Connecticut Brownfield Sites

Some materials can be recycled, but others accumulate in the environment and may affect the balance of the Earth systems.

Students will formulate a question about a Brownfield site that may be answered through scientific investigation and then design the investigation.

More than 290 sites in Connecticut have been identified as "Brownfield Sites." These are parcels of property once used for industrial, commercial or manufacturing and are now typically abandoned due to suspected contamination. Often these unused parcels adversely affect the quality of living in the area and may pose potential health risks to local citizens. Financial assistance is available from the state and federal governments to assess and remediate these sites.

Read the CT Post article "Change In State Brownfields Laws Could Stimulate Development."

You will be assigned a Connecticut Brownfield from the Brownfield Inventory link found at the Connecticut Department of Environmental Protection's website: http://www.ctcda.com/Sites/counties.asp.

1. What has the property been used for that led it to being identified as a Brownfield site?

2. Use the supplied materials (and the internet) to research one of the potential contaminants at the site. Describe the reasons the material is hazardous to humans and how it is removed from the environment.

Your task is to formulate a question about the site that may be answered through scientific investigation and to design the investigation.

Do not worry about the specific steps needed to isolate the contaminant or specific techniques used to measure the contaminant's effect on the environment. Focus on writing a general plan for your investigation including the independent and dependent variables to be studied, general procedures you will follow and the data you will collect. Include a control group if appropriate.

Contaminant	Possible source of contamination
Heavy metals: arsenic, cadmium chromium, lead, mercury	metal finishing/plating shops, manufacturing and foundries, coal burning power plants
Gasoline/constituents of gasoline: gasoline, benzene, ethyl benzene, toluene, xylene	gasoline stations, tank farms, pipelines
Solvents: tetrachloroethlyene, trichloroethylene, III-trichloroethane	dry cleaners, machine shops, metal finishing/plating shops

Design an investigation that focuses on one specific chemical and its contamination plume at the site.
You will want to consider:

- where the sampling will occur (water, soil, air)
- the number of test sites
- distances from the source etc.

The contaminants influence on one species in the area.

- which plant or animal you want to study
- what type of effect you are looking for in that plant or animal (Ex. concentration of contaminant in relation to height, weight, etc.)

1. Question about your site

2. Hypothesis (If…then…because…)

3. Independent variable

4. Dependent variable

5. Control group

6. Method you will use to measure your contaminant's impact on your experimental group

7. What kind of data you expect to collect

8. Design a data table to collect that data

9. Describe the general process of conducting your experiment as if you were presenting your idea to the local government.