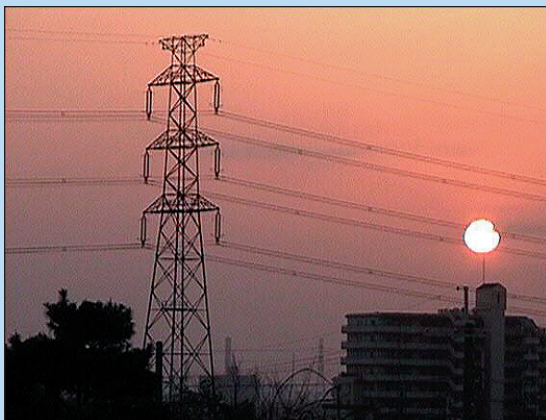

a Hawkhill Interactive DVD program

Radiation



*Hawkhill Associates, Inc.
Madison, Wisconsin 53703*

Radiation

an Interactive DVD program

Radiation is one program in a series of *Hawkhill Interactive DVDs* designed to help teach scientific literacy in the secondary and college classroom. This *Interactive DVD* contains the complete live-action video of the two-part program *Radiation*.

The complete script to the video is available on our web site: www.hawkhill.com. You are free to download and print copies of this script for use in the classroom. There is no charge nor any permission necessary.

In addition, as a new *Interactive DVD, Radiation* has added features that help teachers in their quest for accountability today.

GUIDED QUESTIONS

Following the viewing of the video program you can challenge the student (or the entire class) with a series of *Guided Questions*. If a student answers the question correctly the program moves on to the next question. If the student gives an incorrect answer, the program notes the mistake and prompts the student to view a video clip from the original video that shows the correct answer to the question. Some of the questions encourage class discussion led by the teacher who can elicit critical and creative thinking from the student.

The questions themselves are designed to reinforce learning of key concepts in science literacy as detailed in current science reform programs such as *Benchmarks for Science Literacy* in AAAS's *Project 2061*, and the National Research Council's *National Science Education Standards*.

MASTERY QUIZZES

After completing the *Guided Question* session, the student can take *Mastery Quizzes* (also on the DVD disc) to confirm his or her newly learned mastery of content.

Along with this guide there is a separate sheets that reprint the *Mastery Quizzes* for ***Radiation***. Teachers are free to make copies of this quiz if they wish to use it in printed form in the classroom.

For more information on this and other programs in science literacy and in science, technology and society, write or phone toll-free the address below.

Hawkhill Associates, Inc.
125 East Gilman St.
Madison, WI 53703
1-800-422-4295
FAX 608-251-3924
<http://www.hawkhill.com>
e-mail: order@hawkhill.com

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Mastery Quiz

How Radiation Was Discovered

Circle or write in the correct answer to the
ten questions inside this leaflet

Teachers are free to duplicate this quiz
for use in the classroom.

How Radiation Was Discovered

Mastery Quiz

1. The first kind of radiation to be studied was _____ light?
(write in correct word)

2. Which Greek scientist said that light was made of tiny little bullets streaming away from sources like the sun?

- a. Euclid
- b. Anaximander
- c. Democritus
- d. Aristotle

3..Who first used a prism to break up light into separate colors?

- a. Michael Faraday
- b. Alessandro Volta
- c. Isaac Newton
- d. Thomas Young

4. One of the controversies about light has been whether it was a _____ or a _____. (write in correct words)

_____ or a _____

5. What simple experiment did Thomas Young use to show that light could be a wave?

- a. he shone a light through small holes
- b. he used a prism to break up a beam of light
- c. he used a laser to point to objects on a stage
- d. he used a newly invented flashlight on the stage

6. Surrounding any current carrying wire, said James Clerk Maxwell, is a moving-out field of _____ waves.

7. X rays and gamma rays have shorter wavelength and higher _____ than visible light radiation.

8. Off the other end of the spectrum, after red light, there was found to be a light that one could not see, but one could feel as warmth. What is this kind of radiation called?

9. Besides the gamma rays, what three other penetrating particles come out of some radioactive atoms?

- a. beta, cosmic, alpha
- b. infrared, alpha, ultraviolet
- c. alpha, beta, neutrons
- d. protons, beta, X rays

10. All of the electromagnetic waves, except the gamma rays, come from leaps of the _____ inside of atoms, or from the vibrations of atoms and molecules.

- a. Neutrons
- b. Protons
- c. Electrons

TOTAL SCORE: _____

Mastery Quiz

Radiation and You

Circle or write in the correct answer to the
ten questions inside this leaflet

Teachers are free to duplicate this quiz
for use in the classroom.

Radiation and You

Mastery Quiz

1. What is the speed of light?
 - a. 186,000 miles per minute
 - b. 18,600 miles per second
 - c. 186,000 miles per second
 - d. none of the above
2. A ray of light traveling from the sun to the earth takes how long to reach the earth?
 - a. eighteen seconds
 - b. eight minutes
 - c. eight seconds
 - d. none of the above
3. The two important measures of electromagnetic waves are?

_____ and _____

4. A source of radiation would be
 - a. fire
 - b. light bulbs
 - c. ceramic plates
 - d. television screens
 - e. human beings
 - f. all of the above
5. What zone of the atmosphere filters out much of the harmful ultraviolet light sent to the earth?
 - a. the ozone layer
 - b. the stratosphere
 - c. the atmosphere
 - d. none of the above

-
6. A human body can develop cancer when too many cells have atoms that are _____.
a. radioactive
b. nuclear
c. damaged
d. toxic
7. By far most of the radiation that most humans will get in their lifetime comes from where?
a. nuclear power plants
b. nuclear bomb tests
c. toxic chemical plants
d. medical and dental x rays
8. There are four kinds of nuclear-generated radiation. What are they?
a. alpha, beta, gamma rays and high-speed neutrons
b. radioactive mercury and lead
c. electromagnetic radiation of low frequency
d. electromagnetic radiation of long wave length
9. The unit that measures the potential of radiation harming living tissue is called:
a. rem
b. stem.
c. gem.
d. none of the above.
10. Although X rays, gamma rays, alpha rays, beta rays and neutrons are potentially dangerous, what can they also be called?
a. windows of the world
b. windows of opportunity
c. windows of life

TOTAL SCORE: _____

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