Name_____ Class_____ Due by September 9th

BELL Academy **Summer Assignment**

Grade 6 **2015-2016**

SCIENCE: Ms. Contona

Hello new BELL Families and Students! I am excited to begin a new school year with you! This will be my 3rd year with BELL Academy and my 9th year teaching in Queens. BELL Academy is filled with friendly students and staff who will be here to help you through your first days of Middle School. Because we are a Renzulli school, you will have many opportunities throughout the school year to explore your talents and strengths and express your learning in many different ways. You will be reading and writing of course, but you will be given options as to how you will show off how much you have learned and even how you learn!

I love sharing what I have learned, and continue to learn, with my students. My favorite area of Science is Life Science, which we will be most of what you learn this year! I studied Biology in college and my favorite classes were lab classes where I was able to do hands on experiments and work with a group of people to solve a problem or complete an investigation of a topic. I currently enjoy experimenting in my kitchen when I make dinner and desserts for my friends and family! I also experiment with homemade beauty products-some come out better than others, but that's the beauty of Science-even when you make a mistake you learn something from it!

This year in our Science class you will learn scientific skills and content through something called "Discovery Learning." I will present you and your fellow scientist classmates with an experience and through hands on experiments, research, and writing you will come to your own understanding of the content. This can be challenging, but this type of learning will make the content more meaningful for you and you will remember the vocabulary and concepts way after you have taken a test! (It's also more interesting than listening to me talk for 45 minutes…)

Why am I giving you this summer assignment? No-it's not to ruin your vacation! I hope you will find it interesting and maybe a little fun. 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 full 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!

Please let me know if you have any questions-I will be around most of July and some of August and I will try check my email at least once a week.

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 9th.
Assignments will not be accepted past September 21st.

Ms. Contona
ms.contona@gmail.com

Name_____ Class_____ Due by September 9th

Rubrics Used for Formative Assessment of Summer Assignment

Observations

Score	4 Exceeds Standard	3 Meets Standard	2 Approaching Standard	1 Below Standard
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 Standard	3 Meets Standard	2 Approaching Standard	1 Below Standard
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_____ Due by September 9th

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: *At the beach: 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. At the mall: 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. At the park: 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_____ Due by September 9th

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)

Name_____ Class_____ Due by September 9th

SKILLS INTRODUCTION: *Observing* *[continued]*

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.

Name_____ Class_____ Due by September 9th

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

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.

1. Explain the difference between a quantitative and a qualitative observation in your own words.
2. Which do you think are more "scientific"-qualitative or quantitative observations? Why do you think this?
3. What are some INFERENCES you can make based on the OBSERVATIONS you recorded above? (See the reading provided if you do not know what an inference is!)
4. How are math and science related?
5. 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?)
6. 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!