

TEACHER'S NOTES 6**WHAT IS THE RELATIONSHIP BETWEEN DNA AND CANCER****BACKGROUND**

In this exercise, students will explore the concepts of DNA structure and function, mutation, and carcinogenesis within the context of radon effects. This lesson plan should be implemented only after the fundamentals of DNA structure and function have been covered through other instructional materials. It would also be desirable to spend some time discussing and evaluating the importance of Watson and Crick's model of DNA to the field of biology, the intricacies of the double helix structure, and the importance of DNA in regulating almost all cell functions. Students will be more willing to learn about DNA and genetics once they know why DNA is so important. This exercise does not delve into protein synthesis, but such an activity would complement our treatment here.

MINIMUM RECOMMENDED TIME ALLOCATION

One or two class periods

STUDENT RESPONSES


Question 6: Cells which are dividing frequently are more likely to respond to DNA damage by developing a problem in the regulation of the process of cell division (thereby initiating cancer).


Question 7: Possible choices could include the following:


- most cancers take a long time to develop (latency period)
- the immune system becomes less effective with age
- cells lose some of their ability to repair themselves as a person gets older
- the longer you live, the greater the chance that one onslaught or another will generate a cancer response.


EXTENDED ACTIVITIES

1. Using the following symbols to represent the nucleotide bases:

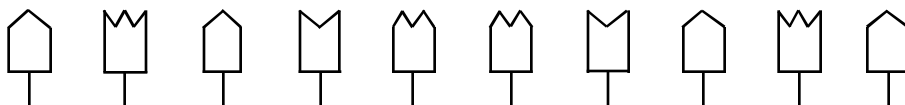
A - 

T - 

C - 

G - 

have the students construct the complementary DNA strand that is paired with the following strand:



2. Have the students describe several possible outcomes of a scenario in which the above DNA strand is hit with alpha radiation. What could happen to the DNA? What could happen to the cell?





Radon Alert
Lesson Plan Evaluation Sheet
and FREE POSTER AND STORYBOOK offer

The New Jersey Department of Environmental Protection is happy to provide these lesson plans for use by teachers. In order to evaluate the use of the lesson plans, we would greatly appreciate your response to the following questions. All teachers who return these forms will receive a FREE RADON POSTER depicting information about radon in a colorful format and a STORYBOOK about a Native American child and his experience with radon in his home.

1. Which Radon Alert lesson plan(s) did you use?

2. How useful did you find it/them (check one) ?

- Not useful
- Slightly useful
- Moderately useful
- Very useful
- Extremely useful

3. Do you plan to use them again in the future? Yes No

4. In your view, what would make the lesson plans MORE useful:

Your name: _____ **Phone Number:** _____

Subject area: _____ **Grade:** _____

Mailing address:

To receive your FREE RADON POSTER and STORYBOOK, mail or fax this completed form to:

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