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<b>Lesson Plan Title:</b> Science Literacy	<b>State:</b> CA
<b>Lesson Time Frame:</b> 2 days	<b>Inspired by an Earthwatch Expedition:</b> Echidnas and Goannas of Kangaroo Island
<b>Student Level:</b> K-3	

Academic Standards:

science

## Life Sciences

2. Different types of plants and animals inhabit the earth. As a basis for understanding this concept:
  - a. *Students know* how to observe and describe similarities and differences in the appearance and behavior of plants and animals (e.g., seed-bearing plants, birds, fish, insects).
  - b. *Students know* stories sometimes give plants and animals attributes they do not really have.
  - c. *Students know* how to identify major structures of common plants and animals (e.g., stems, leaves, roots, arms, wings, legs).

## Earth Science

3. Earth is composed of land, air, and water. As a basis for understanding this concept:
  - a. *Students know* characteristics of mountains, rivers, oceans, valleys, deserts, and local landforms.
  - b. *Students know* changes in weather occur from day to day and across seasons, affecting Earth and its inhabitants.
  - c. *Students know* how to identify resources from Earth that are used in everyday life and understand that many resources can be conserved.

## Investigation and Experimentation

4. Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the other three strands, students should develop their own questions and perform investigations. Students will:
  - a. Observe common objects by using the five senses.
  - b. Describe the properties of common objects.

- c. Describe the relative position of objects by using one reference (e.g., above or below).
- d. Compare and sort common objects by one physical attribute (e.g., color, shape, texture, size, weight).
- e. Communicate observations orally and through drawings.

### History – Social Science

## Learning and Working Now and Long Ago

### **K.4 Students compare and contrast the locations of people, places, and environments and describe their characteristics.**

1. Determine the relative locations of objects using the terms near/far, left/right, and behind/in front.
2. Distinguish between land and water on maps and globes and locate general areas referenced in historical legends and stories.
3. Identify traffic symbols and map symbols (e.g., those for land, water, roads, cities).
4. Construct maps and models of neighborhoods, incorporating such structures as police and fire stations, airports, banks, hospitals, supermarkets, harbors, schools, homes, places of worship, and transportation lines.
  - a. Demonstrate familiarity with the school's layout, environs, and the jobs people do there.

### Mathematics

## Number Sense

### **1.0 Students understand the relationship between numbers and quantities (i.e., that a set of objects has the same number of objects in different situations regardless of its position or arrangement):**

- 1.1 Compare two or more sets of objects (up to ten objects in each group) and identify which set is equal to, more than, or less than the other. 1.2 Count, recognize, represent, name, and order a number of objects (up to 30). 1.3 Know that the larger numbers describe sets with more objects in them than the smaller numbers have.

### **2.0 Students understand and describe simple additions and subtractions:**

- 2.1 Use concrete objects to determine the answers to addition and subtraction problems (for two numbers that are each less than 10).

### **3.0 Students use estimation strategies in computation and problem solving that involve numbers that use the ones and tens places:**

- 3.1 Recognize when an estimate is reasonable.

## Algebra and Functions

### **1.0 Students sort and classify objects:**

- 1.1 Identify, sort, and classify objects by attribute and identify objects that do not belong to a particular group (e.g., all these balls are green, those are red).

## Measurement and Geometry

**1.0 Students understand the concept of time and units to measure it; they understand that objects have properties, such as length, weight, and capacity, and that comparisons may be made by referring to those properties:**

1.1 Compare the length, weight, and capacity of objects by making direct comparisons with reference objects (e.g., note which object is shorter, longer, taller, lighter, heavier, or holds more).

Time Allotment: : the following you will find two lessons suitable to do in 45 minute increments over 4 days

Background information: Students need to have a general awareness of the world around them, that the earth is made up of land, air and water, and that the garbage we see needs to go “somewhere”. This is suitable for use in springtime, around the same time or before Earth Day.

**Abstract:**

The focus of the lessons will be the conservation of our natural resources and prevention of waste. The children will become aware of ways they can help clean the environment in everyday circumstances. They will become more aware of the world around them through experiences designed to internalize the effects of pollution.

**Goal:**

Students will understand that there are many ways to clean our environment and that we must conserve our resources.

**Lesson 1 Recycle or Trash?**

**Materials:**

1. Big book, *Where Does All the Garbage Go?* by Melvin Berger
2. Two large circles with continents drawn on or world map
3. paper lunch sacks

**Instructional Procedures**

Introduction – Preview with a picture walk, then read the book *Where Does All the Garbage Go?* Stop and discuss key vocabulary words such as: pollution, landfill, litter, environment, dump, environment, and recycle. Discuss the world map and the fact that garbage is a problem across the globe.

Activities – Children have an assignment the previous week to bring their clean garbage and wrappers from home, such as cereal boxes, candy wrappers, toilet paper rolls, cans and bottles, etc. Students are now familiar with the recycle symbol, and the difference between recycling and the garbage dump. Students will now work at table groups to sort their trash into categories of “recycle” and “dump” and “not sure”. Students then identify which of their categories has more, less or equal.

Students now decorate their paper lunch sack with recycle symbol, trash container, earth, etc.

Closure -

Encourage responses of possible solutions to eliminating some trash and keeping our environment cleaner. Make class poster using interactive writing of ways we can keep our earth cleaner and keep trash picked up.

Assessment:

Use paper sack to collect garbage on the playground. Come back into the classroom, each individual child will sort garbage into its appropriate box: garbage, recycle, don't know (they need to show they can look for the recycle symbol on containers, identify packaging that is not recyclable, etc.)

Learning Song:

We've Got the Whole World in our Hands (sung to: He's Got the Whole World in His Hands)

We've got the whole world in our hands  
We've got the whole, wide world in our hands  
We've got the whole world in our hands  
We've got the whole world in our hands.

We've got to reduce all our trash  
We've got to reduce all our trash  
We've got to reduce all our trash  
We've got to take care of our world.

We've got to reuse all we can  
We've got to reuse all we can  
We've got to reuse all we can  
We've got to take care of our world.

We've got to recycle all we can  
We've got to recycle all we can  
We've got to recycle all we can  
We've got to take care of our world.  
Repeat the first verse

Lesson 2 Reduce, Reuse, Recycle!

Performance Indicators:

Background Information:

Materials:

1. book, Love Earth: The Beauty Makeover by Shelly Nielson
2. song
3. poem
4. recycling graph (found at the end)
5. book, Reduce, Reuse, Recycle by Rozanne Williams
6. Recycled paper recipe
7. Old newspapers
8. Large bowl
9. 4 cups water
10. egg beater or whisk
11. flat baking pan
12. window screen
13. rolling pin

Instructional Procedures:

First day:

Read: Love Earth: The Beauty Makeover

Sing: "We've Got the Whole World in Our Hands" using the recycle words.

Write the recycle poem as a whole class to hang up on wall (tune of Jack and Jill).

Reduce, Reuse, Recycle

Bottles, cans, paper

Pick it up, sweep it up

Reduce, reuse, recycle

List things to recycle and sort. Go outside and pick up trash. Graph how many pieces found on large class graph.

Send graph home. Let students do the home activity listed on the graph. Students will also bring something from home that they want to recycle into something new.

Second day:

Read: Reduce, Reuse, Recycle from previous day. Then sing it as a song.

Discuss how new things can be made from old things. Make recycled paper.

Recycled Paper Recipe

What you need:

Lots of used newspaper

a large bowl

4 cups water (adjust as needed)

a whisk

a flat baking pan

a piece of window screen that fits inside pan

two thick layers of newspaper

a rolling pin, or a full, 1 liter soft-drink bottle

What to do:

1. Tear used newspaper into very small pieces (children love doing this!). Put the pieces into a bowl. Pour water over the paper. Let the mixture sit overnight.
2. The next day, use the whisk to beat the water and paper mixture until it looks like mush. This mush is called pulp. Pour the pulp into the baking pan.
3. Slide the screen into the pan. Gently move the screen from side to side until it is covered with pulp.
4. Lift the screen out of the pan, keeping it level. Let it drain for a few minutes. Place the screen, pulp side up, on a thick layer of newspaper. Put another layer of newspaper on top.
5. Roll the rolling pin or soft-drink bottle over the newspaper to squeeze the water out of the pulp. Turn the pile over. Remove the newspapers and then the screen. Let the pulp dry.

Assessment:

Student will bring an item from home that has been recycled. They will make something new from something old. They can get creative! Use supplies you have around the classroom, like yarn, scissors, beads, etc. Share with the class.

Connection to other content areas: Create more language arts activities out of this by having students keep a journal about their own recycling procedures at home or at school. Create comprehension lessons from the readings using schema, retelling, etc.

Extensions: Set up in class recycling program or even school wide recycling program to get community involved. Have a tree planting so students can see that trees do not grow quickly and gain a deeper understanding of the need to recycle paper products.

Acknowledgements: These lesson plans were a direct result of my experience in Australia on an Earthwatch Expedition. The conservation and recycling in effect in Australia were so much more comprehensive than anything I knew of at home I felt I wanted to bring this mindset back and teach it to my students.

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My recycle record: Color a block for each piece you find


paper

plastic

cardboard

aluminum

glass

Home activity: Do this graphing activity several times with things you find at home.

What types of trash do you find most often? \_\_\_\_\_