

A Proactive Understanding of Diabetes

Lloyd Wade
Walton High School

Abstract:

This action research project was used to introduce 9th grade students to the medical and scientific information concerning diabetes. This project was designed to provide students with a hands on, biotechnical based curriculum experiences. Students were provided with lab activities designed to expose them to laboratory equipment and methodologies that most of them had never experienced. As much as possible, students were allowed to use actual equipment in a real lab setting. In addition to a lab component, students participated in a computer based activity involving in guided research and virtual lab activities. This project took place in three 50 minute class periods. The focus of this activity was to provide students with a meaningful learning experience and exposure to the fundamentals to lab activities.

Rational:

Originally, this project was designed to be administered to a biology 1 class. Because of changes in teaching assignments, it became necessary that this project be adapted to a 9th grade physical science class. In my school district biology is a 10th grade science and physical science is a offered in the 9th grade. I felt that this adjustment would work to the advantage of my students because it would provide them with lab experience and provide them with a preview of several biology principles.

This project was designed to reinforce curriculum content involving the scientific method, research techniques and the collection and analysis of data. Students were required to present their data in a variety of venues. The overall desire of this experience was that students develop a better understanding of diabetes and comprehend life style factors that could impact the development and control of this disease.

Description of teaching unit and the expected outcomes:

This study will cover the following standards :

- * SC.912.N.1.1 – Define a problem based on a specific body of knowledge.
- *SC.912.N.1.4 - Identify sources of information and assess their reliability.
- *SC.912.L.14.6 – Explain the significance of genetic factors.
- *SC.912.L.16.10 – Evaluate the impact of biotechnology.

Learning outcomes :

- *Students learned the general facts the different types of diabetes.
- * Students learned the basics of using lab equipment such as scales, pipettes, and microscopes.
- *Students were given experience in using university based web sites to accumulate research information.
- *Students learned that diabetes is an inheritable condition.
- *Students were exposed to lab practices and simulations to analyze biological information.

Learning outcomes will be achieved through . . .

- *Video : Diabetes.
- *Pipetting lab.
- *Balance scale lab.
- *Microscope lab.
- *Virtual lab : chemistry.
- *Computer lab (American Diabetes Association)
- *Dot-blot lab (simulation).

Data collection :

- *Pretest/ Posttest.
- *Mini Poster illustrating activities.
- *Lab reports.

ICORE summer institute Included;

- * Houda's Dot-Blot simulation.
- * Diabetes related presentations.
- * Information concerning adult stem cell technology.
- * Disposable pipettes and wells.

Budget . . .

\$200 (computer thumb drives, invisible marker, ultraviolet light).

Note : any cost above \$200 was covered by me.

Conclusion:

One of the motivating factors for selecting diabetes as a research topic was based on the high number of students and their families that suffer from diabetes. This project exposed my students to facts concerning diabetes as various stages. It is my hope that the emphasis on prevention and effectual control may have an impact on the lifestyle choices of my students.

