

Wilton Manors Elementary – P3 Eco-Challenge 2015-16 Overall School Winner

Category 3 Curriculum Integration

A. Interdisciplinary Approach

As an International Baccalaureate School, all Florida State Science and Social Studies standards are taught through six in-depth Units of Inquiry that guide student learning. Many of the units are focused around environmental issues. After delving into the unit, students then move to the action cycle and develop ideas and activities to improve or preserve the environment. Some of the unit topics are Plants as a Natural Resource, Living Things, Plant and Animal Adaptations, and Man's Impact on the Environment. These topics covered in Kindergarten through fourth grade lead to a culminating small group project in fifth grade. The students choose a topic and do a full Power Point research project which is presented to an audience. All of the units integrate different subject areas. In first grade, the student do a unit on the natural world. The central idea of the unit is that all living things grow, change and depend on the earth. Each grade level has a box garden in our outside courtyard. We have used the garden to teach the science standards about observing living things, identifying living things verses nonliving things, and identifying parts of a plant. The students record plant growth in a journal which encompasses measurement math standards. Simultaneously the students were learning about how things change over time in Social Studies. They took photographs of the plants and how they changed and grew as time progressed. They also made a time line of the plant growth based on their observations. Informational text was integrated as students did shared reading as well as individual leveled reading about plants. Writing was integrated in their thinking journals as the students wrote explanatory texts in which they supplied facts about plants. Wilton Manors has completed the School Yard Habitat NWF Eco-Schools Pathways and has registered for the Eco-schools Sustainable Food Pathways.

B. Environmental Topics / Issues

During their 5th grade year, students chose projects that addressed current environmental topics and issues for their exhibition presentations. In this assignment students were compelled to implement the action cycle. They engaged in critical thinking to determine the necessary steps required for forward action on environmental issues. Students researched a topic, and created varying materials to educate others regarding their selected issue; including PowerPoints, photographs, brochures. These brochures were created to be distributed at the students' presentation, so that this important conservation information can be disseminated throughout their local communities. In this way our students are directly participating in the creation of solutions, engaging them in global citizenship and responsibility. Each group of students has a teacher mentor who acts as a facilitator and resource while students are conducting their research. Chosen topics have included: decrease in the bee population, lack of access to clean drinking water,

global pollution, invasive species and climate change. All students must explain environmental issues through their culminating projects relating to the units of inquiry. Wilton Manors interacts with other schools on environmental issues through the Becon Learning forum.

C. Field Study

Students study their environment through outdoor investigations both on and off campus. On campus, we have a butterfly garden for observation and each grade level has a garden box with foliage and vegetables grown and cared for by students. Students visited Flamingo Gardens, a local natural botanical garden, in order to have real life encounters with native plants and animals. The local plants on site include endangered, and uncommon plants that are no longer commonly found so that students may understand how their environment has changed over time. This site includes a final learning activity in which students plant a seedling of a local plant that they are encouraged to plant in their home communities. A group of students visited the Historical Society, where they learned how the Native American tribes used their surroundings productively and respectfully. At this location the students interacted with a live Zamia Coontie plant, which was used by local indigenous peoples for many purposes. Students reflected on their experience with the rare plant and how it added to their understanding of their local environment. Students were fortunate to visit our local National Park, The Everglades. Through this off campus experience, students observed first hand how climate change and development have impacted this delicate environment. Wilton Manors has completed the Schoolyard Habitats from NWF Eco-Schools.









III. Curriculum Integration and School Grounds Enhancement: Students observe, measure and record data with school gardens. Journals serve as the basis for lab reports.









III. Curriculum Integration: Students take part in a field trip to the Everglades to learn about Water conservation, habitat restoration and people's impact on the environment.






Wilton Manors Elementary 2015-2016 Program of Inquiry

Who We Are	Where We Are in Place & Time	How We Express Ourselves	How The World Works	How We Organize Ourselves	Sharing the Planet
 <p>An inquiry into:</p> <ul style="list-style-type: none"> The nature of self Beliefs & values Personal, physical, mental, social & spiritual health Human relationships including families, friends, communities and cultures Rights & responsibilities What it means to be human <p>Central Idea: Our five senses help us discover and process information</p> <p>Key Concepts: function, connection.</p> <p>Related Concepts: adaptations, relationships</p> <p>Lines of Inquiry:</p> <ul style="list-style-type: none"> The five senses and related body parts Ways our senses tell us about our surroundings How senses help us learn 	 <p>An inquiry into:</p> <ul style="list-style-type: none"> Orientation in place and time Personal histories Homes & journeys The discoveries, explorations and migrations of humankind The relationships between and the interconnectedness of individuals and civilizations, from local and global perspectives <p>Central Idea: Students discover their identity through learning about themselves, their families and their culture.</p> <p>Key Concepts: form, function, perspective</p> <p>Related Concepts: identity, family, culture</p> <p>Lines of Inquiry:</p> <ul style="list-style-type: none"> My identity Characteristics of families My culture 	 <p>An inquiry into:</p> <ul style="list-style-type: none"> The ways in which we discover and express ideas, feelings, nature, culture, beliefs and values. The ways in which we reflect on, extend and enjoy our creativity Our appreciation of the aesthetic <p>Central Idea: Celebrations honor people, events, and cultures from past to present.</p> <p>Key Concepts: form, connection, perspective</p> <p>Related Concepts: communication, characterization, expression</p> <p>Lines of Inquiry:</p> <ul style="list-style-type: none"> The characteristics and qualities of the people we honor We celebrate our country's events based on its past Holidays are celebrated differently by each culture 	 <p>An inquiry into:</p> <ul style="list-style-type: none"> 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 and technological advances on society and on the environment <p>Central idea: Our daily routines are influenced by Earth's natural patterns.</p> <p>Key Concepts: change, perspective, causation</p> <p>Related Concepts: patterns, distance, gravity</p> <p>Lines of Inquiry:</p> <ul style="list-style-type: none"> Patterns of day and night Objects that are near and far Law of Gravity 	 <p>An inquiry into:</p> <ul style="list-style-type: none"> The interconnectedness of human-made systems and communities The structure and function of organizations Societal decision-making Economic activities: their impact on humankind and the environment <p>Central Idea: Successful communities are organized to promote positive participation by its citizens.</p> <p>Key Concepts: function, connection, responsibility</p> <p>Related Concepts: communities, citizenship, roles</p> <p>Lines of Inquiry:</p> <ul style="list-style-type: none"> Different roles within communities Importance and purpose of laws Characteristics of being a good citizen, including conflict resolution 	 <p>An inquiry into:</p> <ul style="list-style-type: none"> Rights & responsibilities in the struggle to share finite resources with other people, and with other living things Communities & the relationships within and between them Access to equal opportunities Peace and conflict resolution <p>Central Idea: Plants are an important natural resource for living things.</p> <p>Key Concepts: Change, Connection, Responsibility</p> <p>Related Concepts: Observation, plants, growth</p> <p>Inquiry into:</p> <ul style="list-style-type: none"> The conditions plants need to stay healthy Plants as a natural resource Collecting and recording data
KINDERGARTEN					







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<p>Central Idea: Family, culture, media, and environment can influence our food choices.</p> <p>Key Concepts: function, connection, reflection</p> <p>Related Concepts: Well-being, balance</p> <p>Lines of Inquiry:</p> <ul style="list-style-type: none"> Food choices around the world Influences on what people eat Goal setting 	<p>Central Idea: Migration may lead to new opportunities or greater freedom.</p> <p>Key Concepts: Change, Causation, Perspective</p> <p>Related Concepts: Geography, migration, culture</p> <p>Inquiry into:</p> <ul style="list-style-type: none"> Our personal journeys Causes of migration Cultural influences and contributions of immigrants 	<p>Central Idea: Fables and folktales from different cultures express a message, lesson or moral</p> <p>Key Concepts: form, connection, perspective</p> <p>Related Concepts: interpretation, communication, culture</p> <p>Lines of Inquiry:</p> <ul style="list-style-type: none"> Fables and folktales The reasons people share fables and folktales Ways fables and folktales express culture 	<p>Central Idea: Forces exist around us all the time and act on all objects.</p> <p>Key Concepts: form, function, change</p> <p>Related Concepts: solids, liquids, gases, chemical and physical change</p> <p>Lines of Inquiry:</p> <ul style="list-style-type: none"> Force, motion and energy Forces can change the speed, direction and shape of objects Materials can be used in different ways to make forces more effective 	<p>Central Idea: Distribution of goods and services is necessary for the sustainability of a community.</p> <p>Key Concepts: Function, Connection</p> <p>Related Concepts: resources, production, distribution</p> <p>Inquiry into:</p> <ul style="list-style-type: none"> Wants and needs Goods and services How money is exchanged for goods and services 	<p>Central Idea: People can help our planet by taking care of its natural resources.</p> <p>Key Concepts: connection, responsibility</p> <p>Related Concepts: Conservation, interdependence, sustainability</p> <p>Lines of Inquiry:</p> <ul style="list-style-type: none"> Ways people use natural resources Ways human activity affects the environment Ways to care for the earth at home and at school

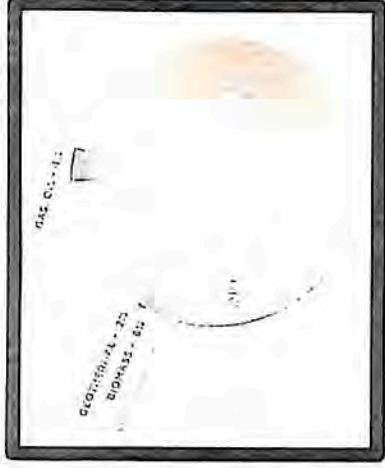
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<p>Central Idea: Active citizens create change by responding to needs or concerns of a community.</p> <p>Key Concepts: connection, responsibility, reflection</p> <p>Related Concepts: activism, aid, awareness</p> <p>Lines of Inquiry:</p> <ul style="list-style-type: none"> The Action Cycle The 5 stages of service learning Inspiring others to action 	<p>Central Idea: People explore to gain resources, knowledge and freedom</p> <p>Key Concepts: causation, change, perspective</p> <p>Related Concepts: exploration, discovery,</p> <p>Lines of Inquiry:</p> <ul style="list-style-type: none"> Reasons people explore Explorations and discoveries in history Impacts of exploration 	<p>Central Idea: Native tribes preserve their culture and traditions through self-expression</p> <p>Key Concepts: form, connection, perspective</p> <p>Related Concepts: expression, traditions</p> <p>Lines of Inquiry:</p> <ul style="list-style-type: none"> Ways native tribes express themselves through art Ways native tribes express themselves through music and dance Ways native tribes express themselves through literature 	<p>Central Idea: Processes in nature continuously alter the composition and structure of earth's surface</p> <p>Key Concepts: form, causation, change</p> <p>Related Concepts: erosion, cycles, plate tectonics</p> <p>Lines of Inquiry:</p> <ul style="list-style-type: none"> Minerals and rocks Weathering and erosion Natural Disasters 	<p>Central Idea: The structure of government systems determines citizen's roles, rights and opportunities.</p> <p>Key Concepts: function, connection, perspective</p> <p>Related Concepts: systems, rights, roles</p> <p>Lines of Inquiry:</p> <ul style="list-style-type: none"> Structure, function and purpose of government Citizen's role in government Government systems in our world 	<p>Central Idea: Conservation of the environment is dependent upon human interaction.</p> <p>Key Concepts: causation, connection, responsibility</p> <p>Related Concepts: interdependence, impact, locality</p> <p>Lines of Inquiry:</p> <ul style="list-style-type: none"> Ecosystems The relationships between humans and ecosystems Protection of the ecosystems

Renewable Resources



Interesting Facts:

- 54% of our energy used for daily routines comes from coal.
- Water pollution leads to declines of fresh water by
- Fossil Fuels take millions of years to form, and we use them faster than they form.
- Walmart and Costco are one of the few companies that use solar panels to generate power.

Ways to help:

- Talk about it to everyone to raise awareness among the public.
- Use less electricity by turning off all lights and a/c units before leaving the house.
- Use your car less, use public transportation more.
- Take the plug out when you are done using something to save electricity.
- Use other sources of battery to save electricity.



Written & Researched by:

Benjamin
Rauno
Cole
Jovee

What is overconsumption of nonrenewable resources?

- It is when we use them to the point of extinction.
- When we use them too much, it releases harmful chemicals into the environment.
- Depletion of our current energy sources and faltering of our economy.



What are the different perspectives of the overuse of nonrenewable resources?

- The people who are conserving these resources believe that they should be saved.
- People who overuse the resources are not concerned with the consequences and usually will not change their ways.

How does overusing nonrenewable resources harm us?

- It harms our health by emitting dangerous gases that can clog the liver and add phlegm to the throat.
- It damages the environment from the UV rays emitting from the holes in the ozone layer that the gases cause
- It depletes our resources, erasing all of our energy from our supply



Planning the inquiry

1. What is our purpose?

To inquire into the following:

- **transdisciplinary theme**

Sharing the Planet: An inquiry into rights and responsibilities in the struggle to share finite resources with other people and with other living things; communities and the relationships within and between them; access to equal opportunities; peace and conflict resolution.

- **central idea**

Plants, as a natural resource, are essential in providing for other living things.

Summative assessment task(s):

What are the possible ways of assessing students' understanding of the central idea? What evidence, including student-initiated actions, will we look for?

Students will create a Kidspiration Tree Map of what plants have, need and produce. They will use this map to explain what plants provide for living things.

Will Implement: An Informational Book About Plants will be written by "Little Botanists"

Class/grade: Kindergarten **Age group:** 5-6 years

School: Wilton Manors Elementary School code: 2419

Title: Plants

Teacher(s): J. Allwein, M. Blum, L. Ernst, G. Pineda, S. Scialla, R. Tantis

Date: February 16 – April 1, 2016

Proposed duration: number of hours 90 over number of weeks 6



PYP planner

2. What do we want to learn?

What are the key concepts (form, function, causation, change, connection, perspective, responsibility, reflection) to be emphasized within this inquiry?

Change, connection, responsibility

Related concepts: observation, natural resources

What lines of inquiry will define the scope of the inquiry into the central idea?

- The conditions plants need to stay healthy
- Plants as a natural resource
- Collecting and recording data

What teacher questions/provocations will drive these inquiries?

Provocations:

What is observation?

What are natural resources?

Teacher Questions:

What does a plant need to live?

Why are plants important and what resources do they provide?

What are ways we can collect and record data?

Planning the inquiry

3. How might we know what we have learned?

This column should be used in conjunction with "How best might we learn?"

What are the possible ways of assessing students' prior knowledge and skills? What evidence will we look for?

Pre-assessment students will draw and label a plant. They will begin filling in the RAN chart.

Look for understanding of following terms: stem, leaf, flower, roots, oxygen, sun, nutrients (Levels 1 & 2 vocabulary)

Teacher observation

Reflection pieces

What are the possible ways of assessing student learning in the context of the lines of inquiry? What evidence will we look for?

Plant journal: ongoing, reflecting/sharing and post assessment

Growing understanding of the above terms & the ability to complete the assigned activities

Classroom discussions

Science lab experiments

5. What resources need to be gathered?

What people, places, audio-visual materials, related literature, music, art, computer software, etc, will be available?

Leveled books (Parts of a Plant, Plant Life Cycles, Natural Resources), United Streaming: Magic School Bus video, "From Seed to Plant," BrainPop Jr., Science Fusion Journal (Units 2 & 3), Plant poems (Life of a Plant, The Parts of a Plant, Seeds, etc.)

How will the classroom environment, local environment, and/or the community be used to facilitate the inquiry?

Classes will grow their own vegetable/flower gardens. Take a field trip to Flamingo Gardens.

4. How best might we learn?

What are the learning experiences suggested by the teacher and/or students to encourage the students to engage with the inquiries and address the driving questions?

Frontloading Activities:

Nature walks around school. Students collect leaves and make leaf rubbings. Observe the inside of a soaked seed with a magnifier and record findings.

Introduce the R.A.N Chart. Utilize and discuss at different stages of unit.

Watch Magic School Bus video: From Seed to Plant.

The conditions plants need to stay healthy

Read Aloud: All about Plants

Plant seeds in 4 different containers. Deprive each seedling of one condition (water, light, oxygen, all). Students observe, compare, and record findings on a weekly chart. Students also plant seeds that receive all of the proper conditions. Students compare/contrast growth results.

Plants as a natural resource

Read Aloud: Tops and Bottoms

After viewing the BrainPop Jr. video on natural resources, students will create a chart of what plants provide for living things.

Classes will grow their own vegetable/flower gardens (vote on what's planted, care for/maintain, share what was grown w/other classes, and discuss plants as a provider of food).

Collecting and recording data

Read Aloud: Are Trees Alive?

Students are given two seeds and explore freely. They then complete a Double Bubble thinking map to compare/contrast the seeds.

Student drawings (draw the different parts of plant and label its parts).

Plant a seed in a transparent container. Students carry out a detailed observation of the roots and stem. Draw the direction of the growth of the root and stem.

Based on the nature walk, observe common characteristics of plants and draw them.

Total Physical Response activity: In groups, students use their bodies to represent different parts of a plant.

Use a Promethean interactive flipchart where students label the parts of a plant and write about the job performed by each part.

What opportunities will occur for transdisciplinary skills development and for the development of the attributes of the learner profile?

Thinking skills: acquisition of knowledge, application.

Social skills: accepting responsibilities, cooperating.

Research skills: observing and recording data.

Attitudes: commitment, curiosity, independence

Learner profile: inquirer, knowledgeable

Reflecting on the inquiry

6. To what extent did we achieve our purpose?

Assess the outcome of the inquiry by providing evidence of students' understanding of the central idea. The reflections of all teachers involved in the planning and teaching of the inquiry should be included.

Students understand that our gardens contribute to plants as a natural resource.

How you could improve on the assessment task(s) so that you would have a more accurate picture of each student's understanding of the central idea.

Our summative really needs to be better differentiated and the students need more choice other than the journal. Those that are not "writers" struggle and are not able to fully show what they know through the journal.

What was the evidence that connections were made between the central idea and the transdisciplinary theme?

In conversation, students demonstrate an understanding of natural resources and our responsibility in caring for them.

7. To what extent did we include the elements of the PYP?

What were the learning experiences that enabled students to:

- develop an understanding of the concepts identified in "What do we want to learn?"
 - demonstrate the learning and application of particular transdisciplinary skills?
 - develop particular attributes of the learner profile and/or attitudes?
- In each case, explain your selection.

Concepts:

Change: students learn that plants change as they grow

Connection: natural resources are needed for all living things to survive

Responsibility: our responsibility as humans to make sure that we have enough plants by taking care of them

Transdisciplinary Skills:

Thinking: The students use their thinking skills to figure out what a plant might need to grow/thrive.

Social: The students work together to ensure the success of their garden.

Research: Students use their research skills to decide which plants would be best planted in our area, when we should plant them, and why we should plant them.

Learner Profile:

Inquirer: ask about the conditions plants need to survive

Knowledgeable: learn about the importance of plants as natural resources

Reflecting on the inquiry

8. What student-initiated inquiries arose from the learning?

Record a range of student-initiated inquiries and student questions and highlight any that were incorporated into the teaching and learning.

What does it mean when the ends of the leaves are brown?

Why did it (the pumpkin plant) stop growing?

At this point teachers should go back to box 2 "What do we want to learn?" and highlight the teacher questions/provocations that were most effective in driving the inquiries.

What student-initiated actions arose from the learning?

Record student-initiated actions taken by individuals or groups showing their ability to reflect, to choose and to act.

A few students went home and convinced their parents to let them plant gardens.

9. Teacher notes

What is a misconception? (Science RAN Chart of plants)

Decide which journal will be used and differentiate for the students.

Need more choice for their summative.

Will Implement:

Frontloading-pull of the invasive vine

Vine behind Kinder rooms perfect example-- Invasive plants/Non-native

Limiting our natural resources

Inderdependence of Florida plants

LOIs need to change ☹