[1]Name_____Period_____Date_____

Scientific Inquiry Work Sample

FORMING A QUESTION AND A HYPOTHESIS

You will begin the inquiry process by writing a question to be tested and a hypothesis that answers your question.

Question:

Hypothesis:

In order to pass this section, the following must be true:

- ☐ Question/hypothesis can be answered/tested using data gathered in a scientific investigation.

Supporting Evidence for Hypothesis:
Write down supporting evidence you used to make this hypothesis in the space below.

Why do you believe your hypothesis is true? What scientific evidence can you give to support your hypothesis? Make sure you include information about both the independent and dependent variable.

- **Scientific Concepts:**

- **Personal Experiences: (use life experiences that have to do with why you think your hypothesis is true)**

In order to pass this section, the following must be true:

- ☐ Background information is expressed along with the question/hypothesis
- ☐ Background information or observations are relevant to the investigation

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Scientific Inquiry Work Sample

DESIGNING AN INVESTIGATION

Materials:

General Plan:

Make a general plan for collecting the data you need.

- How will you set up the experiment?

- Identifying Controls
  What variables will be kept the same in both the controlled and experimental group?

- **Identifying Variables**
  List the independent and dependent variables
    - Independent variable:
    - Dependent variable:

- How will you measure your **dependent variable**?
  How will the dependent variable be tested to distinguish any differences in the experimental group and control group?

Scientific Inquiry Work Sample

Procedures: (numbered steps)

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Labeled Diagrams:

In order to pass this section, the following must be true:

- ☐ Design is practical and will give you the right kind of data to answer your question or test your hypothesis
- ☐ Design includes specific procedures that can be read an understood by others unfamiliar with the experiment.

Scientific Inquiry Work Sample

COLLECTING AND PRESENTING DATA

Make a data table for your investigation in the space below. It is recommended that you collect your data on a separate sheet of paper before creating your final data table.

Be sure to:

- Make sure your table is **labeled correctly,** and
- Give your table a **title that includes both your independent and dependent variables**.

Data Table:

Observations:
As you collect data, write down observations (qualitative and/or quantitative) in the space below. Note anything unusual, especially any possible errors.

In order to pass this section, the following must be true:

- ☐ Recorded data is reasonable and consistent with your procedure
- ☐ Data table is valid and complete
- ☐ Data table is organized with appropriate units

Scientific Inquiry Work Sample

COLLECTING AND PRESENTING DATA (continued)

Transform your data into a graph to look for patterns and trends. Complete your graph below, include the following:

Label the x and y-**axes** with the **independent** and **dependent variables** in the correct places. Don't forget **units** of measurement.
Give the graph a **title** that includes both **variables**!

Graph:

In order to pass this section, the following must be true:

- ☐ Recorded data is reasonable and consistent with your procedure
- ☐ Graph is valid and complete
- ☐ Graph is organized with appropriate units

Scientific Inquiry Work Sample

ANALYZING AND INTERPRETING RESULTS

Results
•State what variables you tested *(restate your question)* and describe your average results.

Conclusion
- State your **conclusion** by answering your question. State whether your hypothesis was correct or incorrect. Include **patterns** and **trends** from your data.

Explanation
- Use **scientific** concepts, facts and ideas to **explain** (why?) these results.

Review Your Design
- Describe some possible **errors** in your data that may have kept you from getting more accurate results.

Extension
- List new **questions** to investigate based on your results.

In order to pass this section, the following must be true:

- ☐ Scientific knowledge is used to report results, identify patterns or trends
- ☐ Results are used to state conclusions that address your question or hypothesis
- ☐ Design, procedures, and results are reviewed to identify sources of error