

# Culturally Responsive STEM Lesson Plan:



## My World of Scientists

### Lesson Objectives:

1. Students will demonstrate their understanding of the diversity of backgrounds, talents, interests and goals of African American and women scientists who have made important contributions to science.
2. The students will research various science careers.
3. The students will conduct research on a famous scientist and their career.
4. The students will research and document the background, talents, interests, and goals of the scientist they are researching.
5. The students will be able to explain that despite having varied backgrounds, talents, interests, and goals these scientists were able to make contributions to the scientific community.
6. The students will complete an oral presentation as a result of this lesson.
7. The students will effectively conduct research from multiple print and digital sources.

### Next Generation Science Standard:

**SC.6.N.2.3** Recognize that scientists who make contributions to scientific knowledge come from all kinds of backgrounds and possess varied talents, interests, and goals

### STEM Rationale for Lesson:

Students will learn that scientists are not just in the lab, yet all around them in the world that they live daily. In addition, students will explore whether they have scientists in their local community or in their family. Students will explore scientists in often unthought of professions. Such as Culinary Artists, Cosmetologists, Urban Farmers, Fragrance chemists, Cosmetic Scientists, Candle Makers, etc.

### Culturally responsive connection:

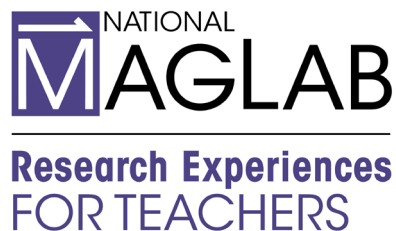
1. What background did the scientist come from?
2. Based on the scientist's background, what do you think inspired him or her to explore the areas of science they did?
3. Do you know a relative or friend of the family that is a scientist?

### Materials Needed:

#### Provided by Teacher:

1. Computer Device w/ internet
2. Microsoft PowerPoint

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3. Markers and/or Crayons
4. Glue sticks
5. Scissors

## Materials Students Must Bring in From Home

1. Science Board
2. Poster Board
3. Any Materials to complete their project

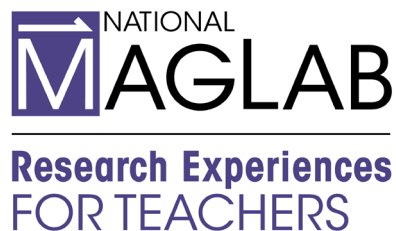
## Activate Prior Knowledge:

1. What are the names of some African American/ Women scientists who have made major contributions to science knowledge?
2. What might inspire scientists to do research and experiments?
3. Students should know what a scientist is and know some names of major inventors and innovators, such as George Washington Carver, Madam C.J. Walker, etc.

## Lesson Introduction:

1. Ask the students *"Name a famous person who studied science while in college."* (Students may quietly discuss this with a neighboring student if necessary.)
2. The teacher will show a famous person who studied science. Examples may include but are not limited to achievers such as Albert Einstein, Marie Curie, and George Washington Carver.
3. The teacher will show a short video segment on a famous scientist. Briefly discuss the video. (Formative assessment)
4. Introduce the idea of the different fields of science and what it might be like to work in each of those fields. Discuss the type of daily environment if the students were a cook, or an engineer, or a chemist. Accept all reasonable answers.
5. Ask the students to think about what they like to do and how they might be able to turn "what they like to do" into a career choice. The following can be used as prompts to elicit student responses:
  - a. Would you like to work outside?
  - b. Work with animals?
  - c. Work with people?
  - d. Would you enjoy solving puzzles (research)?
  - e. Would you enjoy building and designing things? (On computers or with your hands? (Engineer: computer, mechanical, chemical etc.)

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- f. Would you enjoy a dangerous career? (Astronaut or scientist working in a biohazard lab)
- g. Would you enjoy traveling for your career? (Volcanologist, paleontologist, or archaeologist)
- h. Do you enjoy being and/or working outside? (Marine biologist, geologist) Inside? (Engineer, microbiologist)

## Lesson Activity:

1. Students will brainstorm to find an African- American or woman scientist from their community or family that is making a contribution to science every day.
2. Students will construct a research project on their scientist and present to the class in a variety of methods. (Power Point, Video Reel, Science Board, T shirt, Cereal-box etc.
3. Students will present their project in front of the class and receive a portion of their grade for oral presentation.
4. Students will have to prepare a short 3–5-minute presentation on the scientist.
5. Before beginning their research, the students must show their choice of scientist to the teacher for approval. Each student needs to research a different person in science. The teacher may want the students to pick their own person or choose the names from a list if they need help.

**Suggested list of minority/women scientists can be found at**  
<https://www.aps.org/programs/outreach/physicsquest/physicsquest-22.cfm>

## Information to be included in project:

1. Date of birth and death
2. What country was this person born in?
3. Did they attend college and if so, where?
4. What did they study in college?
5. What field of science is the famous scientist known for studying?
6. What was this person's scientific achievement?
7. What awards has he/she earned? ex. Nobel Prize, etc.
8. Did he/she work on a team with any other scientists?
9. Additional facts about your scientist that make him/her unique and interesting.

## Lesson Assessment

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The teacher will lead a discussion to determine what a scientist is and some scientists that they are familiar with in general. The teacher may use questions such as:

1. In your own words, what is a scientist?
2. What does a scientist do?
3. Can you name any scientists that you are familiar with and their accomplishments?
4. Final Research Project Presentation

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