This course is designed to provide for students with IEPs to provide the student with theories and principles related to Environmental Science and Natural Resources. Students will learn about the science in natural resources, conservation, soil, water, wildlife habitat, forest species, air pollution, land quality, weather and climate, environmental impact on mineral use, sustainable systems and waste management. At the end of the course, students will have studied all of the State Environmental Science standards at a modified reading level and pace. This course is intended for students with IEP’s.

GENERAL GOALS/ESSENTIAL QUESTIONS:

The overall aim of this curriculum will:

1. Utilize Environmental, Earth, Agriculture & Natural Resource concepts as a relevant vehicle to teach biological, physical, and geoscience principles and improve the science principles and scientific literacy of students.

2. Integrate various science principles into an academically challenging course that increases the student’s capacity to think analytically, problem solve, and utilize effective research practices.

3. The course objectives are as follows:
   a. Understand the importance of Natural Resources and its relationship to humans.
   b. Describe and identify the human population trends and demands on our resources.
   c. Understand the science of natural resources
   d. Analyze the natural resource damage that occurring in our ecological system.
   e. Hypothesize solutions for soil sustainability.
   f. Examine the importance of water and the water cycle.
   g. Describe the climatic influences on plant growth and development.
   h. Incorporate scientific methods and biological principles with modern Natural Resource practices.
   i. Understand how ecosystems overlap, interconnect and affect each other.
   j. Examine, compare and contrast various energy sources.

CCSS READING COMPONENT:

At a modified pace and level, students will be required to:
1. Read text (Environmental Science by Holt, Rinehart and Winston 2008) and handout materials.
2. Complete workbook activities other class work as assigned.
3. Research concepts using the Internet and literary resource materials.
4. Read scientific articles and periodicals for current research and studies.

**CCSS WRITING COMPONENT:**

At a modified pace and level, students will be required to:
1. Plan, Organize and Write a Research Report on Environmental Topics, Agriculture or Natural Resources
2. Compose Presentation Materials
3. Write Laboratory Reports
4. Keep an ongoing interactive Notebook of topic knowledge and conceptual understanding

**CCSS SPEAKING AND LISTENING COMPONENT:**

At a modified pace and level, students will be required to:
1. Answer questions in class.
2. Communicate concepts being instructed on in class.
3. Present research findings in Oral Presentations to classmates.
4. Present and explain projects and research findings to teachers and classmates.

**DETAILED UNITS OF INSTRUCTION:**

1. Introduction to Environmental Science
   a. Fields within Environmental Science
   b. Renewability & Exhaustibility
   c. Conservation and Preservation
   d. Green Technology

2. Use of Natural Resources
   a. Human Population Trends & Demands
   b. Resource Supply & Population
   c. Impact of non-native species in ecosystems
   d. Urban and Rural Impacts to the Environment
   e. Resource Recycling & Reuse

3. Science Principles
   a. Ecology
   b. Ecosystems
   c. Succession

4. Natural Resource Conservation
   a. The Importance of Conservation
   b. Natural Resource Damage & Pollution
   c. History of Natural Resource Conservation
   d. Environmental Impact of Mineral Use
   e. Mineral Use and Supply

5. Soil - Renewable Natural Resource
   a. The Importance of Soil
   b. Human Impacts on Soil
6. Weather and Climate  
   a. Weather and Climate as Resources  
   b. Latitude and Longitude  
   c. Shifting Climates  
   d. Relationships to the Environment  

7. Water and Natural Resources  
   a. Water Composition and States  
   b. Water as riparian habitat and marine species  
   c. Factors that impact water quality  

8. Air  
   a. Air Quality & Pollution  
   b. Air Quality Standards  
   c. Testing Air Quality  
   d. Preventing Air Pollution and its Impact on the Environment  

9. Wildlife  
   a. Wildlife Animals  
   b. Wildlife Endangerment & Protection Practices  

10. Forests  
    a. Use of Forests  
    b. Physical Structure of Forests  
    c. The role of fire management in forest and wilderness areas.  
    d. Forest Management and sustainable harvesting  

11. Energy as a Natural Resource  
    a. Sources of Energy  
    b. Energy Conservation  
    c. Green Energy: wind, solar, water, geothermal, nuclear fusion, and other possible sources.  

12. Sustainable Agriculture  
    a. Sustainable Agriculture Systems  
    b. Sustainable pest and insect management  
    c. Sustainable Agriculture Practices  

13. Environmental Science Research Project  
    a. Development of Environmental Science Research Project  
    b. Analysis of project results  

14. Professional Opportunities in Environmental Science  
    a. Field Trips, Guest Speakers, Career Education  

**TEXTBOOKS AND RESOURCE MATERIALS:**  
Environmental Science  
Houghton Mifflin Harcourt Copyright 2013  
Heithaus and Arms  
Online Resources and CD Rom  
YouTube – Free videos ranging from ecology to eco systems  

**SUBJECT AREA CONTENT STANDARDS TO BE ADDRESSED:**  
- Introduction to Environmental Science (Inv. & Experimentation)
- Use of Natural Resources (History-Social Science 10.10-1, 10.10-2, Biology 6c, Earth 9a)
- Science Principles (Earth 1a-d)
- Natural Resource Conservation
- Minerals (Earth 1c)
- Soil - Renewable Natural Resource (Earth 3c)
- Land Resources (Inv & Experimentation, History-Social Science 11.11-5, 7)
- Weather and Climate (Earth 5, 6abcd, 8a-c)
- Water and Natural Resources (Earth 4, 5, 6, 7a-d, 9c; Biology 6d,f)
- Air (Earth 4, 5, 6, 7a-d; Biology 6d,f)
- Wildlife (Biology 6a-g, 7a, d, 8a, b)
- Forests (Biology 6a-g, 7a, d, 8a,b)
- Energy As a Natural Resource (Inv. & Experimentation)
- Sustainable Agriculture (Inv. & Experimentation, Earth 9a)
- Environmental Science Research Project (Inv. & Experimentation)
- Professional Opportunities in Environmental Science

**COMMON CORE STANDARDS TO BE ADDRESSED:**

**Key Ideas and Details**

**CCSS.ELA-Literacy.RST.11-12.1** Cite specific textual evidence to support analysis of science and technical texts, attending to important distinctions the author makes and to any gaps or inconsistencies in the account.

○ Students will be reading and analyzing the text and articles on the environment and then articulating the information in a summary of understanding.

**CCSS.ELA-Literacy.RST.11-12.2** Determine the central ideas or conclusions of a text; summarize complex concepts, processes, or information presented in a text by paraphrasing them in simpler but still accurate terms.

○ Students will learn the basics of an ecosystem. They will be able to provide an accurate summary of the differences between land and aquatic ecosystems and contrast the differences between each.

**CCSS.ELA-Literacy.RST.11-12.3** Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text.

○ Students will follow a detailed task analysis on how to perform experiments and will record information in a prescribed manner to insure accuracy.

**Craft and Structure:**

**CCSS.ELA-Literacy.RST.11-12.4** Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 11–12 texts and topics.

○ Students will be able to define and explain the meaning of various science terms such as biodiversity and ecological footprint.

**Integration of Knowledge of Ideas:**

**CCSS.ELA-Literacy.RST.11-12.7** Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., quantitative data, video, multimedia) in order to address a question or solve a problem.

○ Students will use a variety of resources to include the internet, newspaper and the assigned text to draw conclusions and present arguments to the class.
CCSS.ELA-Literacy.RST.11-12.8 Evaluate the hypotheses, data, analysis, and conclusions in a science or technical text, verifying the data when possible and corroborating or challenging conclusions with other sources of information.
○ Students will use the scientific method to evaluate experiments along with a teacher prepared rubric

Range of Reading and Level of Text Complexity
CCSS.ELA-Literacy.RST.11-12.10 By the end of grade 12, read and comprehend science/technical texts in the grades 11–CCR text complexity band independently and proficiently.
○ Students will follow along with an audio book and read both in a group setting as well as independently during class. During the audio book the teacher will frequently check for understanding of the text by stopping the audio and asking open ended questions.

DISTRICT ESLRs TO BE ADDRESSED:

Students will be:

• **Self-Directed Learner:** Students will be required to work independently, monitor their progress and meet assignment requirements at stated intervals. This class will prepare students to be self-directed lifelong learners.

• **Effective Communicator:** Students will communicate their understanding of science concepts through written and oral expression.

• **Quality Producer/Performer:** Students will demonstrate successful performance through unit assessments, report on an appropriate topic, and labs.

• **Constructive Thinkers:** Reading and analysis of text provided case studies and opposing points of view will develop students’ problem solving/critical thinking skills.

• **Collaborative Workers:** Students will need to identify and gather resources and information from outside the school and home to complete assignments.

• **Responsible Citizens:** Students will become more knowledgeable of issues concerning the environment on a regional and global scale.