

**7th & 8th Grade PLTW MEDICAL DETECTIVES**  
**Lesson 1, Part 1: April 6, 2020**

**Learning Target:**

**Students will learn what it means to be nearsighted and farsighted and how to determine each of these.**

# Warm-Ups:

## Quickwrite:

1. On a piece of paper, write down anything you know, or think you know, about what it means to be nearsighted or farsighted.
2. Is there anyone in your family, or someone you know, that is nearsighted or farsighted? Write their names on your paper also.



# Lesson Introduction and Background Information:

1. Our eyesight is one of our five main senses and extremely important.
2. Many people experience problems with their eyesight and it's not always perfect. This can also change as we get older.
3. Nearsighted eyesight is when someone can see up close but not far away.
4. Farsighted eyesight is when someone can see far away but not up close.

# Practice: Experiment Instructions



Let's Experiment -- (If you wear glasses or contacts, they should be removed.)

1. Cover one eye with a piece of paper or your hand -- either your left or right eye, it doesn't matter. Now concentrate on looking at a small object while holding it about six inches from your eye. You could be looking at the tip of a pencil/pen or your finger.
2. Move it slowly away till your arm is completely stretched out in front of you.
3. While moving the object slowly, pay attention to when you are seeing it the best, up close? far away? or is it staying the same?
4. Repeat experiment with the other eye and then with both eyes at the same time.
5. Now go to the next page and write down your answers on paper.

# Practice:

## Let's record our Results --



On paper, write down your answers to each of the questions:

1. Were you able to see your object better up close or far away? If no change, that will be your answer, because you are neither nearsighted or farsighted.
  - a. Right eye?
  - b. Left eye?
  - c. Both eyes?
2. Do you see your object better --
  - a. Far away -- this means you may be farsighted
  - b. Up close -- this means you may be nearsighted



# Practice:

## How Does the Eye Work?

Now that we have experimented to see if we may be nearsighted, farsighted or have normal vision, let's learn more and see how the eye works and what causes people to be nearsighted and farsighted.

Click and watch the video [How the Eye Works](#) (3.22 minutes)

Answer the following two questions on paper:

1. How does the shape of the eye affect someone who is farsighted?
2. How does the shape of the eye affect someone who is nearsighted?

# Self Assessment

Okay, now write your answers to the following questions on the same paper that you began this lesson.

1. Explain what being nearsighted and farsighted are in your own words and why this happens in some people's vision.
2. Explain why only one eye may be nearsighted or farsighted and not both eyes.
3. Explain the results of your experiment and what your determination was.



# **Answer Key:**

**Warm-up -- Answers will vary depending on the student's previous knowledge.**

**Vision experiment -- Answers will vary depending on the outcome of the student's experiment. Please note this is a simple home experiment to understand the difference of how nearsightedness and farsightedness can affect our eyes and what is the cause.**

**Slide #6 - How the Eye Works Video -- #1 The eye is too short, #2 The eye is too long**

**Self Assessment -- #1 Review definitions shared earlier, #2 Each eye can be shaped differently, they may not be the same in shape, #3 Answers will vary.**



# Extend Your Learning/Continued Practice:

1. Share this experiment with someone, or several people, in your home and determine their outcome.
2. Watch the additional video [Anatomy and Function of the Eye](#) providing additional information on how our eyes work.