DOBBS FERRY MIDDLE SCHOOL
Dobbs Ferry, New York 10522

COURSE OUTLINE

SUBJECT: EARTH AND SPACE SCIENCE GRADE: 8

Curriculum reflects NYSSLS and MYP Learning Criterion

COURSE DESCRIPTION:

This course covers the basic concepts within **Astronomy**, **Weather and Climate**, **Geology**. It is the final academic year of the NYS Intermediate Level Science Test. The students will take the NYS 8th Grade Science Exam given towards the end of the school year. This complies with the NYSSLS. The course also engages the four IB Middle Years Program (MYP) learning and assessment Criteria.

ANTICIPATED OUTCOMES:

By June of the school year, students in this class will be able to do the following:

Space Systems

- Develop and use a model of the Earth-Sun-moon system to describe the cyclic patterns of lunar phases, eclipses of the Sun and moon, and seasons
- Develop and use a model to describe the role of gravity in the motions within galaxies and the solar system
- Analyze and interpret data to determine scale properties of objects in the solar system.

History of Earth

- Construct a scientific explanation based on evidence from rock strata for how the geologic time scale is used to organize Earth's 4.6-billion-year-old history.
- Construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying temporal and spatial scales.
- Analyze and interpret data on the distribution of fossils and rocks, continental shapes, and seafloor structures to provide evidence of the past plate motions.

Earth's System

- Develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process
- Develop a model to describe the cycling of water through Earth's systems driven by energy from the Sun and the force of gravity.
- Construct a scientific explanation based on evidence for how the uneven distributions of Earth's mineral, energy, and groundwater resources are the result of past and current geologic processes.

Weather and Climate

- Collect data to provide evidence for how the motions and complex interactions of air masses result in changes in weather conditions.
- Develop and use a model to describe how unequal heating and rotation of Earth cause patterns of atmospheric and oceanic circulation that determine regional climates.
- Ask questions to clarify evidence of the factors that have caused the rise in global temperatures over the past century.

Human Impacts

- Analyze and interpret data on natural hazards to forecast future catastrophic events and inform the development of technologies to mitigate their effects.
- Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.
- Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.

MATERIALS:

- Notebook with paper (Spiral or binder section)
- Folder
- Pens, pencils, erasers, basic set of colored pencils

CRITERIA FOR ASSESSMENT:

- **Materials required or used:**
- To Be Determined

Criteria for grading:

- Students will be graded using the averaging system. Students' grades will reflect their class participation, quizzes, homework, labs, projects and tests.
- The course also engages the four IB Middle Years Program (MYP) learning and assessment Criteria.
- Criterion A –Knowing & Understanding – through classroom presentations, demonstrations and evaluations
- Criterions B and C – Inquiring & Designing and Processing - Evaluating by means of hands-on lab activities
- Criterion D – Reflecting on the Impacts of Science through student created presentations, projects, and reflective pieces.

Outline developed by: Science Department *Date: Spring 2025*