

Eco-Study
Environmental
Curriculum

This curriculum is part of our Eco-Study Environmental Curriculum. This curriculum is to help kids, grades 2-4, learn about environment sustainability in a fun, engaging lifestyle changing way so that they become environmentally friendly and make the world a better place for us and future generations to live.

This was made as a FLL World Class project by 9 students on the Astroboats team 3368.

<http://www.k12.wa.us/EnvironmentSustainability/Standards/default.aspx>

<http://tinyurl.com/astroboatsprojectvideo>

Teacher Guide Environment Curriculum

Here are the 6 week outlines for the three units: Deforestation, Energy Saving, and Trash/Recycling. These will help plan each week's lesson. There is also a time or range in parenthesis that shows how much time we think each lesson will take. Also there are examples on what to teach each week. Feel free to build on what is given here. We have also include the Environmental and Sustainability Standards from Washington State that go with each lesson.

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Deforestation

Week One: (10-20 min)

ESE Standard 1: Ecological, Social, and Economic Systems

Learn about children's knowledge.

Suggestions for questions to ask them:

- What do you know about cutting trees down?
- And what does cutting trees affect?

Give a basic introduction.

Ex. Bad things happen when you cut trees.

Week Two: (15-30 min)

ESE Standard 1: Ecological, Social, and Economic Systems

Give deeper explanations.

Include: This topic is a problem because when trees are being cut down, they can't convert carbon dioxide to oxygen for us to breathe which causes global warming.

Also trees are important for animals since the forests are their homes and provides food for the animals too.

Week Three: (20-40 min)

ESE Standard 2: The Natural and Built Environment

Online games and review using the online website to review and remember concepts learned in weeks one and two.

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Week Four: (10-20 min)

ESE Standard 2: The Natural and Built Environment

Tell how experts solve it today.

Include: There is a law if you cut down a certain number of trees you must also plant some. We can help solve this problem by not cutting trees when we are older, and by using less resources that come from trees.

People are trying to find more and more new ways to recycle and reuse items from trees, so more trees don't have to be cut down.

Week five: (1-2 hrs.)

Do one of listed activities below (or something like them):

ESE Standard 2: The Natural and Built Environment

- Go to a wetlands
- Go to a forest
- Plant trees
- Form a gardening club

You can also have students brainstorm some activities that would wither help the environment or give them more information on the environment.

Week six: (20-30 min)

Do review and analysis of what you have learned.

Put out some items such as seeds, birdhouse kits, and stuffed animals in the student store where kids can cash in points that were earned from the online website.

Link to online material on Deforestation: <http://astroboats.weebly.com/deforestation.html>

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Energy Saving

Week One: (15-30 min)

ESE Standard 1: Ecological, Social, and Economic Systems

Learn about children's knowledge.

Suggestions for questions to ask them:

- What do you know about saving energy
- What are some effects of using too much energy?
- What do you wish to know?

Give a basic introduction.

It is bad to waste energy, and we are wasting good natural resources like coal and gas which can come in handy later.

Week Two: (15-30 min)

ESE Standard 1: Ecological, Social, and Economic Systems

Give deeper explanations.

Include: This topic is a problem when we waste natural resources we are just throwing away valuable things from the earth. We could use it later instead of wasting them. Energy is bad to waste because it all ends up coming from the earth. We are just wasting it, so why not save it?

Week Three: (30-45 min)

ESE Standard 2: The Natural and Built Environment

Online games and review using the online website to review and remember new concepts learned in week one and two.

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Week Four: (10-20 min)

ESE Standard 2: The Natural and Built Environment

Tell how experts solve it today. Include:

Experts tell kids to save energy and do it themselves! They are finding ways to get reusable energy which is helpful. You should turn off the faucet and turn off the lights.

Week five: (1-2 hrs.)

ESE Standard 2: The Natural and Built Environment

Do one of listed activities below (or something like them):

- Kids go inside and outside their school and find ways to improve and save energy. Write it down and discuss in class.
- Kids try to find ways to save energy at home and write it down.
- Have them help with an energy saving project around the school.

Week six: (20 min)

Do review and analysis of what you have learned.

Put out some items such as stickers, stuffed animals, and bracelets/key chains, or items related to energy saving in the student store where kids can cash in points that were earned from the online website.

Link to online material on Energy Saving: <http://astroboats.weebly.com/energy-saving.html>

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Trash/Recycling

Week One: (10-20 min)

ESE Standard 1: Ecological, Social, and Economic Systems

Learn about children's knowledge.

Suggestions for questions to ask them:

- What do you know about trash?
- What about landfills?
- What would you be interested in to learn about trash and recycling?

Give basic introduction.

Ex. People are throwing too much trash away. Too much of the Earth is covered in landfills. We are wasting our natural resources by using a lot. We could reuse papers and recycle them after.

Week Two: (15-30 min)

ESE Standard 1: Ecological, Social, and Economic Systems

Give Deeper Explanation:

Include: This is a horrible problem in the world because we are wasting our natural resources. Trash can't decompose so it stays on our earth forever. We can never make use of the trash, so it just stay in a big pile. You are the one who can help solve this problem.

Week Three: (30-45 min)

ESE Standard 2: The Natural and Built Environment

Online games and review.

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Week Four: (10-20 min)

ESE Standard 2: The Natural and Built Environment

Tell how experts solve it today.

Include: You can help solve this problem by maybe taking reusable containers in your lunch box instead of taking individual Ziploc bags with you lunch in them. When you only use half of your paper, you could flip the paper over and use again. Once you are done with the paper, you pass it to your friend to use. Or you could take it over and stick it in the recycle bin instead of the trash can.

Week Five: (1-2 hrs.)

ESE Standard 2: The Natural and Built Environment

Do one of the activities listed below (or something like them):

- Go to recycling center
- Go home, take note on how much you throw away over weekend. The student who has least trash wins and gets a prize.
- Go to a landfill

Week Six: (20-40 min)

Do review and analysis of what you have learned.

Put out some items such as stickers, stuffed animals, and pens/pencils or items related to trash/landfill in the student store where kids can cash in points that they earned from the online website.

Link to online material on Trash/Recycling:

<http://astroboats.weebly.com/trashrecycling.html>

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Online

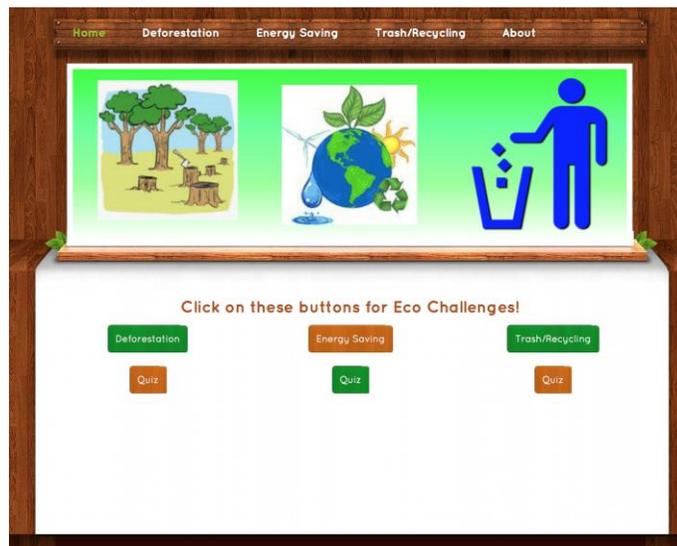
Link: www.astroboats.weebly.com

Using the online website students will be able to learn more about the topics that are studied in class.

They can read more information or interesting facts, play games that review and are related to the topics, and even complete challenges at home to earn points. The challenges are related to what is being taught in class and they can earn point for completing the challenges. These eco-challenges will help students make these behaviors that help the environment habits, and they may continue to do these for their whole life (*ESE Standard 3: Sustainability and Civic Responsibility*)

With the points they can buy items from the student store. There is also a short practice quiz where the students can earn points.

The website will make it more fun and easy for students to learn and reinforce the topics from class. This will make this class/curriculum different from everything else they do at school because it will be more fun!

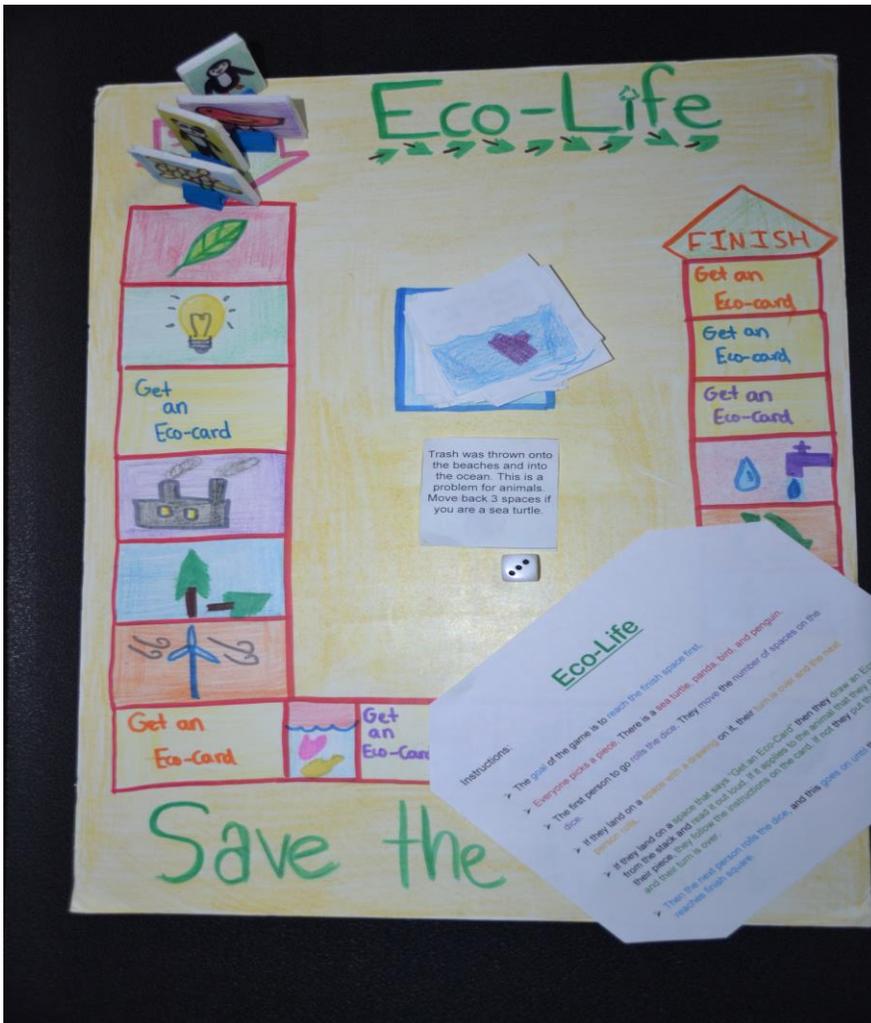


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Board Games

Students can play the online games, or play the two board games included in the curriculum, *Eco-Life* and the *Green Game*.

Eco-Life Instructions:



The goal of the game is to reach the finish space first.

Everyone picks a piece. There is a sea turtle, panda, bird, and penguin.

The first person to go rolls the dice. They move the number of spaces on the dice.

If they land on a space with a drawing their turn is over and the next person rolls.

If they land on a space that says "Get an Eco-Card" then they draw an Eco-Card from the stack and read it out loud. If it

applies to the animal that they picked as their piece then follow the instructions on the card. If not then they put the card down and their turn is over.

Then the next person rolls the dice, and this goes on until the first person reaches the finish square.

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Green Game Instructions:



Give everyone a set of tokens (recycling signs).

Put the four decks of cards separately on the game board.

The first person rolls the dice and picks up the corresponding colored cards

Do what the cards say. If you get it done/correct you get to put a token on the game board unless it is a pink card, then do what it says.

Pass the dice to the next person.

The first person to get 5 in a row horizontally, vertically or diagonally wins.

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Simulation Instructions:

The goal of the game is to learn impact of deforestation on animals by cutting trees/forest.

First, students place animals in the tray. As part of the simulation the teacher moves the animals on the side, removes the trees to represent people cutting down the trees. Then, the teacher places the buildings that leave no place for animals to roam around and have their own space.



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Minecraft Instructions:

The goal of the game is to learn to recycle.

First, the player would search the world for plastic bottles or soda cans.

Once, they find one of these the player would break the plastic bottle or soda can block. Then, the player goes to the inventory, takes the block and puts it in the crafting section. In return, the player gets a diamond. The diamonds are used to make tools, weapons, and armor in the game.



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Junk Sculpture Instructions

- 1) For your junk sculpture you need to collect items* that you think you could make a junk sculpture.
- 2) Once you have collected your items you can start to build your sculpture.
 - Your sculpture can be anything you want!
 - Use your creativity and imagination!

*Your materials can not be made of glass, have sharp edges, have food on it, or any

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Instructions for Sock Puppet Crafts

These instructions are for making sock puppets out of reusable materials. It shows that you can make something fun without buying new materials (in other words, by using reusable materials).

1. Gather **an old sock** (washed!) and **any materials*** from around the house to create the features (e.g. Mouth, eyes, tail, etc.) of the animal you want to create.
2. **Go wild! ☺ Draw features** onto your sock or **use hot glue**** to glue on materials to create the features.
3. Research ways **deforestation or pollution affects the animal** you made a puppet of. Write **a list** of what you found.
4. (Optional) Give your sock puppet **a name!** ☺

* Examples are: old felt, googly eyes, yarn, pipe cleaners, etc.

** Ask an adult to help you with the hot glue gun.