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Instructor: 2003 Science Teacher Workshop participant

School District: South River

Lesson Title: Radiation Vocabulary Concentration Game

Grade: 6

Subject: Science

Overview: Students will understand science concepts through a better understanding of the vocabulary used in connection with the lessons on radioactivity. Each new word is listed and defined within the scope of the lesson.

Objectives:

- Identify key terms for the uses of radiation.
- Learn the basic knowledge of radiation.
- Understand the difference between fission and fusion.

Materials and Resources: Zip-lock baggies, colorful index cards, glue, cut out terms with definitions into separate cards, answer sheet, one score keeper, two players per group.

Procedure: After students have read and discussed various materials about radiation, they can review terms used throughout the lessons. Students get into groups of three: one scorekeeper who has the answer sheet and two players. The scorekeeper places face down all the matching cards. Each player tosses a dice and the one with the higher number is first to play. A time limit should be given by the teacher. The winner receives five points extra credit.

Variation: Students may add more cards for additional series with more advanced vocabulary.

Atom	The smallest particle of an element consisting of a nucleus containing a particular number of protons and neutrons. Electrons revolve in orbits in the region surrounding the nucleus.
Atomic energy	Energy released in nuclear reactions through fission or fusion of the nucleus.
Atomic number	The number of positively charged protons in the nucleus of an atom.
Alpha Particle	A positively charged particle ejected spontaneously from the nuclei of some radioactive elements. It is identical to the nucleus of a helium atom. It can easily be stopped by a sheet of paper.
Beta particle	A charged particle emitted from a nucleus during radioactive decay. These particles may be stopped by thin sheets of metal or plastic. They can be harmful if they enter the body.
Contamination	Undesired radioactive material that is deposited on the surface of or inside structures, areas, objects or people.
Exposure	A term used to express what a person receives as a result of being exposed to ionizing radiation.
Fission	The splitting of the nucleus of an atom into at least two other nuclei and the release of a relatively large amount of energy.
Fusion	A reaction in which at least one heavier, more stable nucleus is produced by the combination of two lighter, less stable nuclei. Enormous energy is released, for example, heat from the sun.
Half-life	The time in which one half of a particular radioactive substance disintegrates into another nuclear form.
Ion	An elementary particle carrying a positive or negative electric charge.

Isotope	One of two or more atoms with the same number of protons, but different numbers of neutrons in the nuclei. Thus, carbon-12, carbon-13, and carbon-14 are examples of this.
Neutron	An uncharged elementary particle with a mass slightly greater than that of the proton, and found in the nucleus of every atom heavier than hydrogen.
Proton	An elementary nuclear particle located in the nucleus of an atom. It has a single positive electric charge.
Radon (Rn)	A radioactive element that is one of the heaviest gases known. Its atomic number is 86, and is the daughter of radium and thorium.