

# THE SACRED BALANCE



COMMUNITY EDUCATION GUIDE

# Thoughts

from the Producer

“Five years in production and many more in the incubator of David Suzuki’s mind, **The Sacred Balance** TV series and accompanying Web site were born of a desire to see the world through a different lens and to celebrate that understanding through the most powerful and ubiquitous media of our time. Over the years many talented people contributed to the project, in particular the Creative Producer/Writer of the series and “keeper of the vision,” Amanda McConnell, but also directors, camera people, editors, musicians, researchers, web designers and animation artists. They have all shared a commitment to the vision elucidated so convincingly in David and Amanda’s **The Sacred Balance** books.

We all hope that our work on **The Sacred Balance** has resulted in programs and web content that has value and meaning. But how can we gauge these qualities in such ephemeral media? Numbers are the way it’s usually done, through television ratings services or click-through meters on Web sites. The more people watch or enter, the more successful it’s deemed to be. But for program and web material like **The Sacred Balance**, this only represents a limited view of success. More significant is how those people resonate with the content. After all our production work is done and the ideas are sent out into the world, what people make of the material is beyond our control. If we have done our jobs well, you—parents, teachers, librarians, young people—will find ideas in these pages, in the television programs, on the Web site, through the outreach effort, that might lead you to a different understanding of the world. And that in turn might be the beginning of a change in the choices you make everyday. In the end, we can only hope that the germination of new ways of thinking about the world and our place in it may lead all of us to becoming part of the solutions to the very real problems which threaten our future. Now that would be success!”

**Robert Lang**  
Executive Producer  
**The Sacred Balance**



## Credits

**The Sacred Balance** series, Web sites and outreach are produced by Kensington Communications in association with Sacred Balance Productions ([www.kensingtontv.com](http://www.kensingtontv.com))

### Production Staff

**Dr. David Suzuki**  
Host & Narrator

**Robert Lang**  
Executive Producer

**Amanda McConnell**  
Creative Producer/Writer

**Allen Booth**  
Web Producer

### Guide Production

**Lee Allen**  
US Outreach Manager  
Guide Editor

**Karen Zill**  
Outreach Associate  
Guide Writer

**Jel Montoya-Reed**  
Graphic Designer  
Academy for  
Educational  
Development

**Erin Schuck**  
Program Associate  
Academy for  
Educational  
Development

Ideas for art activities submitted by **Monica Stroik**



### PBS Broadcast & Educational Rights

Standard Rights: 4 plays in 3 years.  
Educational Off-Air Record Rights: 1 year.

### Video Distribution

**The Sacred Balance** is available on video from:  
Bullfrog Films, PO Box 149, Oley, PA 19547.  
Tel: (800) 543-3764 Fax: (610) 370-1978  
Web: [www.bullfrogfilms.com](http://www.bullfrogfilms.com)  
Email: [video@bullfrogfilms.com](mailto:video@bullfrogfilms.com)

### DVD Information

The DVD version of **The Sacred Balance** will be available after the September broadcast on PBS. Check the project Web site to order, or contact Bullfrog Films.





# Foreword

David Suzuki

“My earliest childhood memories are of camping, hiking and fishing in British Columbia. Dad was an avid outdoorsman, gardener and fisherman, so we roamed the back roads and mountain forests. We fished for salmon, halibut and cod in the ocean and trout in rivers and lakes; we gathered pine mushrooms and plants for the garden. In those adventures, I gained a knowledge and love of nature that served me well in later life when I became a biologist.

From infancy, each of my children accompanied me camping and backpacking so that they too could experience and bond with nature. My grandchildren are just as eager to experience the world as I and their parents were, but it has changed. My generation would say “There’s plenty more where that came from”, but as we cut our forests, dam the rivers, pollute air, water and soil and deplete the oceans, biological abundance and diversity are diminishing. We once said “That’s the price of progress” but I don’t think it’s progress to use up what rightfully belongs to all future generations.

Today most North Americans live in cities, a human created environment, surrounded by people and focussed on jobs, consumer goods and social activities. It is easy to think the economy is the source of all that matters and to forget that as biological creatures, we remain embedded in and dependent on nature and the web of living organisms that share the planet with us. Ever since Rachel Carson published *Silent Spring* in 1962, I’ve been involved with environmental issues. At first I thought we have to regulate what people could remove from our surroundings and the amount and kind of waste we could put back out. I soon realized that our knowledge of how the world works is too limited to anticipate the kinds of impacts we would have. For example, when DDT was first used, no one knew that chemicals are concentrated up the food chain in what is now called biomagnification. When CFCs were first used, no one could have known that they would persist in the environment and in the upper atmosphere, where they would break down ozone. We didn’t know that many chemicals including plastics would behave like hormones and affect sexual development. Thus, we can invent very powerful technologies, but our knowledge of how the world is organized is so limited, we don’t know what the long term consequences will be.

My experiences with native people taught me to think of the planet as our mother and to see that we are created by the four elements, earth, air, water and fire. Science informs us that we are literally created by these factors and that there is no environment “out there” that we interact with. We are the environment, so whatever we do to air, water or soil, we do directly to ourselves. Once we recognize that, then it becomes unacceptable to use our surroundings as a dump for toxic chemicals. The recent decoding of the entire human genome revealed another astonishing truth. In our very DNA are genes identical to those found in mammals, birds, fish, insects, plants and bacteria. We are biologically related through our evolutionary history. And those other species who are our kin, render the greatest service to us by cleansing, creating or replenishing clean air, water, soil and energy from the Sun. The challenge of our time is to rediscover our place on Earth.”

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# The Sacred Balance Components

## Television series

The four-part television series goes on a journey around the world with host Dr. David Suzuki, studying how the Earth's systems interact with and depend on each other. The programs demonstrate Earth's living balance of air, water, soil, and energy from the sun. All humans living on this planet are part of this "web of life," dependent on all the Earth's systems for survival. As in his best-selling book on which the series is based (see Resources page), Dr. Suzuki brings in the perspectives of a wide variety of cultures and philosophical viewpoints. We learn about the scientific underpinnings of Earth's systems from scientists working in many countries, and we see their work through camera close-ups, demonstrations, and animations.

## Outreach

The television programs serve as a starting point for the education and outreach activities described in this guide. The activities are designed primarily for use in informal education programs in science centers, after-school programs, libraries, Boys and Girls Clubs and other youth-serving organizations. Because the activities are aligned with the National Science Education Standards, science teachers may also find them a valuable source of enrichment in the curriculum.

## Web sites

There are two companion Web sites.

[www.sacredbalance.com](http://www.sacredbalance.com) contains a wealth of material pertaining to each of the programs. From scientific articles, interviews and games to interactive forums on a wide variety of fascinating topics this site provides opportunities for further exploration of the themes and concepts of **The Sacred Balance**.

[www.sacredbalance.com/outreach](http://www.sacredbalance.com/outreach) contains information about our outreach effort and many of the activities in this guide refer to articles or additional activities found on these two Web sites.

# The Sacred Balance In Your

Two main themes run through **The Sacred Balance**:

- What is the human place in nature?
- How do people in different cultures relate to the natural environment?

The series challenges each of us to examine our place in nature and the ways we interact with the natural environment. The interdependence of all natural things that exists on a global scale is reflected in our communities, and we can begin to study this interdependence literally in our own backyards. This guide provides activities and resources that can be used by parents, as well as educators and youth group leaders in a variety of settings. The activities are generally targeted to the middle school level, but they can be adapted for use with younger or older ages. Following are guidelines and suggestions for community-based programs centered on the themes of **The Sacred Balance**.

## General Considerations

- 1** In many communities, the local public television station initiates and spearheads outreach activities with other community organizations. **Check with the Outreach Department** of your local station to find out about plans or ongoing activities related to **The Sacred Balance**.
- 2** **Begin your community activity with a screening** of one of the four programs in **The Sacred Balance** series, or with a select portion of a program related to your planned activity.
- 3** **The Sacred Balance activities can be carried out** by many different groups and people of all ages. (See "Who Can Participate?" on the next page.)
- 4** The Web of Life Art Activity is a central feature of the outreach for **The Sacred Balance**. It can be incorporated into almost any other activity and all formal and informal science education **teachers are invited to participate**. (See p. 19 for Web of Life Art Activity.)

# Community



## At the science center

Because of the readily available resources, this is a natural site for carrying out the activities in this guide. Draw on the resources the museum already has: educators, scientists, volunteers, and other experts on staff. Connect activities with current exhibits and permanent collections.

## At the public library

In addition to book displays centered around **The Sacred Balance** and other books by David Suzuki (see Resources page), libraries can organize science and environmental programs using the ideas and activities in this guide. Depending on the target audience, programs can include suggested readings, viewing a segment of **The Sacred Balance**, a discussion or an activity led by a local scientist or science teacher, and the Web of Life Art Activity.

## At the Boys and Girls Club

**The Sacred Balance** lends itself very readily as a complement to *The Ultimate Journey*, the environmental education program that helps young people gain an understanding and appreciation for the natural world. More information at [www.bgca.org](http://www.bgca.org).

## Who else can participate

Contact the local chapter of the following organizations about making **The Sacred Balance** a part of their educational activities:

### National Wildlife Federation ([www.nwf.org](http://www.nwf.org))

Find out how you can be involved in the Schoolyard Habitats or Backyard Wildlife Habitats programs.

### Sierra Club ([www.sierraclub.org](http://www.sierraclub.org))

Link to your local Sierra Club for information on activities in your area.

### National Audubon Society ([www.audubon.org](http://www.audubon.org))

Audubon Adventures is an environmental education program for children in grades 3-6. Check the Web site for a list of chapters by state.

### 4-H ([www.fourhcouncil.edu](http://www.fourhcouncil.edu))

Environmental Stewardship programs for youth are available through the Cooperative Extension Service in local counties.

## YMCA

([www.ymca.net](http://www.ymca.net))

The Earth Service Learning Corp is a service learning program combining environmental education with leadership development and cross-cultural awareness.

In addition, **The Sacred Balance** can be a source of new activities for after-school centers, science clubs, and Scout troops.

## Interactive

**1** Want to be a part of a discussion about environmental issues as part of a virtual community?

If so, **check out** the Public Forums at [www.sacredbalance.com](http://www.sacredbalance.com).

Current topics include:

“choose a fuel efficient vehicle..”

“buy locally grown produce...”

“nature and personal healing...”

**2** In the Science Activities section under “Find Out More” **look** for the icons which denote related science content **you will find** in the TV series and on the Web.

## 1



# Journey into New Worlds

**In the past half-century science and technology have worked wonders—healing disease, extending human life spans, cloning life forms, communicating instantaneously with the other side of the globe.** But along

with all this progress there have been terrible costs: environmental, social, and spiritual.

In this episode, David Suzuki travels to Arizona, England, Massachusetts and to the Pacific Northwest rainforest in search of a new vision of the Earth and our place on it—a

worldview we once had but seem to have forgotten. David looks back on the promise and

limitations of Isaac Newton's reductionist science, sharing a personal journey that began

with his work at the forefront of genetic research in the early 1960s through to his

ecological epiphany on British Columbia's Queen Charlotte Islands.

“ I like to say this is a series  
that is 66 years in the making.

My whole life has been  
leading up to this. ”

— David Suzuki

## Themes and Concepts

- Relationship of parts of an ecosystem to the entire ecosystem
- Effects of interactions between animals and plants in an ecosystem
- The individual's day-to-day interaction with his/her natural surroundings
- Variety and complexity within a healthy organism or ecosystem
- Gaia hypothesis

# 1 Journey Into New Worlds

# Activities

## Construction and Exploration: Map Your Yard

Find out how well you know your own backyard (or school yard or park).

### What you'll need

- ✓ Paper
- ✓ Markers, pens or pencils

### What to do

- 1 Work in small groups or pairs.** Draw a map of your yard or park from memory.
- 2 Compare your map** with those made by other groups or pairs.
- 3** When everyone is finished, **go outside** for a revealing walk.

### What did you find out?

How complete is your map? What natural and man-made features were included on your map? Which ones were left off? (This is a good way to find out what features of your yard are important to you!)

### Extension

Make a final copy of your map that includes adjacent properties, man-made features (buildings, ditches, playing fields, roads), and large natural features (rock outcroppings, woods, fallen trees).

Include a map key, navigation points, and dimensions (scale).

Go on a “senses” walk around the yard or park and note the temperature of different areas, the movement of the sun through the yard, noise from nearby traffic, or sounds from wildlife. Add this information to the map.

*Adapted from “Make a Map!” in the Exploring Urban Wildlife Teacher Workshop, written by educators from Discovery Creek Children’s Museum, Washington, DC.*

## Exploration: The Backyard Ecosystem

Find out what plants and animals live in your backyard (or in the schoolyard or nearby park).

### What you'll need

- ✓ Pencil or pen
- ✓ Paper or notebook
- ✓ Binoculars (optional)

### What to do

- 1 Explore and observe** at different times of the day. Look for animals or evidence of animals such as tracks or excrement; look above ground and below, in trees and bushes. (Don’t forget the insects!)

- 2 Make a list** of all the creatures you discover. Do the same with the plants growing in your yard, including weeds.

### What did you find out?

- How many different plants and animals did you find?
- What sources of food are there for the animals and insects in your yard?
- How would your backyard ecosystem change if...
  - ... one or more of the trees were cut down? Or if more trees were planted?
  - ... pesticides were put on the grass or weeds? Or if pesticides were not used?
  - ... part of the yard was paved over? Or if pavement was removed?
  - ... large groups of people often used the space? Or if people stopped using the space?

### Extension

Do this same exploration in another area—one that appears to be either more or less “wild” than your yard.

- Record your observations and compare the two sites.
- Which one has more variety of plant and animal life?

## National Science Education Standards

<http://bob.nap.edu/html/nses/html>

Content Standard C:

Populations and ecosystems; Diversity and adaptations of organisms

“All living things on Earth have somehow kept the concentration of carbon dioxide and oxygen, the amount of salt in the ocean and the surface temperature constant—not consciously or deliberately, but as part of an automatic process—just as our bodies increase our heart rate when we exercise or repair wounds when we are hurt.”

— speaking on the Gaia hypothesis,  
**Dr. James Lovelock**,  
Independent Scientist, Environmentalist,  
Author and Researcher, Devon, UK

# 1

## Journey Into New Worlds

- How do you explain the difference in variety?
- Which one seems to be healthier?
- What evidence have you found to explain this?

### Expression through Art

**1 Create an installation or diorama** of your backyard ecosystem. This can be the size of a tabletop or fit in a shoebox. Parts can be made using paper mache, pipe cleaners, toothpicks, and pieces of felt, construction paper, and cardboard.

**2 Patterns and rhythms: Sound.** Listen to the sounds in your yard or a nearby park. Focus on one and draw a pattern of the sounds. For example, if you hear a bird make a mark on a paper for each “note” of the bird’s song. Leave a space when the bird pauses. After a few minutes, notice if your marks have a pattern or rhythm; use that pattern as the basis for a drawing.

**3 Patterns and rhythms: Kinesthetics.** Use parts of your body to create different sounds or movements. Try it with everyone doing the same thing, then with two different movements or rhythms, and finally with each person moving

about randomly in a limited space. Draw or paint representations of the different types of patterns and rhythms. Vary this activity using scarves for color or shakers for sound.

### Extension


Do this outdoor listening activity with a group. Have each individual focus on a different sound, including mechanical ones, such as a lawn mower or air conditioner. Afterward each person makes a representation of the sound pattern. Which ones have the most interesting patterns or rhythms? Create a rhythm band performance based on the sounds.


### The Gaia Hypothesis

The concept of Mother Earth is part of many human cultures. The ancient Greeks called their Earth goddess Ge or Gaia, the source of the living and non-living entities that make up the Earth. The Gaia Hypothesis, formulated by James Lovelock in the mid-1960s, states that the Earth is alive. It proposes that our planet functions as a single organism that maintains conditions necessary for survival. Lovelock defines Gaia as “a complex entity involving Earth’s biosphere, atmosphere, oceans and soil; the totality constitutes a feedback system” that maintains a physical and chemical equilibrium, that is, relatively constant conditions, in order to sustain life on this planet. While the Gaia Hypothesis has been controversial and has not been substantiated, it has led to new ways of thinking about the interaction of physical, chemical, geological and biological processes on Earth.


*Adapted from The Remarkable Ocean World by Dr. W. Sean Chamberlin. Complete text can be found at [www.oceanonline.com](http://www.oceanonline.com).*


### Find out more


 Related moment in TV series, **Episode 1** (time 3.00)—view segment where David Suzuki and his grandson, Tamo, visit the swamp and discuss human’s impact on the Earth

 [www.nwf.org/education](http://www.nwf.org/education)—information on the National Wildlife Federation’s Schoolyard Habitats program and Backyard Wildlife Habitats program

 [www.sacredbalance.com](http://www.sacredbalance.com)—A Song of the Heart; on the Home page, click on “Games” in the left-hand menu

 [www.dragonflytv.org](http://www.dragonflytv.org)—additional activities exploring biodiversity and ecosystems, click on TV Show and choose Ecosystem, Plants, or Underwater, Fish Population

 [www.nationalgeographic.com/geographyaction](http://www.nationalgeographic.com/geographyaction)—information on becoming a “Habitat Hero”

 [www.hsus.org/ace/12006](http://www.hsus.org/ace/12006)—information on how you can get involved in the Urban Wildlife Sanctuary Program sponsored by the Humane Society of the U.S.



## 2

# The Matrix of Life

**Water and air move endlessly together in a shifting dance of shape and place, atoms linking and de-linking to form ocean and atmosphere, transported across the face of the planet by winds.**

Water and air: these elements are the prerequisites of life—life is made from them and life helped create and still maintains them.

In this episode, David Suzuki travels around the world, exploring our intimate relationship with water and air. His journey begins on the banks of the sacred Ganges River in India, a river that supports the lives of 400 million people. With the guidance of Dr. Veer Bhadra Mishra, a Hindu priest and hydrological engineer, David is introduced to the Hindu worldview—a view that sees water, air and all life on Earth as part of a matrix.

With the guidance of some of the world's leading scientists, David explores this matrix. In Las Vegas, David discovers the Fantasy City in the desert built on water. In South Africa, he descends three kilometers into the deepest gold mine on Earth to examine the mysterious microbes extracted from water in the rock. It's true: the Earth is alive—and life may have originated in the heat and water in its rocks.

“Life made an atmosphere for itself out of sunlight and water.

Then it spread across the planet.”

— David Suzuki

## Themes and Concepts

- Interrelationship of air and water
- The hydrologic cycle
- Characteristics of water (molecular structure; various states)
- Life forms found in the depths of the ocean or deep underground
- How earth systems (e.g., rain forests, oceans, and deserts) function to maintain the planet

## The Matrix of Life

# Activities

### Demonstration: Water, Water Everywhere

Most of Earth's surface—more than three-fourths of it—is covered by water; some people have suggested that a more appropriate name for our planet would be Water. Then why is it so important to conserve our water? Find out how much drinkable fresh water there is on Earth.

#### What you'll need

- ✓ One-gallon container (juice or milk jug)
- ✓ Set of measuring spoons
- ✓ Bowl
- ✓ Ice cube tray
- ✓ Cup with a piece of sponge in it

#### What to do

- 1 Fill the one-gallon container** with water. This represents all the water on Earth.
- 2 Measure out** 21 teaspoons into the bowl. This is all the freshwater available. All the rest (97.3 percent) is what is found in the oceans.
- 3 Continue to measure out** water following the chart and illustration on this page.

#### What did you find out?

As you look at this model of how water is distributed on Earth, can you see why it's important to conserve water and not pollute it? Worldwide, only eight-tenths of one percent is drinkable fresh water. As the population of our planet increases, more and more people have to share the same amount of water.

*Adapted from "Water, Water Everywhere... and Not a Drop to Drink" in the Planet Neighborhood Teacher's Guide, courtesy of WETA, Washington, DC.*

### Demonstration: What Goes Around Comes Around

Find out how pollutants get from one place on Earth to another.

#### What you'll need

- ✓ A spray bottle containing water

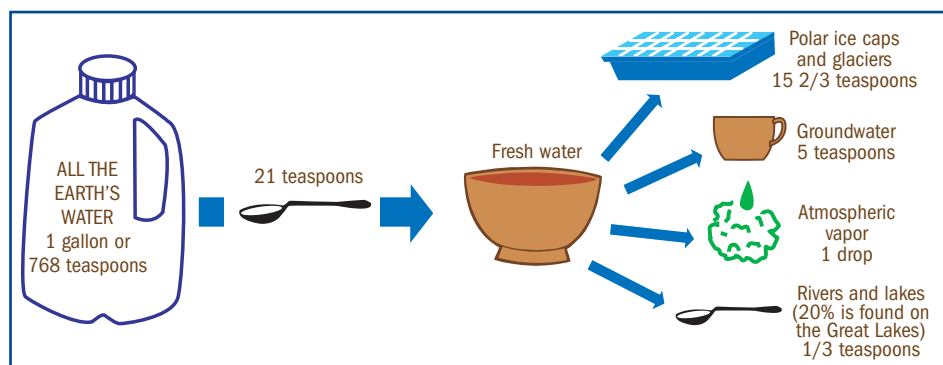
- ✓ Small containers of glitter
- ✓ Easel
- ✓ Markers

#### What to do

**1** Have everyone in the group **cup their hands**. The tips of their fingers will be the tops of the "mountain" and their palms will be the "valley". One of the creases in their palms is a "river". Explain that a factory is being built at the top of the mountain. Making the product results in pollutants. The factory owner decides to save money by disposing of the pollutants or waste just outside the factory.

**2** Using glitter to represent pollution, **sprinkle glitter on the ends** of everyone's fingers (the top of the mountain).

**Note:** Have participants lay their hands flat on a table while glitter is sprinkled; this makes it easier to get just the tips of their fingers.



## National Science Education Standards

<http://bob.nap.edu/html/nses/html>

*Content Standard B:*

Properties and changes in properties in matter

*Content Standard D:*

The structure of the earth system

*Content Standard F:*

Populations, resources, and environments

“Probably because life on Earth evolved in water according to the best thinking of the day, and therefore from the beginning life has been based on water. It is possible that life somewhere else may be based on a different substance, but life as we know it here began in water, evolved in water, and is therefore totally dependent on water.”

— on why all life on Earth needs water,  
**Dr. Richard Saykally,**  
Professor of Chemistry, Department of Chemistry,  
University of California, Berkeley, California, USA

# 2

## The Matrix of Life

**3** Now it's going to “rain” on the mountain. **Spray the cupped hands** of the participants, while they observe where the glitter is going.

**4** **Draw a mountain** on the easel, showing the factory on the top. Have the participants tell where their pollution went and draw squares to represent the pollution with a different color marker on the mountain. There should be pollutants that traveled somewhere all over the mountain and some that lodged in the creases of their hands. This represents the pollutants that soaked into the ground and are now part of the groundwater; some also should have reached the “river”.

### What did you find out?

- Where are these pollutants going?
- Are they affecting any people, animals, or plants?
- Who drinks the water that comes from the river or deep in the ground? Who eats the plants?

*Adapted from an activity developed by Nancy Scales and submitted by the Roberson Museum & Science Center, Binghamton, New York.*

## Experiment: What's in the Air?

*Find out how clean the air is that you're breathing.*

### What you'll need

- ✓ 3" x 5" index cards
- ✓ Petroleum jelly
- ✓ Clear plastic food wrap
- ✓ Tape
- ✓ Pencil
- ✓ Magnifying glass

### What to do

- 1** **Identify several places** where you want to test for air pollution. These might include both indoor and outdoor locations.
- 2** For each test location, **write a description** of the location on one side of an index card. Coat the other side with a thin film of petroleum jelly. Place the cards with the coated sides up. Try to find inconspicuous spots where no one will disturb the experiment. If you are testing outdoor locations, be sure to check the weather report. Rain could ruin the experiment. Also, be sure to secure any cards you place outdoors so they don't blow away in the wind.
- 3** **Leave the cards** for three days.

**4** **Collect the cards** and cover them with plastic wrap, and tape it to the back.

### What did you find out?


Examine the cards with the magnifying glass. Do you see much difference between them? Describe what you see on the cards. Black specks are visible air particulates—tiny pieces of solidified pollutants from car exhaust, factory emissions, and outdoor burning. Which cards appear to have the most? What else have you caught on your cards? Which is dirtier, indoor or outdoor air? Why?


### Extension


- 1** Before coating the cards with petroleum jelly, **use a pencil to draw** a grid on the card with lines 2.5 centimeters (1 inch) apart. Continue the experiment as described in Steps 2-4.
- 2** **Pick three of the squares** on the grid. Count all of the particulates in each square and calculate an average for the card (particulates per square). Compare the results from all the cards. Which places have the dirtiest air?


*Activity adapted from “Indoor Air Quality” in the Planet Neighborhood Teacher’s Guide, courtesy of WETA, Washington, DC, and “Dirty-Air Detectors” in Eco-Fun by David Suzuki and Kathy Vanderlinden, p. 20 (see Resources page).*

## Find out more

 Related moment in the TV series:  
**Episode 2** (time 38.45)—visit with David Suzuki and Dr. David Schindler on how persistent organic pollutants are able to travel such great distances

 [www.epa.gov/ogwdw/kids](http://www.epa.gov/ogwdw/kids)—games and activities related to water; lessons for grades K-12

 <http://ga.water.usgs.gov/edu/index.html>—Water Science for Schools, including “Earth’s Water” showing water distribution on Earth

[www.sacredbalance.com](http://www.sacredbalance.com)—take an animated  tour of a water molecule; on the Home page, click on “Games” in the left-hand menu

# 2 The Matrix of Life

## Exploration: Nature's Air Conditioner

*Find out how trees keep us cool. It's not just the shade they provide!*

### What you'll need

- ✓ Small bush or tree
- ✓ Small plastic bag
- ✓ Pebble
- ✓ Twist tie
- ✓ Measuring cup
- ✓ Measuring spoons

### What to do

- 1 Look for a healthy tree or bush. **Find** a leafy stem at the end of a branch.
- 2 **Blow into your bag** to make sure it doesn't have any holes in it. (It should inflate like a balloon.) Put the pebble into the bag and fit the bag around the leaves and stem.
- 3 **Tie the bag tightly** to the stem with the twist tie. The pebble should make the bag hang down.
- 4 **Check the bag** 24 hours later. It will have water in it. Remove the bag and carefully pour the water into the measuring cup. If there is too little water to measure by cup, use the measuring spoons.

### What did you find out?

Just as we perspire through pores in our skin, leaves transpire through tiny openings called stomata. In this process, water in the leaf changes to water vapors (a gas). This change uses up heat energy in the air—in other words it cools the air. A large tree can send many liters of water vapor into the air on a hot day. A forest can give off so much water vapor that it affects climate and rainfall in that area.

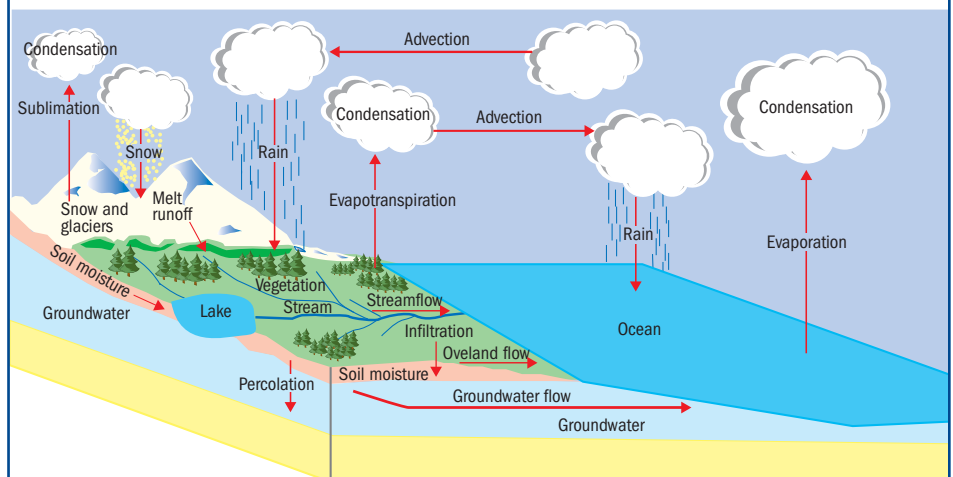
### Extension

Try to figure out how much water your tree or bush gives off in a day. Divide the amount of water you collected by the number of leaves on the stem. That will give you the amount of water that each leaf transpired. Now count (or estimate) the number of leaves on the bush or tree. Multiply that number by the amount of water given off by one leaf to get the amount the whole bush transpired in a day.

*Activity adapted from “Summer Coolers” in Eco-Fun by David Suzuki and Kathy Vanderlinden, p. 22 (see Resources page).*

## The Hydrologic (Water) Cycle

Water evaporates into the atmosphere, falls to Earth as rain or snow, and runs to the oceans and large inland bodies of water where the cycle begins again. The energy to keep the cycle moving comes from the sun.



# The Fire of Creation

**All life on Earth is forged in the furnace of the sun. This vast energy source, one million times larger than Earth, bathes us, from a distance of 93 million miles, in life-giving rays.** *The Fire of Creation* begins with the sun filling the sky, bursting into the

star-pricked blackness of space with a pyrotechnic spectacle of shifting, scorching images.

This, Southern California cosmologist Brian Swimme tells David Suzuki and his grandson Tamo, is the way the cosmos began: in a single Big Bang, approximately 13 billion years ago, matter coalesced, and the stars turned on. Swimme considers each day's dawn as a cosmic act of generosity—a vast giveaway of energy. We are all children of the sun, accumulating cosmic energies, transforming them into matter. Throughout the ages human beings have revered this sacred flame. As David discovers on this journey, the findings of science amplify that reverence.

“We humans have the extraordinary capacity to enshrine the knowledge we need for survival. We pass it on, and we honour it. It connects us to the process of creation that continually unfolds around us.”

— David Suzuki

## Themes and Concepts

- Big Bang hypothesis
- Nature of solar energy
- Fire as a renewer of life
- The carbon cycle
- Soil—types, characteristics, creation, erosion
- Traditional vs. modern farming techniques and their effect



# 3

## The Fire of Creation

# Activities

### Construction: Solar Water Heater

Find out how a solar panel uses the sun to provide heating and hot water for buildings.

#### What you'll need

- ✓ Scissors
- ✓ A black plastic garbage bag
- ✓ 3 disposable aluminum cake pans, all the same size
- ✓ Masking tape
- ✓ A measuring cup
- ✓ Plastic wrap
- ✓ A thermometer
- ✓ A saucer
- ✓ Pen or pencil and paper or notebook

#### What to do

- 1 Start around 10:00 a.m., when the sun is moving overhead. **Cut a piece of garbage bag** big enough to line the inside of one of the cake pans. Line the pan and tape the bag securely in place.
- 2 Use the measuring cup to **fill all 3 pans** with the same amount of cold water. Don't overfill the pans. With the thermometer, take the temperature of the water and write it down in your notebook.
- 3 **Fasten plastic wrap securely** over the top of the pan lined with black

plastic and one of the other pans. Leave the third pan uncovered.

- 4 **Place the pans** outside in a sunny spot. Let them sit in the sun for 3 or 4 hours.
- 5 **Check** the pans every hour. Take the temperature of the water in each pan, beginning with the uncovered pan. Write these measurements in your notebook next to the time you made each measurement.

#### What did you find out?

Compare your readings. Does the water heat faster in one pan than in the others? Which pan of water got the hottest? Why do you think it did? Which pan was the solar panel? Was it helpful to have the other pans in the experiment? Why?

#### About solar panels

Solar panels in roofs are boxes with a black plate on the bottom and glass or plastic over the top. Black absorbs more heat than other colors. The plastic or glass top traps heat inside the box, just as it does on a greenhouse. Air or water can flow from the box in pipes and be carried throughout the building.

*Adapted from "Make a Solar Water Heater" in Eco-Fun by David Suzuki and Kathy Vanderlinden, p.80-81 (see Resources page).*

### Experiment: Oxygen Makers

In sunlight, plants take in carbon dioxide and produce oxygen. Find out if they can also do this without the sun.

#### What you'll need

- ✓ 2 large clear glass or plastic bowls
- ✓ 2 medium-sized clear plastic cups
- ✓ Water plants (for example, pondweed from a pond or from a store that sells aquarium supplies)

#### What to do

- 1 **Fill the bowls** with water.
- 2 In each bowl, **put a plastic cup** in sideways and let it fill up with water. Make sure the entire mouth of the cup is under water and no air can get in.
- 3 **Keep the cup** completely under water and place it with the mouth at the bottom of the bowl.
- 4 Carefully **ease the water plants** under the cup. Don't let any of the water get out of the cup.

## National Science Education Standards

<http://bob.nap.edu/html/nses/html>

*Content Standard D:*  
Earth's history; Structure of the earth;  
Earth in the solar system

*Content Standard F:*  
Natural hazards

*Content Standard F:*  
Abilities of technological design

“One way to think about the sun, every time you see it at dawn, is to think of it as an act of cosmic generosity.”

— on life as the sun in a different form,  
**Dr. Brian Swimme,**  
Scientist and Author, California Institute of Integral Studies

# 3

## The Fire of Creation

**5 Put one bowl in a sunny spot** and leave it for a few hours. Check it and note what you see inside the cup.

**6 Put the other bowl in a dark spot** for the same amount of time. Check it and note what you see.

**7 Leave the bowls** for another hour and check again. Now what do you see?

### What did you find out?

- The first things you should see in the “sunny” bowl are streams of oxygen bubbles rising in the plastic cup. Like all green plants, the water plants are making oxygen as part of photosynthesis. After you have left the bowl a little longer, you will see a little air space forming at the top of the cup. The oxygen has pushed out some of the water.
- Describe what you see in the “dark” bowl. How do you explain the differences between the two bowls?

*Adapted from “Watch Plants Make Oxygen” in Eco-Fun by David Suzuki and Kathy Vanderlinden, p. 18-19 (see Resources page).*

## Construction: Enriching the Earth

*Some soil is created when rocks are worn down by wind, rain, and blowing sand. This can take a very long time—hundreds, even thousands of years. Find out how in a much shorter time you can produce compost, which will make a rich soil for growing plants.*

### What you'll need

- ✓ Plastic garbage can with a lid
- ✓ A drill, knife, or screwdriver
- ✓ Soil
- ✓ Vegetable and fruit scraps, including eggshells, coffee grounds and tea bags (no meat, fish, bones or dairy products, because they attract rodents)
- ✓ Grass clippings and dry leaves
- ✓ A long stick, broomstick or pitchfork for stirring
- ✓ Optional: soil organisms such as red worms, sow bugs, and centipedes

### What to do

- 1 Make holes or slits** in the garbage can lid.
- 2 Put the garbage can outdoors.** In cold weather, put it in a sunny spot; in hot weather, keep the can in the shade or partial shade to keep the

soil organisms from getting too warm.

**3 Create a compost layer cake** starting with a thin layer of garden soil on the bottom, then yard waste and vegetable scraps. (NOTE: Vegetable matter will decompose faster if it's chopped into little pieces first.) Add another layer of grass or leaves and finish with a layer of garden soil. Add the soil organisms if you're using them.

**4 Stir the compost.** If it's too dry, sprinkle it with water. If it's too wet, add some dry soil.

**5 Add more food scraps** daily, and stir the compost every few days.

**6** When your composter is three-fourths full **stop adding to it.** Mark the level of material in the can and write the date at the mark. Stir it two or three times a week and once a week mark the date and level of the material in the can.

**7** In three to six weeks **you will have finished compost** that can enrich the soil in your garden. Record the final level of the compost in the can. Spread the compost around a specific part of your garden.

## Find out more

Related moment in the TV series:

**Episode 3** (time 07:00)—visit with David Suzuki, his grandson, Tamo, and cosmologist Brian Swimme as they go camping in the wilderness to reflect on the vital role the sun plays in the web of life

[http://sunearth.gsfc.nasa.gov/sunearthday/2003/educators\\_guide2003/index6.html](http://sunearth.gsfc.nasa.gov/sunearthday/2003/educators_guide2003/index6.html)—“Live from the Aurora” Educator’s

Guide, with lessons for grades K-12

[www.energy.gov](http://www.energy.gov)—click on Kids Zone for games and quizzes and lesson plans for all age levels

[www.epa.gov/kids](http://www.epa.gov/kids)—the EPA’s site all about garbage and composting

<http://school.discovery.com/schooladventures/soil>—“The Dirt on Soil” examines it

from the top down; includes photos of soil organisms and “Soil Safari”, an interactive underground exploration

<http://tpwww.gsfc.nasa.gov/globe>—NASA’s Soil Science Education site

[www.sacredbalance.com](http://www.sacredbalance.com)—take a tour of Photosynthesis; on the Home page click on “Games” in the left-hand menu

## The Fire of Creation

### What did you find out?

Even if you didn’t add soil organisms to the material in the garbage can, the soil you used already had some organisms in it that broke down the organic matter. How much did composting reduce the amount of garbage in the can? After the compost has been in your garden for a week or two, note any differences in the soil, especially after a rain. Do you notice any differences in the plants that are growing in the composted soil?

Adapted from “Nature’s Recyclers” in the *Planet Neighborhood Teacher’s Guide*, courtesy of WETA, Washington, DC, and “Composter Can” in *Eco-Fun* by David Suzuki and Kathy Vanderlinden, p.66-67

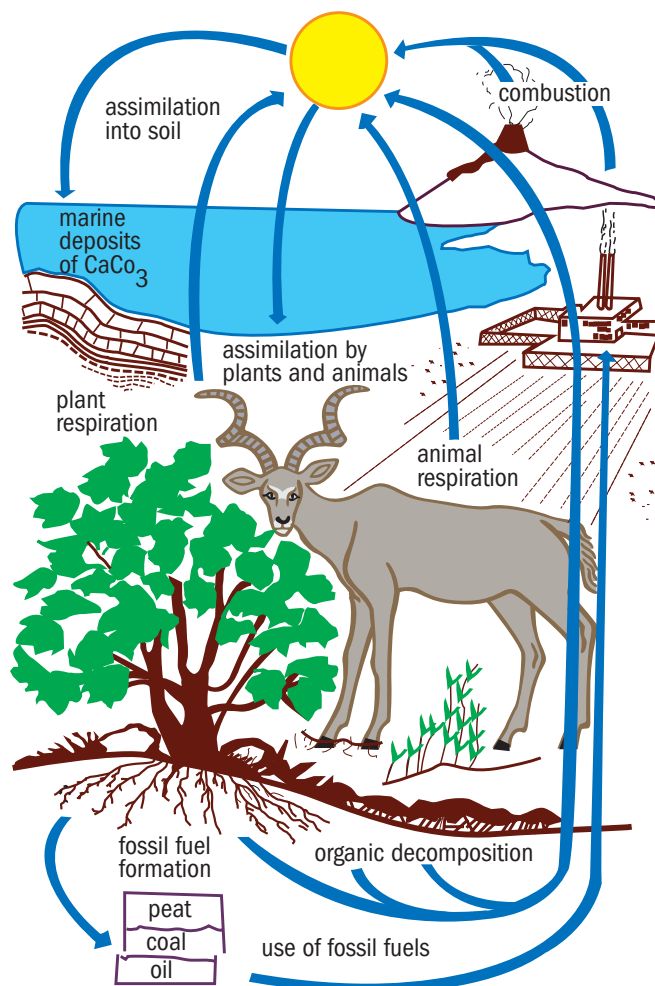
### Expression through Art

**1 Work with clay** to see the different stages of transformation from natural wet to dry hardened to fired hard. Look at examples of pottery in books or at a local museum and find out what materials and methods were used to create the pottery.

**2 Create designs** or paintings with sand. If possible, use different colored sands or sands with different textures to add interest and enhance the design.

### The Carbon Cycle

Carbon provides the framework for all tissues of plants and animals. It also provides fuels such as coal, gas and oil. The carbon cycle is the complex path that carbon follows through the atmosphere, oceans and soil, through plants and animals and through fossil fuel formation and use.





## 4



## Coming Home

**M** Meeting basic physical needs is just a beginning for human well being. Beyond these we have yet another—one that is just as vital to our long-term health and happiness.

It is a need that encompasses all the rest; an aspect of human life that is so mysterious it is often disregarded or denied. Though we sometimes call it love, it is in fact more than that. Like air and water, fire and earth, we need spiritual connection; we need to understand where we belong.


“The Sacred Balance is a timeless piece, brilliantly conceived and executed, and an example of science and environment exposition at its best.”

— E. O. Wilson, *Harvard University*

David Suzuki begins his search for answers in the high Arctic, along the northern tip of Baffin Island, eleven hours by snowmobile from the tiny community of Pond Inlet. Here, travelling on their annual Spring hunt, the Inuit community must band together to survive. These people are intuitively connected to their surroundings, sharing knowledge, food and love.



## Themes and Concepts

- Natural process/Philosophy of nature
  - Nature and the human spirit
  - Love and human development
  - Human culture and the environment (biophilia)
  - Interdependence of humans and the natural world (ecopsychology)
- 

# 4

## Coming Home

# Activities

### Observation: Adopt a Tree

*Trees are busy places where lots of changes happen throughout the year. Find out everything you can about your favorite tree.*

#### What you'll need

- ✓ Notebook and pen or pencil
- ✓ Tape measure
- ✓ Magnifying glass
- ✓ Art materials for making drawings and rubbings
- ✓ Camera (optional)

#### What to do

### 1 Pick out a tree near your home or in an area that you visit often.

Some things to think about: A deciduous tree (one that sheds its leaves in the fall) will go through more big changes than an evergreen. And a large, healthy tree is likely to have a lot happening in it.

### 2 Find out what kind of tree it is.

Do some research in books and on the Internet to learn the tree's scientific name, the places where it grows (such as hills or valleys, wet places or dry), its life cycle, animals that depend on it for food or homes, and so on.

### 3 On your first visit, study the tree and write a description of it.

Measure the circumference of the trunk with a tape measure. Look closely at the bark with a magnifying glass and draw a picture of its patterns, or take a rubbing. (See "Expression through Art"). Do you see any animals in the tree? Are there nuts or berries forming? Close your eyes and take a deep breath. What do you smell? What do you hear?

**4** In spring, summer and fall, **take a leaf home**. Press it (see "Expression through Art") and tape it in your book. If the tree has flowers, pick one that has fallen and press it too.

**5** In separate sections of your notebook, **write about any animals that come to your tree**. If birds nest in it, find out what they are and follow what happens over the summer. Move slowly and quietly and don't get too close to nesting birds so you don't frighten them.

**6** **Visit your tree** once a week for a season or a year, if possible. Each time write down the date and what you observe. If you have a camera, you could take pictures of the tree in different seasons.

#### What did you find out?

What is the most interesting or important thing you learned in observing

your tree? This might be something about the tree itself, about the process of observation, or about you.

*Adapted from "Diary of a Tree" in Eco-Fun by David Suzuki and Kathy Vanderlinden, p.106-107 (see Resources page).*

#### Extension

Keep a nature journal. Make your tree observation part of a journal where you write your thoughts, feelings, ideas and observations of the natural world. Your journal provides an opportunity to study nature and to develop a greater awareness and caring for the Earth. For guidelines on keeping a nature journal and a nature journal template (PDF format) that you can download, go to [http://sierraclub.org/education/nature\\_journal.asp](http://sierraclub.org/education/nature_journal.asp).

### Expression through Art

#### What you'll need

Masking tape, white paper, and crayons.

#### What to do

**1** **Make bark rubbings** on dry days. Tape a piece of paper to the bark. Using a piece of crayon with no paper around it, rub the crayon

## National Science Education Standards

<http://bob.nap.edu/html/nses/html>

*Content Standard C:*

Populations and ecosystems; Diversity and adaptations of organisms

*Content Standard G:*

Science as a human endeavor

“Indigenous people are neither sentimental nor weakened by nostalgia, but they have forged through time and through ritual a traditional mystique of the Earth that is based not on the idea of being self-consciously close to it but a far subtler intuition, and that is the idea that the Earth itself can only exist because it was breathed into being by human consciousness.”

— on the Incan idea of the connection between human consciousness and nature,  
**Dr. Wade Davis,**  
Anthropologist and Explorer in Residence,  
National Geographic Society, USA

## 4 Coming Home

firmly up and down until the pattern of the bark appears on the paper. Be careful not to tear the paper.

**2** For a leaf rubbing, **lay a leaf on a flat surface, vein side up.** Put a piece of paper over it. Rub a crayon evenly across the leaf until you get a clear outline.

**3** **Press flowers or leaves.** You'll need leaves or flowers, clean paper, and heavy books. Place a leaf or flower on a piece of paper and cover with a second sheet of paper. Put some heavy books on top and leave the pile for about 3 weeks.

**Rubbings and pressed flowers and leaves** can be used in other artwork, such as a collage. You can also use them to create your own greeting cards.

### Construction: A Community Web

*It takes many people doing lots of different kinds of things to make a community operate smoothly. Work with a group to find out how people in your community are connected to each other and connected to the operation of the community.*

#### What you'll need

- ✓ Several large pieces of poster board or packaging paper

- ✓ Markers or crayons

- ✓ String or ribbon

#### What to do

##### **1** Work in small groups or pairs.

Each group chooses a category and makes a list of all the workers in that category: Housing and other buildings, food, clothing, transportation, education, recreation, sanitation, public safety, utilities, and industries or companies. You may wish to combine some of these categories.

##### **2** Give each group a piece of poster board.

On the left-hand side they can list all the workers in their “main” category. Alongside that list, they should list the workers of just one other category (“helpers”) that their category needs or uses. They should leave some blank space, if possible, on the poster. Hang these around the room or place them in a large space on the floor.

##### **3** As the group reads the posters, **ask them if they see any repetition of categories.**

For each poster, ask them to think of another “helper” category besides the one listed that the “main” category also depends on in some way. Someone in the group can write this in the blank space.

**4** Let the **group look at the posters** again for a few minutes. Ask them to describe what they see. Give them string or ribbon to make lines of connection between the workers who are dependent on each other.

#### What did you find out?

Is it possible to eliminate any of the categories of workers and have the community still run smoothly? How would the community change if half of the categories were eliminated? Would it be a good place to live?

### Exploration: Re-discovering the Natural World

*We often go about our daily activities without noticing the natural world all around us. Find out some new ways to be sensitive and alert to nature in your daily life.*

#### What you'll need

- ✓ A copy of “Nature—Our Home” by Sarah Conn, on page 18
- ✓ A copy of the segment of “Lost” by David Wagner, on page 18

#### What to do

**1** **Read** “Nature—Our Home” and “Lost”.

## Find out more

📺 Related moment in the TV series:

**Episode 4** (time 20.00)—visit David Suzuki as he strolls around Walden Pond with Dr. E. O. Wilson discussing nature and the human spirit

🌐 [www.sacredbalance.com](http://www.sacredbalance.com)—create a Soul Tracking Guide; on the Home page click on “Games” in the left-hand menu

📖 Read the writings of nature writers such as Gilbert White, John Wesley Powell, Henry

David Thoreau, John Muir, Edward Abbey, Rachel Carson, Aldo Leopold, Annie Dillard and Barry Lopez

🎨 Look at art by environmental artists, such as Thomas Hart Benton, Ansel Adams (photography), and the artists of the Hudson River School

🌐 <http://greenmuseum.org>—view works by contemporary environmental artists

# 4

## Coming Home

**2 Discuss** these questions:

- What is each author trying to say?
- Could you know as much about the leaves or the branches of a tree as Raven and Wren do? How could you do that?
- What is the difference between finding the forest and letting it find you?
- How does the poem relate to the paragraph by Sarah Conn?

### What did you find out?

Do the two pieces of writing in this activity give you a different way to look at nature? Try to “let nature be your teacher” and write down what you learn.

## Exploration: Celebrating Nature

*Seasonal celebrations and other nature-based observances are part of many cultures. Find out about a particular culture's observance that is based on something in the natural world or on a natural event.*

### What you'll need

- ✓ Encyclopedia or other reference books
- ✓ Paper and pen or pencil

- ✓ Art supplies for drawing, painting or collage

### What to do

- 1 Choose a particular culture** that interests you. Your own culture or that of a friend or classmate might be a good choice.
- 2 Do some research** to learn how that culture relates to the natural world. Find out if the culture has ceremonies or other special events to honor nature in some way.
- 3 Make a picture** that depicts the celebration or observance and its connection to the natural world. Or write a poem or short essay about it.
- 4** If this is done with a group, **display the artwork** and the writing. Have a Festival of Nature, with each participant contributing a food, music, or an artifact from their chosen culture.

### What did you find out?

- How does your chosen culture's relationship to nature differ from your own?
- Can you think of ways your family or your class can honor nature through a special event or ceremony?

## Lost

Stand still. The trees ahead and  
bushes beside you,  
Are not lost. Wherever you are is called Here.  
And you must treat it as a powerful stranger  
Must ask permission to know it and be known.

.....  
No two leaves are the same to Raven.  
No two leaves are the same to Wren.  
If what a tree or a branch does is lost on you  
You are surely lost. Stand still.  
The forest knows  
Where you are. You must let it find you.

*David Wagner “Lost” in  
The Heart Aroused: Poetry and the Preservation  
of the Soul in Corporate America,  
ed. D. Whyte (Doubleday, 1994), 259-261.*



## Nature – Our Home

Our challenge as human dwellers on this earth is to recognize that we are lost and need to find our way home. We have strayed from nature's rhythms and connections to such an extent that our earth is hurting because of our behavior. True physical, psychological and ecological health—of our selves, of our families, of our communities and of our earth—requires that we slow down together and take notice. Members of loving families are attentive and responsive to each other. We can also listen to the voices of nature and be responsive to its needs. We can expand our ways of knowing by opening all our senses, all our feelings and our intuitions, letting nature be our teacher. We can recognize our place in our communities and nourish our connections with others, both human and non-human. We can pay attention to the land we live on, expanding our ability to respond to the earth. **We can find our way back home.**

*Sarah A. Conn, Ph.D.  
Lane K. Conn, Ph.D.  
The Ecopsychology Institute, Cambridge, MA*

*See companion article on page 20 of this guide*

# The Web of Life Art Activity

## LEARNING SCIENCE THROUGH ART



### Goal

The Earth is a living balance of many systems: air, water, soil, and energy from the Sun. Science shows how all humans living on this planet are part of this “web of life,” dependent on the Earth’s systems for our survival: interdependence.

This activity is designed for youth to understand this concept and to express that understanding through art. The theme is “the web of life” and the goal is for students to illustrate their understanding of how all life is interconnected through air, earth, fire and water: **The Sacred Balance**.

### Watch The Sacred Balance

Watch the first 15 minutes of Episode One of **The Sacred Balance** with students/youth. In this segment David Suzuki explores, along with his grandson Tamo, the interconnectedness of life. By visiting a shopping mall, engaging in virtual reality at an arcade, and visiting a swamp David shows Tamo how we have somehow lost connectedness to the natural world.

### Introduce to Students

All the Earth’s energy comes from the Sun, 93 million miles away. And three quarters of the Earth is made up of water. You are 70 percent water. All the food you eat was once alive and it comes entirely from soil. The typical lunch you eat—a sandwich, an apple and milk—all come from the soil. And, we are all swimming in an “air soup” that is in and around us. When a newborn baby takes its first breath; it is breathing the same air left on Earth by the dinosaurs. This “interdependency” between water, soil, air and the Sun’s energy is called the web of life.

#### What to do

- 1 Ask** students to think about how the lunch they just ate in the cafeteria or that they brought from home made it to the table.
- 2** Have them **discuss** who grew it, how it was harvested, how it was processed and delivered, and who prepared it.
- 3 Ask** students to think about how the Earth’s air, water, soil, and energy interact to support life, and how we

are all equal partners in this amazing system.

- 4** Have **students select an item** in their home, street, backyard or neighborhood that reflects one of the four elements of the “web of life” and illustrate it through art. Their artwork should reflect the interdependence of the “web of life.”

#### What you’ll need

- ✓ Have on hand: pen, pencil, crayon, pastels, marking pens, and/or paints
- ✓ If possible, use white paper stock not to exceed 16” x 20”

#### Tips

- Encourage students to make their art bold and colorful
- Display the completed art in your classroom, school lobby, or at a local museum or library

Visit [www.sacredbalance.com/outreach](http://www.sacredbalance.com/outreach) to learn more about the web of life!

*Activity adapted from The Art Challenge developed in conjunction with outreach partner, The Institute for Global Environmental Strategies.*

## Nature's Challenge: Finding Our Way Back Home

Many people in these times are profoundly disconnected from nature, from the earth, their home. This disconnection shows up in the failing health of the earth and its human inhabitants: in ecological pollution, in species extinction and in human physical and psychological disorders. Our challenge as human dwellers on earth is to recognize and address this disconnection, to find our way home.

The notion of ecopsychology explains this concept. Human development of ecological consciousness provides intuitive awareness of all life on earth and one's part in it. The ecopsychology model enables individuals to sense, feel, imagine, think and act as interdependent beings, interconnected within the whole community of life and land at all levels.

It is important to attend to what we see, hear, smell, taste, touch, what we experience in our bodies, not just the cognitive, analytic processes in our minds. When we open in this way, we take in whatever is presented rather than what we expect. This is the natural way that most children experience the world. In this way of knowing, there is no sharp division between self and nature. We can open to nature as our teacher.

To develop ecological consciousness, we also need to know directly and deeply our embeddedness in community and our connection to the land. We are part of communities at all levels, from the most intimate, close connections to the more international and global realms. These communities include not only human connections but all the non-human natural world—from the most intimate family, friendship, and neighborhood groups, the local flows of air, water and animals which move through the land in our home places—to the larger human and natural systems that extend out to the whole earth. When we identify, develop and sustain these levels of community—human and more-than-human—through direct attention and active participation, we are responding to nature's challenge to find our way home to our larger selves, the earth.

*Sarah A. Conn, Ph.D.  
Lane K. Conn, Ph.D.*

*The Ecopsychology Institute, Cambridge, MA.*

# Take the Nature Challenge

## TEN EASY STEPS TO HELP NATURE



### What is the Nature Challenge?

We at the Suzuki Foundation have researched the 10 most effective actions people can do to protect nature. Taking these simple steps at home can make a huge difference in nature. To get started visit our Web site at [www.davidsuzuki.org/wol/challenge](http://www.davidsuzuki.org/wol/challenge) to read about the benefits of the Nature Challenge. Then, just pick three of the top 10 actions, sign up and do them over the next year!

### Why take the Challenge?

You'll help protect biodiversity and your health, and improve your quality of life. The **10 actions** are deceptively simple, but have surprising benefits.

- 1 Reduce home energy use by 10%
- 2 Choose an energy-efficient home and appliances
- 3 Replace dangerous pesticides with alternatives
- 4 Eat meat-free meals one day a week
- 5 Buy locally grown and produced food

- 6 Choose a fuel-efficient vehicle
- 7 Walk, bike, carpool or take transit
- 8 Choose a home close to work or school
- 9 Support car-free alternatives
- 10 Learn more and share with family and friends

### Activities you can do

Visit [www.davidsuzuki.org/wol/challenge](http://www.davidsuzuki.org/wol/challenge) to do your part.

- **Take a look** at the Green Guide—a more comprehensive look at the 10 actions.
- Get inspired! **Share these links** with friends, family and co-workers!
- **Watch** a short Nature Challenge video clip on the site.
- **Download** a one-page Nature Challenge poster in PDF file.
- **Send** a fax to your elected leaders, urging them to take the Challenge.

In September, **check out the Nature Challenge** for kids, parents, and teachers at [www.davidsuzuki.org/kids](http://www.davidsuzuki.org/kids).

# Resources

## Books by David Suzuki

**The Sacred Balance: Rediscovering Our Place in Nature** written by David Suzuki with Amanda McConnell. Seattle, WA: The Mountaineers, 1999; available through [www.sacredbalance.com/books](http://www.sacredbalance.com/books).

**The Sacred Balance: A Visual Celebration of Our Place in Nature**, written by David Suzuki and Amanda McConnell, is an attractive new coffee table edition of **The Sacred Balance** and is available from Publishers Group West, 1700 4th Street, Berkeley, California 94710, or you can order through [www.sacredbalance.com/books](http://www.sacredbalance.com/books).

## For children

Suzuki, David and Vanderlinden, David. **You Are the Earth. Know the Planet So You Can Make It Better**. Vancouver, BC: Greystone Books, 1999; Order from The David Suzuki Foundation, Greystone Books or [www.sacredbalance.com/books](http://www.sacredbalance.com/books).

Suzuki, David and Vanderlinden, David. **Eco-Fun; Great Projects, Experiments, and Games for a Greener Earth**. Vancouver, BC: Greystone Books, 2001.

## Additional related books

Kellert, Stephen R. and Farnham, Timothy J., eds. **The Good in Nature and Humanity: Connecting Science, Religion, and Spirituality with the Natural World**. Island Press, 2002.

Leopold, Aldo. **A Sand County Almanac**. Ballantine Books, 1966.

MacEachern, Diane. **Save Our Planet: 750 Everyday Ways You Can Help Clean Up the Earth**. Dell, 1990.

Marshall, Ian. **Peak Experiences: Walking Meditations on Literature, Nature, and Need**. University of Virginia Press, 2003.

Roszak, Theodore. **The Voice of the Earth**. Simon & Schuster, 1992.

Schauffler, F. Marina. **Turning to Earth: Stories of Ecological Conversion**. University of Virginia Press, 2003.

The Earthworks Group. **50 Simple Things Kids Can Do to Save the Earth**. Andrews and McMeel, 1990.

## Science Companion Books

We invite you to visit our Online Bookstore at [www.sacredbalance.com/books](http://www.sacredbalance.com/books) to choose from over 100 books by scientists and others who took part in **The Sacred Balance** TV series.

## Web sites

[www.sacredbalance.com](http://www.sacredbalance.com)—highly interactive project web site with web casts from David Suzuki, environmental electronic postcards, electronic forums, program synopses, quotes and information from scientists who appear in the series, related resources

[www.sacredbalance.com/outreach](http://www.sacredbalance.com/outreach)—devoted to outreach activities for the project

[www.davidsuzuki.org](http://www.davidsuzuki.org)—Nature Challenge; The Science of the Challenge; downloadable Green Guide

<http://weblinks.schoolsgogreen.org>—comprehensive listing of environmental education resources

<http://eelink.net>—environmental education resources including projects and lesson plans

[www.yahooligans.com/science\\_and\\_nature](http://www.yahooligans.com/science_and_nature)—science projects for kids

## The Sacred Balance Partners

The Association of Science-Technology Centers  
([www.astc.org](http://www.astc.org))

Boys & Girls Clubs of America  
([www.bgca.org](http://www.bgca.org))

The American Library Association-Public Libraries  
([www.ala.org](http://www.ala.org))

Institute for Global Environmental Strategies (IGES)  
([www.strategies.org](http://www.strategies.org))

Academy for Educational Development (AED)  
([www.aed.org](http://www.aed.org))

The Wildlands Project  
([www.twp.org](http://www.twp.org))

The David Suzuki Foundation  
([www.davidsuzuki.org](http://www.davidsuzuki.org))

## Outreach Advisory Committee

Sally Middlebrooks  
Association of Science—Technology Centers  
Washington, DC

Jennifer Atkinson  
Erica D. Saxby, Ph.D.  
Education Group  
Boys & Girls Clubs of America  
Atlanta, Georgia

Carol J. Fialkowski  
The Field Museum of Natural History  
Chicago, Illinois

Doug Widener  
Peggy Notebart Nature Museum  
Chicago, Illinois

Dot Dickinson  
Louisiana Public Broadcasting  
Baton Rouge, Louisiana

Kristin Pederson  
Dragonfly TV, Twin Cities Public Television  
St. Paul, Minnesota

Dr. Richard C. Hudson  
TPT National Productions, Twin Cities Public Television  
St. Paul, Minnesota

Dale Lipschultz  
American Library Association  
Chicago, Illinois

Leanne Klyza Linck  
Wildlands Project  
Richmond, Vermont

Monica B. Stroik  
Williamsburg Middle School  
Arlington, Virginia

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