MEDFORD HIGH SCHOOL
COURSE SYLLABUS

Department:	Science

Course Title:	Environmental Science

Level and/or Grade:	Standard; Grades 10-11

Prerequisite:	Passing grades in Biology and Chemistry.

Course Description:

Environmental science enables students to develop an understanding of the natural environment and the environmental problems the world faces. Students will investigate, through inquiry, labs, project work, presentations, and field experiences, topics such as fundamental ecological principles, human population dynamics, natural resources, energy sources and their use, human interaction with the environment, and personal and civic responsibility. Particular emphasis will be placed on local environments so students develop a basic understanding of ecology as a basis for making ethical decisions and career choices.

Learning Standards: *Students will be able to….*

Ecological Principles:
- Investigate factors that influence and are influenced by the natural environment.
  - Understand the structure and function of ecosystems.
  - Explore the major biomes of the earth and the biodiversity associated with these biomes.
  - Analyze and interpret population dynamics.
  - Relate earth processes to ecosystems dynamics.
  - Understand interdependence in ecosystems.
  - Explore factors affecting the vulnerability of a species to extinction.

Human Population Dynamics:
- Understand the nature of human population dynamics.
  - Examine factors affecting human population dynamics.
  - Consider causes and consequences of human population growth.
  - Investigate approaches that address overpopulation.

Natural Resources:
- Survey non-energy natural resources and their conservation.
  - Explore the types, uses, and history of non-energy renewable and nonrenewable resources.
  - Investigate methods of conservation of common non-energy resources.
  - Determine the impact of waste production and management on the environment.

Energy:
- Analyze energy use and its environmental consequences.
  - Explore both conventional and alternative energy sources.
  - Understand the types of energy related pollution.
  - Compare various methods of energy conservation.

Human Interaction with the Environment:

- Trace the interaction of humans with their environment.
  - Understand the causes, environmental effects, and methods for controlling pollution.
  - Investigate the environmental impact on human health.
  - Explore the relative sustainability of various practices in the areas of watershed management, agriculture, solid waste management, wastewater management, and development.

Personal and Civic Responsibility:

- Understand his/her personal and civic responsibility concerning issues related to the environment.
  - Evaluate and articulate his/her own personal views concerning the environment.
  - Recognize his/her rights and responsibilities as a citizen in maintaining a healthy environment.

Course Alignment with High School Expectations for Student Learning:

Students will…

1. Analyze, interpret, evaluate and use logical reasoning to solve problems using a variety of resources and strategies.
   - Make observations, raise questions, and formulate hypotheses.
   - Read, interpret, and examine the credibility and validity of scientific claims in different sources of information.
   - Design and conduct scientific investigations - identify purpose, select appropriate tools and conditions; identify variables; write clear procedures; measure accurately and collect data in organized ways; follow safety guidelines.
   - Analyze and interpret results of scientific investigations.
2. Communicate effectively to a variety of audiences.
   - Communicate orally and in writing, and apply the results of scientific investigations.
   - Explain diagrams and charts and prepare lab reports,
   - Use language and vocabulary appropriately, speak clearly, and use appropriate technology.
3. Create works using a variety of communication forms.
   - Present arguments through writing; solve problems through projects, homework, tests, and lab experiences; use technology; make oral presentations.
4. Develop skills and knowledge to reach personal and career goals.
   - Develop 'habits of mind': work beyond center of competence; gain attitude of persistence; seek feedback; develop confidence.
   - Become familiar with careers related to science.
5. Work cooperatively to achieve objectives.
   - Work in pairs, small groups, and part of the whole class to solve problems.
   - Analyze and evaluate the mathematical thinking and strategies of others.

Assessment:

- See grading policy attached.