PLAN "L": SCIENTIFIC METHOD

Big Foot and the Scientific Method –

- Brief history of "Big Foot"
- Evidence, hearsay, apophenia, the power of suggestion
- Observations
- Variables
- Setting up an Experiment

Name: _____ Date: _____

BIG FOOT & THE SCIENTIFIC METHOD

It is estimated that 29% of all Americans, and 21% of all Canadians believe that Big Foot is most likely real. "Big Foot" as we call the legend in America, has several other names depending on location: Yeti, Yowie, Sasquatch, and Yeren.

The legend of Big Foot can be traced back to ancient civilization in Native American art. Mostly cave drawings and Sasquatch-type creatures found in Totem poles of some tribes. Not all tribes used Totem poles in their customs; they were limited to the tribes along the coasts of Western Canada and Northwestern America. Coincidentally, most of the alleged Big Foot sightings tend to take place within the same area.

The term "Big Foot" didn't arise until 1958. Jerry Crew, a lumber jack in Eureka, CA, noticed some footprints near a bulldozer on a job site one morning. He thought nothing of them until he sat in it and looked down, noticing that they were giant. He immediately drove back down to meet his boss and tell him what he'd seen. Eventually, he spoke to a taxidermist who suggested he make a cast of the footprint after other methods failed. The cast was nicknamed "Big Foot".
In 1924, a Canadian lumberjack named Albert Ostman claimed a family of Sasquatches seven to nine feet tall captured him while he was working. Ostman said he stayed with them for a week before he was able to slip away.



The same year, a group of miners near St. Helens, Washington shot at a large, hairy ape-like creature from a distance. That night as they lay sleeping in their cabin, they heard screams and rocks being thrown at the cabin. Also that same year, a park ranger allegedly experienced the same phenomenon of Sasquatches attacking his cabin. He hid under the bed sleepless until the morning. When he emerged he saw that large footprints surrounded the cabin.

These are just a few of the stories of encounters with Sasquatch creatures. Ostman's story seemed to have one major flaw: he claimed that the family of Sasquatches ate roots, grass and spruce tips. An ape of that size could never survive on such little protein. However, some time later a traveller named Glen Thomas claims he spotted a family of Sasquatches digging and removing large rocks and boulders, and eating the small animals that lived underneath. When investigators returned after Thomas' claim, there were allegedly dozens of holes dug with uplifted boulders weighing as much as two hundred pounds. But where's the proof? All of these stories are **hearsay: a statement that is heard from others that does not contain substantial evidence; a rumor.**

In order to prove something, **evidence** is required. **Evidence** can be a wide range of bodies of information or facts that indicate whether or not a belief or a situation is true and valid. The belief in this case is the existence of Big Foot. Since Jerry Crew's cast of Big Foot in Bluff Creek, there have been countless fakes and hoaxes, including footprints and suits. Still, no one has evidence of a real, live, breathing Big Foot.

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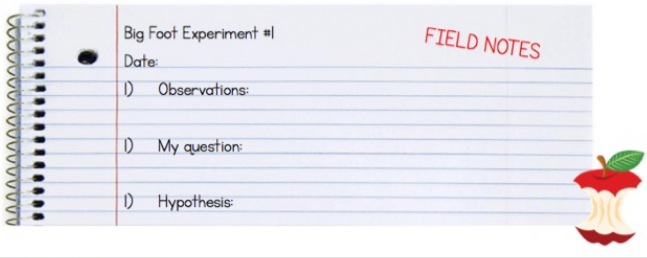
In order to properly study Big Foot, you would need to design an experiment based on the Scientific Method. The Scientific Method when used properly can help obtain evidence and theories, while avoiding the power of suggestion and conflicts of interest. The steps are as follows:

Observation and Question: Make observations about a natural phenomenon and form a question.
Collect Data: Collect whatever data you can prior to forming your hypothesis.
Hypothesis: A possible explanation for the phenomenon; MUST be a testable explanation.
Experiment: Design your experiment by using at least two groups
A control group: a group that is not affected by your experiment; remains untouched.
An experimental group: a group that IS affected by your experiment (used to compare to the control group). The experimental group contains a variable known as the **independent variable: this is what you are adding to the experiment to make it different from the control group. (An example might be apples! Hint! Hint!)**
A proper experiment contains these two groups, and is also set up in a way that it can be replicated.

Dependent Variable: What you are measuring throughout the experiment. It can be quantitative (such as a number or amount), or qualitative (such as a color, smell, or the presence of Big Foot).

Analyze Data and Draw Conclusions: the final step in the experiment. The experiment should be repeated to see if the same results are obtained. If the same results are the same over and over again, a **theory** is born! A theory is an idea used to predict or explain something.
However, if the results are not the same, then the test may be flawed or ineffective.

Hypothetical Situation: A small town in Idaho has had a few eyewitness accounts of what they claim to be Big Foot coming to their house at night. Some say that he digs through the trash; others say that he just lurks in the backyard, and some say he can show signs of aggression such as rock throwing and whooping. Big Foot shows up at random times, but the townspeople swear that he likes apples, and that he may be digging for apples in their trash cans, and howling if he doesn't find them! The townspeople are volunteering their neighborhood and houses/yards to use in your experiment. You can set them up however you see fit.
You are the scientist of the group. ***Your job is to determine if Big Foot likes apples or not.*** Your field notes are below. Use information from the reading about to fill out numbers 1-3.



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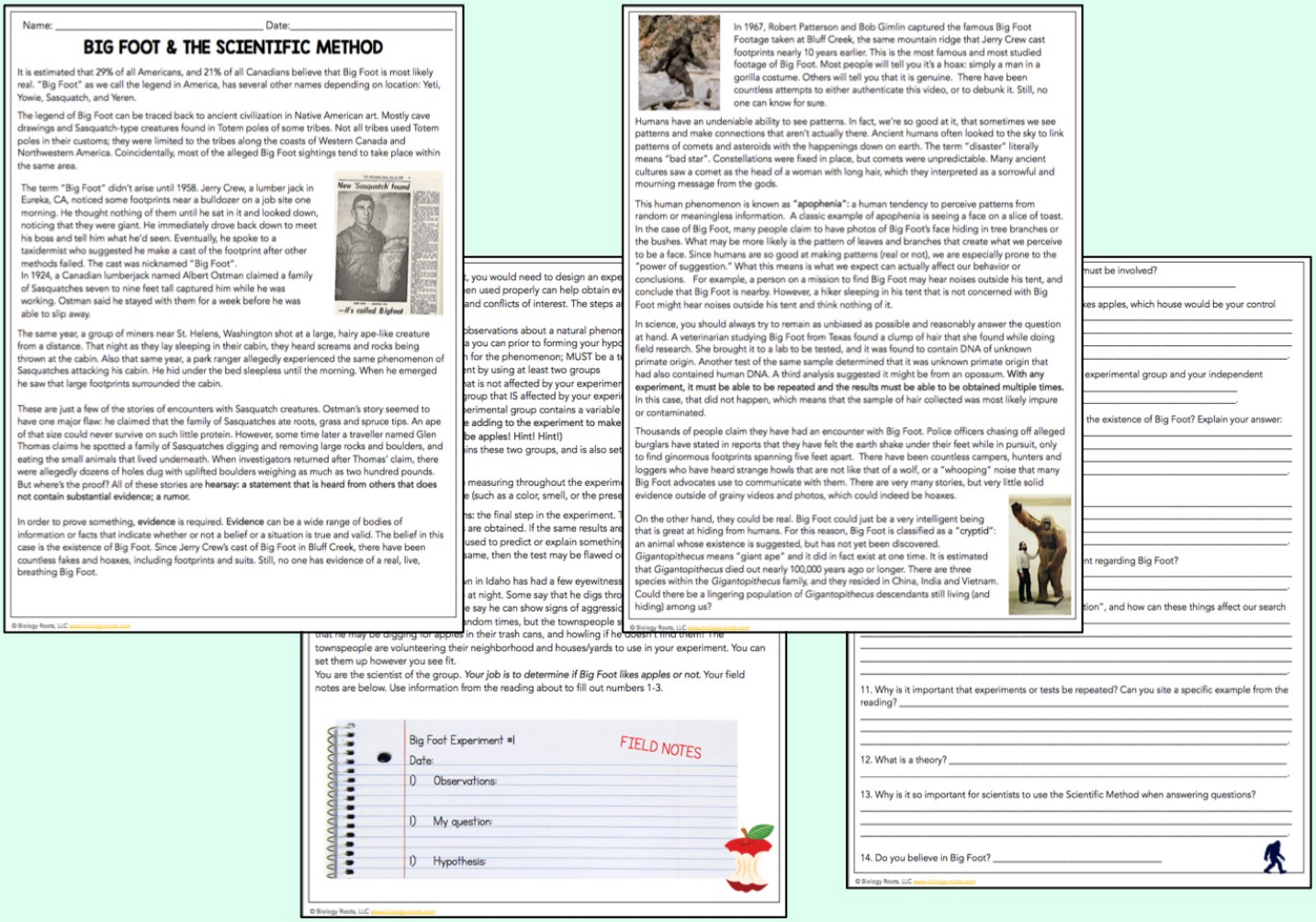
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New 'Sasquatch' found
—it's called Bigfoot

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In 1967, Robert Patterson and Bob Gimlin captured the famous Big Foot Footage taken at Bluff Creek, the same mountain ridge that Jerry Crew cast footprints nearly 10 years earlier. This is the most famous and most studied footage of Big Foot. Most people will tell you it's a hoax: simply a man in a gorilla costume. Others will tell you that it is genuine. There have been countless attempts to either authenticate this video, or to debunk it. Still, no one can know for sure.

Humans have an undeniable ability to see patterns. In fact, we're so good at it, that sometimes we see patterns and make connections that aren't actually there. Ancient humans often looked to the sky to link patterns of comets and asteroids with the happenings down on earth. The term "disaster" literally means "bad star". Constellations were fixed in place, but comets were unpredictable. Many ancient cultures saw a comet as the head of a woman with long hair, which they interpreted as a sorrowful and mourning message from the gods.

This human phenomenon is known as **"apophenia"**: a human tendency to perceive patterns from random or meaningless information. A classic example of apophenia is seeing a face on a slice of toast. In the case of Big Foot, many people claim to have photos of Big Foot's face hiding in tree branches or the bushes. What may be more likely is the pattern of leaves and branches that create what we perceive to be a face. Since humans are so good at making patterns (real or not), we are especially prone to the "power of suggestion." What this means is what we expect can actually affect our behavior or conclusions. For example, a person on a mission to find Big Foot may hear noises outside his tent, and conclude that Big Foot is nearby. However, a hiker sleeping in his tent that is not concerned with Big Foot might hear noises outside his tent and think nothing of it.

In science, you should always try to remain as unbiased as possible and reasonably answer the question at hand. A veterinarian studying Big Foot from Texas found a clump of hair that she found while doing field research. She brought it to a lab to be tested, and it was found to contain DNA of unknown primate origin. Another test of the same sample determined that it was unknown primate origin that had also contained human DNA. A third analysis suggested it might be from an opossum. **With any experiment, it must be able to be repeated and the results must be able to be obtained multiple times.** In this case, that did not happen, which means that the sample of hair collected was most likely impure or contaminated.

Thousands of people claim they have had an encounter with Big Foot. Police officers chasing off alleged burglars have stated in reports that they have felt the earth shake under their feet while in pursuit, only to find ginormous footprints spanning five feet apart. There have been countless campers, hunters and loggers who have heard strange howls that are not like that of a wolf, or a "whooping" noise that many Big Foot advocates use to communicate with them. There are very many stories, but very little solid evidence outside of grainy videos and photos, which could indeed be hoaxes.

On the other hand, they could be real. Big Foot could just be a very intelligent being that is great at hiding from humans. For this reason, Big Foot is classified as a "cryptid": an animal whose existence is suggested, but has not yet been discovered.
Gigantopithecus means "giant ape" and it did in fact exist at one time. It is estimated that *Gigantopithecus* died out nearly 100,000 years ago or longer. There are three species within the *Gigantopithecus* family, and they resided in China, India and Vietnam. Could there be a lingering population of *Gigantopithecus* descendants still living (and hiding) among us?

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Big Foot Experiment #1
Date:
FIELD NOTES
1) Observations:
1) My question:
1) Hypothesis:

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must be involved?

xes apples, which house would be your control

experimental group and your independent

the existence of Big Foot? Explain your answer:

nt regarding Big Foot?

tion", and how can these things affect our search

11. Why is it important that experiments or tests be repeated? Can you site a specific example from the reading?

12. What is a theory?

13. Why is it so important for scientists to use the Scientific Method when answering questions?

14. Do you believe in Big Foot?

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Big Foot and the Scientific Method – 4 pages

This takes a psychological spin on Big Foot's suggested existence and why it is so important that we use the scientific method. Students form an experiment trying to lure Big Foot with apples.

This does not try to dismiss the idea of Big Foot nor convince students that he exists. Rather, it focuses on the legend, and why it would be so hard to actually prove he exists.

Students must try to design an experiment using their "field notes".

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