

## Literacy Design Collaborative Student Exemplar

Course: Advanced Biology	Grade Level: 11/12
Type: Informational/Explanatory	Structure: Definition
<b>Teaching Task 11B:</b> After researching the provided resources on organ transplantation, write an essay that defines organ transplantation and explains reasons for requiring organ transplantation, and medical issues involved in identifying recipients and donors, addressing rejection, and regulating organ/tissue transplantation. Support the discussion with evidence from the research. L2 What implications can you draw?	
Performance Level: Meets Expectations	

Organ Transplantation is the act of surgically replacing someone's failing organ with a healthy organ from another person. A transplant is usually needed if an organ starts to fail either from illness or an injury. Over 100,000 people need a transplant and are on the waiting list for a donation right now and it may take years for a compatible donor to be found. For many people a donor is not found fast enough and they end up dying because of organ failure. Living and deceased organ donors give many patients a second chance at a healthier and happier life.

A person could need organ transplantation when one of their organs is found to be failing. Organ failure may either occur from illness or an injury. Serious accidents may cause organ damage that requires transplantation. Diseases like diabetes, lupus, cirrhosis, cystic fibrosis and Crohn's disease often cause organs to fail.

The organs that are most often transplanted include kidneys, the liver, the heart, the pancreas, lungs, and intestines. The most common organ to be transplanted is the kidney and its failure is often caused by diabetes, polycystic kidney disease or lupus. Patients who need a new liver often are diagnosed with cirrhosis. Coronary Artery Disease and cardiomyopathy may cause a patient to need a heart transplant. Pancreas failure is often a cause of diabetes and lung failure from cystic fibrosis. Crohn's disease may cause your small intestine to fail and require a transplant also. More than one transplant can be done at a time. Usually the only double transplants done are of the heart and lung or liver and pancreas. Some body tissues can also be transplanted including blood, bones, tendons, corneas, heart valves, marrow, veins, arteries and skin.

Organs can be harvested from either a living or a deceased donor. A heart, double lung, pancreas or cornea transplant must come from a deceased donor. Living donors can give an entire kidney, a segment of liver, a lobe from their lung, or portions from their intestines or pancreas. A donor must be healthy to give an organ and cannot have an infection, heart disease, drug or alcohol problems or any transmissible disease. Organ donations may also come from someone previously on life support because even though their brain is dead, their body still functions, which

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keeps the organs fresh and working. The donor must also be compatible with the patient in order to have a successful transplant.

Many factors affect the compatibility of donors to recipients, so necessary procedures must be done by doctors during the matching process. When a person is found to need transplantation they are first referred to a transplant center and evaluated. All of their information is put into a database and the patient is added to the waiting list for whichever organ is needed. The donors are also evaluated to see if they are healthy enough to donate and to get the information needed to have a successful match. Blood tests are needed because the blood type must be compatible. Some of the blood tests doctors must do include tissue typing, cross matching, antibody screens and a test for other diseases like HIV, AIDS, hepatitis and cancer. The tissue typing test checks to see if the organ tissue is compatible with the recipient. Cross matching determines how the recipient will react to the new organ and the antibody screen shows if the recipient's antibodies will react with the organ. Other procedures doctors must do are urine tests, x-rays or EKGs and a psychosocial or psychological exam. Radiologic tests are also done, which allow doctors to view the organ and its blood vessel supply. After the transplantation, the recipient's body may reject the new organ. The major cause of transplantation failure is the rejection of the donated organ. The types of rejection are Hyper-acute, Acute, and Chronic. Hyper-acute rejection occurs minutes to hours after the transplant. When this happens, the new organ must be immediately removed to prevent damage to the recipient's tissues. This type of rejection occurs when the immune system is not suppressed and it can be prevented by only transplanting ABO-compatible organs. Acute rejection can happen days to weeks after the transplantation and it occurs to some degree in all patients but taking immunosuppressive drugs help. Mismatched antigens cause this rejection. Chronic rejection occurs years after the surgery and is the long-term loss of functioning with transplanted organs that is caused by chronic inflammatory and immune response problems.

There are some methods to reduce the risk of rejection in transplantations. Tissue typing and ABO- blood typing done before the surgery make sure the organ is as similar as possible to the recipient's tissues. Suppressing the immune system will also reduce the risk. To do this, the patient must take immunosuppressive drugs for the rest of their life. Without this medication, the immune system would almost always cause destruction to the foreign tissue. Knowing the symptoms of rejection can also help reduce the risk. Symptoms may include less urination with kidney transplants, shortness of breath with heart transplants and yellow skin and easy bleeding with liver transplants.

UNOS is the organization that controls organ transplantation. UNOS stands for the United Network for Organ Sharing and is a non-profit organization that manages the organ transplantation

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system under a contract with the federal government. They manage the nation's transplant waiting list and operate 24 hours a day, every day of the year. They created a database that contains all of the transplantation information and they monitor every organ match to ensure that the correct procedures are followed. UNOS does this to maximize the efficient use of the donated organs. If there were more than one organization for this job the whole system would be less organized and efficient.

Organ transplantation is a detailed process that requires many necessary steps and procedures done in order to be successful. Careful matches must be made to find just the right compatibility between a donor and recipient of an organ. Risk is a huge part of the transplantation because of possible rejections of the organ and also because the patient may be waiting a very long time for an organ to be available to them. Today, modern medicine has made it a much better process for the transplantation patient. Organ transplantation has become a much safer, organized and efficient procedure.

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### Works Cited

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Q& A. Transplant Living, 2011. Web. 8 May 2011.

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Annotation		
Focus	4	The essay addresses all aspects of the prompt. The writer clearly defines organ transplantation as <i>the act of surgically replacing someone's failing organ with a healthy organ from another person</i> . Reasons for requiring a transplantation and issues involved in the process are well established.
Reading/Research	3	There is evidence of an adequate amount of research for this topic. The writer provides several details to support the process of organ transplantation, issues involved, and government regulations. <ul style="list-style-type: none"> <li>• <i>Organs can be harvested from a living or deceased donor.</i></li> <li>• <i>Some of the blood tests doctors must do include tissue typing, crossmatching, antibody screens, and a test for other diseases like HIV, hepatitis, and cancer.</i></li> </ul>
Controlling Idea	3	The controlling idea is established in the first two paragraphs and provides direction for the reader. A stronger thesis statement could be more succinctly written at the close of paragraph one, however.
Development	3.0	The writer provides two main reasons why organs fail ( <i>illness and injury</i> ), then provides an in-depth explanation for each, broken down by organ. Three specific types of rejection are listed and explained ( <i>hyper-acute, acute, and chronic</i> ). The writer also draws implications from the research: <i>If there were more than one organization for this job, the whole system would be less organized and efficient.</i>  The process of regulation is addressed, but more explanation could be incorporated to show why UNOS is the only organization that controls organ transplantation.
Organization	3	The organization of the essay adheres to a logical structure. The writer follows the pattern of thought introduced in the first two paragraphs by building upon the definition of and reasons for organ transplants, then flows into issues involved. The writer varies sentence and paragraph beginnings, but could include more effective transition statements. The closing paragraph is effective, but could be enhanced by reiterating regulations for organ transplants and what the future may have in store.
Conventions	3	The writer demonstrates a solid command of Standard English. There are a few errors in capitalization, but the errors do not affect the readability of the essay. Content vocabulary such as <i>immunosuppressive drugs</i> is used effectively. The writer includes an extensive bibliography of sources; however, none of these are cited throughout the paper.
Content Understanding	3	The writer demonstrates a satisfactory understanding of the facets of organ transplantation and includes relevant examples in order to fully address the task.

**This student would benefit from feedback, discussion, and/or instruction in the following areas:**

- Appropriate parenthetical citation in order to avoid plagiarism.
- Appropriate capitalization.