

African American Voices Lesson Plans

Lesson Plan: African American Scientist Fair

Subject: U.S. History,
Comprehensive Science

Grade: 8

NGSSS-SS: **SS.8.A.1.7-** Use research and inquiry skills to analyze American History using primary and secondary sources.



SS.8.E.2.1- Analyze contributions of entrepreneurs, inventors, and other key individuals from various gender, social, and ethnic backgrounds in the development of the United States economy.

**Description/
Abstract of Lesson:** The students will display an appreciation for the contributions of Africans and African Americans in the areas of mathematics and science by developing a display project that educates the school community on the achievements of African and African American inventors/scientists/mathematicians.

Objective(s):

- Identify the accomplishments of mathematicians or scientists of African descent and their impact on American life.
- Research an invention or technological advancement by a mathematician or scientist of African descent.
- Create a poster board with reports on the mathematician/ scientist, one of his/her inventions along with a model of the invention (or a product that was developed as a result of the invention).

Materials:

- Internet resources
- Books, magazines and other resources made available by the school Media Center
- Poster boards, glue, markers, scissors

Duration: Several class periods

**Lesson Lead In/
Opening:**

1. The teacher will display images of the pyramids of Egypt as well as other mathematically precise monuments and designs of Africa on either an overhead projector or smart board.

2. The teacher will prompt a discussion with the students by asking "What do these monuments have to do with African Americans today?" The teacher will emphasize that the great mathematical and scientific achievements of Africans in the past is reflective of the great achievements of African Americans in these fields today.

3. Point out that at one time it was popularly argued that African Americans could not achieve in the areas of science and mathematics. Cite how Thomas Jefferson, the 3rd President of the United States and author of the Declaration of Independence, openly said that African peoples were not intelligent enough to achieve in such areas.

4. Read Benjamin Banneker's letter responding to Jefferson's comments (available on-line at <http://www.pbs.org/wgbh/aia/part2/2h71.html>)

Activity 1:

1. Display visuals on important achievements, inventions and technological advancements of African Americans in United States history. Examples are found in the web resource section listed below.

2. Based on the information found on the websites listed, have the students develop a timeline of significant mathematical and scientific advancements made by Africans and African Americans.

3. Post the timeline on the classroom wall for the class to reference.

Activity 2:

1. Divide the students into groups of three or four.

2. Have each group select one of the inventions/achievements listed on the timeline. Each group is to complete a research project on the invention/achievement selected. The project guidelines are as follows:

- 1 – 2 page report on the invention/achievement
- 1 - 2 page biography on the mathematician/scientist behind the invention/achievement
- Pictures (or drawings) of the invention
- The final drafts of the reports and biography and pictures should be glued to the poster board (along with decorations)
- A model or a product of the invention to be put on display in front of the poster board

3. After the projects are completed, organize an African and African American scientist fair either in the class room or at the school's Media Center. Arrange for other classes to visit the scientist fair to learn about the inventions and the inventors. Have the groups who created the projects give short lessons on what they learned.

Assessment:

- Consider cooperation and creativity grades when students work in groups.
- Teacher observation and evaluation of student projects. Check for historical accuracy as an indicator of comprehension, grammar, etc.

Higher Order Thinking Questions:

1. The pyramids of Egypt were very precise and aligned to constellations. What does this let us know about the Egyptians' knowledge of science?

2. Why is Benjamin Banneker's invention, the almanac, considered to be an extremely valuable invention?

3. Why do you suppose African and African American achievements in science and mathematics are not as well-known as their achievements in sports and entertainment? Is there something wrong with this?

**Suggested Books
In Lesson:**

Ascher, M. (2002) Mathematics Elsewhere, Google Books:
<http://books.google.com/books?id=SOkltEXV3poC&dq=mathematics+elsewhere&pg=PP1&ots=hGwy8KVHqQ&sig=CW8CYzGSqGH7XLHX8FuoApj8NEw&prev=http://www.google.com/search%3Fhl%3Den%26safe%3Dactive%26q%3Dmathematics%2Belsewhere%26btnG%3DSearch&sa=X&oi=print&ct=title>

Aaseng, N. (1997) Black Inventors, Facts on File

Web Resources:

Websites on Africans and African Americans achieving in the fields of Mathematics and Science

<http://www.math.buffalo.edu/mad/madhist.html>

<http://www.math.buffalo.edu/mad/index.html>

<http://www.math.buffalo.edu/mad/madgreatest.html>

<http://barzilai.org/bm/>

<http://www.infoplease.com/spot/bhmScientists1.html>

<http://www.africawithin.com/jeffries/aapart31.htm>

<http://teacher.scholastic.com/activities/bhistory/inventors/>

<http://www.enchantedlearning.com/inventors/black.shtml>

<http://www.black-inventor.com/>

http://www.carnegieinstitution.org/first_light_case/horn/careers/careersindex.html

Banneker's letter to Jefferson

<http://www.pbs.org/wgbh/aia/part2/2h71.html>

Examples of African Achievements in Mathematics and Science

http://www.math.buffalo.edu/mad/Ancient-Africa/mad_ancient_egypt.html

<http://www.africahistory.net/kani.htm>

<http://www.inventions.org/culture/african/index.html>

<http://www.historyforkids.org/learn/africa/science/index.htm>

<http://www.african-americaninventors.org/>

<http://www.eyelid.co.uk/numbers.htm>

