

Name: **EXAMPLE**

Climate Science Projects

Today you are a climate scientist designing a project to protect our resources and environment. In order to conduct your research you must apply for a grant from the National Park Foundation. Only the best projects will receive funding. Your job is to create a well thought out, effective grant proposal so that you can project Mammoth Lake's environment.

Project Design and Hypothesis

- 1.) **Design a scientific question about climate change.** Think about something you are curious about. It could have to do with animals, plants, snowpack, or water flows. Your question should be something that can be answered through scientific research.

How do warmer climates affect black bear hibernation in the area around Mammoth Lakes?

- 2.) **What scientific research will you do to discover the answer to your question?** Think about the scientific research we have learned about so far this unit: scientists are monitoring the stream flows in Yosemite National Park, and scientists are monitoring the water in snowpack.

In the summertime we will put research collars on black bears in the Mammoth Lakes area. We will have biologists catch and tag the bears. Then in the winter we will monitor bear activity. We will look at the month that the bears start hibernating and the month the bears come out of hibernation. Then we will compare our data about the bear's activities to the snowpack levels and winter temperatures.

When and how often will you do your research?

We will start our research this year and continue to monitor bear hibernation over the next ten years. We will continue to put research collars on new bears in the area in the summer. We will record data in the late fall (when the bears begin hibernating) and in the early spring (when the bears come out of hibernation).

What tools/information/people will you need?

We will need tracking equipment so we can monitor the movement of the bears. We need biologists who can put the tracking equipment on the bears. We also need a computer that uploads data about the bear's movements throughout the fall and spring. Finally, we need information on snowpack levels and temperatures.

- 3.) **What do you hypothesis you will discover from your research?**

We hypothesize that bears will spend less and less amount of time hibernating as temperatures get warmer and the snowpack decreases.

National Park Foundation Grant Application

I. **Proposal Summary**

The proposal summary should be 1-3 sentences and give the reader a very general idea about your research project.

The changing climate has a huge impact on many things from plants, to weather, to water, to animals. Our project will look at how climate change impacts bears in the area around Mammoth Lakes. This information is really important to reduce problems between bears and humans, and to help bears survive in this area of the United States.

II. **Background**

*The background section should be at least 5 sentences. It should explain the problem that results in the need for your research project; i.e. climate change. Be sure to use what you have learned over the past two weeks to provide **evidence** of climate change.*

III. **Project Description**

In this section you need to provide a detailed description of your project. This can be as many sentences as you need, but remember the more details you include, explanations you provide, and better thought-out your project, the more likely you are to get funded, or money to do your project. Use what you wrote to answer question 2 to help you!

Climate change means that there is less snow and warmer days in Mammoth Lakes. This affects many animals. We would like to see how this impacts bears. How does climate change impact bears' hibernation habits in the area around Mammoth Lakes? In order to research this question, we would like to put research collars on bears to record their movements. Biologists will put the research collars on the bears in the summertime, and then in the fall we will record when the bears start hibernating. We will also record when the bears stop hibernating in the spring. We will compare this information with the snow pack for each year as well as the temperatures in the wintertime. To complete our project we will need to buy tracking and computer equipment, pay biologists, and collect information on snow pack and temperatures. We would like to study bear hibernation habits over ten years, so we can see if anything is changing.

IV. **Project Timeline**

Make a timeline of when you plan to do activities in order to accomplish your research project and get the data you need.

Spring 2014

-Purchase equipment

-Hire biologists

Summer 2014

-Put tracking collars on as many bears as possible

Fall 2014

-Record start of hibernation of bears

Winter 2014

-Record daily temperature

-Monitor snowpack

Spring 2015

-Record end of hibernation of bears

-Hire biologists

-Buy new tracking equipment (if needed)

Summer 2015

-Put tracking collars on new bears

Fall 2015 – Fall 2024

Continue bear monitoring and doing the steps recorded above

V. Outcome Proposals

This section needs to be at least 5 sentences. Assuming your hypothesis is correct, what do you plan to do with the data you collect? How will you use the data to make your community a better place?

We believe that we will discover bears are beginning hibernation later and ending hibernation early. This information is really important to reduce problems between bears and humans, and to help bears survive in this area of the United States. If our hypothesis is correct, we would like to use the information to teach people about keeping their food away from bears and respecting bear habitat in the late fall and early spring. We will also use our data to help people who care about bears to reduce their air pollution to help end climate change.