

Name _____ Date _____ Period ____

Radioactivity in the Environment

There are three sources for radioactivity in the environment: cosmic (from space), terrestrial (rocks and soil), and humans. You will look at various sources and consider their relative danger to us.

Radioactive decay happens when certain elements have unstable nuclei and particles are released. Some of the released particles, in large enough concentration, can damage or kill humans and other life.

Most of you know that uranium is radioactive. Some clays called bentonite contain naturally occurring uranium. The northeast has a lot of granite, limestone and black shale in the rock. All can be a source of radon gas because these are rocks in which uranium is relatively abundant. In the open air, it is harmless; but when the concentration is too great a person can develop lung cancer. Most homes in the northeast must have radon tests before they can be sold to assure that there is no radon collecting in their basements.

A useful note: the Colorado Plateau is higher elevation than the Appalachian Mountains. The Colorado mountains are younger mountains, so less worn down.

Procedure

This lab must be completed in steps.

1. You will take the small envelope and sort the 16 cards into three groups. Is the statement a fact, is it possible, or is it a myth?
2. You will get the correct answer sheet from the teacher and compare your responses to it. And you will answer some questions.
3. You will consider possible radioactive doses based on what you have learned and what you might already know. You will put the cards, from the larger envelope, into the correct order. Number 1 will contain the least radioactive levels. Number 11 will contain the most radioactive levels.
4. You will get the correct order from the teacher and compare your responses to it and answer wrap up questions.

Understanding Your Environment

Number and what it is	Fact/ Possible/ Myth	Correct	Source
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

1. How close were you to the correct responses? What surprised you?

Now go back to the list and mark whether the source was cosmic, terrestrial or human.

How many were: (the total must be 16)

cosmic _____ terrestrial _____ human _____

2. Where is radiation found from cosmic sources? Be specific.

Understanding Your Environment

3. Where is radiation found from terrestrial sources? Be specific.

4. Where is radiation found from human sources? (Where has man introduced it to the environment?) Be specific.

5. Is this the distribution you expected? If not, what surprised you?

Now get the larger envelope and put the cards into the correct order. **Number 1 will contain the least radioactive levels. Number 11 will contain the most radioactive levels.**

Exposure	Your Rating	Correct Rating
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

6. How close were you to the correct responses? What surprised you?