

APPENDIX V – 52



Multicultural Science Education

The knowledge children bring to school, derived from personal and cultural experiences, is central to their learning. To overlook this resource is to deny children access to the knowledge construction process.



Think About:

Minority students continue to detach from science, and few pursue a career in science (NSTA 2015).

What are some factors contributing to the detachment of minorities in science?

1. Independently think about this statements and express your thoughts on paper.
2. Discuss your thoughts with a partner.
3. Share out.

National Science Teachers Association

Adopted By The Board Of Directors, July 2000

- ✓ Children from all cultures are to have equitable access to quality science education experiences.
- ✓ Curricular content must incorporate the contributions of many cultures to our knowledge of science.
- ✓ Science teachers are knowledgeable about and use culturally-related ways of learning and instructional practices.
- ✓ Instructional strategies selected for use with all children must recognize and respect differences students bring based on their cultures.



What's Culture Got To Do With It?"

1. Culture exerts a powerful influence on teaching and learning.
2. A focus on students' cultural knowledge leverages the affective and the cognitive scaffolding that students bring with them.
3. Background knowledge and usable information are needed in order to use Multicultural materials and to apply Culturally Responsive strategies.

Generative Theme Activity

Independently:

- list words that you associate with the word “CULTURE”

From that list:

- select the words which are most important to you (**no more than five**).

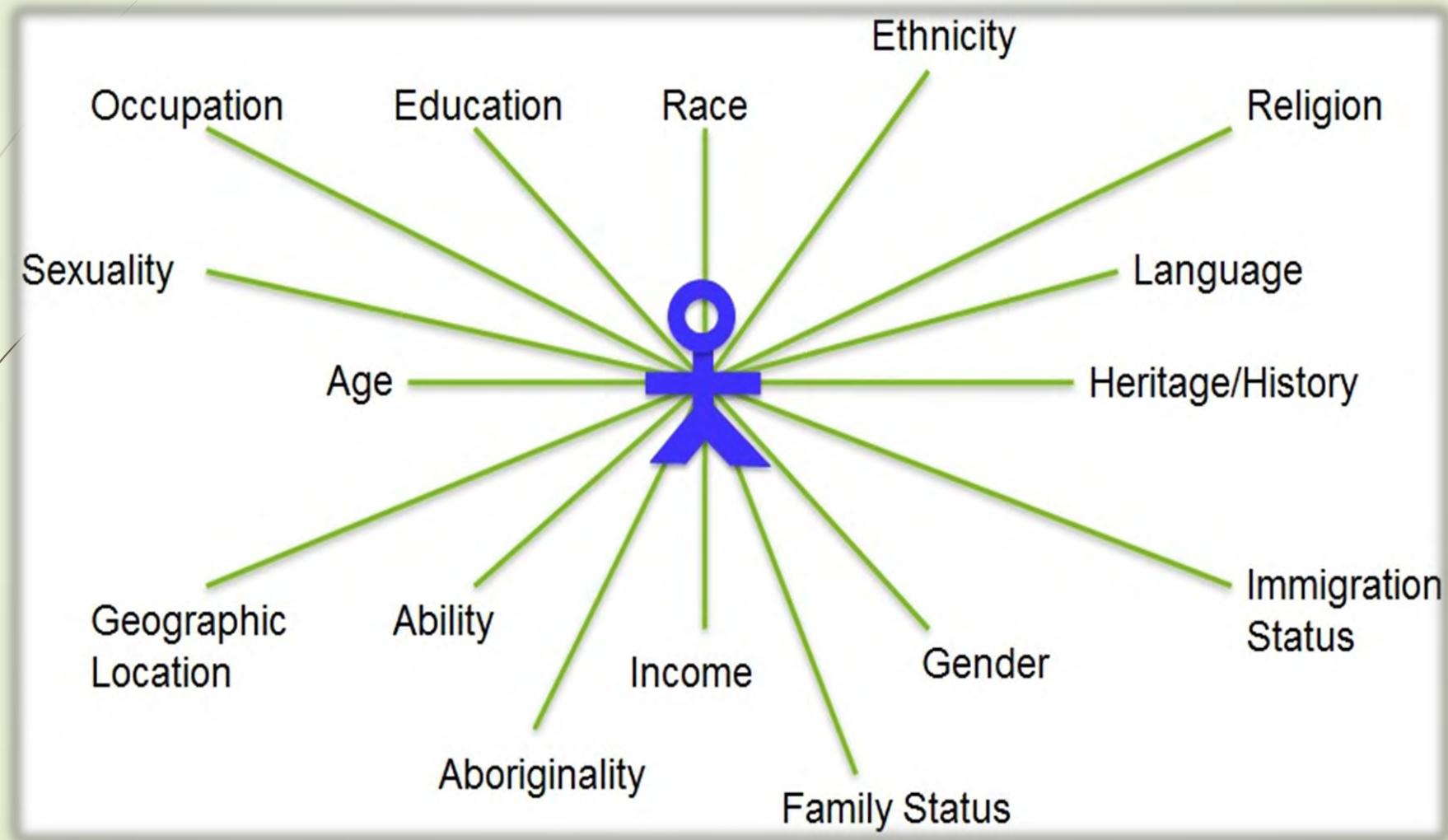
When finished:

- silently, one at a time, write your words on the board.

Working individually:

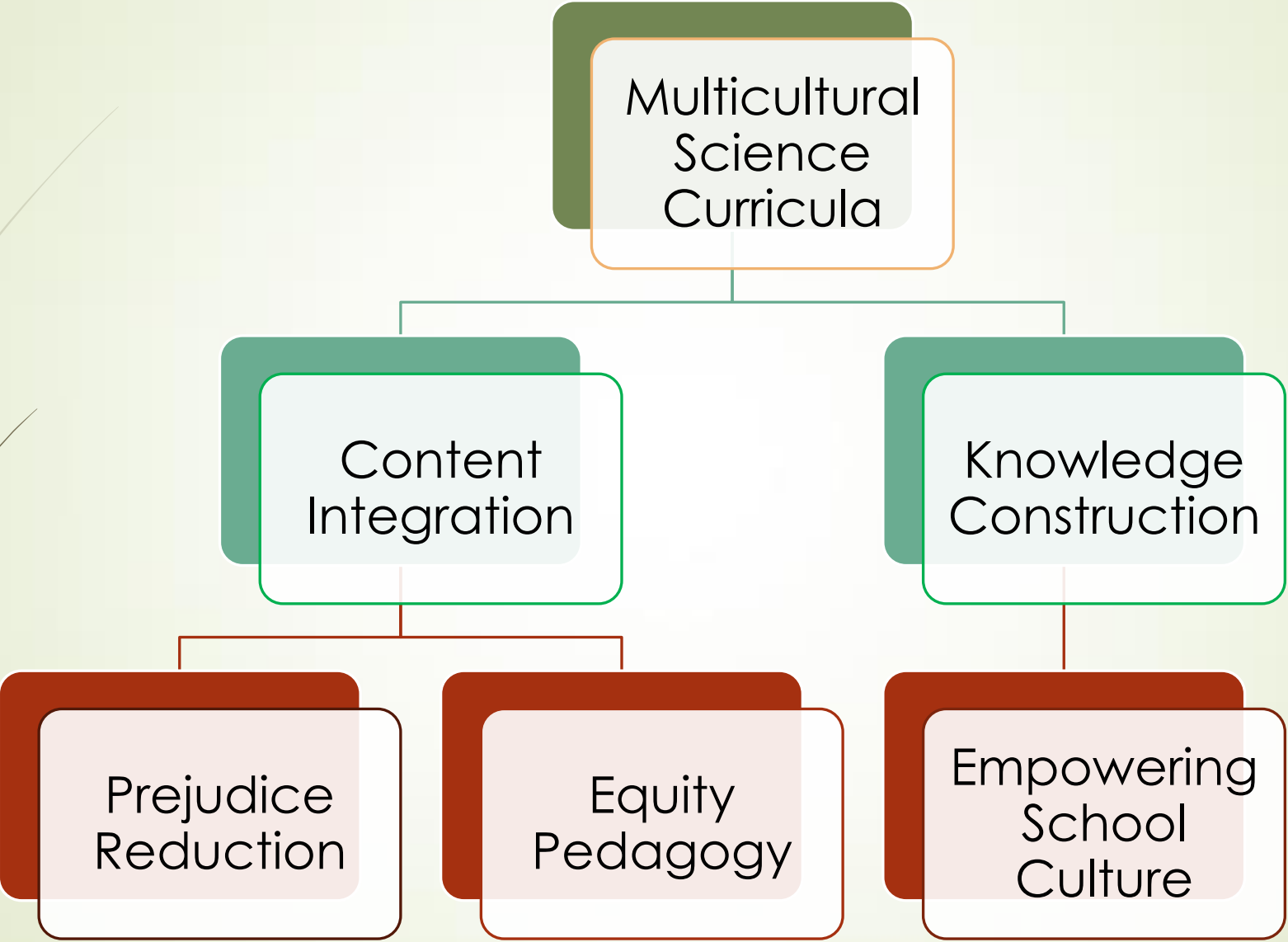
- try to group them according to some logical and meaningful system of organization.
- give each of these categories a title if you can think of one.

Intersection of Culture



Cultural Archetypes

Individualism - "pull-yourself-up-by-your-bootstraps"	Collectivism – "I am because we are"
Focused on independence and individual achievement	Focused on interdependence and groups success
Emphasizes self reliance	Emphasizes reliance on the collective wisdom of group or resources
Learning happens through Individual study	Learning happens through group interaction and dialogue
Competitive	collaborative
Technical/analytical	Relational




Levels of Transformation

Transformative Multicultural Science Education

Level I: Content integration - Teachers use examples and content from a variety of cultures and groups to illustrate key concepts, principles, generalizations, and theories in their subject area or discipline. (review your lesson plans/units – how inclusive are they?)

Level II: Knowledge Construction - Multicultural teaching involves not only infusing diverse content into the school curriculum, but changing the structure and organization of school knowledge. (do your lesson's facilitate inquiry?)

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- **Level III: Prejudice Reduction** - A critical goal of multicultural education; involves development of positive relationships and tolerant attitudes among students of different backgrounds.
 - **Level IV: Equity Pedagogy** - Culturally responsive teachers use cultural knowledge, prior experiences, frames of reference, and performance styles of ethnically diverse students to make learning encounters more relevant to and effective for them.
 - **Level V: Empowering school culture** - A school culture in which the institution's organization and practices are conducive to the academic and emotional growth of all students.

Summary

- Use culture as a scaffold to cognition.
- Heterogeneous student grouping.
- Inquiry and discourse by students and the teachers throughout the lesson. Use of literature (stories) to connect the conceptual goal for the lesson.
- Active participation – exploration, research, creative experimentations.
- Diverse content.
- Field experiences.
- Process skills for discovery – observing, classifying, communicating, testing.
- Authentic Assessments.

CULTURALLY RESPONSIVE STRATEGIES

October 24th

- ❖ Science should be presented in a culturally diverse context that includes all students.
- ❖ Science presented as a hands-on, activity-based, problem-solving instructional program couched in constructivist theory enables all students, including students of color, to excel in science.