SUSTAINABLE TEACHING CURRICULUM
LESSON PLAN

GO TEACH GREEN

First Day

Objectives:

- We will begin to form relationships with students and become familiar with one another.

Materials:

- name tags with each student's names already written on them
- journals that will be used for all "sustainable" activities
  - ex: paper stapled in half to make booklets

Introduction:

- Discuss why we are there
  - "We will be coming every week for the rest of the year to talk about plants, animals, and the environment."
    - Discuss why plants animals and environment are so important
      - Environment- food, water and shelter
      - Plants- food and keep air clean
      - Animals- food and clothing and companionship
        - Clothing- wool (sheep), and leather (cows)
  - "We will also be talking about Sustainability."
    - "What is sustainability?"
      - practices that keep animals and plants and the environment
        safe and healthy

Major Instructional Sequence

3. Instruction
   - Introduce yourselves and let the students introduce themselves by saying their name and their favorite plant and favorite animals
     - Have everyone put on their name tag
   - Split up into groups (one teacher in each group)
     - Hand out the journals and markers
     - Explain that these will be their "sustainable journals" that they will use when they are working with us
     - Have everyone decorate theirs with drawings of their favorite things from nature

Conclusion:

- Discuss how we are looking forward to working with them
- Ask if there is anything in particular involving sustainability they want to do.

Background:
For the first day, the goal is to familiarize ourselves with the new students and familiarize the students with the concept of sustainability. By discussing animals and plants that live in our environment, we are slowly introducing them to concept of sustainability.

Vocabulary:

Sustainability: practices that keep animals and plants and the environment safe and healthy

Fall Nature Walk
Primary Subject- Science, Social Studies

Objectives:

- Students will learn how to observe the world around them using each individual sense.

Materials:

- journals that will be used for all "sustainable" activities
- pencil or something to write/ draw with

Introduction:

1. Anticipatory Set
    - "How many of you like to play outside?"
    - "Do any of you know what kind of climate we live in?" (ex: High Mountain Desert)
    - "How many of you can name a plant or animal that lives in the mountains or the desert?" (Go around and have everyone say their name and a plant or animal that lives in the desert or mountains)

2. Purpose: To recognize our climate and the animals and plants that live here.

Major Instructional Sequence:

- Take a sensory nature walk
    - Separate into smaller groups by assigning each teacher 4 or 5 students
    - Go outside and begin examining nature by using each individual sense
        - Ask students to close there eyes and tell you what they hear
        - Ask students to open there eyes and tell you what colors they see
        - Ask students to smell nature and tell you what it smells like
        - Ask students what they observe in general
- Have students take 5 to 10 minutes to observe in their journals
    - Have them write and draw a certain part of nature that stands out to them (plant, animal, or water feature)

- Go back inside and reflect on what you observed
  - "Is nature always the same?" (No)
  - "When does it change?" (Seasons)
  - "So if we go outside in winter will it smell and look different?" (Sets up for the other nature walks we will take during the different seasons)

Concluding Sequence:

3. Have everyone share with each other (or their neighbors) what they learned and liked best while they were outside

4. What we learned:
   - How to observe nature with our senses
   - An appreciation for the world around us

Background:

Students need a reason to practice a sustainable life style. If students begin to establish a connection with the environment, they will want to protect it. This lesson plan is meant to expose students to the beauty that can be found in nature.

Vocabulary:

Observe- to use your senses to understand something

Senses- a faculty (or something) the body uses to understand the world around it
  - The five senses include: Smell, taste, sight, touch, and hearing

Plants
Primary Subjects- Science, Art

Objectives:

- The students will learn how plants grow and survive. (Illustrate the process of photosynthesis)

Materials:

- Markers, crayons, or colored pencils (something to color with)
- Enough copies of the plant picture for every student

Introduction to Lesson:

1. Anticipatory Set
    - "What do plants need to grow?"
    - "What do they eat?"
2. Purpose: to discover how plants grow and what they need to do so

Major instructional Sequence:

- Describe photosynthesis
    - Plants are the only living things in the world that don't need to find food to eat
    - Plants make their own food in their leaves
    - And when they make their food they give off Oxygen
        - "Do you know what humans need Oxygen to do?"
        - So plants help make the air clean for us to breath
    - They take Carbon dioxide from the air, chlorophyll (the stuff that makes them green) from their leaves, water, and sunlight to make food.
        - almost like when we bake a cake and use eggs, flour, and sugar to make our food
        - they use the sun to convert the air, chlorophyll and water into energy just like we use an oven to bake our food

- Handout plant pictures to be colored in by students
    - Have them color the leaf green because chlorophyll makes plants green

    - Have them color the stem and veins blue and explain that the leaf gets water from the roots which carry up the stem and veins
    - Have them color the rays of the sun yellow because leaves soak up sunlight
- Have everyone take a deep breath and tell them that when a plant makes its food it has leftovers and these leftovers are Oxygen that helps us breath
    - Let them color the oxygen whatever color they want because it is their oxygen for breathing

Concluding Sequence:

- "How do plants eat?"
- "How do they help us when they make food?"

Background:
Essential to the love of the environment is understanding the environment. This lesson plan gives students a better understanding of how plants survive, and why plants are so helpful to humans. Because plants take in carbon dioxide and give off and oxygen, they are essential to keeping the air clean for humans and many other animas. We want to impress upon students the importance of protecting plants (such as the rain forest) and the importance of planting new vegetation.

Vocabulary:

Photosynthesis: a process by which plants make energy by taking in carbon dioxide, sunlight, and water and giving off oxygen.

Oxygen: air or what humans and many animals need to breath

Bean Sprouts
Primary Subject- Science

Objectives:

- Students will learn how to cultivate plants.
- Students will learn what steps are involved in food production.

Materials:

- Bag of soil
- Small plastic cups
- Bean seeds
- Sharpie/ permanent markers

Introduction:

1. Anticipatory Set
    - "Do you guys remember what we learned about last week?"
        - food production
    - "Today we are going to make our own food."
        - Bean sprouts

Major Instructional Sequence:

- Give each student a plastic cup and each have each student write his or her name on his or her cup
- Fill each cup with soil
- Plant the seeds

Concluding Sequence:

- Ask students what plants need to grow
    - (Remind them of photosynthesis)
    - Water and Sunlight
    - "So what do we need to make sure they grow?"
        - Put them in the sun and water them everyday

Background:
Important to the study of sustainable practices is understanding where food comes from (which we have covered in other lesson plans) and the *Bean Sprout Lesson Plan* allows students to expound upon this knowledge by seeing first hand what it means to grow their own food. Additionally, by

nurturing and caring for a plant students are beginning to build a bond with nature.

Vocabulary:

Soil- "dirt" that has nutrients that help a plant grow

Photosynthesis- the process by which plants make light and carbon dioxide into energy releasing oxygen back into the air

* in even more simple terms: photosynthesis is the way plant get food

Composting
Primary Subjects- Science
*Note: if possible conduct during snack time and only if the school has a compost pile

Objectives:

- The students will learn how to compost and the importance of this sustainable habit.

Materials:

- Two photos: one that displays a landfill and another that displays a garden.
- Two bins: one labeled trash the other labeled compost
- A poster labeled: "what we eat for snack" (leave an adequate amount of space to list the snacks)
- * if not conducting lesson during snack time bring an apple core, an orange rind, a banana peel, a chip bag, and two other similar snack packages

Introduction to Lesson/ Anticipatory Set:

- Ask students what they usually eat for snack and list on the poster
- set poster aside until it is needed (after a discussion of composting)

Major Instructional Sequence:

- "What is compost?"
  - a special type of plant food that helps plants grow
- "What is compost made of?"
  - certain scraps of human food that decompose or "become dirt"
  - "What types of human food?"
    - the parts that you don't want to eat of plants- like the rinds, peels, leaves etc. of fruits and vegetables
    - no meat or animal products
- "Do you guys have any examples?"
  - apple cores, banana peels, watermelon rinds, orange peels etc.
- Return to the poster
  - using in put from the students take a marker and circle all of the food items listed that are compostable

- "What happens to all of the snacks that are not circled and aren't composted?"
    - "They go to a land fill"
    - show the picture of the landfill

Concluding Sequence:

- Display the photo of the landfill and the photo of the garden
    - "Where would you rather have your food go?"
        - The garden!
        - Explain how the students need to bring snacks like apples bananas etc. (that can be composted so that their snack will go to the garden)

Background:
This lesson plan will teach students about the benefits of composting. It will also encourage them to eat healthfully by inspiring them to consume fruit and other food that is compostable in place of snacks whose packaging goes to landfills like chips.

Vocabulary:

Compost: "special plant food" a mixture of organic residues such as decomposed vegetation, and manure that is used a fertilizer

Recycling
Primary Subject – Social Studies, Math, Science, Art

Objectives:

- The students will learn what objects are recyclable
- The students will learn how much waste they produce during lunch time
- The students will learn how to recycle

Materials:

- Labeled Bin for Class Waste during lunch time – different bags for each day
- (Draw chart on Board with headings for each column of: plastic, aluminum, glass, and waste)
- Waste for Lunch
- Trash Bin
- Recycling Bin
- Markers, other art materials

Introduction to Lesson:

1. Anticipatory Set:
    - "How many of you buy lunch or how many of you bring lunch?
    - “What do you eat for lunch?”
    - “What do you use to eat lunch?”
2. Purpose: To discover how much waste we produce and how we can reduce that waste.

Major Instructional Sequence:

3. Instruction:

    - Remind students that they have been collecting their waste all week long.

    - Introduce the Audit - Count all the items of waste in the bin to see how much we produce

- Separate into small groups – 4 or 5 (depending on how many days the waste was collected)
- Talk about what the definition of each category is with examples:
    - Plastic – Water Bottle, etc.
    - Aluminum – Soda Cans, etc
    - Glass
    - Waste – ziplock bags, yogurt containers

- Designate someone to keep a tally (student or teacher)
- Students go through their assigned bags and as they encounter items they tell the designated tally person which category to mark
- Talk about how much waste there was (total number of items) vs. the amount of products that were recyclable (total number of items)
    - Waste: Landfill, Loss of Habitat (show photos of a landfill)
    - Recycling: Reusing the product to make new ones (bring an example)

Concluding Sequence:

6. What we learned:
    - Explain to students that we must teach everyone else what we learned through our actions

        1. Decorate a sign that says proud to recycle

            - Students can either draw or write something about why recycling is good

Backgrounds:

Disposable water bottles, aluminum cans, and many other products are very harmful to the environment. However, if we recycle these products we can reduce their impact on the environment because we reuse the material (i.e. plastic or glass), and we prevent the product from being put in a landfill. It is important to instill the habit of recycling in students now. This way they will continue practicing this good habit for the rest of their lives.

Vocabulary:

Recycling- when the material a product is made of (be that glass, plastic etc.) is reused to be made into a new product.

Landfill- (also known as the dump) a designated area where all non-recyclable trash gets disposed of

Winter Nature Walk
Primary Subject- Science, Social Studies

Objectives:

- Students will learn how to observe the world around them through observations with each sense.
- Students will recognize the changes in the environment that come with the seasons.

Materials:

- journals that will be used for all "sustainable" activities
- pencil or something to write/ draw with

Introduction:

1. Anticipatory Set
    - "How many seasons are there?"
        - 4 seasons
    - "What are the differences between the seasons?"
        - "How is fall different than winter?"
        - "How is winter different than spring?"

2. Purpose: To recognize the changes that come because of the seasons.

Major Instructional Sequence:

- Take a sensory nature walk
    - Separate into smaller groups by assigning each teacher 4 or 5 students
    - Go outside and begin examining nature by using each individual sense
        - Ask students to close there eyes and tell you what they hear
        - Ask students to open there eyes and tell you what colors they see
        - Ask students to smell nature and tell you what it smells like
        - Ask to make general observations regarding anything that draws their attention
- Have students take 5 to 10 minutes to observe in their journals

    - Have them write and draw the differences they observe between the seasons
- Go back inside and reflect on what you observed
    - "Is nature always the same?" (No)
    - "When does it change?" (Seasons)
    - "What did you guys notice that is different now than what we observed in the fall."

Concluding Sequence:

3. Have everyone share with each other (or their neighbors) what they learned and liked best while they were outside

4. What we learned:
    - How to observe nature with or senses
    - An appreciation for the world around us

Backgrounds:

Students need a reason to practice a sustainable life style. If students begin to establish a connection with the environment, they will want to protect it. This lesson plan is meant to expose students to the beauty that can be found in nature.

Vocabulary:

Observe- to use your senses to understand something

Senses- a faculty (or something) the body uses to understand the world around it

The five senses include: Smell, taste, sight, touch, and hearing

Ecosystems
Primary Subject- Science, Social Studies, Music

Objectives:

- Students will learn about how all inhabitants of the Earth are connected and rely on one another.
- Students will learn how destroying a single element of an ecosystem can have disastrous affects on the rest of it.

Materials:

- journals that will be used for all "sustainable" activities
- pencil or something to write/ draw with

Introduction:

1. Anticipatory Set
   - "What is an ecosystem?"
     - Ecosystem: all of the living and nonliving things in a natural area.
2. Purpose: To familiarize students with ecosystems

Major Instructional Sequence:

- Relate a school community to an ecosystem
  - In a school there are students, teachers, cooks, custodians, etc.
    - Ask students what each person contributes to the community.
    - Ask students what people need from each other.
    - Ask students what each person gives to another.
    - Tell students this is a lot like how an ecosystem works
    - Have students take 5 to 10 minutes to observe in their journals
- Say there are many different ecosystems also called habitats
  - Give examples: the Red Wood Forest, Ocean, Desert
  - Ask what lives in forest? (trees, bugs, raccoons, birds etc.)
- Have students split up into groups of two or three with their journals
  - have students draw their favorite animal in their natural habitat or ecosystem

- have students write or draw another organism (living thing) that their animal depends on for survival
  - example: trees provide hummingbirds with shelter and safety from larger predator birds
- have students write or draw another organism that depends on their animal for survival
  - example: hummingbirds help to pollinate flowers

Concluding Sequence:

- Describe to the students how all living things rely on one another
- Teach the students the song This Land is Your Land
  - Audio: http://www.smart-central.com/USA/thisland.html

This Land is Your Land Lyrics:

Chorus:
This land is your land, this land is my land
From California, to the New York Island
From the redwood forest, to the gulf steam waters
This land was made for you and me

As I was walking that ribbon of highway
I saw above me that endless skyway
I saw bellow me a golden valley
This land was made for you and me

Chorus

I've roamed and rambled and I've followed my footsteps
To the sparkling sands of her diamond deserts
And all around me a voice was sounding
This land was made for you and me

Chorus

The sun comes shining as I was strolling
The wheat fields waving and the dust clouds rolling
This land mad for you and me

Chorus

As I was walkin'- I saw a sign there
And that sign said- no tress passin'
But on the other….it didn't say nothin'!
Now that side was made for you and me!

Chorus

In the squares of the city- In the shadow of the steeple
Near the relief office- I see my people
And some are grumblin' and some are wonderin'
If this land is still made for you and me.

Chorus (2X)

Background:
As humans begin to destroy the environment, we are also destroying the habitat of many species (even causing some to go extinct). Because each species is part of an ecosystem, by destroying one species a chain reaction occurs and many other animals are harmed. This lesson plan is designed to teach students about the interconnection of species, and why protecting animals and the environment is so important. The purpose of singing this Land is Your Land is to demonstrate how we must share the land with everyone including the animals that inhabit the earth.

Vocabulary:

Ecosystem: all of the living and nonliving things in a natural area.

Food Chain
Primary Subjects- Science

Objectives:

- Students will learn how all animals in the food chain heavily rely on one another
- Students will learn the difference between omnivores, carnivores, and herbivores

Materials:

- Three sets of name tags with animal names written on them
    - Set one (grassland food chain): grass, grass hoper, rat, snake, hawk
    - Set two (pond food chain): algae, mosquito, larva, dragonfly, fish, raccoon
    - Set three (ocean food chain): plankton, fish, seal, shark
    - Set four (forest food chain0: flower, caterpillar, frog, snake, owl

Introduction to Lesson:

1. Anticipatory Set
    - All living things rely on one another for food
    - If one part of the chain is broken it is hard for the others to survive
    - "Does any one know what a food chain is?"
        - Food chain- the order that animals feed on other plants and animals
    - "Does anyone know what a carnivore is?"
        - an animal that only eats meat or other animals
    - "Does any one know what an animal that only eats fruits and vegetables is called?"
        - herbivore
    - "What do humans eat?"
        - "Both plants and animals?"
            - "Does anyone know what the name for that is?"
                - omnivore

Major instructional Sequence:

- Tell the students that we are now going to act like a food chain
- Ask them what they think the food chain will start with

    - Remind them that because plants make their own food (photosynthesis) they are the beginning of the chain
- Split up into four groups (with each packet of food chain name tags)
    - Give each student a name tag to put on
    - Ask the students to link hands in the order that they think their food chain should be
    - Help them organize themselves in the correct order by asking them who eats whom and who is the plant because they are the beginning of the chain

Concluding Sequence:

- Ask the students to name which animals are carnivores, omnivores, or herbivores
    - For example ask students what category a leopard is
- Describe to students why if one animal in the food chain dies the rest will probably die
    - Connect this to why when animals go extinct it can be detrimental to the rest of their ecosystem

Background:

By teaching students about how all animals are connected via food chains we can impress upon the students the importance of protecting every species. By killing off one species there is the potential that all the other species in that food chain could be endangered.

Vocabulary:

Food chain- the order that animals feed on other plants and animals

Herbivore- an animal that only eats fruits and vegetables

Carnivore- an animal that only eats meat or other animals

Omnivore- an animal that eats both plants and animals

Food Production
Primary Subject- Science

Objectives:

- Students will learn how to make more sustainable food choices

Materials:

- poster board
- pencil or something to write/ draw with
- index cards with the following written on them: coconut, steak, corn, banana, milk, coffee, chocolate

Introduction:

1. Anticipatory Set
    - "How many of you like food?"
    - "What is your favorite food?"
    - "Do any of you guys know where your food comes from
2. Purpose: To recognize the impact our food has on the climate

Major Instructional Sequence:

- Show the students how to trace the origin of their food
    - Ask students if they like to eat chicken
    - Ask the students where they think it comes from
    - Tell the students that we are going to make an origin map for chicken (example of a chicken origin map is on following page.)
    - Separate into seven groups
        - Each group should have a poster board and a teacher (if possible)
            - Give each group one of the index cards and ask them to make a food origin map for
            - Hang the posters around the room

Concluding Sequence:

3. Ask the students what food they think conserves the most resources
    - "Was more gas used for food items from New Mexico or Jamaica?"
    - "Was more water used for meat or vegetables?"
        - (meat because animals drink water and what they eat needs water to drink)
    - So what saves the most resources

- Local fruits and vegetables

Background:
Eating local is not only good for the environment but it is also good for the local economy because it keeps money circulating with in your town. This lesson plan is similar to the goods production lesson plan because it impresses upon the students that the farther away the food is produced the more pollutants that are created. It also allows students to see first hand what resources are involved in food production. This lesson is meant to impress upon students the importance of being "conscious eaters."

Vocabulary:

Produce- to make/ farm crops or other food

Goods Production
Primary Subject- Science, geography

Objectives:

- Students will learn where most goods are produced.
- Students will learn why locally made goods are better for the environment.

Materials:

- Map
- Pushpins

Introduction:

1. Anticipatory Set
   - "So everyone has stuff, right."
     - "But where does it all come from?"

Major Instructional Sequence:

- Have everyone choose an item that they want to track
  - Example: a crayola marker, lunch box
- Once each student has chosen an item have them locate where it is manufactured
- Hang a map of the world on the wall
- Give each student a push pin and have them put it on the map where it came from
- Ask students where most of the items are manufactured
  - Are they made in the U.S. or in other countries

Concluding Sequence:

- "What do you need in order to send goods from China to the U.S."
  - boats airplanes etc. but they need fuel (as in fossil fuels)
- "So what is better for the environment buying items that are manufactured closer to Santa Fe (or the city that you are instructing the lesson in) or farther away."
  - Closer because less fuel is involved in shipping
- "So from now on what should we remember when we shop."
  - To buy stuff made in the U.S. whenever possible

Background:
Consumption is a huge problem in the United States, and it is this addiction to material things that causes us to severely endanger our environment. Not only do the materials used to make goods (such as plastic that requires much petroleum to produce) harm the environment, but the vehicles used to transport the items produce many pollutants. The farther away from the United States the item was produced, the more pollution that is generated. This lesson is meant to impress upon students the importance of being "conscious consumers."

Vocabulary:

Good- a product or something that a person buys

Produce- to make a good

Pollution
Primary Subjects- Science

Objectives:

- The students will learn about which daily activities cause pollution.

Materials:

- Two posters: one that reads “Makes air dirtier.” another that reads “Makes air cleaner.”

Introduction to Lesson/ Anticipatory Set:

- “What is pollution?”
  - carbon dioxide, carbon monoxide, smog… etc.
  - “Has anyone ever noticed that sometimes the air in big cities smells different and sometimes is harder to breath?”
    - For the most part that is because of pollution
- “Why is pollution bad?”
  - because it makes our air dirty and hard to breath
- “Everyone take a deep breath.’
  - “When you breath in oxygen is filling your lungs and the oxygen goes through your blood stream and gives you energy.”
  - “So without Oxygen we wouldn’t be able to run, jump play or even move.”
- “Air that is polluted is dirty and it can have affects on a person’s health.”

Major instructional Sequence:

- Set up the pollutants game
  - Put up each poster on opposite sides of the room
- Describe to students the way the game works: a teacher will read out an action and students will move either to the side of the room with the poster that says: “Makes air dirtier.” (if they think that action causes more pollutants to be released) or the poster that reads “Makes air cleaner.” (if they believe that action makes air cleaner.)
- Read out the following actions:
  - “Planting a tree.”
  - “Driving a car.”

- "Burning coal."
- "Growing tomatoes."
- "Smoking a cigarette."
- "Producing goods in a factory."
- "Planting a rose bush."

Concluding Sequence:

- "What makes air dirty."
  - Pollutants like CO2 etc.
- " How can we make air cleaner and reduce pollutants?"
  - growing plants
    - "Why?"
    - because plants take in CO2 and make it into Oxygen which we breath

Background:
This lesson plan will teach students about the harms of pollution. It will also build upon past lessons by drawing a connection between plants and carbon dioxide. (Plants reduce pollution because they take in carbon dioxide and give off oxygen.)

Vocabulary:

Carbon dioxide: "dirty air", a type of pollution or "smoke" that is bad for humans to breath (plants breath it in and give off oxygen)

Carbon Monoxide: "dirty air", a type of pollution or "smoke" that is harmful for humans to breath

Renewable Energy
Primary Subjects- Science

Objectives:

- The students will learn what renewable resources are.
- Students will learn the importance of renewable resources.

Materials:

- Two posters: one that reads “Non renewable energy.” another that reads “Renewable.”

Introduction to Lesson/ Anticipatory Set:

- “Has anyone heard of renewable energy?”
- “Does anyone know what renewable energy is?”
  - “It’s a type of energy that will never run out…like wind. We will never run out of wind.”
  - “Renewable energy doesn’t produce any harmful pollutants”

Major instructional Sequence:

- Set up the renewable energy game
  - Put up each poster on opposite sides of the room
- Describe to students the way the game works: a teacher will read out an action and students will either to the side of the room with the poster that says: “Renewable Energy.” Or “Nonrenewable energy.” Depending on what they believe the energy source is categorized as. Read out the following actions:
  - “Wind power.”
  - “Burning coal.”
  - “Burning gas.”
  - “Water power or hydropower.”
  - “Burning oil.”
  - “Sun power or solar power.”

Concluding Sequence:

- “So what is worse for the environment renewable or nonrenewable energy sources?”
- “Why?”

- Nonrenewable because they produce pollutants and we will eventually run out of this type of energy source.

Background:
This lesson plan is meant to teach students the benefits of renewable energy by comparing it to nonrenewable energy. Most students will associate gas and coal with energy as opposed to wind, solar, hydroelectric, or geothermal power. The goal of this lesson plan is to teach students about how renewable energy will never run out, does not produce pollutants, and is much better form of energy for the environment.

Vocabulary:

Renewable Energy- a type of energy that will never run out and does not produce pollutants.

Non Renewable Energy- a type of energy that we will run out of (finite), and produces pollutants or "smoke"

Introduction to Wind Power
Primary Subjects- Science

Objectives:

- The students will learn how much potential energy wind has.

Materials:

- 3 fans (or experiment can be conducted outside if sufficient wind exists)
- 3 paper bags
- 6 feathers
- 3 rocks

Introduction to Lesson/ Anticipatory Set:

- "If you were to draw the wind how would you draw it?"
  - "Is wind visible?"
  - "Does it have a taste?"
  - "Does it have a smell?"
  - "Can you hear it?"
    - For the most part wind is virtually undetectable
    - The only way you can understand its affects is by studying what has been influenced by it
- Today we are going to observe wind.

Major instructional Sequence:

- Split the class into three groups
- Give each group:
  - A fan (or go outside if weather permits)
  - A paper bag
  - A rock
  - 2 feathers
- Have students put each object in front of the fan and let go
- Have students make observations about what happens to the different objects
- Within the groups have students discuss their observations
  - "How far did the objects go?"
  - "How high did the objects go?"
  - "Did the objects make any noise?"… etc.

Concluding Sequence:

- "What does wind help move?"
  - Seeds are spread by the wind which allows flowers to grow in all different places
  - Birds "ride" the wind (use the wind to help them fly)
  - Kites stay afloat due to wind
  - Sail boats are propelled by the wind
- "Is wind strong?"
- "Do you think wind could power a house?"

Background:
Many students have never been exposed to the discussion of energy. In fact, many associate solely gas with energy. The goal of the lesson plan is to change this type of thinking. Renewable energy is a clean green energy source and it is essential to waning our country off fossil fuels. By showing the students how wind can move objects we begin to introduce them to the potential power wind has.

Vocabulary:

Potential energy- having the capacity to create power

Wind Power
Primary Subjects- Science

Objectives:

- The students will learn how wind turbines work to supply energy.

Materials:

- Box of non-mechanical, unused pencils with erasers
- paper
- markers or something to decorate with
- pushpins

Introduction to Lesson/ Anticipatory Set:

- "Does anyone know what a wind turbine is?"
- "Does anyone know how it works?"
- Today we are going to make pinwheels which are a lot like wind turbines but really tiny.

Major instructional Sequence:

- Split the class into groups of four.
- Give each group:
  - 1 pencil
  - 2 pieces of paper
  - markers
  - 1 pushpin
- Following the instructions found at http://www.enchantedlearning.com/crafts/pinwheel/
  - (although the decoration should not be patriotic but more nature oriented)

Concluding Sequence:

- Discuss the similarities between the pinwheel and a wind turbine in order to teach students how wind power works
  - Show picture found at http://www.vestas.com/files/billeder/Photos/Modern_Energy/modern-energy_experiencethewind_HowTurbineWorks_UK.jpg
    - Describe:
      - How blowing on the pinwheel is like wind

        - How the paper on the pinwheel is like the rotor
        - How the pushpin is like the nacelle (also called turbine housing)
        - How the tower is like the pencil
    - Show the picture found at http://greenpoweroregon.com/Images/WindDiagram_Lg.gif
        - Describe
            - How the generator converts energy into electricity
            - How the energy runs through cables into the grid and to people's houses

Backgrounds:
Many students have never been exposed to the discussion of energy. In fact, many associate only gas and coal with energy. The goal of the lesson plan is to change this type of thinking. Renewable energy is a clean green energy source that is essential to waning our country off fossil fuels. By showing the students how pinwheels work we can introduce students to how wind turbines work.

Vocabulary:

Potential energy- having the capacity to create power

Solar Cooker
Primary Subjects- Science

Objectives:

- Students will learn how to harness the energy of renewable energy in everyday life.
- Students will learn the importance of solar power.

Materials:

- Recycled pizza box (or similar box)
- Black construction paper
- Aluminum foil
- Saran wrap
- Wooden dowel or straw
- Glue, tape, scissors, marker

Introduction to Lesson/ Anticipatory Set:

- "Today we are going to make a solar oven. We are going to use the power of the sun to cook cookies next week."
- "Does anyone know what renewable energy is?""

Major instructional Sequence:

- Split the class up into two groups and make solar cookers
- Instructions are attached and can be found at http://www.solarnow.org/pizzabx.htm

Concluding Sequence:

- "Does our oven pollute at all?"
  - no
- "So is it healthier for the environment to use the oven we made or use the oven in your kitchen?"
  - the oven we made (explain why)

Observation:
This lesson plan allows students to see first hand how renewable energy sources (like solar and wind power) can be as effective as the conventional types of energy that students are accustomed to baking with. This is a way to bake cookies without emitting any pollutants.

Vocabulary:

Solar- having to do with the sun

Solar cooker- an oven that uses the power of the sun to cook things instead of electricity

Baking with the Solar Cooker
Primary Subjects- Science

Objectives:

- Students will learn how to harness the power of renewable energy in everyday life.
- Students will learn the importance of solar power.

Materials:

- 6 packages of tollhouse pre-made cookie dough (number of packages depends on number of students so use discretion)

Introduction to Lesson/ Anticipatory Set:

- "Today we are going to bake in our solar oven."

Major instructional Sequence:

- Split the class up into two groups and put cookie dough pieces in solar cookers
- Eat the cookies once baked!

Concluding Sequence:

- Discuss how renewable energy can do many more things than just make cookies! In some places, solar power provides energy for an entire city.

Observations:
This lesson plan allows students to see first hand how renewable energy sources (like solar and wind power) can be as effective as the conventional types of energy that they are accustomed to baking with. This is a way to bake cookies with out emitting any pollutants.

Vocabulary:

Solar- having to do with the sun

Solar cooker- an oven that uses the power of the sun to cook things instead of electricity

Spring Nature Walk
Primary Subject- Science, Social Studies

Objectives:

- Students will learn how to observe the world around them through observations with each sense.
- Students will recognize the changes in the environment that come with the seasons.

Materials:

- journals that will be used for all "sustainable" activities
- pencil or something to write/ draw with

Introduction:

1. Anticipatory Set
    - "Has anyone noticed that the whether and environment are always changing?"
    - "Does anyone know why everything is changing?"
        - "Because it's Spring!"
    - "Remember when we took a walk in the winter and fall to observe the environment?"
        - "We are going to do that again for spring."

2. Purpose: To recognize the changes that come because of the seasons.

Major Instructional Sequence:

- Take a sensory nature walk
    - Separate into smaller groups by assigning each teacher 4 or 5 students
    - Go outside and begin examining nature by using each individual sense
        - Ask students to close there eyes and tell you what they hear
        - Ask students to open there eyes and tell you what colors they see
        - Ask students to smell nature and tell you what it smells like
        - Ask students for general observations about anything that specifically attracts their attention

- Have students take 5 to 10 minutes to observe in their journals
    - Have them write and draw the differences they observe between the seasons
- Go back inside and reflect on what you observed
    - "What did you guys notice that is different now than what we observed in the winter."

Concluding Sequence:

3. Have everyone share with each other (or their neighbors) what they learned and liked best while they were outside

4. What we learned:

- How to observe nature with or senses
- An appreciation for the world around us

Background:

Students need a reason to practice a sustainable life style. If students begin to establish a connection with the environment, they will want to protect. This lesson plan is meant to expose students to the beauty that can be found in nature.

Vocabulary:

Observe- to use your senses to understand something

Senses- a faculty (or something) the body uses to understand the world around it

The five senses include: Smell, taste, sight,

