Content for Development of a Short Film

Topic: The Nature of Science and Scientific Inquiry
Keywords: Scientific Inquiry, Investigation, Community, Scientists

Background Information:

A citizen scientist helps collect information about topics that professional scientists study. Citizen scientists often study things that professional scientists have questions about or have not had the time or resources to study. They use the process of scientific inquiry to research and analyze a problem.

In the world of butterflies, for example, scientists have many questions they want to answer with the help of citizen scientists. For example, "Are common butterflies still common or are they getting harder to find?" Another question would be, "Are butterfly migration ranges changing?" Or "Do butterflies show up earlier or later than the previous year?"

A citizen scientist explores a particular question about science by designing an inquiry that leads to a conclusion about what you've observed.

There are six steps in a scientific inquiry.

The first step would be to observe the world of butterflies around you. Figure out where they live and watch them as they go about their business. The more you watch, the more you are likely to learn, the more questions will come to mind, and the more you are likely to understand.

Based on what you've seen, what question would you want to ask? When it comes to butterflies, for example, maybe you'd like to discover why or how many different species live in a certain place, such as at the edge of a river in a field.

Once you know what question you want to ask, then you have to gather enough information to know how to design your investigation. Ask yourself: What do I need to know in order to answer my research question? What should I be looking for? And why am I looking for it? Make sure you include information that may be critical to understanding your research, such as the date, the time of day, and anything else you consider important.

Once you know what you want to look for and have enough background information on it, construct your hypothesis. Make an educated guess about what you think will happen to answer your question. Then, begin to collect your data. Take pictures as evidence. Write detailed notes in a journal or field guide.

Once you've collected all your data, you can analyze it. Look at the information in your journal and photos. Read your notes. Look for patterns and analyze your results. The investigation comes together at this point. You reach a conclusion.

The last and maybe most important part of research is to share your results with other interested people, including scientists. Today people work together more than ever. Tell the story of your quest. And maybe you can even make a film that helps others understand what you've learned.