



Free Horizon Montessori – Science and Engineering Fair Primary & Lower Elementary Planning Packet

Use this planning packet to guide your project. Follow each step. This is meant as a guide to help you finish your project on time. You do not need to turn it into your teacher, but you will have frequent check-ins.

Student(s) Name: _____

Done?	Things to do
	Research your topic and write down or draw key words and ideas.
	Think about how you can answer the question you want to answer or solve. Is there an experiment you can do?
	Write what you think the outcome will be of your experiment, collection, test or research.
	Write or draw your plan (steps you plan to follow) to do your experiment, collection, test or research. Include the materials you are going to need.
	Gather the materials you need to do your experiment or test.
	Follow the steps you planned for your experiment. Write down what happens during this test.
	Draw or create a Table, Chart or Graph that shows the information you collected from your research, collection, experiment or test.
	What did this information tell you? What are the conclusions?
	Make a project display. You can make it on the computer or you can draw your charts by hand.
	Write a summary of your project. Use your own words.
2/20/19	All projects due in classroom. This includes your project display and this project planning packet.
2/21/19	Parents can come view all the projects after school. These will be set up and ready for the Science & Engineering Fair.
2/22/19	Present your project at the Science & Engineering Fair.

1. Research Your Topic.

Spend some time learning more about your topic. Use reliable internet sources, books and magazines from the library, talk to people who know about the subject, or use other resources. Remember, anyone can create a web site; this does not mean its information is correct! Websites that end with “.org”, “.gov” or “.edu” are generally trustworthy for accuracy of content. Not only do you want to be an expert on your topic, but you want to teach others about your topic, so make sure you understand your research and can put it in your own words.

- A. Key Words – Locate at least 3 key words related to your topic. Make sure that the words you choose are directly related to your topic. Provide a definition of each key word IN YOUR OWN WORDS. (Your parents can help you write down your thoughts.)

Key Word	Definition

- B. Key Resources

Resource title/website	Information found (brief listing in own words)

2. **What you think will happen.** (your Hypothesis (S) or Problem Statement (E)):

After you have done your research, you can then take a guess about what is going to happen when you conduct your experiment, collect your materials, finish your project or learn from your research. Decide what you think the outcome of the project will be or solution to the problem you observe. Make a good guess as to what you think the answer to your question will be, **IN YOUR OWN WORDS**. “If (I do this), then I think (this will happen), because (your reasoning for thinking it will happen)”. For example: **If** I plant bean seeds in clay, sand and potting soil, **then I think** the beans will grow bigger in the potting soil **because** potting soil has more nutrients than sand and clay.

Remember, it is ok if you do not have the right answer; that is how scientists and engineers make discoveries. Sometimes you learn more from getting the wrong answer! Remember, use **YOUR OWN WORDS**. (Your parents can help you write down your thoughts.)

3. **Design your Research, Experiment or Test.**

Now that you have a question to investigate and have guessed what you think will happen, it is time to design the experiment or test that will allow you to investigate the question.

A. Identify the variables: Variables are any factors/features that can change or be changed in an experiment or test. List the variables that you are going to keep the same, and the one variable that you are going to change. In changing this one variable you can see if your guess is correct.

B. List the steps: Create a list of steps so that you can perform the experiment, test or research again exactly the same way or someone else could follow your steps to do the same things. Think through each step and list them in order. Indicate how the variable is being changed and how you will record your findings.

C. Gather materials: List or draw a picture of all the materials you will need to complete your research, experiment or test. Also, include all the equipment you will use to conduct the research.

D. Conduct the Research, Experiment or Test

Now that you have all of the important steps planned, it is time to conduct your test or experiment. Gather your materials, have adult supervision and get started. Follow your steps. Be sure to take or draw plenty of pictures and record what you see and any measurements. Did anything change? Did anything stay the same? What created the change?



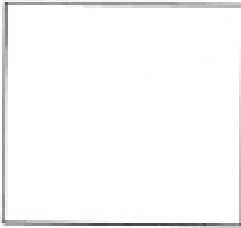


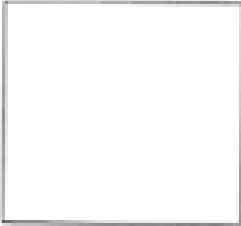

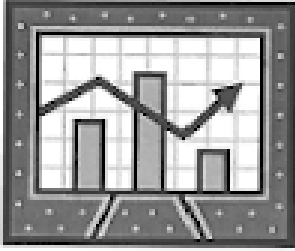
E. Conclusions.

After you have determined the results it is time to decide the answer to your original question. IN YOUR OWN WORDS, share if your original idea was correct or successful. If not, share why you think it wasn't correct. Tell about any problems or difficulties that you had in doing the experiment and what you might do differently. Be sure to include what you learned from the experiment and any ways that you can use that information in real life.

Display Board

Now that you completed your experiment, test or research, you will make a display board to share the results with others. Your display board should have as many of the following parts as you can in the locations identified below. You can write the information neatly or type it. Use the pictures you took or drew during the experiment and any graphs that you made. Your parents can help you.

Display Board

Hypothesis or Problem Solution 	Question 	Results 
Key Words and Research 	Photos or Drawings 	Conclusion 
Procedure and Materials 	Graphs 	

At the Fair

You will bring your display board and any additional project items to show about your experiment, test, or research to school and share them with your teachers, your friends, and with judges. The judges will ask you questions about your project like: “What was the question or topic you researched?” “What resources did you use for your research?” “How did you perform your experiment?” “What results did you observe?” “What did you think was going to happen in your experiment?” “Is that what actually happened when you did the experiment?” “What would you do differently next time?” “What did you learn from your project?”

Use your own words to answer the questions and share any of the information that you found most interesting or surprising! Don’t worry if you don’t have an answer to every question. The judges just want to know how you approached your project and what you learned in the process! They may share suggestions based on their own experience and knowledge.