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4-H Science Inquiry Video Series

Abstract

Studies support science inquiry as a positive method and approach for 4-H professionals and volunteers to use for teaching science-based practices to youth. The development of a science inquiry video series has yielded positive results as it relates to youth development education and science. The video series highlights how to conduct science-rich activities for classroom-based education and afterschool programs and through 4-H club settings. With access to the videos as a training tool to teach the science inquiry process, 4-H professionals and volunteers have greater potential to provide meaningful, intentional, and impactful learning opportunities in science for youth participants.

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Introduction

Science has become a buzz word in the world of Extension 4-H programs, holding importance not only as a project area but equally as a method by which youth learn. Studies support science inquiry as being the best method and approach for 4-H professionals and volunteers across the country to use for teaching science-based practices to youth through their 4-H project areas (Lee, Linn, Varma, & Liu, 2010; Lee, Deaktor, Hart, Cuevas, & Enders, 2005; Lynch, Kuipers, Pyke, & Szesze, 2005). The science inquiry process has grown into a learning process similar to the Experiential Learning Model, a recognized best practice commonly used by youth development professionals and volunteers to develop core competencies needed for youth to thrive.

Results from the 2005 National Assessment of Educational Progress (NAEP) reports inadequate science achievement at all three grade levels tested—fourth, eighth, and twelfth grade (Heck, Carlos, Barnett, & Smith, 2012). A United States with a deficit in science literacy among school-age youth raises concerns as it pertains to the growing demand for a science literate workforce (Nelson, 1999, p. 14). The need for youth development organizations across the country to place emphasis on non-formal science education as a means to augment formal science programming occurring in the classroom is reaching new heights.

National 4-H Council and Extension 4-H programs across the country have devoted time, talent, and resources in the past several years to invoke a sense of urgency around raising up a new generation of scientists from within the 4-H program, with hopes of meeting a national shortage of scientists

entering the workforce over the next many years. A number of states have answered the call through a cadre of different mediums including: new curriculum materials, the development of new project areas, improved evaluation methods of existing science-rich programs, and through the approach of science inquiry.

Answering the Call

The Oregon 4-H Science Team, consisting of six county based 4-H professionals and one state-level specialist, have been working diligently in the development of a number of different science-rich resources. Focus of the resources has been on the science inquiry process as a means to teach youth how to recognize and dive deeper into science through both new and existing project areas.

One such approach has proven especially fruitful. Through the attainment of financial support from National 4-H Council and the Noyce Foundation, the Oregon Science Team was able to produce a series of 10 science videos specifically designed to teach how the inquiry approach can be simply conducted while yielding positive results as it relates to youth development education and science. The Oregon 4-H Science video series highlights how to conduct science-rich activities for classroom based education and afterschool programs and through traditional 4-H club settings. The goal of the videos is to demonstrate how simple it is to implement science inquiry in any 4-H project area.

Each video begins with a brief introduction to the science inquiry method as it relates to a specific topic or project area. The videos then walk the viewer through the process of how to set up each activity to produce the greatest potential impact in relation to the inquiry process. At this point the videos demonstrate the science inquiry process and activity with a youth audience, which allows viewers to observe the process within an appropriate context. Each video concludes with a brief summary of the science inquiry activity, further facilitating the learning process. The videos serve as a sample and starting place for 4-H professionals and volunteers to begin forming their own approaches to science inquiry as it relates to their specific program or project area.

The videos vary in length, with none being longer than 10 minutes in duration and are housed on the Oregon State University Extension's 4-H webpage and hosted through the YouTube Internet platform. Additionally, copies of the videos are produced on DVD, allowing 4-H professionals, volunteers, and youth to access the videos on their own time and in a location of their choice. To date the videos are being accessed online at a vast rate, with more than 2,204 views after just 1 year of being made available online. The videos can be accessed at: http://www.youtube.com/oregon4h under the following titles:

- Introduction to Science Inquiry
- Animal Color Preference
- Milk Magic
- Fabric Dying
- Worm Behavior

- Egg Crusher
- Parachutes
- Bee Buzzers
- Rocket Stompers
- Farm Animal Health

Implications and Conclusions

Through the development of the 4-H Science Inquiry video series, Oregon 4-H is working to enhance academic achievement in science for school-aged youth through the program's non-formal education approach. By providing the videos as a training tool to teach the science inquiry process and to demonstrate how to focus on science-rich activities within 4-H programs, 4-H professionals and volunteers across the state have greater potential to provide meaningful, intentional, and impactful learning opportunities in science for youth participants in the Oregon 4-H program.

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