

SECTIONS: 4A,B,C,D,E

DATE	HOMEWORK	PARENT SIGNATURE
Monday	→ Teacher Planning Day-No School	
Tuesday	→ Essential Lab Day 1 - No Homework	
Wednesday	→ Essential Lab Day 2 - No Homework	
Thursday	→ Complete "Can you Spot the Scientific Method?"	
Friday	→ Read Scientific Method "Question" passage and highlight important facts as you read. → Answer questions 1-10	

Reminders

- **Parents:** Don't forget to initial your child's HW Cover Sheet every night.
- **Changes in Matter Quiz** going home for signature **Tuesday, Due Wednesday**
- **HW due Monday, October 7th**

SCIENCE VOCABULARY

- **Problem statement:** a question that can be answered by performing an experiment
- **Hypothesis:** an idea or educated prediction that can be tested by an experiment (if...then statement)
- **independent/manipulated variable:** the factor that can be changed in an experiment.
- **constant/controlled variable:** the factor to kept the same during the experiment
- **dependent/responding variables:** outcome or the data you will collect
- **Control group:** a group that is untreated by the factor being tested that serves as a reference for comparison to the experimental group
- **Materials:** everything you will need and use in your experiment
- **Procedures:** the steps to your experiment
- **Data:** quantitative data from your experiment represented in graphs, tables, charts, and pictures
- **Results:** your quantitative data in a narrative format
- **Conclusion:** stating whether your data and observations support your hypothesis
- **Applications:** Explain what you learned from your experiment that could be applied in real life
- **Abstract:** A complete summary of your experiment

CAN YOU SPOT THE SCIENTIFIC METHOD CRITICAL THINKING/PROBLEM SOLVING

Name _____

Date _____

Class _____

Each sentence below describes a step of the scientific method. Match each sentence with a step of the scientific method listed below.

- A.** Recognize a problem
- B.** Form a hypothesis
- C.** Test the hypothesis with an experiment
- D.** Draw conclusions

- _____ 1. Stephen predicted that seeds would start to grow faster if an electric current traveled through the soil in which they were planted.
- _____ 2. Susan said, "If I fertilize my geranium plants, they will blossom."
- _____ 3. Jonathan's data showed that household cockroaches moved away from raw cucumber slices.
- _____ 4. Rene grew bacteria from the mouth on special plates in the laboratory. She placed drops of different mouthwashes on bacteria on each plate.
- _____ 5. Kathy used a survey to determine how many of her classmates were left-handed and how many were right-handed.
- _____ 6. Jose saw bats catching insects after dark. He asked, "How do bats find the insects in the dark?"
- _____ 7. Justin wondered if dyes could be taken out of plant leaves, flowers, and stems.
- _____ 8. Alice soaked six different kinds of seeds in water for 24 hours. Then she planted the seeds in soil at a depth of 1 cm. She used the same amount of water, light, and heat for each kind of seed.
- _____ 9. Bob read about growing plants in water. He wanted to know how plants could grow without soil.

Question

Name: _____

Every investigation begins with a question or a wondering.

How does _____ work?

Why does _____ happen when I _____?

What will happen if I _____?

The questions are endless! Our brains naturally wonder about things. If we observe something we don't understand, we can take steps to try and understand it. Mysteries are great exercises for our brains because they help us to wonder and question, then we can practice finding answers to those questions.

When we are developing an experiment or investigation, our scientific question needs to be testable. For example, if our question was *Which of the planets in our solar system is the largest?* we could simply do research to find the answer and an investigation wouldn't be necessary. If our question was *Which sports drink helps keep athletes hydrated for a longer period of time?* we would be able to design an experiment and discover the answer ourselves. If your question can be answered with "yes" or "no", it is not an investigation. When forming your questions, think of a problem you would like to solve or at least start with something you are interested in.

How does
_____ affect
_____?

Which _____
will work the
best?

Why does
_____ happen
when _____?

Questions have to be testable and must solve a problem. Creating a model of a scientific concept is not testable. Models can help represent an idea or something too big or too small to observe normally, but they do not solve a problem or answer a question.

Question

Name: _____

Determine if the questions below could be used for a scientific investigation. If the question could not be used for an investigation, rewrite it into a testable question.

1. How many dogs visit a dog park each day?

2. Which materials would keep your hands protected when handling items of a high temperature?

3. How do different types of music affect animal behavior?

4. How many hours does a dog sleep during the day?

5. Can a plant survive without water?

6. How many students are tired at school?

7. How will different types of foods affect athletes during games?

8. How far away from the sun is Mars?

9. Is plastic biodegradable?

10. What temperature does water have to be to brew tea?
