

## INVESTIGATION 4

## How can you detect the invisible?

# Radon Fact Sheet

### Fact #1

The atom is the building block of all matter.

### Fact #2

Radioactive atoms are unstable and trying to become more stable. It is like popcorn popping, but no heat is needed.

### Fact #3

A radioactive atom "pops" or releases energy particles and waves, called radiation. As energy is released a new substance is formed.

### Fact #4

Uranium is radioactive. As it begins to "pop" or release energy, that is the start of a long chain of substances.

### Fact #5

Radon is one of the substances that "pops" along the chain. It is a radioactive gas that you cannot see, feel, smell, or taste.

### Fact #6

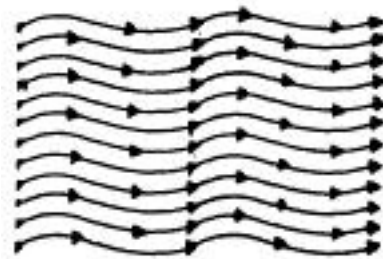
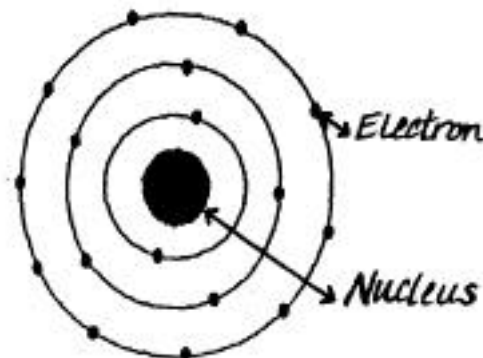
Radon "pops" from radium. Then radon releases energy and more new substances are formed. They are decay products. Sometimes decay products are called daughters or progeny.

### Fact #7

The decay products are solids and they stick to things in the air, like smoke and dust. We breathe the air into our lungs. Sometimes those particles we inhale get trapped and stay in our lungs.

### Fact #8

Even in our lungs, "popping" or energy releases keep right on happening. Sometimes that can cause serious damage and hurt the lungs.



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## Prediction

**What does the hidden object look like? (Draw a picture of it.)**



## Make some observations

<i>Object</i>	<i>Observations</i>	<i>What's Inside?</i>
<i>Toothpick</i>		
<i>Pins</i>		
<i>Magnets</i>		
<i>Other</i>		

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**How can you detect the invisible?**

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**Draw the Hidden Object**



**Toothpick**



**Pins**



**Magnets**



**Other**

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### Think about radon gas

- Use the chart to find other elements that have characteristics similar to radon.

<b>Some Common Elements</b>		
<b>Element</b>	<b>Symbol</b>	<b>Description</b>
Carbon	C	Black solid or colorless crystal
Chlorine	Cl	Greenish-yellow poisonous gas
Helium	He	Light gas with no color, taste, or odor
Hydrogen	H	Gas with no color, taste, or odor
Iron	Fe	Gray-white metal
Nitrogen	N	Gas with no color, taste, or odor
Oxygen	O	Gas with no color, taste, or odor
Silver	Ag	Shiny white metal
Sodium	Na	Soft silvery metal
Sulfur	S	Powdery yellow solid

\_\_\_\_\_

Name of element

\_\_\_\_\_

Name of element

\_\_\_\_\_

Name of element

\_\_\_\_\_

Name of element

- What do these other elements have in common with radon?

\_\_\_\_\_

\_\_\_\_\_

- On a separate sheet of paper, draw a picture of what a radon atom might look like based on the atom model in the Radon Fact Sheet. *Hint: Radon has 86 electrons.*

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### What do you think?

1. Based on reading "The Radon Fact Sheet", why is radon considered a health hazard even though you cannot see, smell, or touch it?

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### Did you know?

Radon can be detected with different kinds of detectors. These detectors include:

Charcoal Canister



Electret Ion Chamber



Alpha Track Detector



To test the amount of radon in a home, a detector must be placed in a special location. Detectors are usually put where family members spend a lot of time, such as the living room, family room, or a bedroom, but not a bathroom or kitchen, because too much moisture could ruin the test results.

When a detector is being used, it must sit there in one place for several days. No one should touch it or lay anything on top of it.

When the testing period is over, the detector is closed very carefully and immediately sent to a laboratory for testing. At the laboratory, a scientist can measure the number of radon particles and can figure out the amount of radon in the room.

Notes