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Our Playground!

Abstract: Students will observe and explore the playground's environment. They will begin by walking around the playground, followed by a group discussion of what they observed. They will then divide into groups and participate in centers. Within the centers they will learn about marigolds and gardens, they will pick up trash, talk with and see the responsibilities of the groundskeeper, and have the opportunity to play. Students will be brought back together as a group for a further discussion where ties between the centers can be made, and students will have the opportunity to write in their journals.

Grade Level: First grade

Utah State Core Curriculum Standards:
Standard 2: Students will develop a sense of self in relation to families and community.
- Objective 2: Describe important aspects of the community and culture that strengthens relationships.

Standard 3: Students will develop an understanding of their environment.
- Objective 1: Investigate plants and plant growth.

Instructional time: 2 hours

Materials:
- Playground
- Garden
- Marigold, garden shovel, cup with water (each student)
- Latex gloves (each student) non-latex glove for those who are allergic
- Garbage bag (each student)
- Groundskeeper / Janitor
- Students' journals

Terminology:
- **Observe:** to look at carefully and take notice of.
- **Root:** a part of a plant that is usually underground, that absorbs water and nutrients for the plant, and serves as an anchor.
- **Stem:** is the part that is above ground of a non-seeding plant. http://encyclopedia.thefreedictionary.com/Plant+stem
- **Leaves:** a part of the plant that is not the flower, it is above ground and is attached to the stem. It is used for the production of food through photosynthesis. Leaves vary in their appearance and shape.

Flower: the blossom part of the flower that can be different colors. http://education.yahoo.com/reference/dictionary/entry?id=f0199800

Intended Learning Outcomes:

- Demonstrate a positive learning attitude.
- Understand and use basic concepts and skills.

Background Information:

The playground has its own ecosystem where plants, bugs, and animals are all contributing factors. This ecosystem maybe more hearty than others but it is still delicate and can be hurt by several factors such as: trash, excessive water, drought, and not being up kept. The playground that students use requires a great deal of up keeping: watering, grass being mowed, fertilizer (sometimes), gardening, planting, pruning, etc.

Marigolds are an American plant, which usually have yellow or orange flowers. They can grow anywhere from six inches to three feet tall, the small six inch marigolds are most common. They should be planted eighteen inches apart in dry soil, with lots of sunshine. For the first ten days after transplanted they should be watered thoroughly; after that they should be watered once a week if they do not receive one full inch of rain during the week. They are annual plants that bloom from early summer to late fall, and are hearty against bugs and insects.
http://hgic.clemson.edu/factsheets/hgic1168.htm

Trash/litter can create a demeaning environment, and promote more littering to be done. It can attract rodents and create other unsanitary environments. It can prohibit certain animals and plants to live, such as covering where a plant is trying to grow or a plastic ring from a six-pack of pop being caught around a bird's beak, which may not allow the animal to get food.

Invitation to Learn:
As a large group, the class walks around the school playground. Prior to the walk students will be told that they are to observe and pay attention to what they see around the playground. The facilitator should ask students what the word "observe" means, and according to students' responses an explanation should be given if it is needed.

After the five to ten minute walk around the playground students will sit on the grass and have a group discussion. The facilitator will initiate the discussion by asking students what they noticed/observed during the walk. The facilitator will be looking for multiple responses: condition of playground (trash), animals/bugs, plants, and weather. In certain playgrounds there maybe a particular issue that is unique to that playground, this should be discussed at this time. If the students have particular questions or concerns they should also be addressed. However, if students do not bring up these key issues the facilitator should introduce ideas through questioning. Also in the group discussion the facilitator should state a question about why the components of the playground are important. How do humans affect the playground? Are all playgrounds the same as this one? Why is it important to learn about the playground?

Prior Knowledge Assessment:
The students' comments, responses, and their own questioning will be assessed during the class discussion. The facilitator will especially be looking for the students' ideas of what the playground is composed of, what plant and wild life exist, and the condition of the playground.

Procedures:
Students will still be on grass.
Students will be given instructions

1. Explain to students that they will be learning more about the playground in centers, and that they will be at each center for fifteen minutes.
2. Explain each center to the students.
    a. In center A you will be planting marigold flowers. In this center you will first sit down on the grass and listen to instructions. I (the facilitator) will then give you one marigold flower and show you where you will be planting it.
    b. In center B you will put on a pair of latex gloves (if allergic use other gloves), and grab a plastic sack. Then you will pick up trash that you see around the playground. Ask students, what type of trash should NOT be picked up because it is dangerous? (Needles, glass, anything with blood, dead animals). Have students repeat the list of things NOT to be picked up.
    c. In center C you get to play. Enjoy yourselves!
    Make sure to follow all of the playground rules and stay within the playground boundaries.
    d. In center D sit on the grass. The groundskeeper (janitor) will talk to you, and then show you what he does to upkeep the playground.
3. Divide students into four groups, and assign groups to centers. Explain that when the whistle blows you must go to the next center, show the rotation (A goes to B, B goes to C, C goes to D, and D goes to A).

Students go to centers

1. Center A
    a. Students sit on grass.
    b. Students are asked what they notice about the flowerbed:
        i. Dirt
        ii. Wet/ water
        iii. Flowers
        iv. Sunlight
    c. Students are shown the marigold and we talk about its individual parts. (Introduce terminology here: roots, stem, leaves, flower)
    d. Have students examine each part with a magnifying glass and then without. What are some of the differences?
    e. Explain marigolds need to be planted six inches deep, with a little bit of water, and they need sunlight.
    f. Do demonstration of planting a marigold.
    g. Give each student shovel and show them where to plant their own flower.

    h. Let students dig holes.
    i. Give the student the flower, and in a paper cup the amount of water that they need.
    j. Students plant flowers and cover them with dirt.
    k. Students wash hands.
2. Center B
    a. Students put on gloves and grab a plastic garbage bag.
    b. Students walk around the playground picking up garbage.
    c. At end of the center leave the garbage bag and gloves in designated place.
    d. Wash hands.
3. Center C
    a. Students are given time to play.
    b. The only rules are that they must follow the rules and stay on the playground.
4. Center D
    a. Students meet on the grass.
    b. The groundskeeper (janitor) discusses the multiple choirs he does to take care of the playground.
    c. Shows the students demonstrations of choirs such as pulling weeds, and lets them help. Where tools and equipment are kept.

After students have rotated through the stations they return to the classroom.

Group Discussion (the following are questions could be asked to promote the discussion)

1. What did you find interesting about the playground?
2. Why is it important to take care of the playground? (The connection of trash could prevent a flower from growing, which could harm the bugs (bees) could be made.)
3. Was there a lot of trash? How does trash affect the playground?
4. Was there anything that concerned you about the playground?
5. Is it a lot of work to take care of the playground? What does it entail? How can we help?
6. What did you learn about flowers?

Journal

1. Have students write a letter or draw pictures (according to their level) to their caregiver explaining what they learned today, and how they are going to contribute to taking care of the playground.
2. Students should include something from each center.

(Note: If students found something alarming or concerning about the playground that they want to try to improve, they could write a letter or draw pictures that they could give to the principal to inform him or her of the problem.)

Adaptations and Modifications for Special Learning Needs:

- For each task students could work in pairs.
- Written instructions (with pictures) at each station.
- Draw pictures rather than writing letters.
- Give an example letter.

- Write key components of discussion on the board.

Assessment:
Students will be informally assessed through class discussions, but then they will be formally assessed with their journals. The letter that the students are to write will be assessed with the following rubric:

A check mark will be made in the appropriate column.

Student demonstrates…	Thoroughly Understands	Partially Understands	Doesn't Understand
Vocabulary of a flower.			
Affects of trash.			
Many components of up keeping a playground.			
How they can contribute to helping the playground.			

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PLANTS AND POLLUTANTS

Abstract: The students will have the opportunity to observe what happens to plants when certain pollutants are present. They will then have the opportunity to make a connection about how pollutants effect our environment. They will realize the importance of recycling and doing their part to keep the environment clean.

Grade: First

Utah State Core Curriculum:
Content Core
Standard 3 Students will develop an understanding of their environment

- Objective 1 Investigate plants and plant growth.

Time: 1 30 minute session and 10 minutes per day for a week

Materials:

- 2 identical plants for each group
- Water
- Rulers
- Magnifying glasses
- Pollutants (to be determined by students)
- Science journals

Terminology and Concepts:
Review from previous lesson:

- **Observe:** to look at carefully and take notice of.

Introduce new Vocabulary:

- **Predict:** To guess what the outcome will be
- **Recycle:** To use again
- **Litter:** Something that is carelessly discarded, such as wastepaper

Intended Learning Objectives:

1. Demonstrate a positive learning attitude.
2. Develop social skills and ethical responsibility.
3. Understand and use basic concepts and skills.
4. Communicate clearly in oral, artistic, written, and nonverbal form.

Background:
All plants need room to grow both above and below the soil. A plant's roots need room below the soil and a plant's leaves need room to grow above the soil so they can make food for the rest of the plant.
Plants need warmer temperatures during the day and cooler at night. The temperatures will vary depending on the type of plant.
Plants need sunlight to grow. They use this sunlight to make food by carrying out a process called photosynthesis. If a plant isn't getting enough sunlight its stem will be thin and it will begin to grow toward the sunlight.
Plants need water to get the nutrients that it needs to the different parts of the plant. If a plant gets too much or too little water than it will die.
A plant gets the nutrients it needs from the soil. The three most important nutrients are called phosphorus, nitrogen, and potassium. The roots bring the nutrients through the plant to help it grow. The nutrients also make the leaves and stem of a plant look green.
http://plaza.ufl.edu/markdiaz/plants/plantgrowth.htm

Recycling prevents almost 61 million tons of waste material from ending up in landfills and incinerators each year.
When trash is picked up from your house or school it is taken to a landfill that used to be part of nature's landscape. A landfill that sometimes, if old, seeps toxic waste into nearby water tables. The landfill will become a mountain of waste unless students learn to recycle.

Ground water is an important resource in the United States. It replenishes our streams, rivers, habitat. Ground water is also an important source of fresh water for irrigation, industry, and communities. 75% of our cities depend on ground water for part or all of their drinking water supplies. For 50% of all Americans (including 95% of the rural population), ground water is the primary source of drinking water.
http://www.epa.gov

Prior Knowledge Assessment:
Gather students together and review from previous lesson. Have a class discussion asking the following questions:

- What do plants need to grow?
- What are some of the benefits of having plants in our schoolyard? Our community?
- What were some of the things you found when you were cleaning up the playground?
- What kind of effect do you think these have on the environment?

Invitation to Learn:
Show students the plants. As a class, brainstorm what the world would be like without plants, (we would have no food, clothes, homes, etc). Express gratitude for the plants in the environment. Remind students of the litter that they picked up in the previous lesson

and ask them what would happen if everyone threw their garbage out into the community. Emphasize the need for environmental cleanliness.

Procedure:

1. If not discussed during the prior knowledge assessment, review what plants need to grow. (Students should already have a basic understanding of this before doing this lesson).
2. As a class brainstorm some of the things in the environment that might have an effect, either positive or negative, on plant growth.
3. Divide the class into groups of 3-4 students.
4. Discuss how ground water can be polluted.
5. Have each group pick a substance to put in the water that they use on their plant (i.e., laundry soap, motor oil, etc.).
6. Instruct each group to ***predict*** in their journals if the substance will help or hurt their plant's growth. Have them state why.
7. Explain that they can tell if their predictions were right by what they ***observe.***
8. Give each group 2 identical plants.
9. Model for each group how to mark the plants to indicate which one will be watered with water and which will be watered with the alternative substance.
10. Each day for a week have each group water both plants (one with water, one with the other substance) and journal what they ***observe.*** Give each group rulers and magnifying glasses to closely observe the changes.
11. At the end of the week assist the students in making conclusions about the effect their substance had on their plant.
12. At the conclusion of the project, gather students together and emphasize the need to keep harmful substances out of the environment so it doesn't affect the plants. Discuss the importance of ***recycling*** and not ***littering*** to help keep our school yard and community clean.

ACCOMODATIONS:

English language learners or students with special needs can draw pictures in their journal.
Instructions can be given verbally and then written down for students to refer back to.
Since the students are in groups they can support each other's needs.

ASSESSMENTS:

The students should journal their observations daily.
At the conclusion of the activity, each group should create a poster showing the effects of the chosen substance on their plant compared with water.

PLANT POLLUTANT RUBRIC

Student demonstrates…	Thoroughly Understands	Partially Understands	Doesn't Understand
Making a prediction			
Understands the affects of pollutants on the environment			
Making correct observations			
Communicating the observations in their journal			