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WESTERN WASHINGTON

2022 Refugee Youth Summer Academy Curriculum

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Introduction

Dear Readers,

We welcome you to read the 2022-2023 summer camp lesson plan overview. The goal of the summer camp is to teach an environmentally based curriculum while promoting English speaking as students in the summer camp have differing levels of understand-ment of English. This year, we had students from 10 different countries participate in the summer camp. Monday to Thursday, students arrived in the paradise parking plot garden from Mill Creek Middle School. They were at the garden for an hour and a half where they were taught about environmental science subjects. In the summer camp this year, we had 4 overarching themes: Earth, Air, Water and Fire. In this document, we will be highlighting 1 lesson plan per each of our themes to give you an idea of the structure of the summer camp.

Students were separated into groups according to their age and grade. The different groups were k-1st, 2nd-4th and 5th-9$^{th.}$ We had a total of 63 students participating in summer camp this year. For the summer camp, we had 3 Equity & Sustainability interns from The Gambia, India and Afghanistan.

We would like to thank everyone for their tremendous support before, during and after the summer camp. Thank you to the cohort of Equity & Sustainability Inters: Shivika Vasudeva, Musa Nijai, Zahara Waezzada. To the technical support intern, Emily Tacke. The project manager intern, Stuti Dahal, the garden coordinator Lucas McClish as well as all the World Relief Staff involved in the planning of the summer camp. We would also like to extend our thanks to individuals outside of world relief who led the topics trainings. Thank you to Darshi Banan, Aaron Clark, Peter Donaldson, Elisha Gill, Rhealynn Ravarra, Emily Tacke, and Gavin Tiemeyer for providing our interns with valuable topic training sessions. Lastly, thank you to our friends at ECOSS, Angela Ena and Samara Almonte for the educational opportunity for our interns to tour ECCSS.

These lesson plans are creating, keeping in mind that refugee and immigrant students may have a different set of learning needs. As we went on throughout the summer camp, several changes were made to the lesson plants to better adapt to our student's needs.

Enjoy the rest of the document,

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Lesson Plan Overview & Learning Objectives

Week 1- Introduction, migration and native lands

Students will recognize the diverse places that their classmates were born and lived in. They will also recognize their place of birth and where they currently live. Students will also recognize what native lands are and what lands they currently reside in.

Week 2- Plant cycle, composting and erosion

Students will be able to differentiate between the different stages of plant cycle. They will be able to understand the importance of composting on the soil and plant growth. They will also be able to recognize the effects of erosion.

Week 3- Pollination, air pollution and seasonality

Students will be able to understand how pollination happens and the outcome of pollination. They will also be able to identify different types of air pollutants and how they are harmful to humans and animals. Students will also be able to understand how different season happen.

Week 4- Water pollution, stormwater and green stormwater infrastructure

Students will be able to understand the importance of clean drinking water and how water pollution can affect humans and animals. They will be able to identity the effects of stormwater on water pollution and how green stormwater infrastructure can help decrease these stressors.

Week 5- Sun, wildfires and active volcanoes

Students will be able to understand the power of the sun and why humans and plants need the sun to survive. They will be able to identify the positive and negative impacts of wildfires. Students will also be able to understand how an active volcano erupts and they will be able to identify any active volcanoes near them.

Week 1- Introduction, migration and native lands

Learning Target: Students will get to know their peers and their instructors and be able to connect similarities and differences with their peers.

- Kids pick out groups
  - Have the kids pick their groups from a bowl
  - Kids go to their designated spots

Name Tag Bracelet (cut strips of paper)

- Write your name on a piece of paper
  - Decorate it with your favorite color
  - Draw your favorite animal
- Decorate the cardboard if you want
  - Take 10-15mins to make the bracelet and decorate it.
  - Take 5-10mins for everyone to show their bracelet and introduce themselves
  - Interns also do the same thing as well
  - Interns present their name tags first and the kids will follow

- Map Mark
  - Ask the kids which country they are in
    - Show United States on the map and let the kids mark it with a marker for themselves
    - Ask the kids which state they are in
    - Show Washington state on the map and let the kids mark for themselves
    - Ask the kids which country they were born
    - Find the country and put a mark on it
      - Take 20-25mins for the whole activity

Take a ball and ask a question

- Pass the ball around, whoever has the ball answers the question and passes the ball to someone else
  - Questions- What is your favorite color?
  - What is your favorite toy that you play with?
  - What is your favorite movie?
  - What is your favorite food?
    - Take 5-10mins to do this activity

Week 2- Plant cycle, composting and erosion

Key words: compost, harvest, erosion, plant cycle

Learning Target: Students will learn about the plant cycle and how it affects their life. They will also understand idea of composting: why we recycle food scraps to put back into soi. Students will understand that erosion: happens every day by water, wind, humans (and kids how contribute) --erosion can be good.

Activity 1: Plant life cycle

- Puzzle activity: Kids to figure out which picture goes on the activity box
- The kids would demonstrate and understand plant life cycle, and steps needed throughout the plant life cycle.

Reflection Question:

3. Asking them what changes they observe, from steps 1 –5

Time: 15-20 minutes

Activity 2: Sprout

All plants begin life with a seed

And they will germinate, which is the process of the seeds having enough water and sun to grow

The stems and roots begin to develop

Then flowers begin to produce

In some plants fruits began to produce

- Groups of 5 kids
- Pass out mason jars
- put their names on the mason jars
- Put the seeds in the cup and fill it up with water
- Close it with a draining cloth
- Check on the maison jars the following week
- Fill out an observation sheet, for this week, and finish it the following week

Time: 20-25 minutes

Activity 3: Peas Activity

- Divide the kids into groups of 5

- From a lottery, let kids pick which experiment they will be doing
- Experiment groups: Normal, too much water, light, salt water, shade.
- Pass out paper cup press
- Instruct kids how to use paper cup press
- Pass out paper
- Put their names on the cup
- Scoop the soil out and put it in a cup
- Put the peas seed in the soil
- Water the soil
- Check on the plant every week
- Fill out an observation sheet

Activity 2: Sprout Activity

Draw what you see Week 1	**Draw what you see Week 2**

Reflection Question- What differences do you see in these 2 weeks?

Activity 3: Pea Activity

	Experiment Name	Normal	Shade	Light	Saltwater	Too much water
Week 1	How tall is the plant? What do you see? Has the seed					

	germinated ?					
Week 2	How tall is the plant? What do you see? Has the seed germinated ?					
Week 3	How tall is the plant? What do you see? Has the seed germinated ? Does the plant look healthy?					
Week 4	How tall is the plant? What do you see? Has the seed germinated ?					

	Does the plant look healthy?					

Activity 5

What differences do you see in each of the jars?

Jar 1	**Jar 2**	**Jar 3**

Time: 25-30 minutes

Activity 4: Compost Bin Activity

Explain to the kids how compost is made, and all the steps involved

Composting makes it easier for soil to retain water and nutrients, so the roots of the plants can take more nutrients which helps the plants grow.

Explain what is in compost, and how worms help by eating all the food scraps and the feases help the soil

Compost bin tour at the Garden

- Explain to the kids how compost is made, and what insects do to help break down materials
- Ask the kids what they see in the bin
- Ask them to put their hands over the bin to feel the temperature

Time: 15-20 minutes

Activity 5: Compost Jars

- Bring the kids inside to show them the 3 different compost jars, demonstrating composting
- Explain through the steps in each compost from 1 –3 jars
- Fill out an observation sheet

Time: 10-15 minutes

Activity 6

- Soil Erosion

Explain soil erosion of, causes and effects. How plants help in preventing soil erosion

Soil erosion washes away the top soil, by wind, water and humans.

When erosion occurs, it affects plant growth.

Plants help slow down erosion, because the roots absorb water and it decreases soil movement and it provides structure and support to the plants.

Plants help block the wind which also decreases soil erosion.

Talk about the human contribution to erosion. Humans increase erosion by cutting down trees and going off trails during hikes.

- Put soil in the aluminum foil
- Create a little hole in the button of the aluminum
- Place the aluminum foil on a big tray
- Cut little from part of the aluminum plate so soil can erode
- Place the aluminum tray at an angle
- Place water on top of the aluminum foil and observe erosion

Activity 7: Soil erosion Activity with the plants

- Get the aluminum foil with the plant
- Create a little hole in the button of the aluminum
- Place the aluminum foil on a big tray
- Cut little from part of the aluminum plate so soil can erode
- Place the aluminum tray at an angle
- Place water on top of the aluminum foil and observe erosion

Reflection Question:

1. Why was there less erosion in an environment with plants than an environment without plants?

2. How do humans cause soil erosion

Week 3- Pollination, air pollution and seasonality

Key words: What is air? Air pollution, pollination, seasonality, wind erosion

Learning Targets: Understand what air is and why it is important to us. Understand how climate change affects the air, humans and animals. Understand how pollination happens through air. Understand how different seasons occur.

Activity: Air Pollution

- Split into three groups
- Have three small jars, three larger jars
- Covered inside sides and bottom of small jars
- Place small jars into big jars
- Give each group a jar in a jar and label
- Have each group place their jar where they would like to see air pollution and leave for next week

Time- 15-20mins

-------->end of camp

- Collect jars
- Hand out hand lenses
- Have kids observe particles of air pollution stuck to jar

Reflection questions:

Were there any differences in the amount of air pollution stuck to each jar? If yes, what do you think causes those differences?

What impact does air pollution have?

Explanation: benefits of clean air, how polluted air affects plants and people, how air pollution affects plant life (respiration)

ACTIVITY: Balloon

- Pass out balloons
- Have each person blow up balloon, if they can't we blow it up and give it to them
- Ask the kids what's inside the balloon
    - Can you see the air?
    - What color is the air?
- Let the kids let go of the balloon or they can tie it if they want.

Glacier melting activity

- divide kids into 3 groups

Bring the cup with the ice and animals

- Ask kids to measure the water level
- Explain to the kids that due to climate change, ice is melting which causes the water to rise and this affects all of the animals
- After 10 mins ask the kids to measure the water level again
    - The water level should have risen

Reflection question- how does the rising water affect the animals?

- What other things did you learn about this topic?

Time- 20 mins

Activity: Pollination

- Divide into 3 small groups
- Give each group paper plate and half of cheese packet
- Give each person a pipe cleaner and instruct to make bug finger puppet
- Place paper flower on top of juice box
- Place cheese powder on other paper flower on table
- Have kids transfer powder from table flower to juice box flower, “pollinating”

Explanation:

Transfer of pollen from one plant to another: important for flowers to be fertilized in order for fruit to grow. How does it happen?--> insects, bees, animals, wind

Reflection:

How does your pipe cleaner pollinator mimic an insect? (Hair on legs traps pollen)

How is pollination important for people to survive? (food!)

Air (wind) can pollinate plants as well as insects: how does air pollution effects pollination (makes it harder for bees to smell pollen)

How is climate change affecting pollination (later/different times for blooming/fruiting)?

Time: 20 min

TRANSITION: pollution can affect agents of pollination sensitive to changes

Activity: Explore pollination matching activity

Reflection questions:

Were there any differences in the amount of air pollution stuck to each jar? If yes, what do you think causes those differences?

What impact does air pollution have?

Explanation: benefits of clean air, how polluted air affects plants and people, how air pollution affects plant life (respiration)

Activity: Weather and changing seasons

- Talk about the different types of weather in the world
- In a world map, point out America
    - Ask kids, what is the season in America right now?
- In a world map, point out Australia
    - Ask kids, what is the season in Australia right now?
        - Demonstrate revolution
        - With an earth ball and a sun ball
            - Show earth revolving around the sun
            - When one part of the earth is tilted toward the sun, its summer
            - The other part of the earth which is tilted away from the sun, its winter

Fun Facts about weather and seasons:

- Demonstrate the day and night in the different parts of the world by using earth and sun as a yellow ball
- Point out Ecuador in the map, tell the kids that Ecuador only has 2 seasons, winter and summer
- The greatest snowfall recorded was on Mt Rainier, Washington State, USA - Over 30metres fell during the winter of 1972.
    - Show mount Ranier on the map to the kids
    - Weather clock (print out activity)
- Pass out weather clock with the season name and month name
- Ask the kids to draw the different seasons
- Color the different seasons as they want
    - Reflection question- Look at the clock and tell us what season it is currently
        - Ask one or two kids what season they were born in and have the kids guess their birthday month
        - Quiz the kids on what season it will be in a certain month.

Time- 20-25mins

Week 4- Water pollution, stormwater and green stormwater infrastructure

Key Words- water pollution, rain gardens, bioswales, pH Scale, drinking water, flooding, filter

Learning Target: Understand the difference between clean water and polluted water. Understand the causes of water pollution, and how the students can help to decrease water pollution.

Materials Needed: Cups, mud, soil, rocks, worms, oil, grass, leaves, coffee, pH strips, tray tables, spray bottles, sponges, cardboard, different color markers (yellow, red, black), print of the activity papers (enough for all the kids)

Activity

K-1st

Activity with cups

- Take 2 cups, in one cup put clean water, in the other cup put different materials such as mud, soil, rock, worm, oil, grass, etc.
- Groups decide what to put in one of the cups
- After the materials are put in one cup, it should look muddy
- Final question: Which cup would you rather drink out of?
- Reflection question: What would happen if you drank this polluted water? How would this affect the fish in the ocean if the water was like this?
    - 10 minutes

PH activity

- Tell them if the strip turns red it means it's bad and not safe to drink. If it turns green it's good and safe to drink
- Use the cups from the previous activity and let the kids test out with the pH strips
- The kids should be able to recognize which cup is safe to drink through the pH strips
- Reflection question: Why did the strip turn red? Why did it turn green?
- 10-15 minutes

Raingarden

- There is lot of flooding near the area and how can we mitigate the flooding?
- Introducing rain gardens
    - Rain gardens are able to absorb water which helps with controlling food
- Sponge activity (represents the rain gardens)
    - In a tray, spray water. This represents what happens during a flood, the water is accumulated

    - Put a sponge in the tray, and the sponge will soak the water. This represents what the rain garden does
- Reflection question: Do rain gardens help with flooding?
- Walk around and look at the different rain gardens
    - 20-25 minutes

Storm water runoff

- On a tray, set up a cardboard, which represents a hill
- Add water on the tray and setup the cardboard
- Each group of students takes turns coming up and drawing things on the cardboard
    - Draw areas with different color markers and tell the kids what the color represents
        - Yellow= oil
        - Black= smoke from factory
        - Red= fertilizer
- Spray water onto the structure to represent the stormwater runoff
- Reflection question: What color did the water turn? What do you think made the water turn this color?
    - 25-30 minutes

Find the Differences Activity

- To tell the differences between the two pictures

Reflection Question: How do the differences in the picture above help keep the water clean?

Time: if on schedule 5-10 mins, if coloring 15 – 20 mins

Activity

2nd- 4th

Activity with cups

- Take 2 cups, in one cup put clean water, in the other cup put different materials such as mud, soil, rock, worm, oil, grass, etc
- Groups decide what to put in one of the cups
- After the materials are put in one cup, it should look muddy
- Final question: Which cup would you rather drink out of?
- Reflection question: What would happen if you drank this polluted water? How would this affect the fish in the ocean if the water was like this?
    - 10 minutes

PH Activity

- Explain the graph to them, there are different scales for pH. The scale goes from 1 through 14 and safe drinking water is when the number is 7 which is a green color

- When something is acidic, the pH strip turns red, when something is neutral the pH strip will turn green
- Use the cups from the previous activity and let the kids test out with the pH strips
- The kids should be able to recognize which cup is safe to drink through the pH strips
- Reflection question: Why did the strip turn red? Why did it turn green?
    - 10-15 minutes

Raingarden

- There is lot of flooding near the area and how can we mitigate the flooding?
- Introducing rain gardens
    - Rain gardens are able to absorb water which helps with controlling food
- Sponge activity (represents the rain gardens)
    - In a tray, spray water. This represents what happens during a flood, the water is accumulated
    - Put a sponge in the tray, and the sponge will soak the water. This represents what the rain garden does
- Reflection question: Do rain gardens act like sponges and help control flooding?
    - How does flooding affect us in our lives?
- Walk around and look at the different rain gardens
    - Talk about the inflow and out flow of the rain garden
    - How it helps with absorbing water
    - Different zones of the plants planted in the garden
        - 30-35 minutes

Storm water runoff

- On a tray, set up a cardboard, which represents a hill
- Add water on the tray and setup the cardboard
- Each group of students takes turns coming up and drawing things on the cardboard
    - Draw areas with different color markers and tell the kids what the color represents
        - Yellow= oil
        - Black= smoke from factory
        - Red= fertilizer
- Spray water onto the structure to represent the stormwater runoff
    - Reflection question: What are some things that humans do that cause the water to be the color that you see in this activity?
    - What other factors, aside from humans, cause water pollution?
    - What is something that you can do to decrease water pollution?
        - 30-35 minutes

Maze activity

- Add soil, brown color

- Add oil, yellow color
- Add trash, black color

Reflection Questions: What effect does the things stormwater picks up have on water quality?

Do the things stormwater pick up cause flooding?

Time: 15-20 mins

Week 5- Sun, wildfires and active volcanoes

Key Words: sun, solar system, wildfire, active volcanoes, lava, magma, basalt

Learning Targets: students will be able to understand the sources of heat and why it is needed for survival. Understand the solar system and the different planets which make up the solar system. Students will understand the positive and negative effects of wildfires. Students will understand the process of volcanic eruptions and the different rocks made from the eruption. Students will recognize active volcanoes near them.

Materials- white board, candy, markers, roller measuring tool, candles, cups, baking soda, vinegar, red food coloring, mt st helens map,

ACTIVITY:

Introducing the solar system

- Draw the solar system in the white board before they arrive
- Point out all of the different planets
- Talk about the sun
    - Ask kids what the Earth would look like without the sun?
        - Explain to them that the sun provides heat and light
        - It is what keeps us warm
        - Plants need sunlight to survive
            - They take in sunlight in order to make food
            - This process is called photosynthesis

Ask the kids to guess how far the Earth is from the sun

- 93 million miles
- Use the roller measure and measure the gazebo
- Convert ft into miles
- Put the number on the whiteboard

Time- 15-20mins

Solar System Puzzle Activity

- Puzzle activity
- Draw out 1-8 and the sun
- Ask a question that causes students to guess the characters of the planet
- The group that answers the most questions will win candy
- Keep tally of the group points
    - Questions
        - What is the number of the hottest planet?
        - What is the number of the coldest planet?

        - What number planet is the smallest planet?
        - What number planet is the biggest planet?
        - What number planet has rings around it?
        - What number planet is Earth?
        - How many planets are in the solar system?

Time- 15-20mins

Wildfire Introduction

- Ask the kids different ways fire can be made
    - Sun, people lighting matches, etc
- Talk about the history of fire, why did people need fire back then?
    - For heat, to cook the food, in terms of sun electricity
- Talk about wildfires
    - How wildfires are caused
        - From human causes lighting fire, bonfires fireworks, smoking,
        - Natural causes from dry climate and hot weather
    - What are the negative effects of wildfires?
        - Harms plants and animals living in the area
        - Air pollution from smoke harms humans
        - Property and crop loss
    - What are the positive effects of wildfire?
        - Plants that need fire to reproduce
            - Activity- get one of these plants and light it on fire to show the kids
        - Decreases the dead plant material
        - Kills bugs that harms trees
- Candle activity
    - Demonstration of wildfires
        - Light out one candle
        - Ask intern to blow it out
        - Line up 5 candles and light it up
        - Competition between interns who puts out the candles first
        - Each intern represents each group of kids
        - The group that blows out the candle first wins
    - Connect the activity back to wildfires
        - Wildfires are difficult to put out, like the multiple candles were difficult to put out because there is a lot of fire

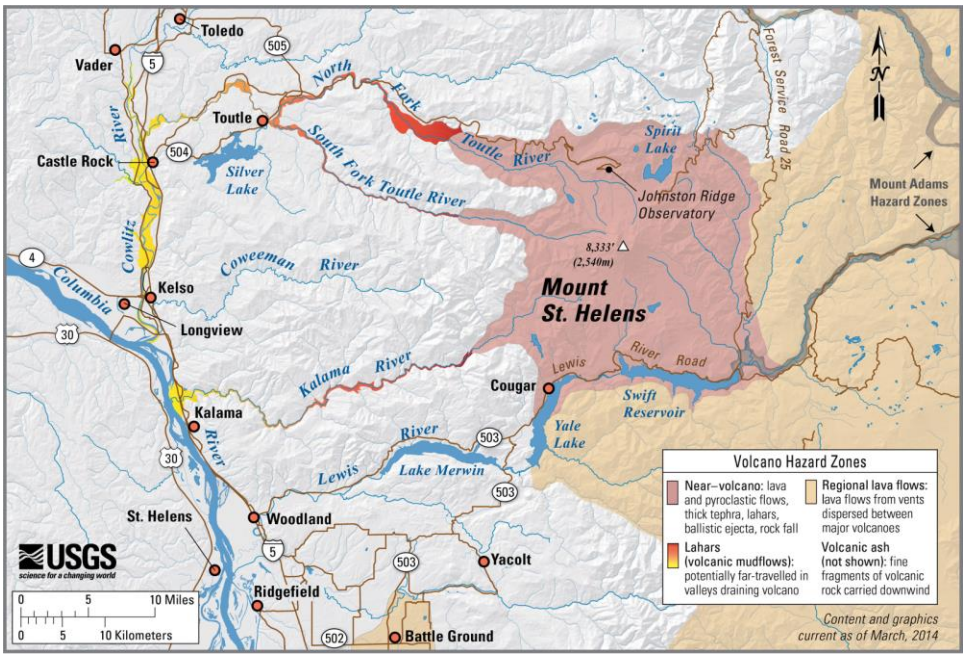
Time- 25-30mins

Volcanoes

- Volcano activity
    - Use paper cup, baking soda and red food colored vinegar

- 1 per group
- Add baking soda to the cup
- Mix in vinegar
- Watch the explosion happen

- Results of the volcano
  - Draw an erupting volcano on the board
  - Explain to the kids that there is magma under the earth's crust
  - When the magma rises, and explodes, it's called lava
  - Lava creates different types of rocks like basalt rocks, igneous rocks, cinders, volcanic ash and more
  - Talk about Mt St Helens
    - Ask the kids if there are any volcanoes near us
    - Show Mt St Helens on the map
    - Mt St Helen is an active volcano near us
    - The most recent eruption was 1980
      - This was the biggest volcanic eruption in the United States
    - Show kids the visual map of danger zone
    - Volcanic eruptions are dangerous for plants and also humans
      - The air pollutants from the eruption will affect human health
        - Gases like nitrous oxide and carbon dioxide are released from the eruptions



- Tour of the garden to see the basalt rocks which come from lava of the volcanoes

Time- 40-45mins