Eco-Advocacy

Students learn about topics affecting sustainability, such as global warming, resource management/mismanagement, and conservation. Students learn about farming in the future using hydroponics systems, composting, propagation, and cloning plants. In addition, they are introduced to the concepts of wick fed gardens, liquid nutrients, the life cycle of plants, and the water cycle. In the study of Sukkot, students learn the importance water plays in the *Tanakh* and in Israel today. Students explore the meaning of, *Ein Mayim, Ein Torah* and the prayer for rain. Students conducted an in-depth study of texts related to water as well. Food security was addressed through the *parashiyot* of Yosef and reimagining the story had there been an abundance of food. Throughout this unit, students develop their critical and creative thinking skills to become advocates for the planet.

Activity: What is Sustainability?

SUSTAINABILITY UNIT

Sustainability	Types of Resources (focus on water, fossil fuel-petroleum) Conservation Resource Management (recycling, landfills) and Mismanagement (oil spills, global climate change) Hydroponics (prefaced with photosynthesis-Science Fair) Food and Green Living	How can resources be managed and mismanaged? What a sustainable solutions to environmental Challenges? What are different types of resources? How can residents of Austin be sustainable using local Resources? How can hydroponics be a sustainable growth source for *the world?*

Using local and national standards/TEKS(Texas Essential Knowledge and Skills) the following student expectations were used to preface the unit:

SWBAT (Students will be able to)
SWBAT define sustainability.
SWBAT understand the use and misuse of resources.
SWBAT formulate sustainable solutions.
SWBAT see how resource use can impact the environment.

Included are two weeks of lesson plans from this unit.

INSERT: Science Lesson Plans2.pdf

Activity: Natural Resources-Oil Spill Lab

Students work in cooperative learning groups as ecologists to investigate and recommend cleaning agents for an oil spill.

Accessing Prior Knowledge:

1. What is an oil spill?
2. How do oil spills occur?
3. What type of oil is involved in them?
4. What is the impact of an oil spill on the environment?
5. How are they cleaned up?
6. Who is responsible for cleaning up oil spills?

Which clean up strategy will work the best for an oil spill occurring:

1. In an open ocean
2. On a sandy beach
3. Along a rocky coastline

Students are reminded to consider factors such as ocean currents, surface area, weather, and wildlife habitat.

WHERE	BEST METHOD	EVIDENCE?
Open Ocean		
Sandy Beach		
Along a Rocky Coastline		

TASK:

As an ecologist, you are hired to investigate and recommend a cleaning agent for oil spills. The task involves investigating the absorbent products provided as a team, with the final recommendation done as an individual.

AIM:

Contain the oil spill and separate as much oil as possible from the water, with the least amount of money spent.

INSERT: Photo of students Oil Spill Lab

Activity: Climate change and its connection to sustainability. Students created Global Warming Commercials to focus on resource mismanagement. The created a survey to evaluate their projects.

INSERT: Global Climate Change Webquest.pdf
INSERT: Global Climate Change Commercials Survey.pdf

Student resource websites:
http://globalwarmingkids.net/web_sites/index.html
http://tiki.oneworld.net/global_warming/climate_home.html
http://www.epa.gov/climatechange/kids/

Activity: Farming for the future
Brought to you by Mrs. Hidalgo's 5th Graders-Science Fair Project connected to our Sustainability Unit

Future Farm Fun

The students used the Wild Science Future Farm (by Wild Science and purchased on Amazon) as a learning tool for this project. With this kit, students grow plants inside a clear dome mountain. Students learn how to plant, use hydroponic systems, compost, propagate and clone plants. In addition, students are taught even more about sustainability by being introduced the concepts of wick fed gardens, liquid nutrients, the life cycle of plants, and the water cycle.

INSERT Future Farm Fun Rubric

Resources used in the Future Farm unit:
Hydroponic systems - Meet me at the Corner: Hydroponics for Kids
http://www.meetmeatthecorner.org/episode/earth-day-2011-a-kids-introduction-to-hydroponics
Life Cycle of Plants
http://video.nationalgeographic.com/video/player/kids/
Questions posed after National Geographic video:

1. Why are plants such a crucial part of the web of life?
2. How did the monkey's help in the reproduction process of the plants?

Activity: Can Hydroponics Solve World Hunger?

This was the writing prompt used to create our persuasive paper about how hydroponics could be a catalyst to ending world hunger. This was the written connection to our Science Fair Project.

Everyone has heard the saying "If you give a man a fish you will feed him for a day. If you teach a man to fish you will feed him for a lifetime." This saying demonstrates hunger has been an issue for many years. It also demonstrates that there are ways to end hunger by teaching long-term solutions instead of short-term satisfaction. However, not everyone is able to fish to provide for themselves; there is another way to help end world hunger that can be used almost anywhere regardless of whether or not there are fish available - Hydroponics!

Activity: Cooking and sustainability - Homework

Students use EDMODO (Google app for education) for the following videos and then discuss their responses in class.

http://video.nationalgeographic.com/video/player/environment/
"Holy Crap!" Turning public waste into growth.

1. How does this video show how people are taking charge of their community and practicing sustainably in their community?

ENVIRONMENTALISM ON THE HALFSHELL
http://video.nationalgeographic.com/video/player/environment/

1. How does farming help sustain oyster populations?
2. How does this video relate to sustainability?

ECUADOR CONSERVATION http://video.nationalgeographic.com/video/player/environment/

1. How was Ecuador's land suffering? Give evidence and support your claim with details.
2. How were conservationists able to work towards 'practicing conservation while still meeting the needs of the people'?
3. How were their efforts practicing sustainability?

Activity: Students write and prepare TED Talks along with writing persuasive essays to various business and organizations. They utilize PREZI technology to create and present.

INSERT: Persuasive Paper rubric here
INSERT: Photo student practicing TED Talk
INSERT: Photo resource lab
INSERT: SevenSpeciesofIsrael-TuBShevat.pdf
INSERT: Ted Talk https://youtu.be/rP4KHyF8pho
INSERT: SukkotWater.pdf

Activity: Landfill Pizzas

The students make Landfill Pizzas to learn about resources and waste.

INSERT:
Landfill pizza 1.jpg
Landfill pizza 2.jpg
Landfill pizza 3.jpg