Unit 1 Nature of Science

Lesson 1-4 Pgs 4-47

Directions – Below you will see several tasks that you will be working on during the coming days of class. Each task has specific directions. When you have completed each task you will come discuss your completion with me and then check it off on this sheet. You will need to write the time spent on the activity next to where you check it off. The order you complete these tasks is completely up to you and your partner.

Standards:
SC.6.N.1.1 (lesson 3,4) *Define a problem from the sixth grade curriculum, use appropriate reference materials to support scientific understanding, plan and carry out scientific investigation of various types, such as systematic observations or experiments, identify variables, collect and organize data, interpret data in charts, tables, and graphics, analyze information, make predictions, and defend conclusions.*
SC.6.N.1.3 (Lesson 3) *Explain the difference between an experiment and other types of scientific investigation, and explain the relative benefits and limitations of each.*
SC.6.N.1.2 (Lesson 3) *Explain why scientific investigations should be replicable.*
SC.6.N.1.5 (Lesson 1) *Recognize that science involves creativity, not just in designing experiments, but also in creating explanations that fit evidence.*
SC.6.N.2.1 (Lesson 1) *Distinguish science from other activities involving thought.*
SC.6.N.1.4 (Lesson 3) *Discuss, compare, and negotiate methods used, results obtained, and explanations among groups of students conducting the same investigation.*
SC.6.N.2.2 (Lesson 2) *Explain that scientific knowledge is durable because it is open to change as new evidence or interpretations are encountered.*
SC.6.N.2.3 (Lesson 1) *Recognize that scientists who make contributions to scientific knowledge come from all kinds of backgrounds and possess varied talents, interests, and goals.*

FOCUS QUESTIONS

What are processes a scientist uses for investigating a problem?
Why must a scientific investigation be replicable?
What happens when scientists find evidence that contradicts previous scientific findings?
How do scientists of various backgrounds contribute to science?

Task A- Lesson 1- Create a skit on paper or record a podcast in which you distinguish between science and another form of inquiry/investigation. Share an example of a different type of inquiry/investigation . Describe the difference.

Task B – Lesson 1- Briefly explain in writing at least 2 ways that nonscientist can use science in everyday life.

Task C (Lesson 1)– Imagine you are attending a conference about science in the twenty first century. Write and be prepared to present a speech or Animoto about why a balance between creativity and critical thinking is important in science. Give examples of when creativity and critical thinking can help solve a problem.

Task D (Lesson 3) Create a Venn Diagram or powerpoint to compare and contrast an experiment and other types of scientific investigations. Below the diagram states the benefits and limitations of each.

Task E- (Lesson 3) Google Scientific Method Study Jam. Click on the second Google result. Then click on Scientific Theory and Evidence Study Jam. Watch it then take the quiz and score a 100% and then show me.

Task D- Create a response to this graphic in your science notebook.

What comes next?

Levi and Desi have been working together on a scientific investigation. They just made a huge discovery and are eager to publish their work. This discovery may change some of what we know in science. The team-mates are disagreeing on their next step.

Levi→ Let's send our results to a science journal to be published and recommend that the new information be incorporated into science textbooks.

Desi→ We should share our work with other people investigating similar things to see if they get the same results we did before we publish the results in a journal

Who do you agree with most? Explain your selection using what you know about the process of science.

Task E- In your science notebook discuss the similarities and differences between the practice of science in the three pictures below.

Task F- You are trying to recreate an experiment using the notes of a colleague. The notes she sent you are incomplete. Write an email to your colleague asking for complete notes and explaining why they are important. Do this in your science notebook.

Task G Vocabulary for lessons 1-4: You may use the ideas below or develop your own. There are many different ways to learn the vocabulary for each of the 4 sections. Choose one or several of the methods below. When you are done bring me what you created and I will sign for them.

Graphic organizer (frayer model, flip chart, etc.)
Venn diagram
Flash cards (create a game!)
Create and play a trivia game!
Drawings
Quizlet
Make a model that represents your information! Or a poster ☺
Powtoon
Animoto

Words for lesson 1-4 observations, *systematic observations, experiments, hypothesis, *controlled variable, *test variable (independent) and *outcome variable (dependent), constants, data, analysis, predicting, conclusions, investigation, replication, repetition, science, scientific knowledge, *empirical evidence, interpretations, scientists, contributions.

Task H – Gum Lab – Will be set up on Monday August 21st

Task I - M&M Lab – Will be set up on Monday August 21st

TASK A _____

TASK B _____

TASK C _____

TASK D _____

Task E _____

TASK F _____

Task G_____

Task H _____

Task I _____