

Hello 6th Grade Science Students,

Below are 10 activities for you to choose from. These activities range from research to experiments. Most of these are “hands on” and will strengthen your knowledge of the Scientific Method. Have fun and be creative! Feel free to submit your work to your science teachers. We would love to see what you have come up with!

Stay healthy!

6th Grade Science Team

Mrs. Carson - kimc@banks.k12.or.us

Mrs. Dotson - shannond@banks.k12.or.us

Ms. Zakrevsky - marleez@banks.k12.or.us

Beaverton SD Middle School Supplemental Materials:

<https://www.beaverton.k12.or.us/departments/library-services/remote-learning/middle-school>

Activity 1

- Using materials at home, create a device that will keep ice from melting. Test your design and record your findings. (For more information you can view the following activity: [Building a Cooler](#))
- After you have conducted your experiment, think about what you learned and how it relates to a lunch box or cooler.
 - If you want to keep something cold, is it better to leave the cooler lid open or closed?
 - If you need to keep something cold for a long time, would you use a lightweight, thin-walled cooler or a cooler with thicker walls? How does what you learned in this activity impact how you might pack your lunch or a picnic?
- <https://www.scientificamerican.com/article/build-a-cooler/>

Activity 2:

Investigate how the world has changed over time, with satellite images from space!

- Go to [NASA's World of Change Website](#) and choose one of the image sets to examine.
- <https://earthobservatory.nasa.gov/world-of-change>
- Write a [claim-evidence-reasoning](#) paragraph that explains what change is happening (claim), how we know the change is happening based on the images (evidence), and why that evidence makes sense in terms of science concepts and the overall pattern (reasoning).

- <https://docs.google.com/document/d/1tLOPXTAdu0Rr5vLQhjh3tkB49VW9xZWYZSYzxTWkPCk/edit?usp=sharing>

Activity 3:

Read [this article](#) on how one school makes more energy than it uses.

- What is one action you could take to help your school/home/community?
- <https://newsela.com/read/net-zero-school/id/2001005818/>

Activity 4:

- Challenge: Using materials from around the house and outside, design a nest that would hold an egg.
- OBSERVATIONS: Go outside and see if you can spot any bird nests. If you find one, observe it carefully from a distance—but don't get too close and disturb the nesting birds or eggs! Can you tell what materials the nest is made of? If you can't find any bird nests outside, look on the internet to find photos of bird nests. How many different types of nests can you find? What are the nests made out of?
- PROCEDURE- BUILD YOUR NEST Collect materials you can pick up easily considering. "What materials do you think would make a good nest? Do any of them match the nests you saw in person or online?" Use your collected materials to build a nest that will be able to safely hold at least one egg.
- TEST YOUR NEST (gently at first). Can you blow on it or place an egg inside it? Does the nest fall apart or stay together? If it falls apart, what can you change to make it sturdier? For more information, check out the following activity [Build a bird nest](#)

Activity 5:

- [Read](#) about how the Mars Rover receives instructions.
- Then create a Mars obstacle course.
- <https://www.scientificamerican.com/article/mars-rover-obstacle-course/>

Activity 6:

- Design an experiment to test how much weight a strand of hair can hold.
- Suggested materials:
 - At least one hair strand, Paper clip, Tape, Small plastic bag, Small items to use as weights (such as pennies or marbles)

- Make a hypothesis and test your idea. How does the hair hold up with increasing weight? How much weight was the hair able to carry? Was it more or less than you predicted in the beginning?
- Want more guidance? Check out this [website](#).
- <https://www.scientificamerican.com/article/test-the-strength-of-hair/>

Activity 7:

Read [The scientist who played rock music for ladybugs](#) article and respond to the following prompt

- Based on the article, what experiment would you like to design next?
- What data would you need to collect to support your hypothesis?
- Record your ideas.
- <https://newsela.com/read/rock-music-experiments/id/2001004523/>

Activity 8:

- Check out the color changing milk experiment [here](#)
 - Draw a picture that explains how this works
 - Are there other variables related to this experiments that you might like to try?
 - <https://thekidshouldseethis.com/post/17886032604>

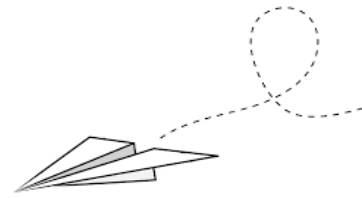
Activity 9:

- Paper Airplane Challenge:
 - Try throwing a paper airplane by moving just your wrist (don't move your elbow or shoulder).
 - How could you get a paper airplane to fly far if you can use only a short distance to launch it?
- Design an airplane launcher using Paper, Rubber bands, paper clips and tape or a stapler
- Want more guidance? Check out this [website](#):
<https://www.scientificamerican.com/article/build-a-paper-airplane-launcher/>

Activity 10:

- Watch [this video](#) on how to reduce the spread of germs.
- Develop a PSA or comic that would explain this idea to others.
- <https://thekidshouldseethis.com/post/proper-handwashing-an-animation>

The Science of Paper Airplanes



Scientific Method	Notes
Question	What do you want to know? Our topic is paper airplanes
Research	How does aviation work? What are the different kinds of paper airplane designs? What makes an airplane fly? https://www.foldnfly.com/#/1-1-1-1-1-1-1-1-2
Hypothesis	Based on your research what did you learn? How will this new knowledge help you select a paper airplane design?
Materials	List all the materials you will need to conduct your experiment
Experiment	What are you testing? How many trials? Create a data table Set up experiment
Observations	Take measurements Record data in table
Analyze Data	What does your data show? What did you learn? Organize data into a graph

Report Results

Summary of experiment

Restate hypothesis

What your hypothesis correct or incorrect? Why?

What would you do differently

Science Inquiry: Create an Experiment

FORMING A QUESTION ~ Observe something. Discuss and write what you know and what you want to know about the topic. Design a **testable** question. The question should not be answered by a simple yes or no.

Question: _____

BACKGROUND INFORMATION ~ Research. Gather information about the gummy worms. Explain in your own words the research you gathered. How does the research relate back to your question? If you need more space, attach notebook paper to the end of this packet.

Background Information (Research): _____

SOURCES: Record the place where your research was collected. This can be a list of the

websites, book titles, etc. Wikipedia is not a scientific source.

Resource: _____

Resource: _____

Resource: _____

DEVELOP A HYPOTHESIS ~ This is your educated guess, based on research. It is written as a "because" statement. Example: I predict _____ will happen *because* _____ .

Hypothesis: _____

DESIGNING THE INVESTIGATION

Materials List: Be specific in listing all the materials used. Think about measurements, tools and supplies needed to create the experiment. List " $\frac{1}{4}$ cup room temperature tap water" not "water." Don't include obvious items such as "your brain."

Variables: These are the things that are changing in an experiment. Identify the independent, dependent and control variables in your experiment.

COLLECTING AND PRESENTING THE DATA:

This is where you make observations of your experiment. You will be creating a table to collect this information. Include the date and time of each observation as well as detailed notes and specific measurements. You will create a graph using this information.

1. Observations: These can be made every 5 minutes, hour, day, etc. The observation increments depends on your experiment and what you think would be appropriate.

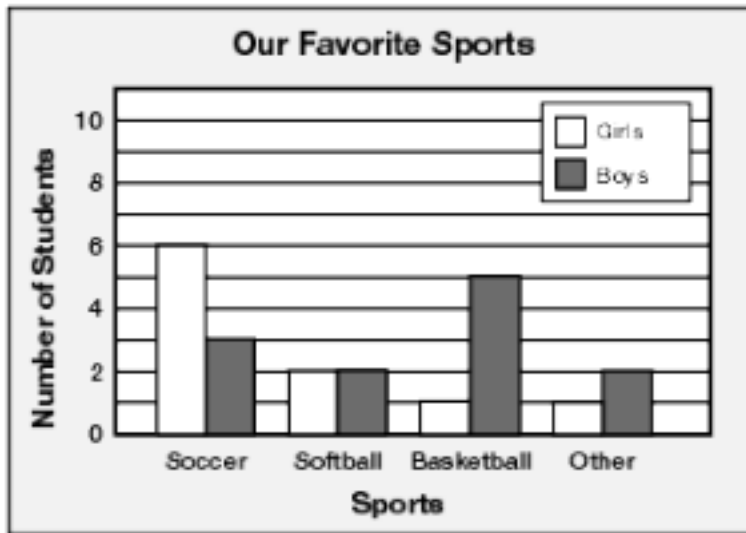
Observation Table: (If you want to create your own go ahead)

<u>Time</u>	<u>Observations</u>

Graph: Create a bar graph using graph paper that displays the results. Make sure the graph

is labeled correctly.

Bar Graph Example:



ANALYZING AND INTERPRETING THE RESULTS

Summarize Results/Conclusion: The questions below need to be answered using complete sentences.

Was your hypothesis supported by your experiment or unsupported? Explain why and use key facts from your experiment.

Refer back to your question, research and hypothesis. Does your experiment support your research? Begin your statement with, "In conclusion..."

Animal Research

This is a research project on an animal or plant either native to Oregon or from your World Expo country.

Various research requirements: (You do not need to do all of these)

Scientific name

Diet

Predators

Prey

Biome

Interesting Facts

Food Chain

Total Population in the state or country

Places it is found in most abundance

Personal Experience with creature or plant

Why you chose it.

Project Ideas:

Diarama

Paintings

Clay

Poster

Build the creature from various materials at home

Whatever else you think of

Have fun!