California Science Content Standards

for the talk

Repairing DNA: Our Best Defense Against Cancer

This lecture supports the California Content Standards for Grades 9-12.

Cell Biology

1. The fundamental life processes of plants and animals depend on a variety of chemical reactions that occur in specialized areas of the organism's cells. As a basis for understanding this concept:

c. *Students know* how prokaryotic cells, eukaryotic cells (including those from plants and animals), and viruses differ in complexity and general structure.

d. Students know the central dogma of molecular biology outlines the flow of information from transcription of RNA in the nucleus to translation of proteins on ribosomes in the cytoplasm.

Genetics

4. Genes are a set of instructions encoded in the DNA sequence of each organism that specify the sequence of amino acids in proteins characteristic of that organism.

5. The genetic composition of cells can be altered by incorporation of exogenous DNA into the cells. As a basis for understanding this concept:

a. Students know the general structures and functions of DNA, RNA and Protein

c. *Students know* how genetic engineering (biotechnology) is used to produce novel biomedical and agricultural products.

Investigation and Experimentation

1. Scientific progress is made by asking meaningful questions and conducting careful investigations.

Additional information regarding this presentation is found on the Science on Saturday web site:

http://education.llnl.gov/sos