Is the Weatherman Always Right?

Brief Description
Weathermen are often criticized for being wrong about predicting the weather. How often are they right or wrong?

Product
Here you will figure out just how accurate they are by watching the weather predictions and then charting what actually happens. You will create an analysis of the accuracy as well as how weather patterns move across the United States.

Content Area
Science

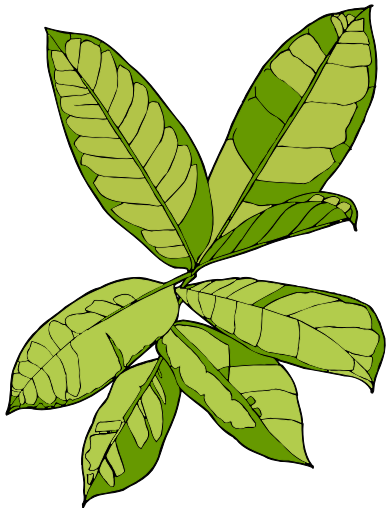
Learning Objective(s)s
Record local weather by measurable quantities such as temperature, wind direction, wind speed, precipitation, and barometric pressure.
Trace how weather patterns generally move from west to east in the United States.
Analyze a series of events, describe the patterns and infer the next likely occurrence.

Inspiration Starting Point
Go to www.weather.com, enter your zip code and see what the weather is supposed to be like. Compare that with what the weather is really like outside.

Estimated Time of Project
Three weeks

Suggested Materials
Access to channel with weather or a newspaper
Thermometer

Who's Got a Green Thumb?



Brief Description
Do you have what it takes to grow plants? Do you understand how the process for plants works and how its life cycle works?

Product
You will plant a series of plants under different conditions to see which one is the most successful and why. From this you will draw conclusions about how different soil grows plants at different rates as well as learning about life cycles and plant structures of different plants and their characteristics.

Content Area
Science

Learning Objective(s)s
Compare the life cycles of different plants including germination, maturity, reproduction, and death.
Relate plant structures to their specific functions.

Inspiration Starting Point
Learn a little bit about scientific plant names with the Pair the Plant Names worksheet

Estimated Time of Project
Six months

Suggested Materials
Soil
Seeds
Sunlight
Patience

A Hero Just Ain't a Type of Sandwich

Brief Description
Spider-Man was created when a radioactive spider bit him on the hand. The Fantastic Four got their amazing powers when they were exposed to a cosmic storm in space. The Hulk was exposed to gamma rays which turned him into a monster every time he got angry. Science has created many of the superheroes we have come to enjoy.

Product
You will create a new superhero, drawing a comic book chronicling the adventures of this superhero who got his/her power from a scientific accident. The origin must explain what scientific principles caused the powers and how they work. The powers must be one of the following;

- Controlling the wind
- Controlling the weather
- Create ice
- Cause physical changes
- Cause chemical changes
- Change into different states (i.e. solid, liquid, gas)
- Raise or lower temperature

Content Area
Science/English/Art

Learning Objective(s)s
Science
Whichever power is chosen must be explained using the standard.
Use organizational strategies to plan writing.

Inspiration Starting Point
Read Spider-Man comic

Estimated Time of Project
Two weeks

Suggested Materials
Drawing paper
Pencils/pens/markers

The Magic of Water

Brief Description
Water is often described as the elixir of life from where all things come and yet water can take so many different forms and do so many different things. Look at the many forms and uses of water and determine just how important this liquid is to our lives. How would life be different if we did not have water? Would we be able to survive at all?

Product
Create a product that shows the importance of water. It can be an informational report, presentation, or even a demonstration. It must identify how water exists in the air in different forms and how those forms come to be. It must also investigate how water changes from one state to another and why this is.

Content Area
Science

Learning Objective(s)s
Identify how water exists in the air in different forms.
Investigate how water changes from one state to another.

Inspiration Starting Point
Read over the importance of water and look over the two experiments involving it

Estimated Time of Project
One to two weeks

Suggested Materials
Research material on water
Presentation supplies to inform others of your findings

Leaf the Rest to Me

Brief Description

Trees and plants have very distinctive leafs, much like humans have fingerprints that make us unique. You can identify a tree many times by the shape, feel, or color of the leaves.

Product

You will gather a collection of leaves that represent the different plants and trees that grow around your neighborhood. In addition to identifying the plant the leaf comes from, you must also present information on the other parts of the plant such as seeds, roots, and stems.

Content Area

Science

Learning Objective(s)

Classify common plants according to their characteristics.

Inspiration Starting Point

Compare the two different leaves and try to figure out what plant or tree they belong to using the website www.oplin.org/tree/

Estimated Time of Project

Two to three weeks

Suggested Materials

Posterboard
Information on different plants

Change is Good, or Is It?

Brief Description
Objects can go through physical changes such as heating water can take it from a liquid to a gas, or chemical change such as burning paper can change it from a solid to a gas. What are some more examples of these changes and the advantages and disadvantages to physical and chemical changes?

Product
You will create a demonstration that shows an example of each of these changes to the class. The demonstration must clearly explain each of the changes, how and why they occurred, and the difference between them.

Content Area
Science

Learning Objective(s)s
Identify characteristics of a simple physical change.
Identify characteristics of a simple chemical change.

Inspiration Starting Point
Complete the physical versus chemical changes worksheet

Estimated Time of Project
One to two weeks

Suggested Materials
Materials to demonstrate changes
Information on physical and chemical changes

Conduct Your Own Experiment

Brief Description

The scientific method is a specific order of conducting an experiment so that if anyone else wanted to replicate your experiment, they could. You could figure out which tastes better, Dominos or Pizza Hut pizza, or how long does it take a bar of soap to dissolve in water?

Product

You will choose a problem you would like to solve and set the experiment up. You must go through the steps of the Scientific Method and explain your experiment to the class in detail so that if they too wanted to conduct the experiment they would understand how.

Content Area

Science

Learning Objective(s)s

Develop, design, and conduct safe, simple investigations or experiments to answer questions.
Formulate instructions and communicate data in a manner that allows others to understand and repeat an investigation or experiment.

Inspiration Starting Point

Look over the steps to the scientific method

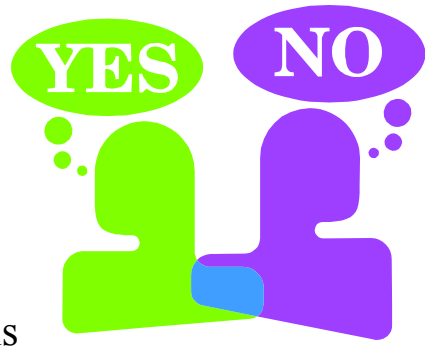
Estimated Time of Project

Two to three weeks

Suggested Materials

Somewhere to record your data

Is It Fact or Opinion?



Brief Description
There are many opinions out there; who makes the best ice cream, what is the best television show, which is better dogs or cats? There are also opinions that we think are facts. For instance, at one time in the world, scientists were convinced the sun revolved around the earth instead of the other way around or that the earth was flat. These are called theories which we consider facts until otherwise proven. For instance, black holes, presented in the science book as a scientific fact, are only a theory because no one has ever seen a black hole up close. The way dinosaurs behaved is total theory because there are no dinosaurs left alive to observe the theories.

Product
Choose a scientific theory and investigate the facts and opinions behind it. Come to your own conclusion as to whether this is a scientific fact or still needs to be proven.

Content Area
Science

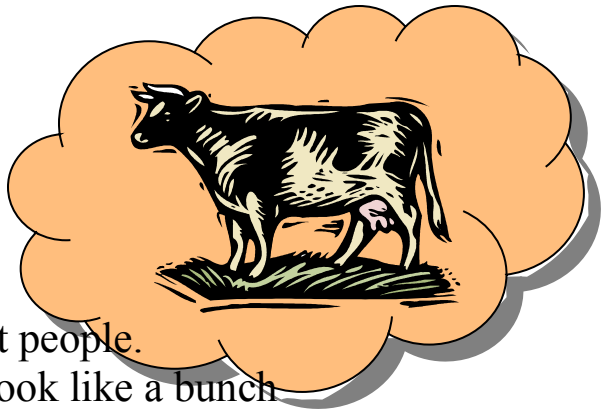
Learning Objective(s)
Differentiate fact from opinion and explain that scientists do not rely on claims or conclusions unless they are backed by observations that can be confirmed.

Inspiration Starting Point
Read about the theory of the planet Vulcan

Estimated Time of Project
Two to three weeks

Suggested Materials
Research from multiple sources on a specific scientific theory

What Do You See in the Clouds?



Brief Description
Clouds can form different shapes to different people. What one person might see as a cow might look like a bunch of grapes to someone else.

Product
Using your imagination, you will spend a series of days outside charting your own shapes you see in the clouds. In addition, you must identify the cloud cumulus, cumulonimbus, cirrus, or stratus and the type of weather that accompanies these clouds. You will record this all in your cloud journal and then present your findings with drawings, models of the clouds using cotton balls, or whatever you choose.

Content Area
Science

Learning Objective(s)
Describe the weather which accompanies cumulus, cumulonimbus, cirrus, and stratus clouds.

Inspiration Starting Point
Look at the different types of clouds.

Estimated Time of Project
Two to three weeks

Suggested Materials
Journal to keep track of findings
Materials for presentation

Volcanoes, Earthquakes, and Landslides, Oh My!

Brief Description
The Earth's surface can change quite rapidly with the occurrences of things such as volcanoes, earthquakes, or landslides.

Product
Research one or all of the rapid processes, why they happen, what conditions must be present for them to occur, and how they change the Earth's surface for the better or worse. You can also include a simulation of one of the events, showing the steps that take place in it.

Content Area
Science

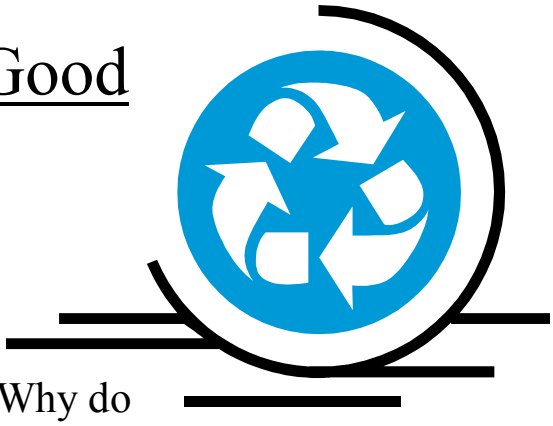
Learning Objective(s)
Describe events of changes on Earth's surface in terms of rapid processes such as volcanic eruptions, earthquakes, and landslides.

Inspiration Starting Point
Read about the effects a volcano had on the ancient city of Pompeii

Estimated Time of Project
Two to three weeks

Suggested Materials
Research information on one or all of the rapid occurrences
Materials to create a simulation

Recylcing, huh! What's It Good For?



Brief Description
We are very big into recycling in order to help the environment. The questions is, how exactly does recycling help the planet? Why do we recycle such things as paper, plastic, glass, and metal but not others? How do we describe objects by properties of the materials from which they are made?

Product
You will describe the different properties that glass, paper, plastic, and metal are made of and how these items can be recycles into new items. You must also explain the benefits and possible harms in doing this. You will also organize a recycling campaign either at your home, neighborhood, school, church, or other organization.

Content Area
Science

Learning Objective(s)
Describe objects by the properties of the materials from which they are made and that these properties can be used to separate or sort a group of objects.

Inspiration Starting Point
Read the article "Why Reduce, Reuse, and Recycle?"

Estimated Time of Project
Three weeks to a month.

Suggested Materials
Research on recycling and the properties of materials
Boxes to collect recyclables

The State of Matter

Brief Description
No this is not a territory in the Southwest. Matter are objects and they exist in different states such as a solid, liquid, and gas. Each of these forms has a distinct physical property. Some objects such as water can even exist in all three states.

Product
You must explain that matter has different states either in a paper or presentation, describing the distinct physical properties. You must also show why different objects exist in the different states and include things that can be two or more of the different types of matter. This can be in the form of a demonstration of some sort.

Content Area
Science

Learning Objective(s)
Explain that matter has different states and that each state has distinct physical properties.

Inspiration Starting Point
Conduct the experiment of the matter of water

Estimated Time of Project
Two to three weeks

Suggested Materials
Research on the types of different matter
Materials to conduct the demonstration

How to Build a Mountain

Brief Description

Wind, water, and ice can shape and reshape the Earth's land surface, either adding or subtracting from them and creating entirely new objects. Entire mountains are created using this process over a period of several hundred, maybe thousands of years.

Product

Describe how wind, water, and ice have shaped the land surface of our planet and just how they do this. How are things such as deltas, dunes, glacial moraines, and even mountains forms using this process? It should also include a demonstration of some sort that shows this process and how it works.

Content Area

Science

Learning Objective(s)

Describe how wind, water, and ice shape and reshape Earth's land surface by eroding rock and soil in some areas and depositing them in other areas producing characteristic landforms.
Identify and describe how freezing, thawing, and plant growth reshape the land surface by causing the weathering of rock.

Inspiration Starting Point

Read about the Antarctic Ice Shelves.

Estimated Time of Project

Two to three weeks

Suggested Materials

Research on how Earth's land surface can be affected
Materials to create a demonstration

Same Experiment, Different Results

Brief Description

Scientists must be able to control the conditions of an experiment otherwise the results might be affected by these outside forces and not give an accurate result. For example, if you were to try to determine how far a baseball can be thrown, the weather conditions such as wind, rain, or the strength of the two throwers would make a large difference and affect the outcome.

Product

You will conduct the same experiment twice, once under a tight control not allowing any outside forces to affect it, the other not being so concerned about it. After running both experiments, compare and contrast the results and how each experiment was affected by these different conditions.

Content Area

Science

Learning Objective(s)

Explain the importance of keeping conditions the same in an experiment.
Describe how comparisons may not be fair when some conditions are not kept the same between experiments.

Inspiration Starting Point

Read what can happen when you don't control an experiment

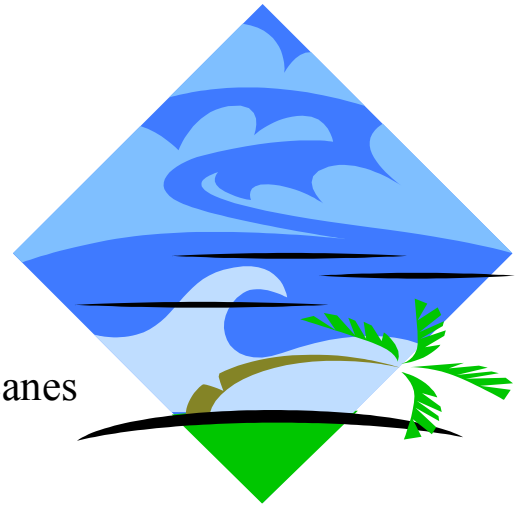
Estimated Time of Project

Two to three weeks

Suggested Materials

Materials to conduct the experiment

Here Comes the Story of the Hurricane



Brief Description

The weather has taken its toll on the world with the hurricanes commonly hitting both the Louisiana area and Florida. What causes hurricanes in the first place and what weather conditions must exist to make one stronger than another?

Product

Research exactly what a hurricane is and what sort of weather patterns and measurable quantities must come together to form a hurricane? You may create a simulation hurricane or a presentation/demonstration of the effects of hurricanes and how different wind speeds and barometric pressure cause them to be classified in different categories.

Content Area

Science

Learning Objective(s)s

Explain that air surrounds us, takes up space, moves around us as wind, and may be measured using barometric pressure.
Describe weather by measurable quantities such as temperature, wind direction, wind speed, precipitation, and barometric pressure.

Inspiration Starting Point

Read about the causes of hurricanes Katrina and Rita

Estimated Time of Project

One to two weeks

Suggested Materials

Research on hurricanes
Materials to simulate/demonstrate a hurricane