Name:_____ Class: _____

BELL Academy / MS294
Grade 6 Science

Summer Assignment
2025-2026

Incoming 6th Grade Students:

Unit 1 will cover science skills, how to design an experiment and energy. One thing you can do over the summer to prepare for science is practice making observations when you are outside. You can also practice following directions while making a recipe. Please use the following links to review vocabulary and activate your prior knowledge about Science concepts.

Vocabulary

- observation vs inference quizlet
- investigation design quizlet
- energy quizlet

Videos

- making observations
- scientific method
- kinetic energy
- potential energy

Optional Assignment:
One of the most important skills a scientist needs is the ability to make observations. This assignment will show you the difference between two types of observations and give you an opportunity to practice making both types of observations. The brief writing piece at the end will show me how well you can apply information you have learned and how well you can express your learning through writing. I will give you extra credit for completing the assignment. I will use the attached rubric to get an idea of what I need to review with you in the first weeks of school and what you are good at!

I look forward to meeting you and reading your work in September! Please be prepared to hand this assignment (the entire packet please!) in on the first day of school, which is September 5th. Assignments will not be accepted past September 20th.

Ms. Peck

Name:_____ Class: _____

Rubrics Used for Formative Assessment of Summer Assignment

Observations

Score	4 Exceeds Standards	3 Meets Standards	2 Approaching Standards	1 Below Standards
Criteria	• Qualitative Observations are numerous AND detailed; uses all 4 senses • Qualitative Observations are free of bias and/or opinions • Qualitative Observations are insightful • Quantitative Observations are represented visually (student goes above and beyond)	• Qualitative Observations are numerous OR detailed; uses at least 3 senses • Qualitative Observations may contain some statements that are based on opinion • Observations are clearly described and recorded • Quantitative Observations are neatly and accurately recorded	• Qualitative Observations include only 2 senses • Quantitative and Qualitative observations are in the incorrect places in the data table • Quantitative Observations are not consistently recorded (some may be missing)	• Qualitative observations are limited. • Quantitative observations are missing

Written Responses

Score	4 Exceeds Standards	3 Meets Standards	2 Approaching Standards	1 Below Standards
Criteria	• Student fully elaborates on his/her ideas with examples and details from the text AND his/her own observations when relevant • Student correctly uses all relevant domain specific (science) vocabulary	• Student elaborates on his/her ideas with examples and details from the text OR his/her own observations when relevant • Student correctly uses some relevant domain specific (science) vocabulary	• Student is able to restate the question but parts of the response are copied directly from the reading • Student attempts to use domain specific (science) vocabulary, but may not use the words correctly	• Student does not respond to all questions Student does not respond in full sentences • Student is unable to use domain specific (science) vocabulary

Name:_____ Class: _____

Greetings Young Scientists! Here are your tasks:

- ❏ Complete the attached "Skills Introduction: Observing" reading on pages 4 and 5.
- ❏ Get out of the house/hotel/cabin and go observe people or the environment. You can do this even if you are at camp or on vacation with your family! Choose a place to sit and watch (OBSERVE) what is going on for about 5 minutes. You can be at a mall, a museum, the beach, a park-anywhere! NOTE: Make sure you can go back to this place at least 3 more times on different days.
- ❏ In the box below, jot down something you notice, or OBSERVE, people or animals doing. An observation is information and facts you gather from the world around you using one or more of your five senses (sight, sound, touch, taste, smell). For example: *<u>At the beach</u>: I notice that most of the adults are sitting down while the younger kids are running around, playing, or swimming. I smell people barbequing and the ocean smells like sewage. I feel the warmth of the sun on my skin. <u>At the mall</u>: I see a lot of older adults walking like they're exercising, and teenagers in large groups talking loudly. I smell Chinese food and Abercrombie cologne. <u>At the park</u>: I see lots of geese, people walking their dogs, and I hear birds singing. I smell freshly cut grass and I can hear the sound of the trees blowing in the wind.*

Where are you? _____

Record your initial (beginning) observations in the box below.

- ❏ Now, OBSERVE your surroundings for at least 10 minutes on 4 different days. Make sure to record both QUALITATIVE observations (descriptions with words) and QUANTITATIVE observations (numbers) in the data table on page 6.
- ❏ Complete the questions provided on page 6 below the data table. Respond to these questions on a separate piece of loose-leaf or computer paper if you prefer to type your responses. Please answer in full sentences and do not copy the questions.

Name:_____ Class: _____

SKILLS INTRODUCTION: *Observing* (adapted from a Pearson Education Publication) The first day of school is an exciting time. You find out who your teachers are, who else is in your classes, and where your classrooms are. When you look around to see what the room looks like and who is there, you are making observations.

What is an observation?
Observing is using one or more of your senses—sight, hearing, smell, taste, and touch—to gather information about the world. For example, seeing a green chalkboard, hearing a bell ring, smelling smoke, tasting a sour lemon, and feeling a smooth desktop are observations. Information gathered from observations is called evidence, or data. Making and recording observations is the most basic, and the most important, skill in science.

When you make observations in science, you want them to be *accurate* and *objective*. An accurate observation is an exact report of what your senses tell you. *An objective observation avoids opinions, or bias, based on specific points of view.*

Example 1: Sixteen students were present for roll call, and five other students arrived afterward. (accurate and objective)
Example 2: Half the class was late. (not accurate)
Example 3: The friendliest people were there first. (not objective, a personal opinion)

What are the two types of observations?
Observations can be either **qualitative** or **quantitative**. Qualitative observations are descriptions that do not use numbers. For example, if you report colors, smells, tastes, textures, or sounds, you are making qualitative observations. Quantitative observations, on the other hand, do include numbers. If you count objects or measure them with standard units, you are making quantitative observations. Quantitative observations are often made using tools.

Example 4: The classroom walls are yellow. (qualitative)
Example 5: The classroom floor is shiny. (qualitative)
Example 6: There are 21 students in the room. (quantitative)
Example 7: The chalkboard is 1 meter high and 2 meters wide. (quantitative)

What is an Inference?

In science, observations are usually followed by attempted explanations, or inferences. When scientists make inferences from observations, however, they keep the two processes separate. That's because although an accurate observation is considered to be factual evidence, the inferences may not be correct. When you make and record your observations, write down just what your senses perceive.

Example 8: There's an empty aquarium tank in the classroom. (observation)
Example 9: The tank is 50 cm long, 30 cm wide, and 18 cm deep. (observation)
Example 10: The tank used to contain live fish. (an inference, not an observation)
Example 11: The tank is waterproof (an inference, not an observation)

Skills Practice: Identify the following as a qualitative observation, quantitative observation, opinion, or an inference. Circle your choice. (Visit thebellacademy.com and find my teacher page to check your answers!)

1. There are 7 black puppies and 3 tan puppies. (qualitative, quantitative, opinion, inference)
2. The water in the bay smells bad. (qualitative, quantitative, opinion, inference)
3. The bowling ball weighs 10 pounds. (qualitative, quantitative, opinion, inference)
4. The bay smells bad, so it must be polluted. (qualitative, quantitative, opinion, inference)
5. The video game is loud, colorful, and has various levels of difficulty. (qualitative, quantitative, opinion, inference)
6. In the park, there are 17 people having a picnic, 10 people swimming, and 14 people playing kickball. (qualitative, quantitative, opinion, inference)

Tips for Making Observations

- Use the senses of sight, hearing, touch, and smell to make qualitative observations. (Important: For safety's sake, do not taste any unknown substances.)
- Review your observations to make sure they are accurate and objective.
- Whenever possible, count or use instruments to make quantitative observations.
- Make sure you include the unit that identifies each measurement, such as a mass measurement of 5 grams or a distance measurement of 15 meters.
- If no tools are available to make measurements, try to estimate common quantities by referring to known standards. For example, you might state that an object is about as long as a new pencil or has the mass of a paper clip.
- Check your observations to be sure that they are statements about information gained through your senses, not explanations of what you observed

Location: _____

Choose another quantity to observe. This can be the number of children, the number of adults, the number of squirrels. You can also record how many shopping bags, umbrellas, bicycles, etc.

Quantitative Observations					
Date	Time Start	Time Stop	Temperature		Qualitative Observations *What do you see? Smell? Hear? Feel? (Tasting is not always a good idea, so stick to the four senses above!)*

Respond to the questions below. If you need more room you can attach a post-it or a piece of looseleaf. If you prefer to type your answers please print them and attach them. Please answer the questions in full sentences. Explain the difference between a quantitative and a qualitative observation in your own words.

_____

_____

_____

_____

Directions: Respond to the questions below. If you need more room you can attach a post-it or a piece of looseleaf. If you prefer to type your answers please print them and attach them.

1. Which do you think are more "scientific" - qualitative or quantitative observations? Why do you think this?

_____

_____

_____

_____

2. What are some INFERENCES you can make based on the OBSERVATIONS yourecorded above? (See the reading provided if you do not know what an inference is!)

_____

_____

_____

_____

3. How are math and science related?

_____

_____

_____

_____

4. Tell me everything you know about the scientific method.
(What is it? Why do we use it? What are the steps? Do you know another name for it?)

_____

_____

_____

_____

5. Do you know the difference between an independent variable and a dependent variable? If yes - please explain what they are. If not- that's ok! You will be an expert on variables by the end of the 6th grade!

_____

_____

_____

_____