

Correlation of
project WILD

Environmental Education
K-12 Activity Guides

to

CALIFORNIA SCIENCE
CONTENT STANDARDS



GRADES 9-12
December 1999

Introduction

The goal of this correlation is to show educators that Project WILD is a valuable, effective tool for teaching Science. This document will help educators identify Project WILD activities that can be used to meet K-12 educational requirements. These activities are consistent with principles of education reform - cooperative learning, real world applications, multi-cultural education, and service learning.

Project WILD, including Aquatic WILD, is an interdisciplinary, **supplementary** conservation and environmental education program that teaches about wildlife and their habitats. "The goal of Project WILD is to assist learners of any age in developing awareness, knowledge, skills and commitment to result in informed decisions, responsible behavior and constructive actions concerning wildlife and the environment upon which all life depends" [WILD, Preface, vi]. Project WILD activities are designed to teach a variety of subjects using environmental concepts, and help students use critical thinking to evaluate material from a variety of sources.

This correlation was researched and developed by Courtney Senna, Barbara Winn and Sylvia Gude, Project WILD staff members. Their efforts were supported by the Department of Fish and Game, sponsor of California Project WILD.

Please share this correlation with other educators in your area. For those interested in learning more about Project WILD, and how to obtain the activity guides, please contact the Project WILD office.

Department of Fish and Game/Project WILD
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Sacramento, CA 95814
(916) 653-3857 or toll free 1-888-945-3334



GRADES 9-12

CHEMISTRY

ACIDS AND BASES

5. Acids, bases, and salts are three classes of compounds that form ions in water solutions. As a basis for understanding this concept students know:

Project WILD Activity Guide

Eco-Enrichers (76)

Aquatic WILD Activity Guide

Water Canaries (38)

Deadly Skies (142)

NOTE: these activities can be used for standards a. through d. to introduce the pH concept using biological investigations.

BIOLOGY/LIFE SCIENCE

ECOLOGY

6. Stability in an ecosystem is a balance between competing effects. As a basis for understanding this concept, students know:
- a. biodiversity is the sum total of different kinds of organisms, and is affected by alterations of habitats.

Project WILD Activity Guide

Wildlife Bibliography (94)

Birds of Prey (150)

Carrying Capacity (152)

Who Lives Here? (174)

Planting Animals (176)

Fire Ecologies (182)

Checks and Balances (186)

Riparian Retreat (206)

No Water Off A Ducks Back (274)

**Improving Wildlife Habitat in the
Community (324)**

Aquatic WILD Activity Guide

How Wet Is Our Planet? (8)

Water Plant Art (12)

Designing a Habitat (20)

Puddle Wonders (22)

Water Canaries (38)

The Edge of Home (68)

Blue Ribbon Niche (72)

The Glass Menagerie (130)

- b. how to analyze changes in an ecosystem resulting from changes in climate, human activity, introduction of non-native species, or changes in population size.

Project WILD Activity Guide

We're In This Together (60)
Wildlife Bibliography (94)
Rainfall and the Forest (140)
Oh Deer! (146)
Birds of Prey (150)
Carrying Capacity (152)
Time Lapse (156)
Here Today, Gone Tomorrow (170)
Who Lives Here? (174)
Planting Animals (176)
Fire Ecologies (182)
Checks and Balances (186)
Deer Crossing (202)
Riparian Retreat (206)
Changing Attitudes (240)
Philosophical Differences (242)
Wildlife Issues (244)
To Zone or Not To Zone (266)
Deadly Links (270)
No Water Off A Ducks Back (274)
When A Whale Is Right (280)
What Did Your Lunch Cost Wildlife? (306)

Aquatic WILD Activity Guide

Water Canaries (38)
Blue Ribbon Niche (72)
Migration Headache (94)
The Glass Menagerie (130)
To Dam or Not to Dam (134)
Deadly Skies (142)
Deadly Waters (146)
Dragonfly Pond (154)

- c. how fluctuations in population size in an ecosystem are determined by the relative rates of birth, immigration, emigration, and death.

Project WILD Activity Guide

Oh Deer! (146)
Birds of Prey (150)
Carrying Capacity (152)
Turkey Trouble (164)
Here Today, Gone Tomorrow (170)
Bird Song Survey (200)

Aquatic WILD Activity Guide

Wetland Metaphors (54)*
Hooks and Ladders (76)
Migration Headache (94)
Where Have All the Salmon Gone (110)
The Glass Menagerie (130)
Turtle Hurdles (164)

**can include discussion of population fluctuations*

- e. a vital part of an ecosystem is the stability of its producers and decomposers.

Project WILD Activity Guide

Aquatic WILD Activity Guide

Ants on a Twig (10)
Eco Enrichers (76)
How Many Bears Can Live In This Forest (134)
Riparian Retreat (206)
Deadly Links (270)

Wetland Metaphor (54)
Blue Ribbon Niche (72)
Micro Odyssey (64)

- f. at each link in a food web, some energy is stored in newly made structures but much is dissipated into the environment as heat and this can be represented in a food pyramid.

Project WILD Activity Guide

Aquatic WILD Activity Guide

Oh Deer! (146)
Birds of Prey (150)
Deadly Links (270)
What Did Your Lunch Cost Wildlife? (306)

Designing A Habitat (20)
Micro Odyssey (64)
Blue Ribbon Niche (72)

- g. how to distinguish between the accommodation of individual organism to its environment and the gradual adaptation of a lineage of organisms through genetic change.

Project WILD Activity Guide

Aquatic WILD Activity Guide

Charades (4)
I'm Thirsty! (154)
Turkey Trouble (164)

Fashion A Fish (88)

INVESTIGATION AND EXPERIMENTATION

1. Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept, and to address the content the other four strands, students should develop their own questions and perform investigations. Students will:

- a. select and use appropriate tools and technology (such as computer-linked probes, spread sheets, and graphing calculators) to perform tests, collect data, analyze relationships, and display data.

Project WILD Activity Guide

Spider Web Geometry (58)
Pond Succession (110)
Polar Bears In Phoenix? (120)
Rainfall and the Forest (140)
Planning for People and Wildlife (284)
Water's Going On?! (304)
Flip the Switch for Wildlife (308)
Improving Wildlife Habitat in the Community (324)

Aquatic WILD Activity Guide

How Wet Is Our Planet? (8)
Designing A Habitat (20)
Puddle Wonders (22)
Water Canaries (38)
The Edge of Home (68)
Where Does Water Run Off After School (82)

- c. identify possible reasons for inconsistent results, such as sources of error or uncontrolled conditions.

Project WILD Activity Guide

How Many Bears Can Live In this Forest? (134)
Rainfall and the Forest (140)
Oh Deer! (146)
Carrying Capacity (152)

Aquatic WILD Activity Guide

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Water Canaries (38)
The Edge of Home (68)
Migration Headaches (94)
Where Have All the Salmon Gone? (110)

- d. formulate explanations using logic and evidence.

Project WILD Activity Guide

Spider Web Geometry (58)
Urban Nature Search (102)
Pond Succession (110)
Polar Bears In Phoenix? (120)
How Many Bears Can Live In this Forest? (134)
Rainfall and the Forest (140)
Oh Deer ! (146)
Birds of Prey (150)
Carrying Capacity (152)
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Aquatic WILD Activity Guide

Designing A Habitat (20)
Puddle Wonders (22)
Water Canaries (38)
Mermaids and Manatees (44)
Wetland Metaphors (54)
Micro Odyssey (64) - *extension*
The Edge of Home (68)
Blue Ribbon Niche (72)
Aquatic Roots (100)
Where Have All the Salmon Gone? (110)
Aquatic Times (126)
The Glass Menagerie (130)
To Dam or Not to Dam (134)
Dragonfly Pond (154)
Something's Fishy Here! (176)

- f. distinguish between hypothesis and theory as science terms.

Project WILD Activity Guide

Birds of Prey (150)
Flip the Switch for Wildlife (308)

Aquatic WILD Activity Guide

Water Canaries (38)
Edge of Home (68)*
Where Have All the Salmon Gone?
(110) - extension
The Glass Menagerie (130)

**activity can be modified to meet the standard*

- g. recognize the use and limitations of models and theories as scientific representations of reality.

Project WILD Activity Guide

My Kingdom For a Shelter (46)
Spider Web Geometry (58)
Pond Succession (110)
Polar Bears In Phoenix? (120)
How Many Bears Can Live In this Forest? (134)
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Dragonfly Pond (154)
Turtle Hurdles (164)
Watershed (172)

- h. read and interpret topographic and geologic maps.

Project WILD Activity Guide

Rainfall and the Forest (140)

Aquatic WILD Activity Guide

How Wet Is Our Planet? (8)
Fishy Who's Who (86)
Watershed (172)

- i. analyze the locations, sequences, or time intervals of natural phenomena (e.g., relative ages of rocks, locations of planets over time, and succession of species in an ecosystem).

Project WILD Activity Guide

Habitrekking (56)
Spider Web Geometry (58)
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Turtle Hurdles (164)
Watershed (172)
Alice in Waterland (182)

- j. recognize the issues of statistical variability and the need for controlled tests.

Project WILD Activity Guide

Eco-Enrichers (76)

Aquatic WILD Activity Guide

Deadly Skies (142)
The Glass Menagerie (130)

- k. recognize the cumulative nature of scientific evidence.

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Rainfall and the Forest (140)
Birds of Prey (150)

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- l. analyze situations and solve problems that require combining and applying concepts from more than one area of science.

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- m. investigate a science-based societal issue by researching literature, analyzing data, and communicating the findings. Examples include irradiation of food, cloning of animals by somatic cell nuclear transfer, choice of energy sources, and land and water use decisions in California.

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