

**Eighth Grade Science**  
**Amy Stewart**  
**Colegio Panamericano**

**Science Department Philosophy**

In a more complex, competitive, and changing world, to teach science means to contribute to the education of our citizens, and to enable them to develop critical thinking, creativity and curiosity. This challenge gives us the opportunity to promote a critical education, which is tolerant of diversity in the community. This education should be a bridge based on solidarity and responsibility among the community members. Our students should be able to utilize science to understand natural phenomena, theories, laws, and make contributions to society.

**Course Description**

In eighth grade science, students will explore the world around them through the study of physical, earth, and life science. We will learn through hands-on activities and experiments, research, and cooperative learning. Students will be expected to take pride and joy in their learning, to push their thinking, and to respect the ideas of others.

**Policies & Procedures**

During the first week of school, each class will hold and discussions to create a class contract that will serve as our policies and procedures for the year. This document will cover expectations of behavior, work ethic, and homework, and will be sent home for both parent and student signatures once complete. Our policies will be consistent with those created and sent home by the entire 7-8 team.

**Units:**

**Origins of the Universe and Life on Earth**

- Evidence of common ancestry and diversity (fossil record, comparative anatomy and embryology)
- Geologic time scale
- Seafloor generation
- Geologic evidence of the relative movement of tectonic plates

**Earth's Cycles**

- Weathering & erosion
- Water cycle (molecular level)
- Nutrient cycles

**Reproduction**

- Sexual vs. Asexual reproduction
- Cellular reproduction
- Genes, chromosomes, and genetic variance

**Adaptations**

- Genetic variance and population dynamics
- Mathematical representations of trait distribution probability

**Photosynthesis and Cellular Respiration**

- Chemical reactions involved in photosynthesis and cellular respiration
- Energy & matter flow through ecosystems

**Force & Motion**

- Newton's Laws

- Interactions between objects
- Types of energy and energy transfer
- Attractive vs. Repulsive forces
- Factors that increase and decrease force strength