Week of April 6-10, 2020
Junior High Science
Debra Welch

Hello students! I hope all of you are staying healthy. I just want everyone to know that I am thinking of you and miss having school as normal. Remember to keep your immune systems strong! Basic directions are: You need to complete one lesson a week for only the class you were currently enrolled in and choose from the 3 choices. Choices 1 & 2 are for review of material we have already covered this year. I will start at the beginning and go through the year's material. Choice #3 will always be new work using your textbook or other handouts I include. I will make every effort to keep your work simple to do, considering that we are not learning together in the classroom. Your work should be turned in as a hard (paper) copy to the office or through email in a word or google document. My email is: debra.welch@oakland5.org. Please be sure all work has your name! If you have not turned in the assignment by the following Monday, I will need to email your parents and/or place a phone call home. Please be diligent to turn work in on time. I suggest you set up a schedule just as if you were at school and allow for the normal time period. Most assignments I send you will take less time than our normal 40 minutes. Comments will be made on paper copies and returned to you. If you send in homework answers as an email I will reply to your email and give my comments/reflections of your work. I will be supplying you with the necessary notes or you will need to use your book to find the answers. If you have any questions feel free to email me and I will get back to you by email during my office hours. If you can't email feel free to call the office and leave me a message. Good Luck and stay healthy!

Class	Choice 1	Choice 2	Choice 3 (Enrichment)
8th Grade Life Science	Use text p6-27 and fill out notes handout p33-35; review Branches of Science	Do Worksheet: What is Scientific Inquiry? Review your notes from Chapter 1.	Read the Notes on **Viruses** (Ch 2-3) p52-55 in text. Fill out Note-taking worksheet from text
6th Grade General Science	Read Section 1: What is Earth Science? Do questions on page 8, 1-8	Use Section 1 reading as notes and: Write a description of each branch of Earth Science. Give the tools used to study each branch.	Read in Ch 5 -Weather p116-125 and answer questions on pg 125, 1-5
		"What is Earth Science?"	
		(same rdg material for Choice 1)	

Name _____ Date _____ Class _____

Choice 1 D, 8th Grade-Wel 4/6-12 pg 1

Note-taking Worksheet

Exploring and Classifying Life

Section 1 What is science?

A. Science—an organized way of studying things and finding _____

B. Critical thinking—a process that uses certain skills to _____

C. _____—an organized way to solve a problem using a series of procedures

1. State the _____.
2. Gather _____.
3. Form a _____, or a prediction that can be tested.
4. Test the hypothesis with _____.
   a. _____ is something in an experiment that can change.
   b. _____ is the standard of comparison in an experiment; cannot change
5. Analyze _____.
6. Draw _____.
7. Report _____.

D. Theories and laws

1. Scientific _____—an explanation of things or events based on scientific knowledge; the result of many observations and experiments
2. Scientific _____—a statement about how things work in nature

E. International System of Units (SI)—Standard system of _____ used by scientists

Section 2 Living Things

A. How are living things, or _____, alike?

1. Living things are _____.
   a. _____—the smallest unit of an organism that carries on the functions of life
   b. Each _____ has an orderly structure and contains hereditary material.
2. Living things _____.
   a. _____—anything that causes some change in an organism
   b. Response—the way an organism reacts to a stimulus, often results in _____
   c. _____—maintaining the proper conditions inside an organism

Name _____ Date _____ Class _____

D Welch 8th Lifescience choice/ pg 2

Note-taking Worksheet (continued)

3. Living things use _____.
4. Living things grow and _____.
   a. Growth of many-celled organisms is due to an increase in _____.
   b. Growth of one-celled organisms is due to an increase in _____.
   c. _____—changes that take place during the life of an organism
5. Living things _____.

B. What do living things need?

1. A _____ that provides for all of the organism's needs
2. _____, like water, proteins, fats, and sugars

Section 3 Where does life come from?

A. _____—early theory that living things could come from nonliving things; disproved by Louis Pasteur in the mid-1800s

B. _____—theory that living things come only from other living things

C. Alexander I. Oparin's hypothesis on the origins of life—gases in Earth's early atmosphere combined to form _____ found in living things.

1. gases:
   a. _____
   b. _____
   c. _____
   d. _____
2. Stanley L. Miller and Harold Urey tested Oparin's hypothesis and showed that chemicals found in _____ could be produced.

Section 4 How are living things classified?

A. Classification systems

1. _____ classified organisms more than 2,000 years ago.
2. Carolus Linnaeus introduced a system based on _____ of organisms.
3. Modern systems based on phylogeny—the _____ of an organism

Meeting Individual Needs

Name _____ Date _____ Class _____

D Welch 8th Apmu-10 Life Science Chem I pg 3

Note-taking Worksheet (continued)

4. Today's classification system separates organisms into 6 _____.
   a. Kingdoms are the first and _____ category.
   b. The smallest classification category is a _____.
   c. Organisms that belong to the same species can mate and produce _____.

B. _____—two-word system used by Linnaeus to name species

1. First word identifies the _____, or group of similar species.
2. Second word tells something about the species—what it looks like, where it is found, or _____.
3. Why use scientific names?
   a. To _____
   b. To show that organisms in the same genus are _____
   c. To give _____
   d. To allow information to be _____ easily

C. Tools for identifying organisms

1. _____—descriptions and illustrations of organisms
2. Dichotomous keys—detailed _____ of identifying characteristics that include scientific names

Choice 2 Pg 1
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8th Grade 4/6-12

Name _____

HOW SCIENTISTS WORK SERIES
What Is Scientific Inquiry?

Directions: Select the correct answer from the following:

1. A common resource that would be helpful during a scientific inquiry is a
   a. telephone pole.
   b. shovel.
   c. library.
   d. fire truck.

2. What would cause an insect to become more active?
   a. The air becoming warmer.
   b. An increase of air pollution.
   c. A cold front passing through.
   d. An additional dose of pesticide.

3. Democritus and Aristarchus were famous scientists from
   a. Ireland.
   b. Japan.
   c. Brazil.
   d. Greece.

4. Who can do scientific investigations?
   a. Anyone with a scientific question.
   b. Scientists only.
   c. Men only.
   d. Women only.

5. Which question would be best suited for scientific inquiry?
   a. What color is that barn?
   b. Is it a good time to go outside?
   c. Will you show me the exit?
   d. Do all animals have red blood?

6. The world of the unknown can be discovered by using
   a. scientific inquiry.
   b. asking questions.
   c. a variety of resources.
   d. all of the above.

7. Who most likely would use scientific inquiry?
   a. A person who delivers the mail?
   b. A musician like Johann S. Bach.
   c. A detective like Sherlock Holmes.
   d. A speaker like Abraham Lincoln.

8. Madam Curie wanted to know if she could
   a. discover why there were so many different kinds of similar finches living on a island in the Pacific Ocean.
   b. find an isolate a new radioactive element.
   c. investigate why an apple always falls to the ground.
   d. become a famous scientist.

9. Who made a great scientific discovery by asking the right question?
   a. Isaac Newton
   b. Winston Churchill
   c. George Washington
   d. Joseph Stalin

10. The starting point for scientific inquiry is
   a. doing an experiment.
   b. asking a question.
   c. stating a fact.
   d. collecting materials.

Choice 2 D Welch pg 2
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Name _____

HOW SCIENTISTS WORK SERIES
What Is Scientific Inquiry?

Directions: Select the correct answer from the following:

1. When using scientific inquiry, there seems to be no end to the number of
   a. sleepless nights.
   b. dollars that can be made.
   c. questions that can be asked.
   d. people who could never use the information found.

2. What might cause flying insects to slow down?
   a. A drop in humidity.
   b. Wind slowing down.
   c. A decrease in air pollution.
   d. The air temperature going down.

3, Which of the following questions would be the best to use in scientific inquiry?
   a. Who is going to get a piece of candy?
   b. Where do birds go in the winter?
   c. How much does a house cost?
   d. Why would you buy that book?

4. Who made a great discovery by asking the right question?
   a. Babe Ruth
   b. Albert Einstein
   c. Engelbert Humperdinck
   d. Queen Elizabeth II

5. If a person is going to find an answer to a scientific inquiry he or she should
   a. use a variety of resources.
   b. be patient.
   c. do an investigation.
   d. all of the above.

6. Scientific inquiry questions seem to
   a. never end.
   b. be a small part of explaining events in nature.
   c. be hopelessly difficult to understand.
   d. limit a persons ability to solve problems.

7. To do scientific inquiry, you should
   a. look for a particular answer to a question.
   b. always have an open mind.
   c. look in one place for the answer.
   d. decide first what the answer is, then prove it.

8. A resource used during scientific inquiry could be a
   a. college.
   b. museum.
   c. the Internet.
   d. all of the above.

9. Which question would not work very well in a scientific inquiry?
   a. Do you have a favorite books?
   b. Why are there so many closely related birds on one island?
   c. Are mass and energy really related?
   d. Is there a connection between an apple falling and the motion of planets?

10. Scientific inquiry leads us into a
   a. dead end most of the time.
   b. dangerous world.
   c. world of the unknown.
   d. system requiring little effort.

D. Welch April 12-10 Choice 3
8th grade
Life science Pg1

chapter 2

Cells

section 3 Viruses

What You'll Learn

- how a virus copies itself
- how vaccines help people
- some uses of viruses

Before You Read

Think about the vaccinations you have had when at the doctor's office or at a health clinic. On the lines below, list the kinds of diseases these shots will help prevent.

_____

_____

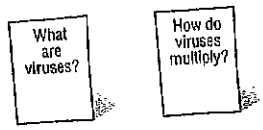
_____

Study Coach

Create a Quiz Write a question about the main idea under each heading. Exchange quizzes with another student. Together discuss the answers to the quizzes.

FOLDABLES

Identify Make quarter sheets of notebook paper, as shown below. On the first sheet, answer the question "What are viruses?". On the second sheet, answer the question "How do viruses multiply?".



Read to Learn

What are viruses?

Cold sores, measles, chicken pox, colds, the flu, and AIDS are some diseases caused by nonliving particles called viruses. A virus is a strand of hereditary material surrounded by a protein coating.

What are characteristics of viruses?

Viruses don't have a nucleus or other organelles. They also lack a cell membrane. Viruses have a variety of shapes.

A virus is so small it can be seen only by an electron microscope. Before the electron microscope was invented, scientists only hypothesized about viruses.

How do viruses multiply?

The only way a virus can reproduce is by making copies of itself. A virus, however, must have the help of a living cell called a host cell. Crystalized forms of some viruses can be stored for years. Then, if they enter an organism, they can multiply quickly.

Once a virus enters a host cell, the virus can act in two ways It can be either active or latent, which is an inactive stage.

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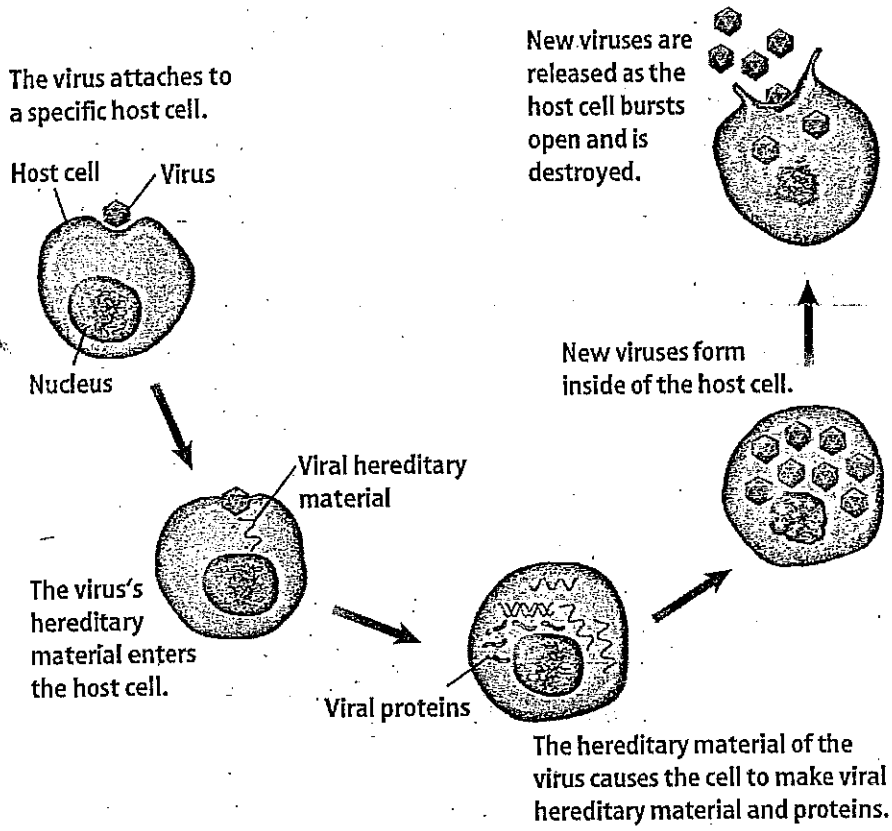
8th April 6-10
pg 2

What happens when a virus is active?

When a virus enters a cell and is active, it causes the host cell to make new viruses. This process destroys the host cell. Follow the steps in the figure below to see one way that an active virus works inside a cell.



What happens when a virus is latent?

When a latent, or inactive, virus enters a host cell, its hereditary material can become part of the cell's hereditary material. It does not immediately make new viruses or destroy the cell. As the host cell reproduces, the virus's DNA is copied. A virus can be inactive for many years. Then, at any time, something inside or outside the body can make the virus active. ☑

If you have a cold sore on your lip, a latent virus in your body has become active. The cold sore is a sign that the virus is active and destroying cells in your lip. When the cold sore goes away, the virus has become latent again. The virus is still in your body's cells, but it is hiding and doing no harm.

Picture This

1. **Sequence** Circle the step that shows the virus's hereditary material entering the host cell. Highlight the step that shows new viruses forming inside a host cell.

Reading Check

2. **Describe** what happens to a latent virus's DNA when a host cell reproduces.

_____

_____

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How do viruses affect organisms?

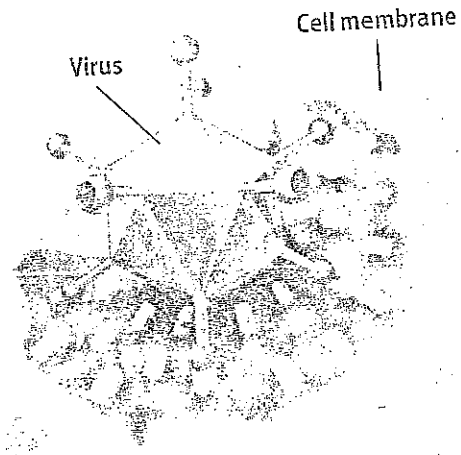
Viruses attack animals, plants, fungi, protists, and all prokaryotes. Some viruses can infect only certain kinds of cells. For example, the potato leafroll virus infects only potato crops. A few viruses can infect many kinds of cells. The rabies virus can infect humans and many other animal hosts.

How does a virus reach a host cell?

A virus cannot move by itself. There are several ways it can reach a cell host. For example, a virus can be carried to a host cell by the wind or by being inhaled. When a virus infects an organism, the virus first attaches to the surface of the host cell. The virus and the place where it attaches on the host cell must fit together exactly, as shown below. This is why most viruses attack only one kind of host cell.

Picture This

3. Identify Circle each of the places that the virus is attached to the cell.



What are bacteriophages?

Viruses that infect bacteria are called bacteriophages (bak TIHR ee uh fay jihz). They differ from other kinds of viruses in the way that they enter bacteria. Bacteriophages attach to a bacterium and inject their hereditary material. The entire cycle takes about 20 minutes. Each virus-infected cell releases an average of 100 viruses.

Reading Check

4. Define the term *vaccine*.

_____

_____

_____

Fighting Viruses

A vaccine is a kind of medicine used to prevent a disease. It is made from weakened virus materials that cannot cause disease anymore. Vaccines have been made to prevent many diseases, including chicken pox, measles, and mumps. ☑

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How was the first vaccine developed?

Edward Jenner developed the first vaccine in 1796. The vaccine was for smallpox. Jenner noticed that people who got cowpox did not get smallpox. He made a vaccine from the sores of people who had cowpox. He injected the cowpox vaccine into healthy people. The cowpox vaccine protected them from smallpox. ☑

How are viral diseases treated?

One way your body can fight viral infections is by making interferons. Interferons are proteins that are made quickly by virus-infected cells and move to noninfected cells in the host. Interferons cause the noninfected cells to make protective materials.

Antiviral drugs can be given to an infected patient to help fight a virus. A few drugs are helpful against viruses. Some of these drugs are not used widely because they have harmful side effects.

How can viral diseases be prevented?

There are many ways to prevent viral diseases. People can get vaccinated against diseases. Sanitary conditions can be improved. People who have viral diseases can be kept away from healthy people. Animals, such as mosquitoes, that spread disease can be kept under control. ☑

Research with Viruses

Scientists are discovering helpful uses for some viruses. One use, called gene therapy, substitutes normal hereditary material for a cell's flawed hereditary material. Normal hereditary material is placed into viruses. These altered viruses then are used to infect those cells that contain flawed hereditary material. The normal hereditary material in the altered viruses enters the cells and replaces the flawed hereditary material. Using gene therapy, scientists hope to help people with genetic disorders and find a cure for cancer.

Reading Check

5. **Identify** Who developed the first vaccine?

_____

Reading Check

6. **Describe** one way viral diseases can be prevented.

_____

_____

_____

Name Date Class Choice 3 - D. Welch 8th Grade 4/6-12 W/S

Note-taking Worksheet (continued)

Section 3 Viruses

A. Virus–a nonliving strand of hereditary material surrounded by a _____ coating

B. Virus multiplication–viruses can make copies of themselves only inside a living _____ cell.

1. _____ viruses–make the host cell produce new viruses, which kills the host cell
2. _____ viruses–hide in the host cell without destroying it
   a. Virus hereditary material becomes part of the _____ cell's hereditary material.
   b. Latent viruses can become _____ and then destroy the host cells.

C. Virus effects on organisms

1. Most viruses infect only specific kinds of cells.
2. Viruses are often carried to the host through the _____.
3. The _____ and host cell must fit together exactly to begin a viral infection.
4. _____ attach to bacteria and inject their hereditary material.

D. Fighting viruses

1. Vaccines–weakened _____ which allow the host to fight some diseases
2. Treating viral diseases
   a. _____ are not effective treatments for viral infections.
   b. Infected cells sometimes produce _____ which are proteins that can protect noninfected cells.
   c. Antiviral drugs often have adverse _____, limiting their use.
   d. Public health measures can _____ or slow disease spread.

E. Research with viruses–_____ uses viruses to replace defective cell hereditary material with normal cell hereditary material.

Meeting Individual Needs