

Forming a research project using the scientific method: a research experiment on maple syrup production

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Abstract: The purpose of this activity is to introduce high school freshmen to the scientific method and report writing through the design, implementation, and analysis of a semester-long experiment. The students were responsible for designing a research project on sap production in maple trees beginning with the formation of a research question and ending with a full research report written in standard scientific format.

Grade level: 9th (Botany)

Objectives: 1) Introduce students to the scientific method, 2) give student real-life experience designing and analyzing a research project, 3) use a local resource (woodlot) for place-based learning, and 4) provide students with practice writing a scientific report.

National Standards: Understanding of:

- * Scientific inquiry
- * Natural resources

Ohio Benchmark and Academic Content Standards – Grade 10:

Life Science: D.10

Describe how cells and organisms acquire and release energy (photosynthesis, chemosynthesis, cellular respiration and fermentation).

Life Science: D:11

Explain that living organisms use matter and energy to synthesis a variety of organic molecules (e.g., proteins, carbohydrates, lipids and nucleic acids) and to drive life processes (e.g. growth, reacting to the environment, reproduction and movement).

Scientific Inquiry: A.2

Present scientific findings using clear language, accurate data, appropriate graphs, tables, maps and available technology.

Scientific Inquiry: A.4

Scientific Method Research Paper Example

Jianjun Gao



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