INSTRUCTOR LESSON PLAN

Subject/Course: Comprehensive & Integrated Science

Note for Teachers Regarding Official Standard: SC.8.L.14.6: Compare and contrast types of infectious agents that may infect the human body, including viruses, bacteria, fungi, and parasites.

LESSON TITLE: Applying the Scientific Method to COVID-19

ESSENTIAL QUESTION: How are researchers using the scientific method to find a vaccine for COVID-19?

LEVEL: Middle School or ages 10-14

LESSON DURATION: 25 minutes -- additional time required for student to complete experiment

Lesson Objectives

Upon completion of this lesson, students should achieve the following objectives:

• Achieve a better understanding of COVID-19 and a pandemic
• Understand how processes they learn in school, such as the scientific method, are applied to a global health crisis
• Feel reassured that scientists are working to find effective treatments and a vaccine
• Feel empowered that there are steps they can take to help keep themselves and others healthy and safe
• Spark interest in STEM studies and educate students about STEM career possibilities

Materials

1. Lesson plan for instructor
2. Video (downloaded to computer or queued up on website)
3. Student worksheet (1 copy printed per student)

Summary of Tasks/Actions

1. (10 minutes) Initiate a conversation with the student on COVID-19. Questions may include:
   a. What are you hearing about what is going on?
   b. What are some things that are difficult to understand about what is happening?
   c. What are some of the concerns or worries you have?
   d. Did you know that professionals are working to address this? What do you think they're doing to help?

2. (5 minutes) Watch the video with the student.

3. (10 minutes) Initiate a discussion following the video. Questions may include:
   a. Did that help you better understand what's going on with COVID-19? How?
   b. The video showed scientists working hard to develop treatments and a vaccine. Why do you think research is so important? What do you think research involves?

4. (Completion time will vary by student) Student completes worksheet
   a. Answer key for correct order of the scientific method is: Ask a question; Form a hypothesis, or testable explanation; Experiment; Observe and record; Draw conclusions; Share your findings.

REFERENCES:

wwwworkforhealth.org · cdc.gov/coronavirus · science.education.nih.gov
The scientific method is the process of observing, asking questions, and seeking answers through tests and experiments. It also provides an objective, standardized approach to conducting experiments, and, in doing so, improves the results of the experiment. Researchers today use the scientific method to work through potential solutions to an issue.

Know the Steps

While some lists include multiple stages of testing, there are six main steps - but the following are out of order! Put the following steps in the correct order by placing the appropriate number (1-6) on the lines provided:

1. Draw conclusions
2. Ask a question
3. Experiment
4. Share your findings
5. Form a hypothesis, or testable explanation
6. Observe and record

Ask a Question

Now that you have put the steps in the correct order, it’s time for you to become the researcher. There are a lot of great ideas you can explore – what’s something you’ve always wondered about? How about a solution to something you’ve always thought might work? Now’s the time to try! Some ideas are listed below – what other ideas can you think of that might be worth exploring?

Idea 1: How do varying levels of sunlight affect how a seed grows?
Idea 2: Can Baking Soda Substitute for Baking Powder in a Recipe?
Idea 3: Just how good is my pet’s sense of smell and what scents does it prefer?

Idea 4: ________________________________
Idea 5: ________________________________
Idea 6: ________________________________
So, which of your ideas do you want to explore? List the steps from the section above in the correct order and follow them in your experiment. Lines are provided for your notes. Good luck!

**TOPIC:**

**STEP 1:**

**STEP 2:**

**STEP 3:**

**STEP 4:**

**STEP 5:**

**STEP 6:**

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**Continue Learning**

Visit the following organizations to learn how each is supporting STEM initiatives specific to their areas of focus and to see how a STEM education can lead to some interesting careers!

[Links to various organizations related to STEM education and initiatives]