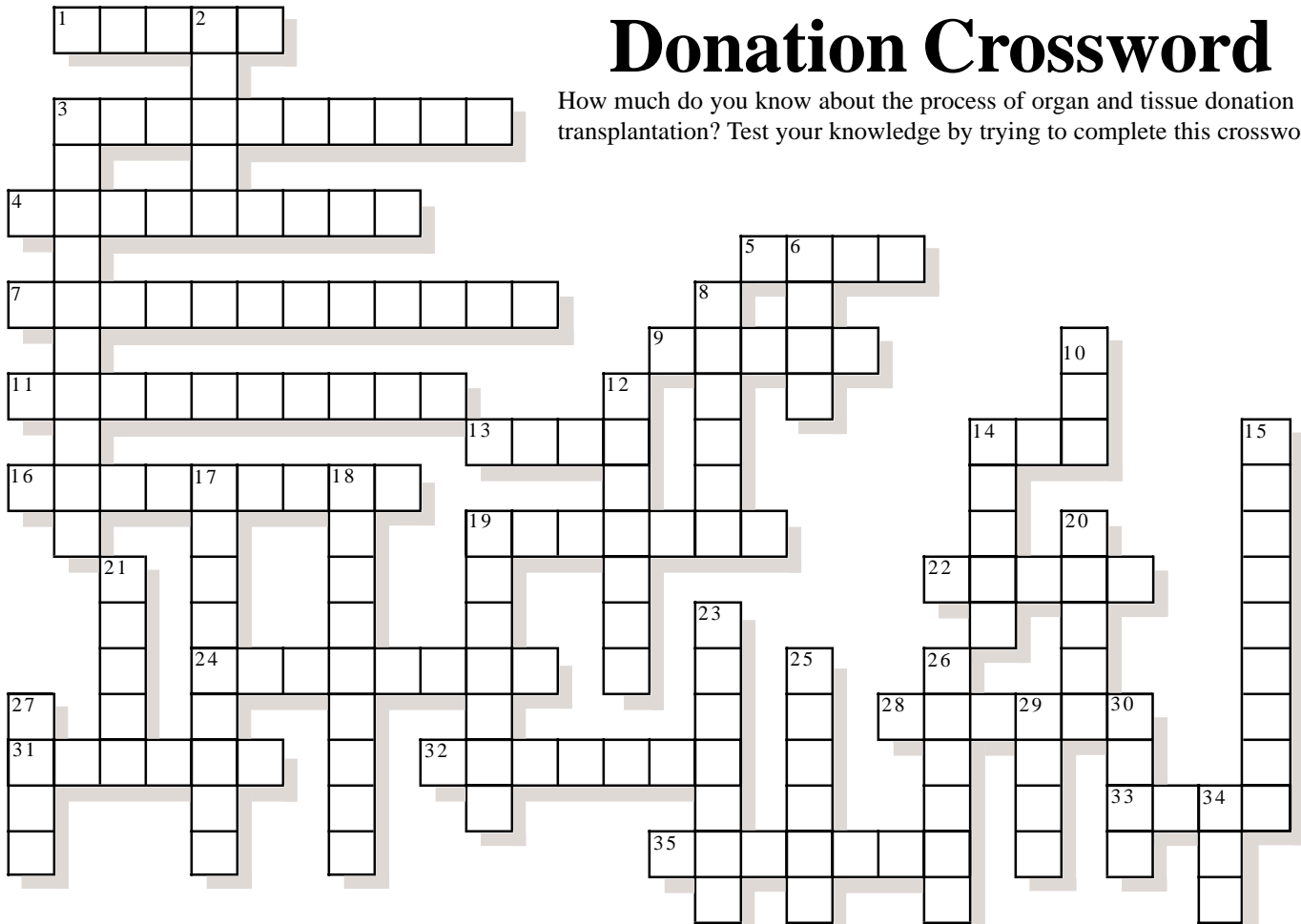
## 5.1 A Decision to Share



Name: \_\_\_\_\_

# Donation Crossword

How much do you know about the process of organ and tissue donation and transplantation? Test your knowledge by trying to complete this crossword.



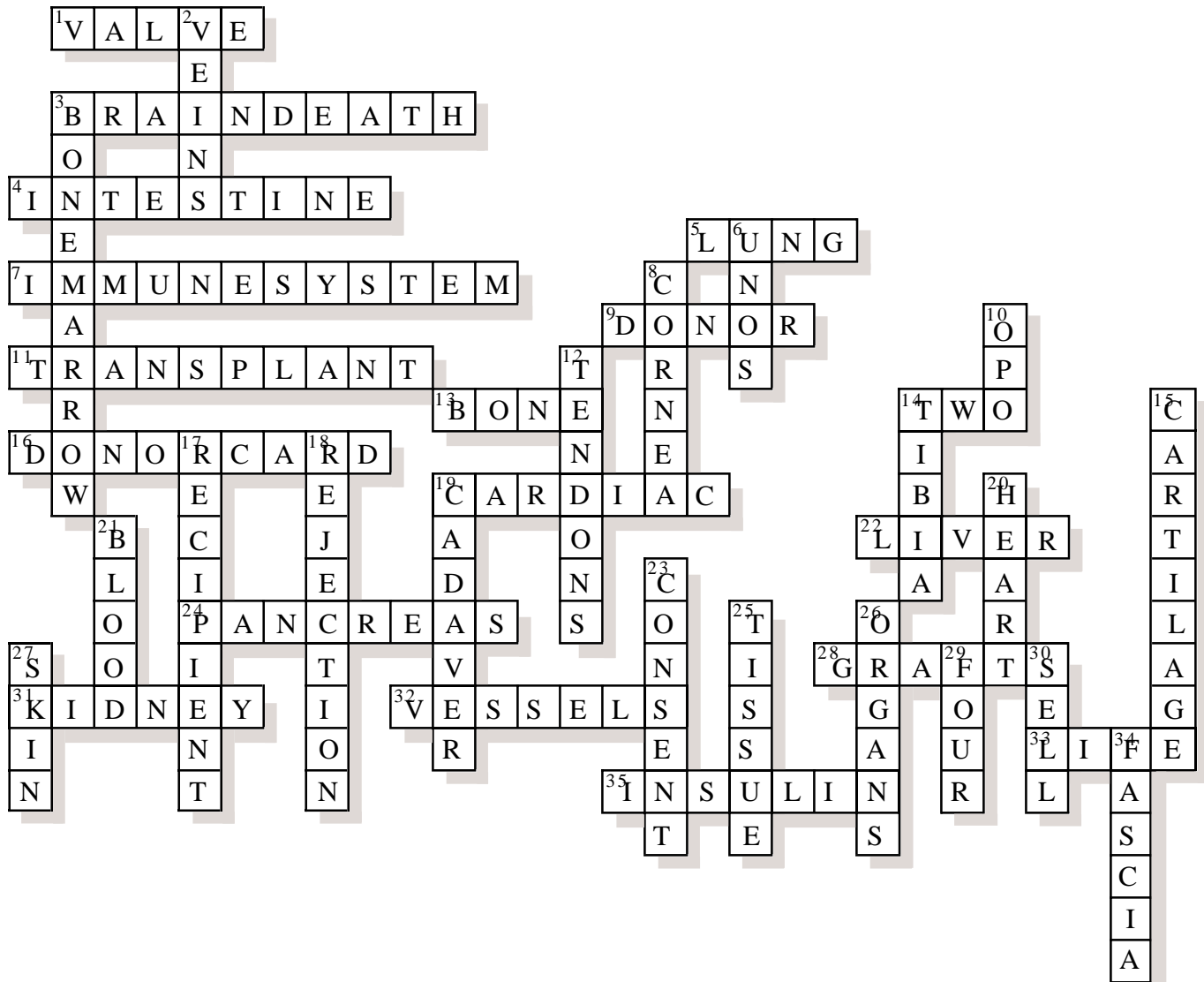
## Across

1. Transplantable structure that controls direction of blood flow in the heart
3. Condition in which the brain no longer functions (2 words)
4. Long, narrow tubular part of the digestive tract
5. Organ whose function is gas exchange
7. System that protects the body against disease, and as a result, may cause rejection (2 words)
9. Individual who provides organs for others
11. To transfer an organ from one person to another
13. Main tissue that forms the skeleton
14. We have \_\_\_\_\_ lungs
16. Card that indicates your desire to become a donor
19. \_\_\_\_\_ death occurs when there is an absence of heartbeat with no chance of resuscitation
22. Large organ that, in addition to other functions, removes poisons from the blood
24. Organ that secretes a hormone that controls blood sugar level
28. Skin \_\_\_\_\_ are used to replace the skin of burn victims
31. Organ that produces urine
32. Arteries and veins are examples of blood \_\_\_\_\_
33. Organ and tissue donation is a gift of \_\_\_\_\_
35. Hormone that controls blood sugar level

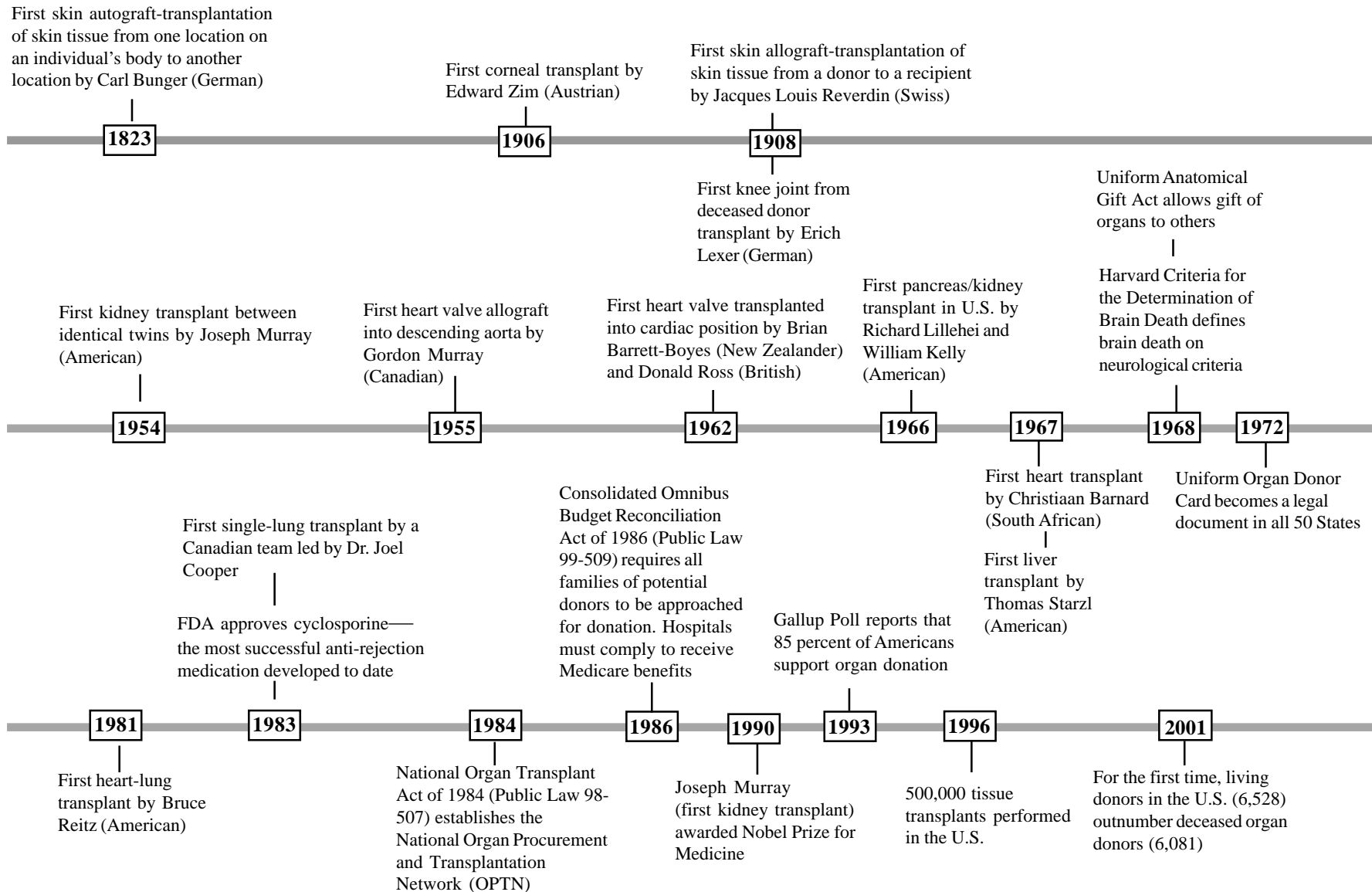
## Down

2. These carry blood toward the heart
3. Tissue found inside some bones and is important in the production of blood cells (2 words)
6. United Network for Organ Sharing (Abbrev)
8. Transplantable outer layer of the eyeball
10. Organ Procurement Organization (Abbrev)
12. These connect muscle to bone
14. Transplantable long bone in the lower leg
15. Soft tissue that makes up part of the skeleton; also found in the nose and ears
17. Someone who receives an organ or tissue
18. Process by which the body's immune system recognizes and destroys transplanted organs or tissues
19. Another name for a dead body
20. Organ that pumps blood
21. Tissue that carries nutrients, oxygen, and waste products
23. What family is asked for before organs are removed from the body of a deceased loved one
25. Group of similar cells performing the same function
26. The heart, the brain, and the liver are examples of \_\_\_\_\_
27. Tissue that covers the body
29. Number of chambers in the human heart
30. It is illegal to \_\_\_\_\_ organs
34. Fibrous tissue that covers muscles

## 5.2 Donation Crossword Answer Key



# Transplantation Timeline



## 5.4 Follow-up Questions for *Medicine's Modern Miracle* Video

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Q. Name one thing that can cause a healthy organ to fail.

Q. What must match between a donor and recipient before a transplant is even considered?

Q. Why do some people who need organ transplants die before they get the organ they need?

Q. How long do most people wait for an organ?

Q. What percent of organs are rejected?

Q. Why do rejections occur?

Q. Can rejection be prevented?

Q. Name the organs that can be transplanted.

Q. Name the tissues that can be transplanted.

Q. Why is organ freshness important?

Q. Whose organs cannot be donated?

Q. What is brain death?

Q. How many people are on the waiting list?

In addition to the post-video discussion, consider providing students who have watched *Medicine's Modern Miracle* video these follow-up questions, which closely track the content of the video.

NOTE: Do not treat these questions as a quiz. The goal is for the class to work together to come up with as many correct answers as they can and for you to provide the remaining answers.

***Q. Name one thing that can cause a healthy organ to fail.***

A. Infection

***Q. What must match between a donor and recipient before a transplant is even considered?***

A. Size and blood type

***Q. Why do some people who need organ transplants die before they get the organ they need?***

A. There are not enough donors.

***Q. How long do most people wait for an organ?***

A. The average wait is 1 year.

***Q. What percent of organs are rejected?***

A. In one third to 40 percent of all transplants, the organ causes a rejection response.

***Q. Why do rejections occur?***

A. There is not a good match between the donor and recipient.

***Q. Can rejection be prevented?***

A. Yes, with immunosuppressive drugs

***Q. Name the organs that can be transplanted.***

A. Heart, kidney, liver, lungs, pancreas, and small intestine

***Q. Name the tissues that can be transplanted.***

A. Bone, cornea, blood vessels, and skin

***Q. Why is organ freshness important?***

A. Without oxygen an organ's cells begin to die. The sooner they are transplanted the better. (Some organs must be transplanted more quickly than others: heart – 4 hours, lungs – 4 hours, liver – 15 hours, pancreas – 24 hours, kidney – 48 hours.)

***Q. Whose organs cannot be donated?***

A. Organs from people with active cancers, HIV, or a system-wide infection cannot be transplanted.

***Q. What is brain death?***

A. When the brain no longer functions and will never function again.

***Q. How many people are on the waiting list?***

A. Thousands of people are on the waiting list to receive transplants.\*

\*As of early-2004, the number of people on the waiting list for donated organs was nearly 84,000. Students can find the current number by going to [www.organdonor.gov](http://www.organdonor.gov).

## 5.5 Careers Associated With Transplantation

The field of organ and tissue donation and transplantation offers many potential career paths. Students who pursue a career in organ and tissue transplantation will enter one of the most challenging and rapidly changing areas of medicine. These young people can make a significant contribution to the future of organ transplantation. The following is a brief description of the roles different careers play in organ donation and transplantation:

<b>Career</b>	<b>Description</b>
<b>Chemists</b>	Chemists are scientists who study chemicals and how they react with one another. Chemists can be involved in developing medications to help organ recipients.
<b>Dialysis Technicians</b>	Dialysis technicians oversee the process of safely administering dialysis to kidney patients. Patients with failing kidneys who are waiting for a transplant must have dialysis to keep their bodies cleansed of impurities that the kidneys would normally help eliminate.
<b>Immunologists</b>	Immunologists are medical professionals who study and research the body's immune system, and who help develop ways for the body to more effectively accept a transplanted organ with fewer side effects.
<b>Lab Technicians</b>	Lab technicians, trained in the life sciences, help catalog, store, and test tissues, blood samples, and other important information.
<b>Nurses</b>	Nurses assist physicians in treating organ transplant recipients and donors, and assist in surgery during organ and tissue removal and transplantation. These nurses typically have critical care experience.
<b>Nutritionists</b>	Nutritionists study how diet affects overall health. Nutritionists can help organ recipients maintain a diet that will help them regain their health during the recovery period, and through the rest of their life.
<b>Pharmacologists</b>	Pharmacologists are scientists who deal with the preparation, uses, and effects of medications.
<b>Physical Therapists</b>	Physical therapists develop and help administer exercise programs that help organ recipients recover their physical strength and resume their normal activities as much as possible.
<b>Physicians</b>	Physicians diagnose and treat diseases that may result in organ failure, and provide treatment and prescribe medication for individuals who are waiting for an organ transplant or have undergone organ transplantation.
<b>Radiologists</b>	Radiologists are medical professionals who understand x-rays and x-ray therapies, and who determine the best use of these technologies in the medical care of donors and transplant recipients.
<b>Researchers</b>	Researchers in the field of medicine—chemists, biologists, radiologists, and others with training and/or experience in the life sciences—help develop new drug treatments, methods of transplantation, and ways of treating organ recipients.
<b>Transplant Coordinators</b>	Transplant coordinators—a vital link in the transplantation and donation process—counsel the family of a recently deceased person about the option of donation, and help oversee the medical management of the donor and placement of the organs.
<b>Transplant Surgeons</b>	Transplant surgeons specialize in the transplantation of particular organs. They also remove organs from donors.



## Community/Service Learning Activities

The following activities can be used as extension activities and to provide opportunities for community outreach:

### Humanities, Life Sciences

- Research and write an article for your school or local paper about someone in your community whose life was saved by receiving an organ or tissue transplant or about a family that made the decision to donate a loved one's organs.
- Research for a local health fair how the process of tissue and organ donation is handled in other countries. Compare these with practices in the U.S. and comment on the advantages and disadvantages of the different approaches.
- Rent a video of a recent film that includes organ donation as part of its theme. Write a movie review for your school newspaper reporting on the points in the film that were accurate and those that were not accurate. Examples of recent films include *John Q* with Denzel Washington and *Blood Work* with Clint Eastwood.
- Conduct research to find an organ recipient in your area or someone waiting for a transplant. Interview that person and report on what you learned. Consider videotaping the interview for your local cable access station.

### Computer and Graphic Arts

- Design an advertising campaign to encourage students at your school to sign up to be organ and tissue donors. For example, make “Wanted” posters.
- Design a PowerPoint presentation about organ donation to be shown at a meeting of your school's PTA.
- Use your computer to design a poster for your school health office about transplantable organs and tissues. Include at least four organs and two types of tissue. You may follow the link at [www.organdonor.gov](http://www.organdonor.gov) to the organ and tissue illustrations in this guide and download some of these images to use for your poster.
- Sponsor a contest at your school to see who can use a computer to design the most creative donor card. Get local merchants to pledge gifts for the winners.

### Community Outreach

- Organize and staff a booth at local fairs, festivals, or school events to encourage people in your community to become organ and tissue donors. To obtain donor cards and other materials contact the Division of Transplantation, Health Resources and Services Administration, at 301-443-7577 or visit [www.organdonor.gov](http://www.organdonor.gov).
- Make presentations on the topic of organ and tissue donation to youth groups—for example, school clubs, scout groups, and church groups.
- Urge your parents to visit [www.organdonor.gov](http://www.organdonor.gov) to find out about the *Workplace Partnership for Life* program and how they can participate.
- Use the Website [www.transweb.org/reference/maps/opo\\_image\\_map/alphalist.htm](http://www.transweb.org/reference/maps/opo_image_map/alphalist.htm) or [www.organdonor.gov/opo.htm](http://www.organdonor.gov/opo.htm) to find contact information for your local organ procurement organization. Call and ask them how you can volunteer to help with their donation promotion campaigns.
- Get your principal's permission to have your student government sponsor an assembly about organ donation at your school. Solicit speakers for the assembly—for example, someone whose deceased loved one's organs were donated or someone who received a donated organ—and ask them to talk about how these events changed their lives.

### The Performing and Graphic Arts

- Write lyrics about a transplantable organ and sing them to the tune of a well-known song of your choosing.
- Using the illustrated story—A Decision to Share—provided with this unit as a model, hold a contest in your school for the best cartoon or comic strip that encourages teenagers to become organ and tissue donors.



For more information on organ and tissue donation and transplantation, visit [www.organdonor.gov](http://www.organdonor.gov). This Website, sponsored by the U.S. Department of Health and Human Services, offers a wealth of additional resources and links including downloadable materials and activities associated with this guide. Some of the following on-line resources found at this site are interactive and will provide your students with a stimulating way to learn more about organ and tissue donation and transplantation:

- Materials in this guide in PDF format.
- Interactive student tutorial for learning more about organ and tissue donation.
- Interactive versions of the organ illustrations, crossword, and true/false quiz included in this guide.
- Transplantation Timeline: An interactive version of the timeline, which allows students to click on a particular year or event to learn more about the medical advances in the field of donation and transplantation.
- A Decision to Share: A PDF version of the illustrated story about the impact of a teenager's decision to be an organ donor.
- Links that enable teachers and students to access their local OPO to learn how people in their local area can designate themselves as an organ and tissue donor.
- Links to other Websites particularly useful to teachers and students who want to learn more about organ and tissue donation and transplantation.

