



Strategies for Teaching Science to African American Students

Introduction

To improve the schooling of African-American students teacher education programs must excel in preparing teachers and administrators who have an elevated level of authentic knowledge of African American culture; a deeper understanding of the impact African American culture has on behavior, learning styles, and preferred teaching styles; and a

genuine appreciation for the valuable repertoire of African-American students.

This guide is not comprehensive. Its purpose is to provide some background information and present some strategies for providing and assessing equity in the science learning environment.

Avoiding Bias

Teachers must take an introspective look at their own cultural background, understanding the effects their biases have when interacting with students. Only then can teachers examine the backgrounds and needs of their student population and understand their students' cultural biases as well.

- Recognize and understand the cultural differences among students from diverse backgrounds, and treat such differences with respect.
- Intervene immediately, should a fellow student disparage a Black student's culture or language
- Value the broad and varied experiences Black students bring to the classroom, and promote their acceptance.
- Avoid segregating students by cultural groups, and do not allow the students to segregate.
- Expand students' capacity to appreciate and deal with the differences in others, and help students to perceive self in a multi-cultural perspective.
- Demand the same level of excellence from all students.
- Have high science expectations for all students; positive expectations increase student achievement.
- Do not base a student's capability by their proficiency with the cultural mainstream.
- Due to cultural differences, cultural conflict and behavioral problems are more likely to emerge when minorities are unaware of expected cultural or communicative norms.
- Realize that every American is a product of his or her culture, and a tolerance and understanding of language differences must exist in such a diverse society.
- Many black students speak Ebonics; these differences in dialect must only be perceived as language variances, and not as a set back. These students should be accepted with a positive attitude and aided in the mastery of Standard American English.



- Students should be judged based on current situations and circumstances, not on previous mistakes.
- There exist congruencies between a student's learning style and the teacher's teaching style.
- Display flexibility in the context of a structured learning environment.
- Learn as much about minority students as other students.
- Respond fully to the comments of all student, especially minority and female students.
- Lead a science classroom discussion on stereotyping (minority and gender) and the consequence of stereotyping for science achievement.
- Involve the minority students who are not participating in science classroom discussions.
- Especially monitor achievement of minority students on a regular basis.
- Follow-up on students expressing interest in enrolling in advanced science courses. (Some minority students often do not follow through due to anxiety or outside discouragement.)
- Assist in the acceptance of the differences that minority students bring to the science classroom.
- Make science relevant and useful to all students, but especially to minority students.
- Permit students to bring life experiences into the science learning environment. (All students, especially minority students tend to perform best when content is related to previous experience.)
- Devise science exercises and activities that foster success on the part of all students, especially including minority and female students.
- Institute some science activities without grade assessment, which can help students, (including minority students) overcome initial anxiety.
- Have alternative testing methods appropriate for minority students.
- Recognize effort as well as accomplishment, especially for minority and female students.
- Use computers for more than drill exercises for all students, especially minority students. (Access to computer technology for creative activities increases motivation and awareness of useful applications of science.)
- Incorporate the historical and contemporary contributions of minority and female students in the science curriculum (e.g., biographical readings).
- Focus on activities designed to integrate science skills into everyday experiences of minority students.
- Take advantage of corporate programs which provide speakers to encourage the interest of minority students in science and technical careers.
- Encourage activity-based and hands-on programs for minority students.
- Try to schedule science courses so they do not conflict with electives that may be especially appealing to minority students.
- Make minority students aware that most jobs in the future will require strong math, computer, and science skills.
- Encourage all students, including minority students to participate in all class activities.



- Recognize that cultural backgrounds may discourage some students from active participation in the science classroom. (In some ethnic groups, volunteering a response or comment is a sign of disrespect for authority.)
- Talk with students about textbooks which create or perpetuate stereotypes based on minority status and sex and their effect on learning and career choice.
- Include in your curricula biographical readings about minorities and women in science fields.
- Present science as a subject that everyone can learn rather than as an elite and difficult subject.
- Motivate your students to solve a problem for the fun of it or the satisfaction of getting a right answer.
- Intervene immediately should a fellow student disparage a minority student's culture or language.
- To teach minority students equally well, you must understand how their cultural background may influence their classroom interactions.
- Be a classroom activist. Take on different roles different cultural backgrounds and to vary your methods of instruction to ensure that you address all students.
- Demand the same level of excellence from the minority student as from the traditional student.
- You need not be an expert on the different cultures, but you should be sensitive to the fact there are differences and that such differences must be respected.
- Avoid segregating students by cultural groups, and don't allow the students to segregate themselves.
- Allow students to select topics in some science study units. (This offers additional opportunities for students to relate their backgrounds and interests to science.)
- Many students learn principles of science easier through discussion and exploration rather than by traditional lectures.
- Have activities which stress thought processes rather than exclusive reliance on single answer responses.
- Construct math/science word problems that are relevant to students. (A personal health problem is more realistic to many students than an epidemiological problem.)
- Many African American students, for example, speak Black dialect. These variances must be perceived as only a difference, but not a deficit or deficiency. Children who speak other languages or dialects should be accepted with a positive attitude and aided in the mastery of Standard American English.
- To design a curriculum model and instructional strategies appropriate for each student, professionals must understand the student's individual and cultural characteristics.
- Multipurpose and multilevel test batteries, instead of a single score or a small number of scores, can provide a more accurate picture of the range of a student's intellectual ability.
- The learning difficulties experienced by African American students should be viewed by teachers as a result of cultural differences rather than indices of inherent and incorrigible intellectual deficit.
- Efforts should be made to increase minority childrens' motivation and interest in testing by helping them feel comfortable and at ease.



- Use the student's culture to help the student to create meaning and understand the world.
- Possess a repertoire of varied teaching styles and adjust them to accommodate varied learning styles among children.
- Maintain participatory, dynamic, and spontaneous classrooms.
- Display flexibility in the context of a structured learning environment.

Reference:

- Reference: Effective Education of African American Exceptional Learners- New Perspectives edited by Bridgie Alexis Ford, Festus E Obiakor, and James M. patton pro-ed
- Reference: Teaching In A Diverse Society
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