TD FEF Tree Planting Grant Program

Environmental Programming

Congratulations on being a part of the TD Friends of the Environment (TD FEF) Tree Planting Grant program! While this is not a mandatory component of the program, you may use the following activities to further engage your unit in the importance of environmental stewardship. Your tree planting experience, combined with the activities below, can create a powerful and compelling learning experience for girls. Girls will learn how the choices they make every day can be part of the climate change solution. The programming activities will build on girls' existing knowledge and passion for their environment while empowering Members to make a sustained and powerful environmental difference in the world.

To learn more, visit: What is climate change

Spend one meeting exploring climate change prior to your tree planting event. Use or adapt any of the following activities that work best with your Unit:

Climate Awareness Activities for Younger Units

Trees (30 minutes)

Purpose: To explore your local environment and gain an appreciation for the important role trees play.

1. Take a short walk in a park or some place with trees. Ask the girls to each pick a favourite tree and give it a name. Give them time to investigate their tree, getting to know its characteristics. They can share a bit about their tree with the Unit.
2. After the walk talk about all the things that trees do for the environment (e.g. produce oxygen, provide shade, hold soil together, offer natural habitat, etc.) and three things that are not good for trees (e.g. invasive species, pollution, drought, deforestation, sidewalks and roads not letting them grow their roots, etc.).

Oceans (45 minutes)

Purpose: To understand how oceans are being affected by climate change.

Materials: Water, mineral oil (available at pharmacies and large department stores), blue food colouring, clear plastic bottle with top

1. Ask the girls to think about the important role that oceans play in our environment. You can talk about how oceans are a home to plants and animals, how water pollution harms those plants and animals or how global warming is causing glacial ice to melt and sea levels to rise. Ask questions like: why are the oceans so important? What lives in the ocean? How are oceans changing?
2. Fill a large plastic bottle 2/3 full with water. Add blue food colouring to the water.

3. Fill the rest of the bottle with mineral oil, so there's no room for air. Then put the top firmly on the bottle.
4. Lay the bottle on its side. Watch as the mineral oil floats to the top. To make waves in your sea, tilt the bottle back and forth. You can imagine you're at the beach or sailing on the ocean.
5. Think of ways that people can help to protect our oceans!

*Ensure that the bottles are well sealed and make this craft in an area where spilled water or mineral oil can be easily mopped up!

No junk mail (30 minutes)

Purpose: To consider how we can reduce waste and greenhouse gas emissions.

Materials: Recycled paper, junk mail, art supplies

1. Talk to the girls about where junk mail comes from, about the trees that are cut down to produce the paper and the energy required to transport the mail. Explain that avoiding junk mail is an easy way to reduce greenhouse gas emissions.
2. Hand out the paper and the art supplies. Have the girls write “NO JUNK MAIL PLEASE” on their paper and give them time to draw a picture of a tree or their favourite forest animal as well.
3. Tell them that they can take the sign home and ask their parents/guardians about posting it on their front door. They can share with their parents what they have learned about why they should post the sign.

Carbon tag (10 minutes)

Purpose: To explore the relationship between carbon dioxide and the warming of the Earth.

1. Ask the girls if they know about global warming. Talk with them about the increasing levels of carbon dioxide ($CO_{2)}$ (and other greenhouse gases) in our atmosphere that are trapping solar radiation and causing our planet to warm.
2. Play a tag game where one group of girls represents the CO_2 molecules and the other represents solar rays.
    a. Make a circle on the floor using rope, which represents the warming Earth.
    b. The CO_2 girls are ‘it’ and when they tag the solar rays, the solar rays must go into the warming Earth zone.
    c. See how long it takes to warm up the earth!
    d. Try playing with fewer or more girls representing CO_2 molecules to see how more CO_2 makes the earth warm up faster!

Climate Awareness Activities for Older Units

Climate Jeopardy (30 minutes)

Purpose: To introduce terms and concepts related to climate change.

Materials: Climate answers and questions (Appendix A), tape

1. Print out the Climate in Jeopardy questions and answers. On a chalk board or white board write the categories across the top and point values below. When a girl calls out a category and point value you can cross it off, and read her the "answer" from the printout.
2. Split the unit into three or four small groups and ask each group to come up with a unique sound to buzz in.
3. The first group chooses a category and point value/answer to respond to. All groups must wait until the answer is read aloud before buzzing in. If the response is correct, that group may pick the next answer, and so on.
4. At the end, ask the girls what information they already knew and what was new. Spend some time reviewing new concepts to ensure that all girls understand.

The Tree Metaphor (30 minutes)

Purpose: To explore the relationship between humans and climate change. To identify concrete steps to reducing our impact on climate change.

In the Tree Metaphor activity, the roots represent the causes of climate change, the trunk represents how humans are affected by climate change and the branches are the ways that we can make an impact on climate change. You can explore the activity using paper and art supplies or get moving and act out the three parts of the tree.

1. Split the unit into three groups. Each group represents the roots, trunk or branches of the tree.
    a. The Roots: will work together to think of things that humans do to cause climate change (e.g., driving, cutting down forests, heating our homes, etc.).
    b. The Trunk: will work together to think of ways that humans are affected by climate change (e.g., storms and hurricanes, rising food prices, invasive species, etc.).
    c. The Branches: will work together to come up with ways that people can reduce their environmental impact (e.g., walking/biking instead of driving, planting trees, eating less meat, planting a food garden, taking shorter showers, etc.)
2. The groups can share the results by drawing or writing their ideas or alternatively act out their answers and let the remaining group members guess.

What goes in the pot? (90 minutes)

Purpose: To discover how the food choices we make impact the environment.

Materials: Access to a kitchen, local food ingredients

1. Plan a meal together with your unit using as many local food ingredients as you can find. Make a list of your ingredients and all of the things that contributed to its production (farmer's labour, fertilizer, irrigation, processing, transportation, packaging, refrigeration, etc.).
2. Prepare the meal together as a unit. To avoid having "too many cooks in the kitchen" appoint two or three girls to record all of the energy that they see going into the meal including electricity, water, firewood, etc.
3. After the meal analyze the environmental impact of the meal. Ask questions like: Are you surprised by the amount of energy that goes into each meal? How might the impact compare to a meal with meat, or the meals the girls typically eat? How could the environmental impact be reduced? What lessons about reducing our impact on the environment have you learned?

Make your own paper (60 minutes)

We use paper for lots of things and it's something we could all probably use less of. Think of ways your unit could reduce the amount of paper you use. And since you are going to spend much time and effort in planting your very own trees, you don't want to waste paper, so learn to make your own! Recycling paper can lower the use of electricity and water, make less pollution and of course save trees!

Purpose: To understand the process of recycling paper and how it benefits the environment.

Materials:

- an old blender
- a clothing iron
- old wire hangers (one for each girl)
- old pairs of panty hose (one pair for each pair of girls)
- newspaper or other paper (not glossy)
- water
- a big sink or tub (big enough to fit the frame of the wire hanger) filled with 4 inches of water
- old towels

Make sure you have a place to work where you can make a big mess!

1. Tear the newspaper into strips and then squares and soak in a bucket of water for at least a few hours, or overnight.
2. Meanwhile, make a frame out of the coat hanger. You'll need a frame for each piece of paper you make. Stretch the hanger and bend it into a rectangle/square shape. Take one leg of the panty hose and stretch it carefully over the hanger frame. Make sure it is tight and flat.
3. Once the paper has soaked, it is time to get out the blender. Add a handful of paper and water to the blender. Blend until mushy. Add more paper and water as room develops in the blender.
4. Add the blended paper mush to the sink or tub. Scoop the frame to the bottom of the sink, and lift it out slowly. Let the water drain out for about a minute.
5. Lay out sheets of newspaper and the old towel. It should be a bit larger than the final piece of paper. Turn the wire hanger upside down on the towel to turn out the homemade paper. If necessary, gently peel the paper away from the pantyhose. The paper and towel should absorb the excess water. You

can layer additional papers on top by adding more towels, then newspaper then another towel on top of the first one.

6. Use the iron, on its hottest setting, to press the paper and remove the excess water.

You can find more directions on how to make paper from these websites:

www.make-stuff.com/recycling/paper.html
http://www.ecokids.ca/pub/fun_n_games/printables/activities/assets/science_nature/paper_making.pdf
http://www.makingyourown.co.uk/make-your-own-recycled-paper.html

Appendix A: Climate in Jeopardy – Questions and Answers

Greenhouse Gases

Questions

200: What is the greenhouse effect?

400: What are fossil fuels (oil, gas, coal)?

600: What is 26?

800: What is burning coal?

1000: What is absorb and hold carbon dioxide?

Answers

200: Gases like carbon dioxide, methane and nitrous oxide trap the sun's heat in the atmosphere creating this effect.

400: Greenhouse gases are created as a result of burning these.

600: One tree can remove this many pounds of carbon dioxide from the atmosphere each year: 13, 20, 26.

800: This energy source produces the greatest amount of carbon dioxide.

1000: A carbon sink does this.

Water

Questions

200: What are hydro-electric dams?

400: What is 100?

600: What is a hydrogen fuel cell vehicle?

800: What is Canada?

1000: What is 329 litres?

Answers

200: Canada generates over 60% of its electricity from this source.

400: A typical five-minute shower uses this many litres of water: 50, 100 or 150.

600: Pure water is the only emission from this type of vehicle.

800: This country has the world's greatest supply of fresh water.

1000: The average Canadian uses this much water per day: 26 litres, 258 litres, or 329 litres.

Energy

Questions

200: What are solar, wind, water, geo-thermal or biomass?

400: What are wind and solar power?

600: What is the refrigerator?

800: What is a compact fluorescent bulb?

1000: What is natural gas?

Answers

200: These are two kinds of renewable energy.

400: These are the two fastest growing energy sources in the world.

600: This household appliance uses the most energy.

800: Incandescent light bulbs consume approximates 75% more electricity than this type of bulb.

1000: Of all the fossil fuels, this is considered to be the cleanest.

Transportation

Questions

200: What is a hybrid vehicle?

400: What is cooking oil?

600: What is air travel?

800: What is China?

1000: What is the Netherlands?

Answers

200: This type of vehicle is powered by both an electric motor and gas engine.

400: This kitchen waste product can be used to power cars.

600: This form of transportation accounts for 4-9 % of the total climate change impact of human activity.

800: This country has the largest network of high speed rail trains.

1000: The country with the most bicycles per capita.

Food

Questions

200: What is 1,200 km?

400: What are cows? (Cows can produce up to 200 litres of methane per day!)

600: What is meat?

800: What is food security?

1000: What is manure?

Answers

200: The average meal travels this far from the farm to your plate: 200 km, 800km, 1,200 km.

400: About 28% of global methane emissions come from this source.

600: The production of this accounts for approximately 70% of all agricultural land use.

800: Climate change may reduce this type of national security.

1000: This animal waste product generates nitrous oxide, a greenhouse gas which is 296 times more harmful than carbon dioxide.

Waste

Questions

200: What is ‘not in my back yard’?

400: What is pieces of junk mail?

600: What is mercury?

800: What are landfills?

1000: What is 2.2 kg?

Answers

200: The acronym for this is NIMBY.

400: 13 billion of these are delivered to homes in Canada each year: pizzas, newspapers or pieces of junk mail.

600: When a compact fluorescent light bulb burns out it is important to dispose of it properly because of this hazardous metal.

800: About 38 per cent of Canada's methane emissions come from this source.

1000: The average Canadian produces this much waste per day: 2.2 kg, 4 kg, 4.5 kg.

Sources:

www.naturecanada.ca/water_facts.html
www.davidsuzuki.org/
www.on.ec.gc.ca
www.earthcarecanada.com
www.greenpeace.org
www.epa.gov/rlep/faq.html
www.ecokids.ca