



Assignment Discovery Lesson Plan Inside Story: Your Body, Your Health

Subject

Health

Grade level

6-8

Duration

Three class periods

Objectives

Students will

- Review and discuss what they learned about sickle cell anemia;
- learn about other genetic disorders; and
- create a poster presentation to teach about a disorder.

Materials

- Computer with Internet access
- Print resources about genetic disorders
- Materials to create a poster presentation (poster board, markers, paint, colored pencils, glue, scissors)
- Color printer to print out images from their research

Procedures:

1. Ask students to review what they learned about sickle cell disease from the video. To guide the discussion, ask the following questions:
 - How does this disease affect the body? (*It destroys the ability of red blood cells to carry oxygen throughout the body; the body's organs don't receive adequate oxygen.*)
 - What are some of the effects? (*exhaustion, debilitating pain, strokes, inability to move*)
 - How common is this disease? (*In the United States, about one thousand babies are born with sickle cell disease each year.*)
 - How is it diagnosed? (*blood test*)

- What are some ways that the disease is treated? (with *hydroxy urea*, a drug to reduce the affects of the disease; transfusions and blood exchanges)
 - What treatment did Infinity receive? (*bone marrow transplant*) Why was her story significant? (*She received one of the first unrelated donor transplants for this disease.*)
 - Why is sickle cell disease considered a genetic disease? (*It is passed down from parents.*) Explain how it is inherited. If you have a gene for sickle cell, does this mean you will automatically get it? (*No, a person must receive two copies of the defective gene.*)
2. Ask students to name other genetic disorders or conditions. Write their answers on the board. Examples may include Down syndrome, cystic fibrosis, and muscular dystrophy. (Note: Although students may say cerebral palsy, it is caused by damage to the brain before or during birth.)
 3. Tell students that they are going to work in pairs or small groups to research a genetic disorder. Using what they've learned, they will create a poster presentation for their classmates to teach basic facts about the disease.
 4. Next, assign pairs or groups to one of the following genetic disorders.
 - Down syndrome
 - Cystic fibrosis
 - Diabetes
 - Muscular dystrophy
 - Tay-Sachs diseases
 - Hemophilia
 - Turner syndrome
 - Marfan syndrome
 - Huntington's disease
 - Canavan disease
 5. Tell students that they should research a genetic disorder and gather the information below. In addition, encourage students to print out or sketch pictures, graphs, and charts to include in their poster.
 - How does this genetic disorder affect the body?
 - What are symptoms or effects of the disorder?
 - How many common is this disorder?
 - How is it diagnosed?
 - How is this disorder treated?
 - Why is this disorder considered a genetic disorder? How is it inherited?
 6. Have students use print and online resources in their research. The following Web sites may be helpful:

Your Genes, Your Health
<http://www.yourgenesyourhealth.org/>

Chronic Illness: Directory

<http://www.pbs.org/fredfriendly/whocares/awareness/directory.html>

TeensHealth: Diseases and Conditions (see Genetic Conditions)
http://websrv01.kidshealth.org/teen/diseases_conditions/

KidsHealth: Health Problems (see Birth Defects and Genetic Problems)
http://www.kidshealth.org/kid/health_problems/

Yahoo Genetic Disorders
http://dir.yahoo.com/Health/Diseases_and_Conditions/Genetic_Disorders/

Canavan Foundation
<http://www.canavanfoundation.org/canavan.php>

7. Once students have completed their initial research, give them a full class period to create a poster highlighting facts about a disease. Encourage them to include at least two images on their posters.
8. Have students present their posters to the class. After each presentation, give students a chance to ask questions and share personal perspectives, stories, or comments
9. After all the presentations, hold a discussion about what students have learned. What surprised them most about these diseases? What challenges do some people face? Student should come up with three things they can do to help people with genetic disorders, including ways to raise awareness, increase research funding, and assist someone with the disease.

Extensions for other video segments:

Breaking Down Digestion: Have students select a partner. Assign each pair one of the following words: teeth, esophagus, stomach, small intestine, pancreas, large intestine, colon. Have them write the definition and a simple sketch on a 4 X 6-inch index card. Attach a large outline of a human body on a bulletin board. When students have completed their index cards, have them pin the cards to the outline in the appropriate place. Use this diagram to review the steps of digestion.

Saying No to Addiction: What do kids really think of cigarettes? Have students write down their opinion and what five peers they think of smoking or people who smoke. From these, have them choose the two or three quotes with the most powerful anti-smoking message. Have students cut out word-balloons (as in comic strips) from plain white paper and include a quote on each one. Display the quotes in a hallway; have students brainstorm titles such as "Think smoking is cool? This is what we think."

Preventing and Treating AIDS: Hand out an index card to each student. On one side, have them write a surprising fact or common misconception about AIDS and HIV. Some examples:

- Twenty-five percent of all new HIV infections occur in people between 13 and 20 years old.
- HIV can also be transmitted from a mother to a child through breast milk.
- Today five known main strains of HIV affect people around the world.

Some common misconceptions:

- If you have HIV, you have AIDS.
- No drugs can help someone with AIDS.
- Only gay men and intravenous drug users contract AIDS.

On the opposite side of the cards, have students reveal whether their statement is fact or fiction. For a fact, they should include more information. For fiction, they should write the truth. Review the cards and read them aloud to the class. See if students can tell fact from fiction.

Evaluation:

Use the following three-point rubric to evaluate students' work during this lesson.

3 points: Students were highly engaged in class discussions, showed thorough research of their disease, created a clear poster including answers to all of the assigned questions and two or more appropriate images

2 points: Students participated in class discussions, showed satisfactory research of their disease, created an adequate poster including answers to most of the assigned questions and two appropriate images

1 point: Students participated minimally in class discussions, showed satisfactory research on their disease, created an incomplete poster including answers to few of the assigned questions and one or fewer appropriate images

Vocabulary

anemia

Definition: A blood condition involving the red blood cells

Context: An anemic person has a limited number of red blood cells, or the body's red blood cells are damaged or deficient in iron.

genetic

Definition: Inherited; relating to genes passed down from parents

Context: Sickle cell anemia is a genetic disease because it is inherited from parents.

hemophilia

Definition: A rare genetic bleeding disorder occurring most often in boys

Context: People with hemophilia have blood that does not clot properly.

Sickle cell anemia

Definition: A disease that destroys the ability of red blood cells to carry oxygen throughout the body

Context: People with sickle cell anemia inherited a recessive disease gene from each parent.

Academic Standards

The National Science Education Standards provide guidelines for teaching science as well as a coherent vision of what it means to be scientifically literate for students in grades K–12. To view the standards, visit <http://books.nap.edu>.

This lesson plan addresses the following national standards:

- Life Science: Reproduction and heredity
- Science in Personal and Social Perspectives: Personal health; Populations, resources, and environments; Risks and benefits

Credit

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