

## Introduction to Teachers

To many people, radiation is something associated with a late-night news story about a nuclear power plant or weapons manufacturing. To the contrary, radiation plays an important role in diagnostic and therapeutic medicine, food preservation, and scientific research. Further, natural radiation is around us 24 hours a day, in the air we breathe, where we live, where we work, and where we play. The sun is a source of natural radiation and everyday geologic processes going on beneath our feet produce different radioactive elements. World-wide, in some rocks and soils, a radioactive gas called radon is produced and escapes upward into the atmosphere. However, in certain instances, this naturally occurring substance can escape from rocks and soils into our homes. In the home it can accumulate to high concentrations in the air we breathe, and this could be dangerous because radon is the second leading cause of lung cancer.

The topic of radon offers a superb opportunity to explore, in the classroom, the links between social studies, science, and language arts. Its social relevance helps to generate student interest. The enclosed activities focus on radon, an unseen, ubiquitous, and potentially dangerous radioactive phenomenon of nature, which is not well understood by the public.

*Radon Alert* contains a series of investigations and extension activities exploring radon and its potential impact on the citizens of New Jersey. The activities have been carefully integrated with the State of New Jersey Elementary Curriculum Guidelines for Science, Mathematics, Social Studies, and Language Arts. Many of the investigations emphasize data gathering, graphing, and data analysis so that students are able to make inferences and draw conclusions about radon and its personal and social consequences.

The information used in this teacher's guide represents the latest synthesized research from federal, state, and local agencies. The teacher's guide itself includes an introduction to the topic and a collection of 10 lesson plans and numerous extension activities that will help you, the classroom teacher, integrate radon within any thematic area in science, math, social studies, or language arts. Although the major topics are scientific in nature, the lesson plans and activities have been carefully selected to be integrated across the curriculum. An important objective of this program is to make science and mathematics socially relevant and practical to the students.

The series of *Radon Alert* teacher's guides and lesson plans are targeted for classroom instruction at the elementary, junior high, and senior high school levels. All lesson plans take into consideration the broad range of student abilities and background information about radon. At the high school level, *Radon Alert* includes four separate instructional modules covering General Academic, Biology, Earth Science, and Chemistry/Physics. At the junior high level, the lesson plans are comprised of two modules: Science and General Academic. Since most elementary school classrooms are self-contained, the *Radon Alert* lesson plans for this level are comprised of a single document integrating science, mathematics, and whole language instruction.

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Regardless of the instructional level, each lesson plan within *Radon Alert* represents a stand-alone activity. Although a specific sequence of lesson plans is recommended, the classroom teacher need not follow this approach. Each *Radon Alert* module includes a core group of activities that can be adapted to a wide range of ability levels and interests. These activities include: What do people know about radon?, What is a pico?, What are the risks?, and How does radon get in?

The team that compiled this workbook hopes the enclosed investigations help to complement your curriculum by offering a set of experiments, surveys, and extension activities about a topic that is both relevant and practical for student exploration. Hopefully, you and your students will become better informed about this phenomenon of nature and by doing so, alert others to one of the unseen risks that we face in our lives today.