Unit Premier:
How the World Works

In this unit, your child will use the engineering process to solve pollution problems of Ancient Greece and Rome by designing and creating an aqueduct as a way to allow clean water to be transported. Students will research modern ways of reducing pollution, including composting and recycling. Students investigate and experiment with different matter found on Earth including the properties of matter, and the changing states of water. Through a variety of literature they will compare and contrast lives in ancient societies to life today, to draw parallels and infer how life-style choices effect the environment. Students will also explore the role of government in regulating behaviors that are harmful to societies and need for laws that protect the environment and the economy.

IB Instructional Elements

Theme-

Six transdisciplinary units that: have global significance and offer students the opportunity to explore the communities of human experience.

- **How the World Works** – An inquiry into the natural world and its laws; the interaction between the natural world (physical and biological) and human societies; how humans use their understanding of scientific principles; the impact of scientific and technological advances on society and on the environment
- ***Lincoln Curriculum Connection (LCC)–*** Students will create a mind map centered on the topic "The Advancements that Help Preserve the Environment".

Learner Profile

A set of attributes that, taken as a whole, lay the foundation upon which international-mindedness will develop and flourish

- **Inquirer**—Students develop their natural curiosity. They acquire the skills necessary to conduct inquiry and research and show independence in learning. They actively enjoy learning and this love will be sustained throughout their lives.
- ***LCC-*** Students will use wondering and questioning to conduct inquiry and research on our effect on environmental issues.
- ***Balanced—***they understand the importance of intellectual, physical and emotional balance to achieve personal well being for themselves and others.
- **LCC—** Students will correctly incorporate all parts of an aqueduct to allow it to function properly.
- **Principled—**They act with integrity and honesty, with a strong sense of fairness, justice and respect for the dignity of the individual , groups and communities. They take responsibility for their actions and the consequences that accompany them.
- **LCC—**Students will make better choices in waste disposal to help preserve the environment, even when it wasn't the easiest way of getting rid of their trash.
- **Caring**—They show empathy, compassion and respect towards the needs and feelings of others. They have a personal commitment to service, and act to make a positive difference to the lives of others and to the environment.
- **LCC—Caring**- Students research and develop ways to preserve the environment.

Attitudes

Expressions of fundamental values, beliefs and feelings about learning, the environment and people.

- **Appreciation**— Appreciating the wonder and beauty of the world and its people.
- **LCC—**Students journal a reflection on how advancements in society help preserve the environment
- **Cooperation**—Cooperating, collaborating, and leading or following as the situation demands.
- **LCC**— Students will work in collaborative groups to research and create their aqueducts.

Key Concepts

Powerful ideas that have relevance within the subject areas but also transcend them and that students must explore and re-explore in order to develop a coherent, in-depth understanding.

- **Causation—** the understanding that things do not just happen, that there are casual relationships at work, and that actions have consequences.
- **LCC—**Students report on the impact of trash disposal in ancient civilizations on the environment.
- **Function**—The understanding that everything has a purpose, a role or a way of behaving that can be investigated.
- **LCC**—Students create a government in their class, organize levels of government and pass the laws, including those pertaining to environment.
- **Form**—The understanding that everything has a form with recognizable features that can be observed, identified, described and categorized.
- **LCC**—Students engineer an efficient aqueduct to transport clean water.

Transdisciplinary Skills

Those capabilities that the students need to demonstrate to succeed in a changing, challenging world, which may be disciplinary or transdisciplinary in nature.

- Students will develop **social skills** as they cooperate in a team, making decisions about how to construct an efficient aqueduct. Students will use **research skills** to observe and collect data on matter and shapes found on Earth, and then organize their finding to design a plan for an aqueduct. The development of thinking skills will occur as students synthesize research from a variety of sources and evaluate their choice of ways to preserve our environment. **Self-management** skills will be used as students physically construct their aqueduct, combining gross and fine motor skills. Students will speak to present their aqueduct and act as a listening audience member.