Gifted Education and the Environment

The Texas State Plan for the Education of Gifted and Talented Students states, “Curriculum and instruction meets the needs of the gifted students by modifying the depth, complexity, and pacing of the general school program.”

Depth

Gifted students can explore the environment in depth through studying both geography/social studies and science. They should be challenged with learning opportunities that require them to drill deeply into issues related to conservation, sustainable development, and general environment-society relations.

Depth can be achieved by requiring students to move
• from the familiar to the unfamiliar,
• from the known to the unknown, and
• from concrete concepts to more abstract ideas.

Gifted students need learning experiences that allow them to go past facts and concepts to discover generalizations, principles, theories, and laws.

Remember that we want to move students from low-level tasks such as knowledge and upwards to synthesis, evaluation, and analysis (see Bloom’s Taxonomy)

Depth can also be achieved by asking students to investigate the layers of experience within a topic through:
• The language related to the topic, that is the vocabulary, skills, and tools used by environmentalists and geographers;
• Details, the factors and variables that scientists and geographers consider;
• Patterns, spatial and temporal, that allow for prediction of events and conditions;
• Trends, such as the forces and processes at work shaping the environment, both natural and human induced;
• Unanswered questions, the mysteries and areas still not understood as they relate to the environment, sustainable development, climate change, etc.;
• Big ideas, that is the principles related to the environment and its conservation; and
• Ethical considerations, such as competing points of view and opinions related to the environment.
Complexity
Understanding the environment, how it works, and the relationships among human and physical systems is a complex enterprise encompassing many disciplines. It is not simple, neat, and regular.

Gifted and talented students need to have many opportunities to explore the complete, messy, and ambiguous set of interlocking elements that combine to form ecosystems, physical systems, human systems, and eventually, the environment. They need to look at relationships over time, and to see how humans' expanding technological skills have had an increasingly significant impact on Earth's physical systems. Looking at environmental issues from multiple perspectives and points of view will help students to appreciate complexity as well.

Depth and complexity are interrelated and mutually reinforcing components of Gifted and Talented education.

Categories in the Cognitive Domain: (with Performance-Illustrating Verbs)

1. Knowledge of terminology; specific facts; ways and means of dealing with specifics (conventions, trends and sequences, classifications and categories, criteria, methodology); universals and abstractions in a field (principles and generalizations, theories and structures): Knowledge is (here) defined as the remembering (recalling) of appropriate, previously learned information.
   □ defines; describes; enumerates; identifies; labels; lists; matches; names; reads; records; reproduces; selects; states; views.

2. Comprehension: Grasping (understanding) the meaning of informational materials.
   □ classifies; cites; converts; describes; discusses; estimates; explains; generalizes; gives examples; makes sense out of; paraphrases; restates (in own words); summarizes; traces; understands.

3. Application: The use of previously learned information in new and concrete situations to solve problems that have single or best answers.
   □ acts; administers; articulates; assesses; charts; collects; computes; constructs; contributes; controls; determines; develops; discovers; establishes; extends; implements; includes; informs; instructs; operationalizes; participates; predicts; prepares; preserves; produces; projects; provides; relates; reports; shows; solves; teaches; transfers; uses; utilizes.

4. Analysis: The breaking down of informational materials into their component parts, examining (and trying to understand the organizational structure of) such information to develop divergent conclusions by identifying motives or causes, making inferences, and/or finding evidence to support generalizations.
   □ breaks down; correlates; diagrams; differentiates; discriminates; distinguishes; focuses; illustrates; infers; limits; outlines; points out; prioritizes; recognizes; separates; subdivides.

5. Synthesis: Creatively or divergently applying prior knowledge and skills to produce a new or original whole.
   □ adapts; anticipates; categorizes; collaborates; combines; communicates; compares; compiles; composes; contrasts; creates; designs; devises; expresses; facilitates; formulates; generates;

http://faculty.washington.edu/krumme/guides/bloom.html
incorporates; individualizes; initiates; integrates; intervenes; models; modifies; negotiates; plans; progresses; rearranges; reconstructs; reinforces; reorganizes; revises; structures; substitutes; validates.

6. **Evaluation**: Judging the value of material based on personal values/opinions, resulting in an end product, with a given purpose, without real right or wrong answers.
   - appraises; compares & contrasts; concludes; criticizes; critiques; decides; defends; interprets; judges; justifies; reframes; supports.