Connection to Nature

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August 6, 2014

Document Information	
Title	Connection to Nature
Prepared By	UNT Sustainability
Original Creation Date	August 6, 2014
Version	1.0
Date of Current Version	August 6, 2014
Revised By	
Edited By	Schell Clark
Description	A collection of activities and resources regarding the study of nature that meet state education standards and national sustainability standards for the Kindergarten level.
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Revision History	
Previous Version	none
Changes	

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Introduction

Grade Level

These activities are intended for a kindergarten classroom.

Discipline

These activities have a science focus.

TEKS

Content:

The study of elementary science includes planning and safely implementing classroom and outdoor investigations using scientific processes, including inquiry methods, analyzing information, making informed decisions, and using tools to collect and record information, while addressing the major concepts and vocabulary, in the context of physical, earth, and life sciences. Districts are encouraged to facilitate classroom and outdoor investigations for at least 80% of instructional time. TEKS §112.11. Science, Grade K. (a)(3)

In Kindergarten, students observe and describe the natural world using their five senses. Students do science as inquiry in order to develop and enrich their abilities to understand scientific concepts and processes. Students develop vocabulary through their experiences investigating properties of common objects, earth materials, and organisms.
TEKS §112.11. Science, Grade K. (a)(4)(A)

Skills:

The student conducts classroom and outdoor investigations following home and school safety procedures and uses environmentally appropriate and responsible practices. TEKS §112.11. Science, Grade K. (b)(1)(A)

The student develops abilities to ask questions and seek answers in classroom and outdoor investigations. TEKS §112.11. Science, Grade K (b)(2)(A)(B)(C)(D)(E)

The student uses age-appropriate tools and models to investigate the natural world. TEKS §112.11. Science, Grade K (b)(4)(A)(B)

The student knows that the natural world includes earth materials. TEKS §112.11. Science, Grade K. (b)(7)(A)(B)(C).

The student knows that there are recognizable patterns in the natural world and among objects in the sky. TEKS §112.11. Science, Grade K. (b)(8)(A)(B)(C)

National Education for Sustainability K-12 Student Learning Standards

2.2 ~ Ecological Systems ~ Connection to Nature

Objective

Students will learn about changes in matter, the sun, and clouds through various activities.

Key Words

Matter
Changes
Safety
Energy
Sun
Shadow
Sundial
Clouds

Description of Activities

The following activities have been compiled to address the topic of “Connection to Nature” in kindergarten classrooms. The activities meet the state and national education standards for kindergarten, and are intended to supplement pre-existing curricula, with a focus on integrating sustainability topics. The activities can be used in conjunction or alone.

Activities

Activity 1: Cups That Change

Introduction

The students will observe the changes that occur when a liquid is added to a solid and it is cooked.

Materials

Cake Mix
Two Tablespoons
Permanent Marker
Two Mixing Bowls
Bottle of Water
Timer
Electric Skillet with Dome Lid
One Paper Cup per Student
One Craft Stick per Student
One Magnifying Glass per Student
Handouts- 3 Instruction Sheets

Product

Cooked Cake Mix
Student Observations

Process

1. Set up three cooking stations: one with a bowl of cake mix and a tablespoon, one with a bottle of water, a tablespoon, and a bowl to catch the spill (use the bottle to increase students' pouring skills), and one with an unplugged skillet.

2. Hand out small wax paper cups to students and instruct them to write their names in permanent marker on the cups.

3. Before beginning, have students observe and record the state of the cake

4. Place the instructions in front of the stations and discuss safety procedures—the teacher is the only one allowed to touch the skillet, as it gets extremely hot.

5. Have students go to the cooking stations and follow the instructions. Show them how to use the timer so that they may set it when you are ready to cook.

6. Have students make and record observations about the cake mix (using the magnifying glasses) before and after adding water. Have them taste the mixture before cooking it and ask them what they think will happen to the cake once it is cooked.

7. When the cakes are baked, have them observe and taste them again. Ask them what source of energy cooked the cakes, which safety procedures were followed, and what changes occurred to the cake mix during the cooking process.

8. Questions:

- What did the cake mix look like before you added water?
- What changes did you see in the cake mix when water was added?
- How did the cake mix change when we cooked it?
- How did the magnifying glass help you make observations?
- What type of energy did we use to cook our cakes?
- What safety rules do we use when cooking with a skillet?
- What are you wondering now?

Activity 2: Sun Shadow Clock

Introduction

Students will learn about and build a sundial.

Materials

Empty Coffee Can
Wet Sand
Ruler
Chalk

Product

Observations/Journal

Process

1. Explain to students that long ago, people were only able to tell time by looking at the shadows cast by the sun (concepts related to shadows and the sun can be reviewed here as needed). They would place an object in the ground and watch its shadow, and they could tell how much time had passed by measuring how far the shadow had moved (the explanation can be tailored to the class's level of understanding, but a basic description should be given). Tell the students these devices are called sundials, and they will be building one.

2. Fill an empty coffee can with wet sand. Stick the ruler in the middle of the wet sand.

3. Go outside, find a sunny spot on a blacktop or sidewalk where you can draw with chalk. Make sure the space is open so other shadows won't interfere.

4.Place the can on the sidewalk and look for the ruler's shadow. Trace over the shadow with chalk.

5. Go out again periodically (every hour or two) and continue to trace the shadow with chalk. Have students record the following observations:

- In what directions are the lines moving?
- How far apart are they?
- Draw the sundial and chalk lines in your journal/notebook and compare it to the clock in the classroom. Is it similar?

Created by Scholastic Teaching resources, (2014). Fresh and Fun summer. Retrieved from http://printables.scholastic.com/content/collateral_resources/pdf/09/0439216109_e017.pdf on June 26, 2014.

Activity 3: Floating Clouds

Introduction

By tracking the shape and movement of a cloud, students will begin to understand what clouds are and why they move.

Materials

Paper
Pens in Different Colors
A Cloudy Day

Product

Cloud Art

Process

1. On a cloudy day, encourage students to sit by a window with a piece of paper and different colored pens to notice the sky and clouds.

2. Have them focus on one cloud (that is of small to medium size).

3. As they choose the cloud, have them draw it using one color.

4. After 10-15 seconds, get them to look at the same cloud again. Has the shape changed? Has the cloud moved? Get them to draw it out again on the paper next to the previous drawing in a different color pen EVERY time they draw the cloud.

5. Have them continue drawing for 5 minutes, after which they should have a piece of art consisting of many clouds in different colors.

6. After the activity, explain what clouds are and why they move.

Additional Resources

Online Resources

Primary Resources

http://printables.scholastic.com/content/collateral_resources/pdf/09/0439216109_e017.pdf

http://lcisdscience.wikispaces.com/file/view/Cups+That+Change.pdf

Secondary Resources

https://itunes.apple.com/gb/app/collins-big-cat-at-dump-story/id526977340?mt=8

http://www.drgreene.com/perspectives/5-activities-to-teach-your-kids-about-sustainable-living/

Educational Literature

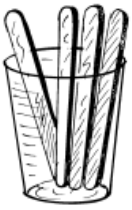
"The Adventures of Riley" by Amanda Lumry

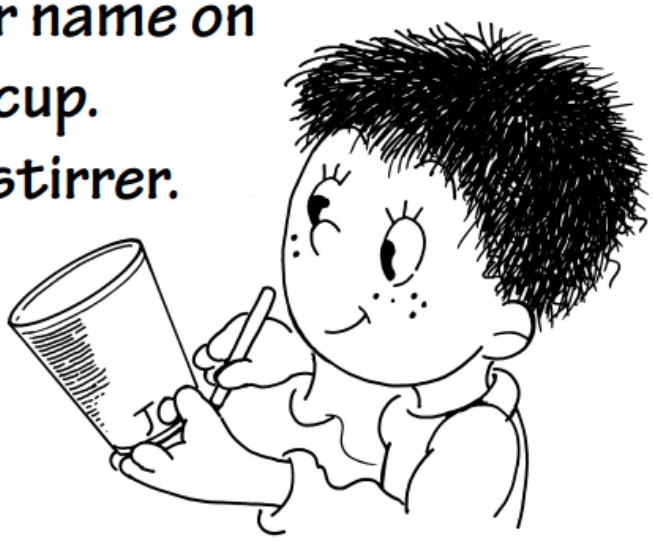
1

Wash hands.

2

Write your name on the cup.
Take a stirrer.

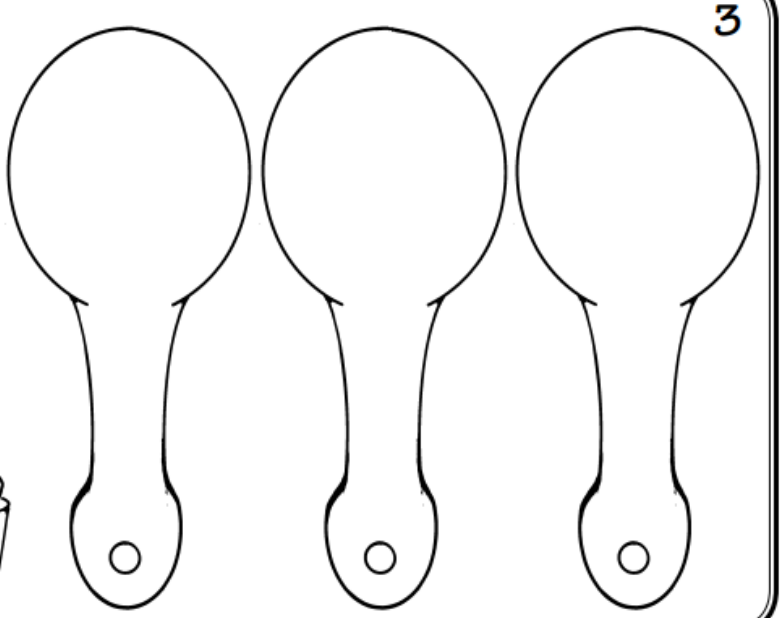




3

Put 3 T mix

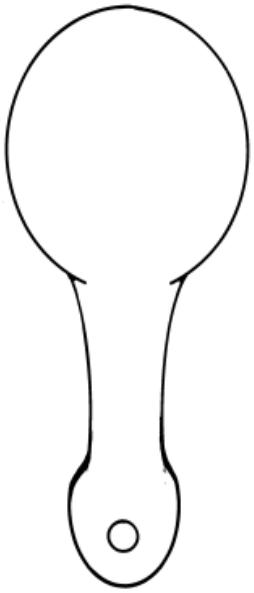
in cup.



4

Add 1 T water

in the  cup.

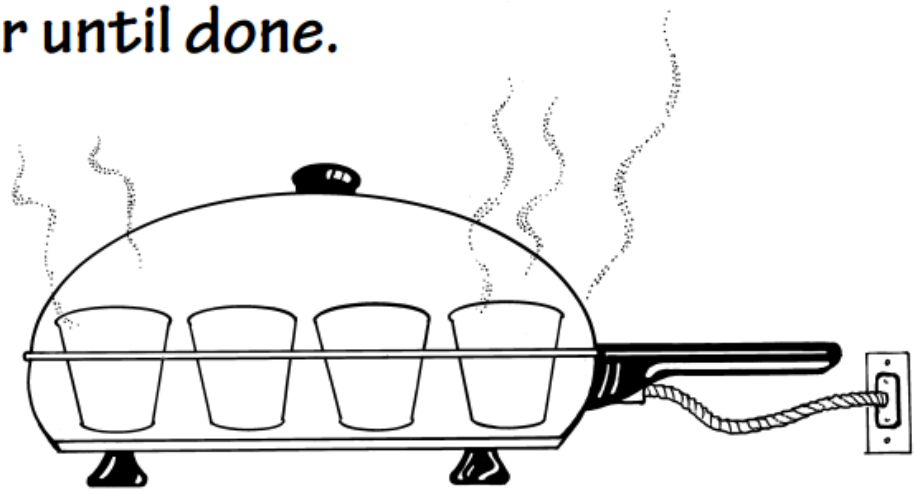


5

Stir well.

6

Bake at 400° 15 minutes or until done.



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