PLTW Virtual Learning

Medical Detectives

Lesson 10

April 17, 2020

7 & 8 Grade Medical Detectives
Lesson: April 16, 2020

Objective/Learning Target:
Lesson 10, Part 5

Students will be able to understand genetically inherited diseases.

Warm-Ups:

Answer the following questions using the 2-minute timer to see how much you know about inherited diseases.

1. What are inherited diseases?

2. How many inherited diseases can you list in one minute?

3. Are there any inherited diseases in your family? If so, what is the name of the disease?

Lesson Introduction/Background Information:

What is a genetically inherited disease?

Inherited diseases are caused by abnormal genetic material, like individual genes and chromosomes, passed on to a child from one or both parents. Inherited diseases can have varying symptoms and degrees of severity.

Inherited diseases: (Some examples)

Cystic Fibrosis, Severe Combined Immunodeficiency Disorder (SCID), Tay-Sachs, Huntington's Disease, Neurofibromatosis, Sickle Cell Disease, Thalassemias, Heart Disease, and Hemophilia are just a few.

Practice:

Brief description of genetically inherited diseases:

1. Cystic Fibrosis - Begins at birth and affects the way your body makes mucus. Instead of the mucus being thin and slippery, it becomes thick and glue-like causing problems throughout your body.

2. Hemophilia - A bleeding disorder that causes abnormal or exaggerated bleeding and poor blood clotting.

3. Tay Sachs - A rare disease that can be a fatal disorder which is most commonly diagnosed in babies around six months of age, causing loss of motor skills and neurological abilities.

4. Huntington's Disease - A gene that is inherited from one of your parents that affects the central part of your brain dealing with how you think, move and show emotion. There is no known cure for it.

Practice: Continued

5. Genetically passed on types of heart disease. These are not heart conditions that occur because of age and individual health; but are diseases that are passed on through genetics, such as Brugada, a specific type of abnormal heart rhythm.

Watch the video An Introduction to Genetic Mutations for more information about DNA genetic mutations.

Write down the 3 summary points from the video:

1. _____
2. _____
3. _____

Self Assessment:

All genetic diseases have their own symptoms, form of diagnosis, rate of progression, forms of treatment and complications. We're going to look at one of those diseases in the following video, Understanding Huntington's Disease. As you watch the video, write down 5 things you find interesting about how it's inherited, the symptoms, progression, treatment, complications and anything else you find interesting in the video.

1. _____
2. _____
3. _____
4. _____
5. _____

Extend Your Learning/Continued Practice:

Read through the information provided by the Genetic Science Learning Center to learn more about Single Gene Disorders in the DNA sequence.