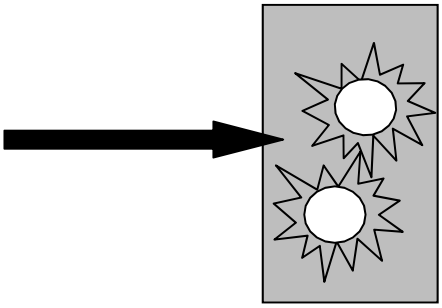
Radiation Worksheet

Name: _____ Date: _____

The images and demonstrations represent the effects of radiation when it is absorbed by atoms (represented by the white circles). Complete the demonstrations, record your observations and answer the questions.

Image A: This type of radiation can cause atoms to vibrate and move



Demonstration A:

1. Place your hands together. Your hands represent atoms.
2. Rub them against each other for 10 to 20 seconds.
3. Observe and record what happens to the "atoms" and the potential effects.

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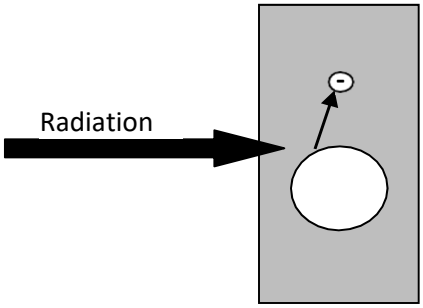
Image B: This type of radiation can change the structure of an atom by removing tightly bound electrons from atoms.



Demonstration B:

Equipment: 8 to 10 marbles. Select one marble to represent an atom nucleus. Select five marbles to represent electrons that surround the atom nucleus. Select two to four marbles to roll at the atom.

1. Place one marble (representing the nucleus of an atom) on a level surface.
2. Place five marbles tightly around the "nucleus" marble. The five marbles represent electrons. You now have a marble atom.
3. Roll one marble at a time at the "atom" and try to move, or knock away, an "electron."
4. Observe and record what happens to the atom nucleus and the potential effects.

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Questions:

1. Do Image A and Demonstration A represent the effects of non-ionizing or ionizing radiation? Consider the effects you observed and what you know about these types of radiation in the electromagnetic spectrum. How might this type of radiation affect our bodies?

2. Do Image B and Demonstration B represent the effects of non-ionizing or ionizing radiation? Consider the effects you observed and what you know about these types of radiation in the electromagnetic spectrum. How might this type of radiation affect our bodies?

3. Why do you need to be aware of and understand the difference between non-ionizing and ionizing radiation and their effects?