

Dealing with...

ACCElERATING Change

The COSEE Manual for
Science Camps, Fairs and
Projects



Measuring...



Warming?

Estimating...

Coping with...



**Climate
change**

Extrapolating...

**Planning
for...**



**Resulting
Social change**

Cooling?

Introduction

Change and Science Projects

Economic change, climate change, political change, social change, technological change, who can keep track of it all?

Alaskan Elders, in both urban and rural areas are saying that the animal cycles are changing, the weather is changing, and our relationship to the land is changing.

Alaska is fortunate in that our traditions and heritage are near at hand. We know where we have come from, but, who knows where we are going?

While change is unsettling, it presents a wonderful opportunity for young Alaskans to work with Elders and scientists in observing, documenting, experimenting and projecting what the future will bring. Alaska has over 33,000 miles of coastline and rivers. We have opportunities to observe wildlife like no other state in the Union. We have the ultimate opportunity.

The possibilities are endless for science projects that involve young people with the questions and answers that modern change brings every day. Rural students have one advantage. When they step out of their front door, they are in Nature's laboratory. While urban students have farther to go to reach the wilderness, they have the advantage of easy access to numbers of professional advisors.

Science projects can take several forms:

Collections. The simplest project for younger grades are collections. Students can collect leaves, shells, teeth, animal track impressions, fish bones, or anything else that excites their interest. Students measure and record sizes, colors, things that are different and things that are similar. Collections are usually organized by a theme. They record the date and location of the item included in the collection.

Experiments. An experiment is simply doing a fair test.

A young person has an interest. A problem within that interest is narrowed down to a simple question. A test is devised along with a good guess, an hy-

pothesis, as to how the test will result.

Once the test is carefully performed and recorded, the result is compared with the original hypothesis. Often the result will surprise the person doing the test. A failed hypothesis is still good science.

A student might experiment with atlatl trajectories, malleability of different metals, making glue out of salmon skins. There is no limit to the possibilities.

Observation. There are many situations where students and adults alike cannot do an experiment. The variables are out of our control. Careful observations are made, often using technology that allows a high degree of accuracy in measurement.

The volcanic ash content in a core sample of glacier ice, the feeding habits of eagles during the nesting period, the salinity of ocean water close to a fresh water river, all can be objects of careful observation.

While the results of a single observation does not provide a valid conclusion, many consistent observations over a long period of time can often bring insight that will help make political and economic changes. For thousands of years, Alaskans have been observing, comparing, and coming to precise conclusions. What conditions contribute to disastrous river flooding at breakup? What conditions contribute to a good year for blueberries? What provokes a red tide? We don't control the variables. We can only observe and think about possibilities, coming to a conclusion after years of careful observation. Some issues merely provoke curiosity. Others are vital for survival.

COSEE Alaska supports science projects that explore the ocean, climate change, and river drainages. This includes most possible science projects in Alaska, as most of us live on the ocean or river drainages, and are watching rapid climate change as it impacts our dependence on the natural resources of the State.

Change can be threatening. Change can be exciting. Those who prosper during times of change are those who have their eyes and minds open, those who apply the wisdom and knowledge of the past to anticipate what will come in the future.

Science projects are a wonderful way to explore positive solutions.