Lesson Title: “Diversity in Plants”

Lesson Subject/Focus: Science/Biodiversity

Grade/Subject: Kindergarten

Time for Lesson: 3 days

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I. Materials, Resources, and Technology

Materials:

- Crayons
- Markers
- Paper
- Scissors

Resources:

- Washington Countries Puzzlemap, related clues include:
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- Plant diversity book
- Worksheets
- Document camera

Technology:

- Computer
- PowerPoint presentation

II. Central Focus of Learning Segment

Students will learn about the diversity of plants in Washington and the location where some of these plants grow. They will learn about differences in plants, such as plants that grow underwater vs. above ground and why some plants are big vs. small. Students will learn the word “biodiversity” and be able to explain what it means with an example. Students will also be able to demonstrate the plant cycle pattern by organizing pictures into the correct sequence. Students will be able to explain what a plant needs to grow. Lastly, students will describe ways we can help protect endangered plants from extinction.

III. State Learning Standards

1. **K-LS1-1.** Use observations to describe patterns of what plants and animals (including humans) need to survive. Examples of patterns could include that animals need to take

in food but plants do not; the different kinds of food needed by different types of animals; the requirement of plants to have light; and that all living things need water.

Learning Targets (Objectives) and Assessments

Learning Target	Language Opportunities	Assessments
Biodiversity is…	Describe the meaning	Draw an example
Plant cycle	Sequence of events	Worksheet diagram
Plant diversity	Explaining differences	Drawing and writing plant differences.

IV. Students' Prior Knowledge or Experiences with Lesson Content

Students may have attended preschool where they learned about the plant cycle from seed and what plants need to survive; sun, water, etc. Students' families might grow their plants and have a garden. Observations: students may have seen plants at the park or outside their homes.

V. Sequence of Learning Activities

Estimated Minutes	Teacher Actions	Student Actions
30 minutes (Day One)	Introduction to Plant Diversity Learn what students already know about plants: Ask questions and record answers on a poster. Where do plants grow? What kinds of plants have they seen? What do plants need to grow? Introduce and define the vocabulary word "biodiversity" (variety of life forms.) Have kids close their eyes- Imagine a garden, you can see tall green trees, and flowers in yellow, red, and orange. Green bushes and tall grass. You can hear crickets chirping, and different birds tweeting. All the mixture of different plants and animals you just imagined is called biodiversity. Bio-Prefix for life. **Biodiversity = "life" + "diversity"** → many different kinds of life	Participate by answering questions and sharing their experiences. Follow behavior expectations: Do not talk unless called on. Raise your hand, be respectful, and do not interrupt the teacher or peers while they are sharing. Follow along and participate with the instructions. Answer questions about the book.

Estimated Minutes	Teacher Actions	Student Actions
	Show examples of different plants on the PowerPoint (e.g., big trees, tiny flowers, underwater plants, etc.). **<u>Day 2:</u>** Read the book on plant diversity. Use the document camera to show illustrations as you read, pausing to ask questions like: "What do you notice about this plant?" "Why do you think some plants are big and some are small?" While reading use your finger to follow along.	
20 Mins	Model the art assignment: Using pieces of construction paper make your own biodiverse garden. Fold paper and cut “u” shapes to make tulips and different plants.	Follow instructions and complete the assignment
30 Mins	Make an updated knowledge poster with students. Ask: What do we know about plants? Record the students’ answers. Ask: How do plants grow? Watch the video on plants' life cycle. Pass out the worksheet. Sequence of the plant's life cycle. Walk around and help students who are struggling.	Answer the question and participate in the discussion. Fill out the worksheet. Put the pictures in the correct place.
15 minutes	Wrap up by reviewing the posters students made. Combine the two days and make a new poster with any other additional facts the students learned.	Participate and show their knowledge.

VI. Learning Activity Review

- **How will you differentiate instruction and outcomes to meet specific student needs?** (Include, as needed: Universal design, grouping, ELL Strategies, IEP or 504 accommodations, student interests, culturally responsive supports, etc.)

Differentiated instruction: Differentiation will be given in the different forms of learning the materials (book, worksheet, cutting, drawing, writing sentences, verbally sharing ideas, PowerPoint with pictures, and videos). Allowing different ways for students to demonstrate their knowledge will benefit students who may struggle in reading or writing etc. Students with disabilities can be successful in learning material with accommodations of extra time to complete assignments and modification of the numbers of projects to complete.

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Multilingual Learners or Special Education: Students will be supported by visual aids on the Power Points and worksheet. Students can also use a language buddy to speak in native language if possible. Students can work in groups and ask the teacher for assistance. The teacher will use common language and any cognates possible, also provide gestures and have translated instructions available. Allow students to use their first language to express ideas if needed.

Advanced Learners: Will have the chance to learn more in-depth about the endangered plants in the area and write and draw what they learn about them.

Theories/Principles: This lesson is building off students' experiences with plants and nature to learn more about biodiversity and endangered species. Students will use hands-on techniques and teacher-modeled demonstrations.

Previous Learning Connection: This lesson builds on prior knowledge about plants and living things.

UDL: Students will have visuals to refer from and the lesson expands on real life connections for students. There are multiple ways for students to receive the information and demonstrate their learning. Students can create their own garden and pick any plants/animals they would like to have in it. The choice will help keep students engaged in the lesson.

Culturally Responsive Supports: The PowerPoint shows plants from different areas of the world. Students can pick plants from their home and share information about where they are from. Adding a variety of plants from different areas promotes inclusion and teaches a respect for all plants and people.

- **What are your supporting theories or principles? (Why are you doing what you are doing?)**

The supporting theory is the Experiential Learning Theory by Carl Rogers. Learning happens in steps that lesson follows. First students will have a chance to see a variety of different plants. Next, students will share their thoughts and ideas in a group discussion. Then students will add ideas to out knowledge board and process. Finally, students can demonstrate their own learning and ideas by creating their own biodiverse garden. We are teaching this was for students to get the information in different ways and build off their experiences of plants. Also, in the hope that students will give a passion for plants and grow to take care of endangered species around the world.

- **How does this lesson connect with what students have previously learned and a progression of future learning?**

The lesson connects to students' experiences with life, nature and plants. The progression of learning comes from the new vocabulary and learning the needs of plants. In addition, the lesson provides a base so students can later learn about plant cells, geology, and other sciences that learn about plants.

VII. Inclusive Design Highlights

UDL Multiple Means for Representation
Representations: Books, PowerPoint, Pictures, If possible live plants, drawings, examples form teacher, and video. Plants that are shown are from all areas of the world and endangered plants in Washington state.
UDL Multiple Means of Engagement
Students have a chance to share plants from where they live/lived and explain them to the class. Students also have an opportunity to discuss with partners and as a whole class.
UDL Multip Means of Action/Expression

The kids can share their ideas, experiences, and favorite plants and animals from their lives. They can make a visual of a biodiverse garden and cut out different shapes to make their garden.

Culturally Responsive Learning Supports

The PowerPoint and book provide examples of plants from all over the world. Students are encouraged to share their experiences with plants and their plant culture.

Explicit Anti-Oppressive/Anti-Racist Content or Skills

The lesson promotes the benefits of diversity and teaches students to respect and the importance of taking care of the earth and all living things. Students will learn to respect plants and have an open mindset.