Lesson Plan
The National Society of Black Physicists

The logo of the National Society of Black Physicists.

<table>
<thead>
<tr>
<th>Grade Level(s): 9-12</th>
<th>Subject(s): History, Physics, Contemporary</th>
</tr>
</thead>
<tbody>
<tr>
<td>In-Class Time: 40-60 min</td>
<td>Prep Time: 10-15 min</td>
</tr>
</tbody>
</table>

Materials
- Access to internet and computers for group work

Objective
This lesson plan introduces students to the National Society of Black Physicists (NSBP). It situates the formation of the NSBP in the historical context of the 1960s and 1970s and encourages students to contemplate the significance of the NSBP.

Introduction
Though major civil rights legislative changes had taken place in the 1950s and 1960s, such as the Brown v. Board of Education of Topeka, Kansas Supreme Court ruling and the 1964 passage of the Civil Rights Act, African Americans still faced increasingly dire poverty, especially in the urban areas of America. The emergence of the Black Power movement in the 1960s was an expression of a generation’s disappointment and anger. The movement encouraged African Americans to take pride in their African heritage and to connect with people of African descent around the globe. People today frequently picture members of the Black Panthers with rifles as the defining image of the Black Power movement. However, the movement was also known for developing free children’s breakfast and educational
programs in African American neighborhoods across the country, for developing ties with international movements for national liberation around the world, and for fostering new cultural identities.

Amidst these national events, two researchers met at Clemson University in 1966. Dr. Howard Foster and then graduate researcher Ronald E. Mickens both attended the Southeastern Section meeting of the American Physical Society (APS). Dr. Foster was one of many significant and productive mentors in the black physics community. Others in this group include Herman Branson and Warren Henry of Howard University, Harry Morrison and Robert “Pete” Bragg of the University of California at Berkeley, Rutherford Adkins and James Lawson of Fisk University, Joseph Johnson of Southern University, Charlie Harper of California State – Haywood, and James Davenport of Virginia State University. For many years, Dr. Foster, the Chair of the Physics Department at Alabama A&M University, maintained a “roster of Blacks in physics.” When Mickens met Foster at the APS meeting and heard about the roster, he was immediately intrigued with Foster’s work (and would continue it after Foster’s passing). The roster and collaboration between Foster and Mickens were instrumental in the organization and founding of the National Society of Black Physicists.

A handful of years later, while working as a postdoctoral fellow at MIT’s Center for Theoretical Physics, Mickens met James Young, another researcher interested in the community of African-American physicists. In an effort to celebrate the accomplishments of their colleagues, Mickens, Young, and several others came together in 1972 to hold the first “Day of Scientific Lectures and Seminars.” Held at Fisk in December of that year, this meeting invited members of the African-American physics community to celebrate the lives of Drs. Halson V. Eagleson (then Professor of Physics at Howard), Donald Edwards (Chair of the Department of Physics at North Carolina A&T University), and John McNeil Hunter (Chair of the Department of Physics at Virginia State). A second “Day of Scientific Lectures and Seminars” was held in May 1975 at Howard. At this meeting, a similar celebration and award ceremony was held and it was even more highly attended than the first gathering at Fisk.

These first two meetings set off a chain reaction. Another gathering was held at Morehouse College in 1976. At this event, attendees discussed the creation of an official, national organization of African-American physicists. When the Morgan State College representatives volunteered to host an event in 1977, the “Society of Black Physicists” was born. During this period, many other Black scientific societies and professional organizations also formed including the National Society of Black Engineers (1975), the National Association of Black Journalists (1975), the American Association of Blacks in Energy (1977), and the National Organization for the Professional Advancement of Black Chemists and Chemical Engineers (1972) among others. The NSBP has continued to flourish alongside established organizations like the American Physical Society (APS) and American Association of Physics Teachers (AAPT), and “is not intended to supplant any of them.”

The NSBP holds annual conferences and more recently, has held these conferences jointly with the National Society of Hispanic Physicists. The conferences draw an international audience and feature a scientific program and mentorship opportunities for students.

### Instructions/Activities

**Engage: 5-10 minutes**

Depending on the interests of the class, you can engage the students with a discussion of black history or with current African American scientists.
History: Ask the students what they know about the Civil Rights movement. You can also ask them what they know about scientific societies. Both the Civil rights movement and scientific societies brought together like-minded people to advance a common cause (in the case of scientific societies, the cause is to build connections between professionals and secure funding for their discipline). They’ll probably think these two kinds of movements have nothing to do with other, but you can tell them that, in addition to political organizations such as the Black Panthers and the NAACP, people who were minorities in other areas banded together under this term to increase their visibility and opportunities. This rationale underlay the founding of the National Society of Black Physicists.

Scientists: Ask the students to picture a scientist and describe what they look like. Usually, students will talk about things a scientist wears (like a lab coat) or describe a famous scientist such as Albert Einstein. If they don’t say it themselves, you can ask how many students pictured the scientist as a white man. Assuming many students pictured a scientist that way, ask them what they think scientists who don’t look like that feel like. You can then use this as an entry into a discussion about race, science, and the National Society of Black Physicists.

<table>
<thead>
<tr>
<th>What is the teacher doing?</th>
<th>What are the students doing?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asking questions to get the students thinking critically about their assumptions regarding race, gender, and science. The teacher should also be responding to student answers and prompts for more information.</td>
<td>Thinking carefully about the questions the teacher asks and answering them. They should use any historical background knowledge they have about the Civil Rights movement and racial identity.</td>
</tr>
</tbody>
</table>

Explore: 20-30 minutes

Students will now have the chance to learn more about the National Society of Black Physicists. They should be given printed or electronic versions of the Mickens history (see required/recommended reading).

<table>
<thead>
<tr>
<th>What is the teacher doing?</th>
<th>What are the students doing?</th>
</tr>
</thead>
<tbody>
<tr>
<td>The teacher should hand out copies of the Mickens reading and, if desired, the discussion questions worksheet. The assignment can either be completed individually or in small groups. If students have problems or questions on the material, the teacher should assist.</td>
<td>Students should be reading the Mickens piece and filling out the provided worksheet either individually or in groups.</td>
</tr>
</tbody>
</table>

Explain: 5-10 minutes

Have a short class discussion after students have finished the readings. This is a chance for students to reflect upon what they just learned and how this might have changed their thinking from the beginning of the period. Make sure to encourage students to ask any questions that they may have about who goes into careers in science and the work scientific societies do.

<table>
<thead>
<tr>
<th>What is the teacher doing?</th>
<th>What are the students doing?</th>
</tr>
</thead>
</table>
| Leading a large group in discussion of what they’ve learned. Possible discussion questions are below (handouts of the discussion questions and answer key are available in the Supplemental Material to this lesson). | Students should be participating in the group discussion. They should be answering and asking further questions about the NSBP and scientific societies more generally. They should also make
Elaborate: 10-20 minutes

Students should now have the opportunity to learn about the current activities of the NSBP. In small groups, they should be asked to research one of the following topics: NSBP collaborations, Black Physics Community, Science Policy, and Scholarships and Prizes. The research phase should take 5-10 minutes and each presentation should take a couple of minutes.

<table>
<thead>
<tr>
<th>What is the teacher doing?</th>
<th>What are the students doing?</th>
</tr>
</thead>
<tbody>
<tr>
<td>The teacher should break the students into groups and point them towards their assigned topics. All information should be available from the NSBP website (<a href="http://www.nsbp.org">www.nsbp.org</a>).</td>
<td>Students should be researching their assigned topic for a short presentation. Suggested questions for their group to answer are outlined below (discussion questions and answers are included in the Supplemental Materials to this lesson)</td>
</tr>
</tbody>
</table>

**NSBP Mission:** What is the mission of the NSBP? How do they try to accomplish that mission?

**Black Physics Community:** What are some of the scientific interests of the NSBP which have their own scientific sections at the annual meeting?

**NSBP Conference:** What have been some of the previous themes of the NSBP conferences? Why might a physicist want to attend these events?

**Scholarships and Prizes:** What scholarships and prizes does the NSBP award? What are these scholarships for?

Evaluate:

Answers and participation in discussion can be used to evaluate student performance. Students can also turn in their answers to the discussion questions worksheet for evaluation. The short presentations in the elaborate section can also be evaluated by the teacher.

**Required/Recommended Reading and Resources**

- AIP Member Societies website: [http://www.aip.org/member-societies](http://www.aip.org/member-societies).

**Discussion Questions**

Discussion Questions can be found as a Handout with a corresponding Answer Key in the Supplemental
Materials to this lesson plan.

1. Why was it important for the founders of the NSBP to create such an organization?
2. Why is it significant that the organization began to take shape in the late 1960s and was formed in the 1970s?
3. Who are some of the senior physicists that founded what became the National Society of Black Physicists?
4. What role did Dr. Ronald E. Mickens play in the organization of African-American physicists?
5. While the National Society of Black Physicists was founded in 1977, the work leading up to this milestone began with an event held in 1972 under what name?
6. Dr. Ronald E. Mickens continued the work of which physicist with his efforts in extending the “Roster of Black Physicists”?
7. Brainstorm some possible reasons why it was important for Dr. Foster, Dr. Mickens, and others to develop a “Roster of Black Physicists”?
8. What other groups was the National Society of Black Physicists “not intended to supplant”? Why do you think the NSBP organizers were explicit in stating this?
9. What is the scope of the NSBP? Why did the NSBP develop connections with the National Society of Hispanic Physicists?
10. What kinds of issues does the NSBP advocate for on behalf of African American physicists?

Further Reading and Additional Resources

On the National Society of Black Physicists:
- Relevant Interviews with African American Physicists from the ScienceMakers Digital Archive):
  - Paul Gueye (The HistoryMakers ScienceMakers Video Archive A2012.022), interview by Larry Crowe, 02/06/2012, The HistoryMakers ScienceMakers Video Archive, Session 1, tape 7, story 1, Paul Gueye describes his involvement with the National Society of Black Physicists in exposing African American students to medical physics. http://smdigital.thehistorymakers.com/iCoreClient.html#/&i=20421.
  - Keith Jackson (The HistoryMakers ScienceMakers Video Archive A2008.028), interview by Larry Crowe, 09/10/2012, The HistoryMakers ScienceMakers Video Archive. Session 2, tape 11, story 2, Keith Jackson describes his involvement with the National Society of
Black Physicists (NSBP) – part one.


Resources on the Civil Rights and Black Power movements:


Scientific Societies

1. There are ten member societies and twenty-four affiliated societies that are part of the American Institute of Physics Federation of the Physical Sciences. They can be found at http://www.aip.org/member-societies.

2. Students can work individually or in groups to research the history of one of these societies. The following questions can be used:
   a. When was the society founded?
   b. What is the society’s mission?
   c. Who founded the society and in what region?
   d. What functions and programs does the society provide?
   e. Who does the society cater to?

3. Students can then present their findings to the class.

Common Core Standards

For more information on Common Core Standards, visit http://www.corestandards.org/.

Speaking & Listening

<p>| CCSS.ELA-LITERACY.SL.9-10.1 | Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grades 9-10 topics, texts, and issues, building on others’ ideas and expressing their own clearly and persuasively. |</p>
<table>
<thead>
<tr>
<th>Standard</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CCSS.ELA-LITERACY.SL.9-10.4</td>
<td>Present information, findings, and supporting evidence clearly, concisely, and logically such that listeners can follow the line of reasoning and the organization, development, substance, and style are appropriate to purpose, audience, and task.</td>
</tr>
<tr>
<td>CCSS.ELA-LITERACY.SL.11-12.1</td>
<td>Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grades 11-12 topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively.</td>
</tr>
<tr>
<td>CCSS.ELA-LITERACY.SL.11-12.4</td>
<td>Present information, findings, and supporting evidence, conveying a clear and distinct perspective, such that listeners can follow the line of reasoning, alternative or opposing perspectives are addressed, and the organization, development, substance, and style are appropriate to purpose, audience, and a range of formal and informal tasks.</td>
</tr>
<tr>
<td>History/Social Studies</td>
<td></td>
</tr>
<tr>
<td>CCSS.ELA-LITERACY.RH.9-10.1</td>
<td>Cite specific textual evidence to support analysis of primary and secondary sources, attending to such features as the date and origin of the information.</td>
</tr>
<tr>
<td>CCSS.ELA-LITERACY.RH.9-10.2</td>
<td>Determine the central ideas or information of a primary or secondary source; provide an accurate summary of how key events or ideas develop over the course of the text.</td>
</tr>
<tr>
<td>CCSS.ELA-LITERACY.RH.11-12.1</td>
<td>Cite specific textual evidence to support analysis of primary and secondary sources, connecting insights gained from specific details to an understanding of the text as a whole.</td>
</tr>
<tr>
<td>CCSS.ELA-LITERACY.RH.11-12.2</td>
<td>Determine the central ideas or information of a primary or secondary source; provide an accurate summary that makes clear the relationships among the key details and ideas.</td>
</tr>
</tbody>
</table>

**Next Generation Science Standards**


N/A