

Name: \_\_\_\_\_ # \_\_\_\_\_

Date: \_\_\_\_\_ Period \_\_\_\_\_

### Science book Scavenger Hunt

Using your textbook, answer the following questions:

1. What is the title of your textbook?

\_\_\_\_\_

2. Who is the publisher of your textbook?

\_\_\_\_\_

3. On which page does the Table of Contents begin?

\_\_\_\_\_

4. How many units does your textbook have?

\_\_\_\_\_

5. What is the title of the last unit?

\_\_\_\_\_

6. On which page does the glossary begin?

\_\_\_\_\_

7. What is the definition of a scientific theory? What page did you find this on?

\_\_\_\_\_

\_\_\_\_\_

8. On what page(s) could you read about a habitat?

\_\_\_\_\_

9. Give me an example in words what a habitat is from your findings in a complete sentence?

10. On page, 19, what materials are needed for this investigation?

\_\_\_\_\_

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Draw a picture of what a scientist looks like? *(on the back)*

Read NOS-4 through NOS-5.

1. What are the 3 main branches of science? Give a name of the type of scientist for each branch.

2. Write down each branch of science and write a type of question that would be asked within that branch.

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## Basic Science Skills: What You Need to Develop

Science is one of the top fields of today that has continually gained recognition due to discovery and invention. Science is one of the most interesting subjects anyone can ever take in his entire school life. It enables you to let your curiosity loose and be able to discover many things in this world you never knew existed. Curiosity and desire for improvement of life has lead many people to incline towards science and eventually become experts in this field. Had you decided to go into the field of science there are basic science skills you need to learn in order for you to be the best in the field. Such skills will also allow you to discover and invent more things that will make our lives even better. Master all of those skills and you are on your way to becoming among the best and the brightest in the field of discovery and curiosity.

**Observing.** This is by far the most important basic science skills one needs to learn and develop. Scientists are very curious people thus they are also very much observant. They observe everything that happens around them and question why it is so. Using your senses you can start gathering information about certain mundane phenomena and discover something more exciting and worth noting. Using your sense, you can gather qualitative data and by using exact measurements from tools you can gather quantitative data. Both are important to observe and gather information before drawing conclusions as both supports each other. One cannot defend itself alone and thus need the other to provide evidences.

**Inferring.** This means making an educated guess. Educated meaning you have observations prior to making your guesses. You have evidences to support such guesses and the next thing you need to do is prove that guess to be correct or wrong. This is to deduce and conclude based on previously gathered information. Before you can infer you need to gather observations first as you cannot do educated guesses if you don't have anything to base your guesses in the first place. It is one of the basic science skills you need to develop to make good inferences.

**Measuring.** Math is the language of science thus measuring is also a skill you have to learn in science. There are certain scientific situations where measuring is very essential especially in chemistry. If you are in the field of chemistry you deal with all sorts of chemicals and materials that need to be constantly measured to perfect the concoction. In science, both standard and non-standard measurements are used to estimate and describe certain objects and events. There are also different tools to help you with your measuring such as ruler and tape measure for solid objects while you use graduated cylinder or beaker for liquid objects. Measuring is essential to provide further data to your observations and help you make better inferences.

**Communicating.** This might seem out of the sphere of science but basic communication skills is also among the basic science skills you need to learn. This translates every observation and inferences you want the world to hear be it in writing or verbal form. Ideas and discoveries should not be kept all to yourself thus communication is very important. Also, it is important when you want to get information from other people. You need to communicate well with them to extract the necessary information you need for your study.

All of these are the basic science skills one needs to learn to be successful in the field of science. As an ever growing industry, they need highly skilled and highly developed people to join the field. Master these skills to be highly competent in joining the battle in the pursuit of science.

Questions to answer

1. What skills are good to master for discovering science?

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2. What do you use to gather information?

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3. What supports your guesses when inferring?

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4. What skill is essential for providing future data to your observations?

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5. Why do you feel communication is important for science, from this article?

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# Homework 3

P.S. Can belong to multiple Branches. :)

Name: \_\_\_\_\_ Period \_\_\_\_\_

Directions: Name 7 things within your house that involved using science to create or use. Using your book or notes, choose what branch it belongs to.

1. What is it? \_\_\_\_\_ . What branch of science does it belong to?

2. What is it? \_\_\_\_\_ . What branch of science does it belong to?

3. What is it? \_\_\_\_\_ . What branch of science does it belong to?

4. What is it? \_\_\_\_\_ . What branch of science does it belong to?

5. What is it? \_\_\_\_\_ . What branch of science does it belong to?

6. What is it? \_\_\_\_\_ . What branch of science does it belong to?

7. What is it? \_\_\_\_\_ . What branch of science does it belong to?

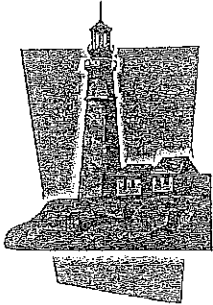
8. What branch of science do you find interesting and why?

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## Scientific Method Story Worksheet

### Analyzing the Elements of a Scientific Method

Read the following story and then answer the questions.



You and your friend are walking along a beach in Maine on January 15, at 8:00 am. You notice a thermometer on a nearby building that reads  $-1^{\circ}\text{C}$ . You also notice that there is snow on the roof of the building and icicles hanging from the roof. You further notice a pool of sea water in the sand near the ocean. Your friend looks at the icicles and the pool and says, "How come the water on the roof is frozen and the sea water is not?" You answer, "I think that the salt in the sea water keeps it from freezing at  $-1^{\circ}\text{C}$ ." You go on to say, "And I think under the same conditions, the same thing will happen tomorrow." Your friend asks, "How can you be sure?" You answer, "I'm going to get some fresh water and some salt water and expose them to a temperature of  $-1^{\circ}\text{C}$  and see what happens."

#### Questions:

1. In which statement is a prediction made? \_\_\_\_\_

\_\_\_\_\_

2. Which statement states a problem? \_\_\_\_\_

\_\_\_\_\_

3. In which statement is an experiment described? \_\_\_\_\_

\_\_\_\_\_

4. Which statement contains a hypothesis? \_\_\_\_\_

\_\_\_\_\_

5. Which statements contain data? \_\_\_\_\_

\_\_\_\_\_

6. Which statements describe observations? \_\_\_\_\_

\_\_\_\_\_

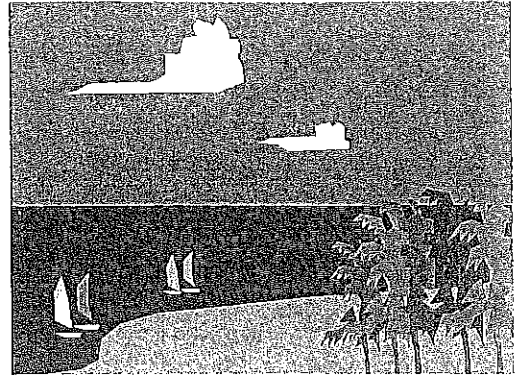
Name \_\_\_\_\_

Period \_\_\_\_\_

**Analyzing the Elements of a Scientific Method**

Read the following story and then answer the questions.

A scientist wants to find out why sea water freezes at a lower temperature than fresh water. The scientist goes to the library and reads a number of articles about the physical properties of solutions. The scientist also reads about the composition of sea water. The scientist travels to a nearby beach and observes the conditions there. The scientist notes the taste of sea water and other factors such as waves, wind, air pressure, temperature, and humidity. After considering all this information, the scientist sits at a desk and writes, "If sea water has salt in it, it will freeze at a lower temperature than fresh water." The scientist goes the laboratory and does the following:



- a. Fills each of two beakers with 1 liter of fresh water
- b. Dissolves 35 grams of table salt in one of the beakers
- c. Places both beakers in a freezer at a temperature of  $-1^{\circ}\text{C}$
- d. Leaves the beakers in a freezer for 24 hours.

After 24 hours, the scientist examines both beakers and finds the fresh water to be frozen. The salt water is still a liquid. The scientist writes in a notebook, "It appears that salt water freezes at a lower temperature than fresh water." The scientist continues, "I suggest that the reason sea water freezes at a lower temperature is that sea water contains dissolved salts, while fresh water does not."

**Questions:**

1. Which statement(s) contain conclusions? \_\_\_\_\_  
\_\_\_\_\_
2. Which statement(s) contains a hypothesis? \_\_\_\_\_  
\_\_\_\_\_
3. Which statement(s) contain observations? \_\_\_\_\_  
\_\_\_\_\_
4. Which statement(s) describe an experiment? \_\_\_\_\_  
\_\_\_\_\_
5. In which statement is the problem described? \_\_\_\_\_  
\_\_\_\_\_

6. Which statement(s) contain data? \_\_\_\_\_

\_\_\_\_\_

7. Which is the independent (manipulated) variable in the experiment? \_\_\_\_\_

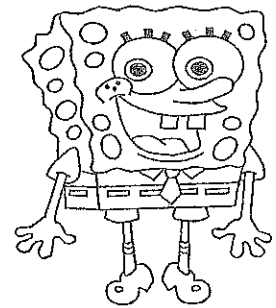
\_\_\_\_\_

8. What is the dependent (responding) variable in the experiment? \_\_\_\_\_

\_\_\_\_\_

In the following situation, identify the problem, independent variable, dependent variable, and conclusion. Read the following story and then answer the questions.

SpongeBob noticed that his favorite pants were not as clean as they used to be. His friend Sandy told him that he should try using Clean-O detergent, a new brand of laundry soap she found at Sail-Mart. Sponge Bob made sure to wash one pair of pants in plain water and another pair in water with the Clean-O detergent. After washing both pairs of pants a total of three times, the pants washed in the Clean-O detergent did not appear to be any cleaner than the pants washed in plain water.



1. What was the problem SpongeBob wanted to investigate? \_\_\_\_\_

\_\_\_\_\_

2. What is the independent variable? \_\_\_\_\_

\_\_\_\_\_

3. What is the dependent variable? \_\_\_\_\_

\_\_\_\_\_

4. What should Sponge Bob's conclusion be? \_\_\_\_\_

\_\_\_\_\_