

GROW YOUR PALS PROGRAM GUIDE



THE NATIONAL FFA MENTORING PROGRAM

Sponsored by



LESSON 3.35

Eye Didn't Know That

Unit:
MISCELLANEOUS

PRECEPTS

- G. Physical Growth
 - G2. Respect one's body

NATIONAL STANDARDS

- NL-ENG.K-12.12 – Applying Language Skills
- NS.K-4.6 – Science in Personal and Social Perspectives



Lesson Type:
One-on-One

STUDENT LEARNING OBJECTIVES

As a result of this lesson, the student will ...

- Define the term *afterimage*.
- Detail how the pupil reacts to various amounts of light.





TIME

Instruction time for this lesson: **20 minutes.**



RESOURCES

Afterimage. (n.d.). Science Scoop. Retrieved April 15, 2010, from <http://www-tc.pbskids.org/zoom/printables/activities/pdfs/afterimage.pdf>

Eye Didn't Know That. (n.d.). Youth Education Plan. Retrieved April 16, 2010, from www.eyedidntknowthat.info/pdfs/lessonPlan.doc

Pupil - Wikipedia, the free encyclopedia. (n.d.). Main Page - Wikipedia, the free encyclopedia. Retrieved April 16, 2010, from <http://en.wikipedia.org/wiki/Pupil>



TOOLS, EQUIPMENT AND SUPPLIES

- ✓ Sheets of white paper- two
- ✓ Black marker
- ✓ Mirror
- ✓ Dark room
- ✓ PALS3.35.ONE.AS.A - one optical illusion to be printed or projected
- ✓ PALS3.35.ONE.ASSESS.A
- ✓ Computer

KEY TERMS



The following term is presented in this lesson and appears in ***bold italics***:

Afterimage



CONTENT OUTLINE

- I. ***Afterimage***
 - A. An ***afterimage*** is an image continuing to appear in one's vision after looking at an original picture
- II. Pupils
 - A. Opening in the eye that allow light in
 - B. Pupils appear to be black in color
 - C. Change size depending on light/dark

INTEREST APPROACH

Begin by showing students the picture of the optical illusion, PALS3.35.ONE.AS.A. You may want to show the picture on the computer screen or through a projector.



Please take a look at the image. As you look at the picture, does it appear to be moving?

Allow students to look at the optical illusion to make sure they can see the movement.



Have you been able to see the lines move?

Allow the students time and make sure they have seen the lines move.



Although it appears as though the picture is moving, it really is not. This is an optical illusion. An optical illusion is just one way in which your eyes allow you to see. Your eyes are really cool and important to you. Today we will learn more about your eyes, different ways you see with your eyes and we will learn about a certain part of our eye. It is important to know different parts of ours and to be aware of how we see. Since we will be doing activities dealing with our eyes, I ask that we be very careful not to harm our eyes.

SUMMARY OF CONTENT AND TEACHING STRATEGIES

OBJECTIVE 1. | Define the term *afterimage*.



Before beginning, have two sheets of paper and a black marker set out for students.



When I say the word ***afterimage*** what comes to mind?

Allow students to give answers. A typical answer should be something you see after you look at something.



These are all great answers! An ***afterimage*** is like the optical illusion we saw earlier. It is an image continuing to appear in one's vision after looking at an original picture. We will now do an activity to better understand what an ***afterimage*** really is.



Before you are two sheets of paper and a black marker, please let them remain there until I finish these directions. When I say the word EYE please take one piece of paper and draw a picture of your favorite animal. After drawing the animal, please color it in with the black marker and wait for further instruction. What questions do you have?

EYE

Give students time to finish drawing their animals and filling them in.



Now that we've drawn our picture, when I say GO, stare at the picture for 30 seconds. I will keep track of the time and when I say SWITCH move your eyes from the picture and start looking at the clean sheet of paper next to you. What questions are there?

GO!

*Give students 30 seconds to look at the picture then say **switch** for students to look at the other sheet of paper.*

SWITCH



What did you see when you looked at the other page?

Students should reply that they saw the image they drew on the paper.



Exactly! You saw the image of your favorite animal. This is an example of an **afterimage**. We looked at the picture for awhile and when we moved our eyes to look at something else, we could still see the image of our animal.



Now that we have learned what an **afterimage** is and what it does to our eyes, let's take a look at our eyes and see what light does to our eyes as well.

OBJECTIVE 2. | Detail how the pupil reacts to various amounts of light.



Now that we have learned about **afterimage**, we will learn a little more about the eye. The circle in the middle of our eyes that appear to be black are called pupils. The pupil is an opening in our eye that allows light to enter. This is what makes the pupil appear to be black. Take the mirror and look at our eyes and locate where your pupils are. Now look at the person sitting beside you ("**my pupils**" – if this is a one-on-one lesson), and look at their pupils.



Let's do an activity looking at our pupils. Take the mirror and look at the size of your pupil. In a moment I will turn off the lights for about a minute. Please remain in your seats while the lights are off. When the lights come back on, notice the size of your pupils. Ready!

Turn off lights. When a minute or so has gone by, turn lights back on. Discuss with students the changing sizes of their pupils.



Did you notice the changes? Our pupils get wider in the dark but narrower in the light. Our pupils are an important part of our eyes. If we did not have pupils, we would not be able to regulate and gather light in varying situations. It is also important that our pupils do not dilate, meaning they do not get too big, because this can cause damage to our eyes.



REVIEW / SUMMARY



Today we have learned about *afterimage*. Who will give me the definition of *afterimage*?

Allow students to answer.



Correct!

We also learned where the pupil is located in our eye. Who will share where the pupil is located?

Allow students to answer.



Perfect! We also learned that our pupils are an important part of our eyes. If we did not have pupils our eyes would not be able to regulate and gather light. It is also important that our pupils do not dilate, meaning they do not get too big, because this can cause damage to our eyes.



APPLICATION

Large Group Idea

Divide a sheet of paper in half. On the top of the paper draw a sun on one side and a moon on the other. In the middle of the page draw your eye. After learning what happens to your pupils in certain light, please draw the size your pupils should be if you were in the sun and the size it would be in the dark.



Small Group Idea

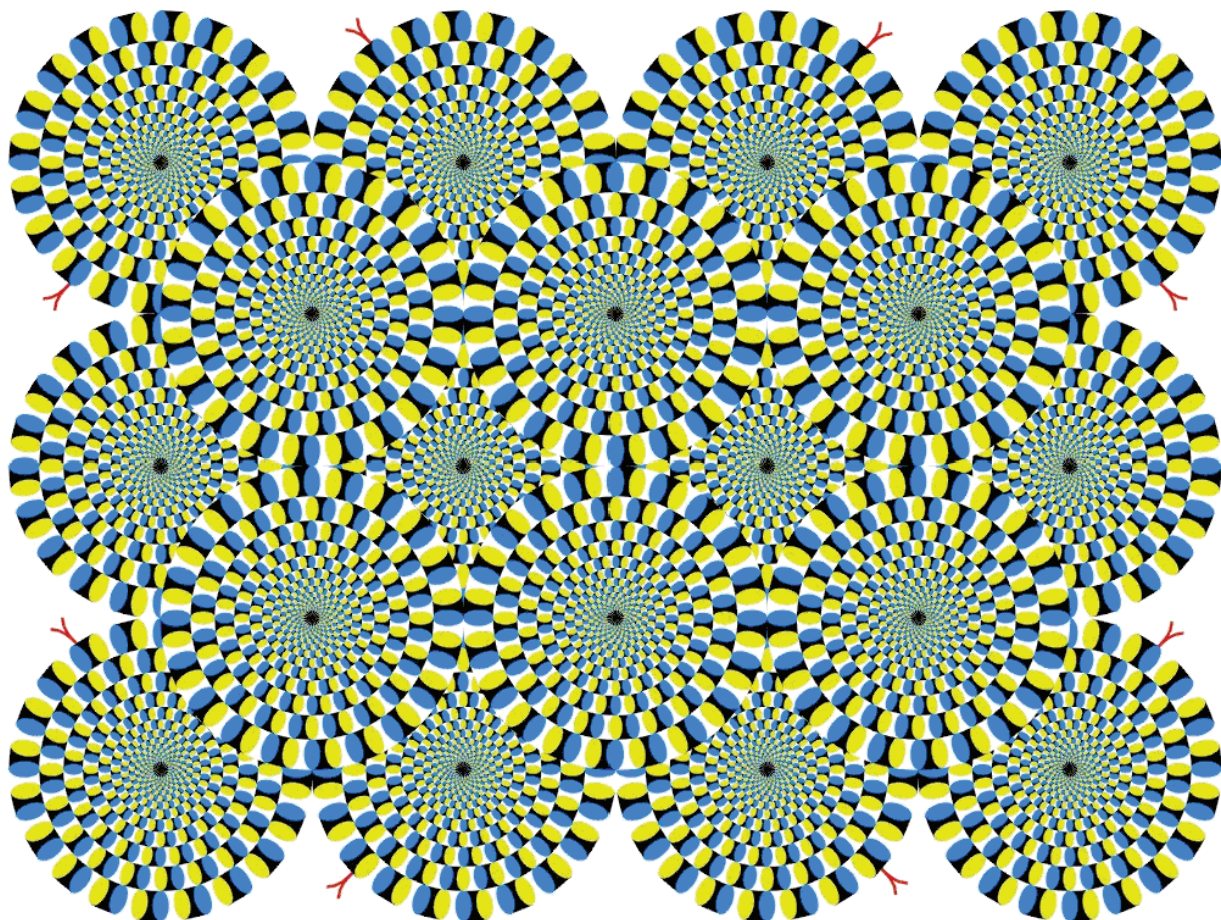
Students can research and find different optical illusions and discuss how they affect their eyes.



PALS3.35.ONE.ASSESS.A | EVALUATION ANSWER KEY

1. An image continuing to appear in one's vision after looking at an original picture.
2. False
3. True

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Source: <http://files.veryourhead.co.uk/images/misc/optical-illusion-wheels-circles-rotating.png>

PALS3.35.ONE.ASSESS.A

Name: _____

Directions: Select the correct answer for question one. Please circle “A” for True or “B” for False in questions 2 and 3.

1. Afterimage is....
 - a. An image continuing to appear in one’s vision after looking at an original picture
 - b. What your eyes allow you to see
 - c. The last image you saw
 - d. The ability to see images others may not be able to see.

A - B 2. The pupil is the outer edge of the eye.

A - B 3. An afterimage can make images have the illusion of motion.