



A CURRICULUM FOR FIRST DAY SCHOOL,
SUNDAY SCHOOL & AFTER SCHOOL PROGRAMS

Developed by Quaker Earthcare Witness

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Earthcare for Children:
a Curriculum for First Day School, Sunday School, and After School Programs
Fifth Edition

by Sandra Moon Farley, Diana Gail Egly Thomas Baxter Farley

illustrations by Sandra Moon Farley

a publication of Quaker Earthcare Witness

Earthcare for Children: a First Day School Curriculum
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Bible passages are from the New English Bible.

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Preface

Members of Palo Alto Meeting of the Religious Society of Friends (Quakers) have long witnessed to ecological concerns. At their prompting, Pacific Yearly Meeting, a regional gathering of unprogrammed Friends meetings, invited Marshall Massey to speak to its 1985 annual sessions in California. His address, *In Defense of the Peaceable Kingdom*, is reprinted in *EarthLight: Spiritual Wisdom for an Ecological Age*. Friends who heard Marshall speak in 1985 united in asserting a religious basis for environmentalism, and a Committee on Unity with Nature was formed.

Sandra Farley and Diana Egly were drawn to create an Earthcare curriculum for use in First Day School (Quaker religious education for school-aged children) at Palo Alto Meeting. Several First Day School teachers led the children through rough drafts of the lessons before 200 copies were published by Palo Alto Friends Meeting in 1987.

By 1990, that edition had sold out. Rather than reprint it, the authors felt the need to revise, expand, and illustrate the lessons to include more on issues they found most urgent and about which they could communicate effectively with children. Friends Committee on Unity with Nature [FCUN] agreed to publish the expanded curriculum.

By 2006, Quaker Earthcare Witness [QEW, formerly FCUN] had sold out of its 1998 edition, and again the authors wished to refocus a few of the chapters to reflect the current situation. At least 10% of the activities were new and many others updated.

In 2011, publication was transferred to Quaker Press of FGC for a third edition with the Resources section updated by the authors.

In 2017, Quaker Earthcare Witness received a grant from Obadiah Brown's Benevolent Fund to update the curriculum and transform it into a web-friendly document that would be easy to share and download. This new format allows us to adapt the curriculum as we receive feedback. Please send us your comments and suggestions at info@quakerearthcare.org and come back to quakerearthcare.org/children for more updates and resources.

About the Authors

Sandra Moon Farley [MS in Special Education] is a retired teacher of English as a Second Language to adults. She now tells stories and runs a small urban farm CSA. Sandy has served on the board of Western Friend and EarthLight. She helped edit Earthcare for Friends and EarthLight: Spiritual Wisdom for an Ecological Age. She has been recording clerk of her monthly, quarterly, and yearly meetings.

Diana Gail Egly [BS in Psychology and Mathematics] is a writer in scientific fields, especially cognitive science. Diana has also designed knitwear and wearable art. She is active in Quaker lobbying and has served on committees of Palo Alto Friends Meeting.

Thomas Baxter Farley [MA in Theatre Arts] is an actor and storyteller performing and recording with his partner, Sandy, as Spontaneous Combustion. Tom has owned and managed children's bookstores. His stories, articles, and book reviews have appeared in Western Friend and Friends Journal. Tom has served as clerk of the Children's Program, Unity with Nature, and Ministry and Oversight committees of Pacific Yearly Meeting.

About Quaker Earthcare Witness

Quaker Earthcare Witness is a network of Friends (Quakers) in North America and other like-minded people who are taking spirit-led action to address the ecological and social crises of the world from a spiritual perspective, emphasizing Quaker process and testimonies. While QEW supports reforms in laws, technology, education, and institutions, its primary calling is to facilitate transformation of humans' attitudes, values, identity, and worldview that underlie much of the environmental destruction going on in the world today. You can be part of QEW's work by giving of your time, talents, and financial support, becoming a QEW contact for your Meeting, starting an Earthcare group in your meeting, reading and sharing BeFriending Creation and other QEW literature, and leading Earthcare activities in your Meeting.

QEW's Vision and Witness

We are called to live in right relationship with all Creation, recognizing that the entire world is interconnected and is a manifestation of God. We work to integrate into the beliefs and practices of the Religious Society of Friends the Truth that God's Creation is to be respected, protected, and held in reverence in its own right, and the Truth that human aspirations for peace and justice depend upon restoring the Earth's ecological integrity. We promote these Truths by being patterns and examples, by communicating our message, and by providing spiritual and material support to those engaged in the compelling task of transforming our relationship to the Earth.

Introduction

Friends' Testimony

For over 350 years, Quakers have affirmed that there is that of God in everyone. From the experience of living this premise, have come witness to and testimonies on Equality, Simplicity, Peace, Integrity, Unity, Stewardship, and Community. Now many Friends and others have expanded this premise to consider that there is that of God in everything, that the entire universe is a manifestation of God's love and grace.

This understanding of our relationship with God is expressed as a testimony on Earthcare or Unity with Nature. The right sharing of the world's resources is an ecological concern as well as a social one. This responsibility was recognized as early as the seventeenth century by Quaker leaders such as William Penn, who wrote in *Some Fruits of Solitude* in 1692:

"It would go a great way to caution and direct people in their Use of the World, that they were better studied and known in the Creation of it. For how could Man[kind] find the confidence to abuse it, while they should see the Great Creator stare them in the Face, in all and every Part thereof?" – William Penn

Our Purpose

It is easy to inspire wonder and awe. Sharing the Earth with all of creation is a cause for joyous celebration. Many fine children's books and teacher resources explore this theme from secular and/or religious perspectives. However, few spiritually based materials take children much farther than the discovery and celebration level. We believe children can respond positively to many of the environmental issues our society now faces. But our presentation of these issues must not be one more round of "isn't it terrible what human beings have done to the world!" Let us build on the joy and wonder, not replace it with fear and despair.

We have planned and revised this course of study to help our children begin to walk gently over God's Earth and teach others to do likewise. We want to instill a sense of kinship with all life recognizing the interrelatedness of all Earth processes. We believe our children will come to see conservation practices as a joy and sacred responsibility, not merely a practical nicety. We hope they will not view our future as simply a struggle of "Greens" vs. "Polluting Industry." Peacemaking and cooperation are our tools. We expect our children to learn that, though problems exist, there are also solutions, some yet to be discovered, and that we can participate in those solutions.

The Role of This Curriculum

At the outset we were clear we would not be our children's only source of earthcare education. Many schools have strong programs in this field. There are excellent presentations on US public television. Children get similar messages from youth programs such as Camp Fire, Scouting, and 4-H. Our children need reassurance that their faith community considers earthcare part of its core values. What we offer here is not only a reinforcement of the environmental education our children are receiving, but a rooting of that concern in our relationship to God and all of creation. A public school teacher could use, or adapt, most of the activities, but might not be able to ask the same queries, read the scriptural passages, or invite the children to sing many of the songs.

Our Lesson Format

Our intention is to provide you with a series of activities on a particular theme from which you may choose, based on your group. Each of the chapters is laid out following this format as if it were one long lesson. But each chapter has enough material on one theme in it for at least two of the 45-minute to 60-minute sessions we usually have in our First Day School. When we tested these lessons, some of our volunteer teachers were frustrated by this excess of material. They wanted to do it all at once. Select activities which are appropriate for the age of your children and the size of the group.

1. **Purpose: Statements to guide the lesson**
2. **Proposed Agenda**
3. **Opening: [10–20 minutes]**
 - Silent Worship
 - Songs [select two or three]
 - Scripture Reading & Discussion
4. **Large Group Activity or Lesson**
5. **Options for Small Group Activities: [30–60 minutes]**
 - Craft or art activity
 - Activity that involves movement
 - Snack related to the theme
 - Visit to the Special Plot or other continuing project
 - Books, stories, and other resources
6. **Closing: [5–15 minutes]**
 - Repeat a song from the opening, present accomplishments from the groups, participate in a symbolic activity.
 - Closing Worship
7. **Optional Take-Home Exercise:** Pencil and paper work or discussion ideas to be shared with the family. One or more choices are offered at the end of each chapter. Some Take Home Pages require more reading and writing skills than others.

Ideas for multi-week activities, special events, and field trips are also suggested along the way.

Small and Large Groups

The main activities are usually done in the small groups, by which we mean ten or fewer children with one or more adult leaders. The large group for the opening and closing events could be from two to five small groups, combined.

If your whole program is a small group such as a Camp Fire club, children of a small Quaker Meeting, or home schooling, you may want to incorporate the closing within the regular session, or search out others to join you for the opening and closing activities or for sharing the children's discoveries.

It is important to bring everyone back together at the end of each lesson for closure. Having a good ending is satisfying. Closure makes more of a difference to children than many adults often recognize. We know there may be lessons where the process or participants' excitement for some activity may cut into time for your planned closing, but try not to let rushed or abbreviated closings become a routine experience.

Take-Home Exercises

Each chapter ends with one or more pages you can duplicate and send home with the children. Usually, the first page expects less advanced reading and/or writing than the second. Having something in hand can encourage family conversations about what happened in First Day School. Take-home pages may also help parents reinforce the lessons or learn along with their children.

Snack

There is a suggested snack, related to the theme of each chapter. Refreshments may not be part of your pattern. You may choose to omit them. We found that food has such a direct tie-in to the natural world that it truly enhances the lessons. Whenever possible, we urge you to model selecting snacks which are organic, local and/or fair trade, and in season. More information is available at: <http://www.organic-food-for-everyone.com/fairtrade-food.html>

Pre-school

The exercises are of varying levels and adjustment to your particular level will be needed. Our experience is that older children can adapt to the lessons for the younger ones more easily than the opposite.

Extension

Both teachers and children may know other activities that fit in with our chapters or suggest the development of new chapters. You can extend the program with additional field trips and environmental action projects.

Records

We kept an attendance chart where the children stuck wildlife stickers after their names in the column for each day they were present. This proved to be a pleasant motivator of consistent attendance and a reference for the teacher as to which children might need a review and which others could furnish one.

You may want to record how things are going so you remember the winning activities in future years and revise the ones that need adapting to your situation.

Teachers

We recommend team-teaching so that you can take turns presenting activities and cover for each other in case of absence. Palo Alto Friends Meeting currently runs a multi-stranded program with teams committing to one Sunday a month through the year. At one session a month this curriculum could be used for two years running.

We recommend having several teachers taking turns with each small group, so no one has to give up attending meeting for worship for an extended period. This does cause some lack of continuity for the children, but not all children can come every week either. Using the evaluations helps. Most of our teachers were not parents of children in the program. We see this as an advantage because it builds bonds among children and adults within the meeting. This contributes to our sense of community. We have included a sample letter to use for parent information and teacher recruitment.

Orientation Meeting:

Getting the teachers and parents together for a meeting before the program begins can be most rewarding. It heightens awareness of your work and gives people a chance to see what will be happening, to ask questions, to volunteer for special projects, etc. The agenda for the parent and teacher orientation meeting could include the following:

- » *Present the dates and times for the program.*
- » *Arrange for field trips and permission slips.*
- » *Commit parents to support attendance.*
- » *Look at the format and scope of the program, reinforcing long-range goals.*

You might also do a small group activity from one chapter with the adults. They may discover an interest in having adult religious education sessions weekly or monthly to consider their responses to the issues raised in this curriculum.

TEACHING FIRST DAY SCHOOL AS A GROWTH EXPERIENCE

Congratulations! You have agreed to teach First Day School. Everyone appreciates your willingness to serve. You may have heard that volunteer teachers are overworked and sometimes suffer "burnout." What is not so widely talked about is the spiritual enrichment teachers receive. Here's how to get the most from your turn as a religious educator.

- » *Prepare in heart and mind. Read the lesson and related materials and consider how they relate to your faith and life. As you come to class, try to reduce distraction and focus on the core message of the lesson and its spiritual base. Be open to answering that of God in the children and in yourself.*
- » *Make other preparations. Copy the handouts, and gather any equipment and materials a day or two ahead. Arrive early to set up. Check with other teachers for things to do together. Post an agenda for older children to read as they come in, possibly including choices of activities. Such preparations make it easier for you to go with the children to Meeting for Worship before class, if that is your pattern, or free you to greet each of the children as they arrive.*
- » *Encourage and praise positive participation. Most children know basic rules for classroom behavior, even if they can't always follow them. Saying, "Ben and Julia are at the table, Mary is coming so we can start." focuses on positive behavior. Compliment children for being kind and tolerant, for helping each other. Focus on group goals that make use of cooperation and consensus building. Downplay competition. Try not to let the children interrupt each other, or you. Do not accept disruptive behavior, but try not to spend much group time dealing with it. That steals time from everyone. A child who is at times restless, disruptive, or negative may respond to more appreciation when doing well. Try not to label children by their behaviors. That can limit your expectations of them and their own self-perception. Help develop friendships among classmates so all want to come every week to do things with those friends.*
- » *Listen to the children respond to issues. Ask questions that have many good answers. "How could this affect our lives?" "Why are Friends concerned about this?" "What if Jesus (or John Woolman) were looking at this problem?" You may be surprised by the depth of children's responses. Encourage them to question you. Teachers have reported experiencing deep revelations while trying to put religious concepts into terms children can grasp. Try to keep open to admitting you don't have complete answers for every question.*
- » *You are not alone! If you are leading a group out of sight of other adults, you should have a partner or assistant. Then, if your group is larger than usual, or if you have a child who needs individual attention, you can send for a parent, a First Day School Committee member, or another adult to help you.*
- » *You can create a spiritually enriching atmosphere for your group. You set the tone. Consider allowing yourself time to worship or reflect after your class. Share your learning-through-teaching discoveries with others. The joys of working with children should not be kept secret.*

Dear Friends:

During the next _____ months, the children in First Day School will be using the program, Earthcare for Children, developed by QEW, Quaker Earthcare Witness. This exciting religious education curriculum has many activities for children ages five to twelve. Parents are advised that parts of the lessons may carry forward from session to session, so regular attendance is important.

We will experience the Earth as our home, see how we share our home with God's creatures, and learn how we can behave in caring ways for our world. The children will receive Take-Home Pages for completion and discussion with the family. Please use these activities as an opening for sharing your family's values and concerns.

The most important outcome of the program may be the personal relationships between children and adults strongly concerned for the environment. Therefore, we are asking for volunteers, even people with no teaching experience, to share their love of God and the Earth. If you can do half of the days, we'll match you up with someone to share the responsibility.

Please call or e-mail _____ at _____ or _____.

Parents and teachers are invited to an orientation session on _____, at _____.

A field trip is planned on _____, to visit _____.

We plan to leave at _____, and return at _____.

We will need some extra adults (drivers). If you can go with us, please call or e-mail _____ at _____ or _____.

Thank you.

RESOURCES

Sources for Suggested Songs

Page or song numbers are given with an extra column to note other sources you find.

CF	Camp Fire Music Makers, Camp Fire, Inc., Kansas City, MO
WiS	Worship in Song, Friends General Conference, Quaker Press, 1996
HfF	A Hymnal for Friends, Friends General Conference, Quaker Press, 1955
SotS	Songs of the Spirit, Friends General Conference, Quaker Press, 1978
UMH	United Methodist Hymnal, United Methodist Church, 1989
RuS	Rise up Singing, Sing Out Publications, 1988 [see also Rise Again Songbook, 2015]

TITLE	CF	WiS	HfF	SotS	UMH	RuS
All Creatures of our God and King			51		62	
All God's Critters Got a Place in the Choir	52	306				241
All Things Bright and Beautiful		1	10		147	
Ancient Mother		310				
Circle of the Sun		313				107
The Earth is My Mother		312				35
Earth Was Given as a Garden		307				
Eternal Father, Strong to Save				94		
Father, We Thank Thee			9			
For the Beauty of the Earth		10	126		92	153
For the Fruits of This Creation					97	
God of the Earth, the Sky, the Sea.			127			
God, Who Stretched the Spangled Heavens		309			150	
God Who Touchest Earth with Beauty	29					
He's Got the Whole World in His Hands	39			41		209
I Am an Acorn						195
I Sing the Almighty Power of God		9			152	
In the Bulb There is a Flower					707	
Inch by Inch, Row by Row [Garden Song]						52
Johnny Appleseed's Grace	64			70		
Joyful Joyful We Adore Thee		11			89	
Magic Penny		221		23		240
Many and Great, O God, Are Thy Things		16			148	
Morning Has Broken	25	32		64		
Now on Land and Sea Descending				72	685	
Peace Like a River	34	318		42		195
See the Morning Sun Ascending					674	
Simple Gifts	41	271		46		47
Sing and Rejoice		234				47
Spacious Firmament on High		20	129			
Spirit of God in the Clear Running Water		12				156
Spring Has Now Unwrapped the Flowers			131			152
Take off Your Shoes		311				
Thank You for this Food		49				197
That Cause Can Neither be Lost nor Stayed		264	28			119
This is My Father's World		29	26		144	
Turn Back, O Man [O Mortal]		194	102			119
Turn, Turn, Turn,				28		228
Wade in the Water		267				63
We Shall Not be Moved						260
When I Needed a Neighbor, Were You There?		293		29		243

Musicians Who Record on Earthcare Themes

- » *Peter and Mary Alice Amidon, <www.amidonmusic.com>*
- » *Banana Slug String Band, Steve Van Zant & friends, River Song, We All Live Downstream, CDs, DVDs, books – <www.bananaslugstringband.com>*
- » *Tom Chapin, This Pretty Planet, Mother Earth, and other recordings and books – <www.tomchapin.com>*
- » *Earth Mama, Joyce Rouse [Quaker songwriter] Grass Roots!, Love Large, and other Earth-Friendly recordings – <www.earthmama.org>*
- » *Leela and Ellie Grace, <www.leelaandelliegrace.com>*
- » *Mary Miché [Quaker ecologist] Earthy Tunes, Nature Nuts, and other recordings – <www.marymiche.com>*
- » *Sarah Pirtle, <sarahpirtle.com/recordings.htm> and A Pocket Full of Wonder <sarahpirtle.com/docs/Pocketful_of_Wonder.pdf>*
- » *Raffi, <www.raffinews.com>*
- » *Songs About Nature, Environmental Concern, <www.songsforteaching.com/environmentsongs.htm>*

Internet Sites

- » *Religious Society of Friends* <quaker.org>
- » *Quaker Earthcare Witness [QEW]* <quakerearthcare.org >
- » *Quaker United Nations Office Resource* <quakersandclimatechange.com>

Environmental Resource Sites

Al Gore [Our Choice & Inconvenient Truth]	<algore.com>
All About Birds [Cornell Univ.]	<allaboutbirds.org>
Alternatives for Simple Living	<simpleliving.org>
Alt National Park Service	<facebook.com/AltUSNationalParkService>
AmperSand Press [food chain games]	<ampersandpress.com>
AZA – Assn. of Zoos and Aquariums	<aza.org/conservation-education>
Bat Conservation International	<batcon.org>
California Academy of Science	<calacademy.org>
Camp Fire USA	<campfire.org>
Canopy [a local urban tree planting group]	<canopy.org>
Center for Climate and Energy Solutions	<c2es.org>
Children & Nature Network (C&NN)	<childrenandnature.org>
Climate Resilience Toolkit	<toolkit.climate.gov>
Climate Stewards [UK]	<climatestewards.org>
Climate Change Resource Center	<fs.usda.gov/ccrc/>
Cloudman Discovery Notebook Instructions	<cloudman.com/instructions.htm>
Collective Roots [community garden project]	<collectiveroots.org>
Community Supported Agriculture	<localharvest.org/csa/>
Confessions of an EarthQuaker	<theearthquaker.blogspot.com>
Do Something	<dosomething.org/us>
Earth Charter Initiative	<earthcharter.org>
Earth Day Network	<earthday.org>
Earth Echo	<worldwatermonitoringday.org>
Earth Hour [official US site]	<worldwildlife.org/pages/earth-hour>
Earth Ministry	<earthministry.org>
Earthcare Connections [Canada]	<earthcare.ca>
EarthLight	<earthlight.org>
Earthwatch Institute	<earthwatch.org>
Earthwitness [Marshall Massey, 2007]	<journal.earthwitness.org>
Ecological Footprint Quiz [has access fee]	<myfootprint.org>
EnviroLink Network	<envirolink.org>
Environmental Storytelling	<franstallings.com >
EPA website [as it was on 1/19/2017]	<19january2017snapshot.epa.gov>
Forest Service – USDA [kids pages]	<fs.fed.us/kids/>
Friends Energy Project	<quaker.org/fep/>
Goldman Environmental Prize	<goldmanprize.org>
Good Planet Foundation [France]	<goodplanet.org/fr/>
Ground Water Adventurers	<groundwateradventurers.org>
Heifer International	<heifer.org/readtofeed/index>

Hidden Villa [founded by Quakers]	<hiddenvilla.org>
Indigenous Environmental Network	<ienearth.org>
Institute for Earth Education	<eartheducation.org>
Interfaith Power and Light	<interfaithpowerandlight.org>
Kids For The Bay [environmental ed/action]	<kidsforthebay.org/>
Living on Earth [public radio program]	<loe.org>
Monteverde Costa Rica Nonprofit Organizations	<monteverde.org>
National Environmental Education Foundation	<neefusa.org>
National Geographic Education Guide	<nationalgeographic.org/education>
National Wildlife Fed. [magazines for kids]	<nwf.org/kids>
North American Assn. for Environmental Ed.	<naaee.org>
Oxfam America	<oxfamamerica.org>
Project Green Leaf [local agro-food system]	<greenleaf.uncg.edu>
Quaker Institute for the Future	<quakerinstitute.org>
Seeds of Change [organic seed sources]	<eedsofchange.com>
Sierra Club	<sierraclub.org/about>
Stand [formerly Forest Ethics]	<stand.earth>
Tar Creek Oklahoma [local clean-up project]	<leadagencyredirect.weebly.com>
Ulistac Natural Area [free play field trips]	<ulistac.org>
UNEP - UN Environment	<unep.org>
Union of Concerned Scientists	<ucsaction.org>
Unitarian Universalist Ministry for Earth	<uuministryforearth.org>
Video Project [environmental media]	<store.videoproject.com>
Visible Earth [NASA photos & images]	<visibleearth.nasa.gov>
Where is Earth's water located? [USGS]	<water.usgs.gov/edu/earthwherewater.html>
World Stewardship Institute	<ecostewards.org>

LESSON EVALUATION FOR TEACHERS

Date _____ Teachers _____

Material from Chapter _____

How did you open the session? What was good about your beginning? When we teach this lesson again, what would you add or change?

Did you divide into smaller groups or work as a whole group for the middle section? Which activities did you choose? What went well? When we do these or similar activities again, what would you add or change?

How did you close the session? What did you like about it? When we teach this lesson again, what would you add or change?

Any other comments, advice, suggestions for future users of this chapter?

File your evaluation with the folks in charge of the children's program so it can be reviewed by future teachers.



1. APPRECIATING THE BEAUTY OF CREATION

This Lesson's Goals

- » *To sense God's presence in the natural world*
- » *To marvel at the beauty and complexity of the Earth*
- » *To encourage observation*
- » *To promote a sense of comfort with being a part of nature*

Opening [15 min.]

Gather for a few moments of silent worship.

If you have a familiar pattern to begin your Sunday or First Day School class, workshop, camp session, etc., see how you can adapt it to the purpose and opening materials of this chapter.

If this is your first time with these children, play a name game and have name tags.

Sample Agenda

Posting a simple agenda can help both the teachers and the children stay on track. Pick and choose which activities work best for you and your group. If your total program time is less than one hour, you may want to simplify the opening and then focus on two to four activities from those listed below, allowing for the age and size of your group, season and weather, and space and materials needed.

- 1. Opening:** Silent Worship, Song, Scripture, Sharing
- 2. Large Group Activity**
- 3. Small Group Activities**
- 4. Closing & Sharing of Take-Home Materials**

Songs

Pick one or two of the following songs to sing.

All Things Bright and Beautiful
Earth was Given as a Garden
For the Beauty of the Earth
God, Who Stretched the Spangled Heavens
Joyful, Joyful, We Adore Thee
Magical Earth
It's a Beautiful Day



Scripture [5-10]

Psalm 98:4-9

Acclaim the Lord, all people on Earth,
break into songs of joy, sing psalms.
Sing psalms in the Lord's honor with the harp,
with the harp and the music of the psalter.
With Trumpet and echoing horn
acclaim the presence of the Lord our king.
Let the sea roar and all its creatures,
the world and those who dwell in it.
Let the rivers clap their hands,
let the hills sing aloud together
before the Lord;
for he comes to judge the Earth.

He will judge the world with righteousness
and the peoples in justice.

Scripture Sharing

- » What does opening scripture tell about our relationship to our world?
- » How can rivers clap, hills sing?
- » What is wonderful about our world?
- » What is amazing for its great or small size or other qualities or abilities?
- » How are justice and righteousness both similar and different?

Large Group Activity

Look at This! [5-10]

Materials: Present photos, slides, or posters of wonders of the world, both "natural" and human-made. Old calendars are a good source. Try to have a range of scale from microscopic to aerial and satellite photos.

Share what you brought. Ask children to point out what they like, what they see as particularly wonderful, beautiful, or awesome. Ask each child to share with a partner a place they know outdoors that they love. What does it look like? What do they love about it?

Small Group Activities

1. Observing [10-15]

Materials: Two toilet paper rolls per person, glue sticks, duct tape, hole punch, yarn, scissors, magnifying glasses.

Have children create their own binoculars by using two toilet paper rolls. With a glue stick, secure the two rolls together, side by side. Using duct tape, wrap around the rolls to form the binoculars. With a hole-punch, make a hole on the outside of each roll. Attach a length of yarn through each hole, long enough to hang loosely around the

neck of each participant.

Equipped with your binoculars or magnifying glasses, and field guides, head outside. If weather permits, lie down on the ground and look up into the sky. (Don't look directly at the sun.)

Ask the children what they see (wires, seeds, clouds, planes.) Ask how far up the sky goes.

Have the children roll over to look at the ground and tell what they see. Focus their observations by giving each child a loop of string or wire coat hanger.

If possible, give the children magnifying glasses to examine the ground more closely.

What do you imagine is under the ground?

Older children may notice more details and may enjoy learning to identify various plants, animals, and objects.

If a child is to keep
alive
his inborn sense of
wonder . . .
He needs the
companionship of
at least one adult who
can share it,
rediscovering with him
the joy,
the excitement and
mystery
of the world we live in.
– Rachel Carson

2. Beautiful Earth [5-10]

Materials: Tag board or heavy paper, scissors, glue sticks, and marking pens, photos, slides, or posters of wonders of the world [same as the Look at This! activity]

Create collages as a group or as individuals and share with each other. Find apt titles and perhaps you can post the collages where people can enjoy them. The point is to appreciate how beautiful and wonderful our world is.

3. Story Reading [10]

Read aloud *Keep Running Allen* by Clyde Robert Bulla, *Earth to Audrey* by Susan Hughes, or *Anna's Table* by Eve Bunting. All three show children who have healthy and creative relationships with the Earth. Make a list of other books with this theme. For chapter books, have those who have read them give brief reviews. The lists and reviews could be shared with families or in your newsletter.

4. Special Plot [5]

This is a great beginning activity because you can return to it in later chapters.

Select a square of land about one yard or meter per side for on-going study by your group somewhere near your classroom. Mark its corners or edges so you can return to it easily. Examine it closely. Use magnifiers.

- » What grows and lives there?
- » Is it wet or dry?
- » Warm or cold?
- » Shady or sunny?
- » Covered with leaves or snow?
- » Which plants are intentionally planted?
- » Which are volunteers (no one planted them on purpose)?

Take photographs of it and your group. Plan for your group to visit this plot of land in following days, weeks, or months to note how it changes.

5. Geode [5-10]

Bring one or more unopened geodes. Look at the geodes first. The inside could be hollow or solid, agate, clear or colored quartz, or other crystals. Pass geodes around and let everyone hold one and guess what is inside.

Put each geode inside a sock or a cloth bag before tapping it lightly with a hammer to crack it open. Look at what you find. You may be able to give out pieces to everyone to take home.

How are people you don't know yet like geodes?

Small red geodes are often sold for a reasonable price at museum, science, craft, or children's activity stores. Meteorites are also very useful to have and share and talk about their age (which is for 90% of them equal to the age of Earth). They are relatively common and not very expensive.

6. Look Up – Clouds [15-20]

Look at the sky on a day with at least some clouds. Follow or adapt instructions from the *Cloudman Discovery Notebook* found at <www.cloudman.com/instructions.htm>

Prepare group or individual notebooks you can return to as seasons change.

Extend this exercise to not only include what is imagined in clouds but to also imagine you are not looking up but rather looking down into the Universe, sky. "Up" is very

relative and looking down causes us to rethink our relationships. Invite the children to notice that from the looking down perspective we can observe (with a little pinch of eyes and a big pinch of imagination) that the movements of things in the sky, can be changed to a sensation of Earth, moving as we are held to it by gravity, and with our backs stuck to the ground.

7. Appreciating the Beauty of Nature [5-10]:

This closing prayer from the Navajo Way Blessing Ceremony is an invitation to appreciate the beauty of life around us at all times. It is often used in a ritual in which one faces each of the four directions and repeats the prayer in each location. You can invite the children to stand (preferably outdoors) in each of the cardinal directions and repeat at least the first part of the prayer. The text to both prayers are available at the end of the chapter as Take Home Pages.

With beauty before me may I walk
With beauty behind me may I walk
With beauty below me may I walk
With beauty above me may I walk
With beauty all around me may I walk

For an older group, you may consider sharing the rest of the prayer in a call and response format.

Today I will walk out, today everything negative will leave me.
I will be as I was before, I will have a cool breeze over my body.
I will have a light body, I will be happy forever, nothing will hinder me
I walk with beauty before me
I walk with beauty behind me
I walk with beauty above me
I walk with beauty around me. My words will be beautiful.
In beauty all the day long, may I walk.
Through the returning seasons, may I walk.
On the trail marked with pollen, may I walk.
With the dew about my feet, may I walk.
With beauty before me, may I walk.
With beauty behind me, may I walk.
With beauty below me, may I walk.
With beauty above me, may I walk.
With beauty all around me, may I walk.
In old age wandering on a trail of beauty, lively may I walk
In old age wandering on a trail of beauty, lively may I walk
My words will be beautiful

Close with a moment of silent worship.

8. The Cosmic Meditation Attributed Yogananda [5-10]

If it is possible, have the children gather outdoors. Ideally, have an interesting foreground and a panoramic view, as well as a sense of movement, because the mind is naturally attracted to movement and that will help keep your attention. If you can be near a lovely open space, creek or body of water, all the better. Invite the children to sit with their eyes closed and become aware of their body for a few moments.

Say: Now open your eyes and look at the pebbles on the ground, and the twigs and the leaves, and try to feel that you are living in those, just as much as you are in your own hands and feet.

After doing this for a while, extend your awareness out to eight or ten feet. Watch the small trees and the grasses waving in the breeze and feel the exhilaration of the wind as it blows through the grasses and moves your hair back and forth. Feel yourself nodding on the leaves, swaying back and forth on the breezes.

Then, extend your awareness out farther to twenty or thirty feet, to taller trees and larger branches.

Expand your awareness now to as far as you can see. (If near water: "Feel the ripples of the water and the sunlight on your skin. Imagine that your skin is the water.") Try to feel in your spine the strength of a tree. Try to feel the quality of each thing, and let your attention flow from one thing to the next.

Now bring your attention back to this place you are sitting and the people around you.

Discussion questions might include: What did you notice about this experience? In your body? In your thoughts? What was it like to imagine being connected to other living things?

Provide paper and art supplies and invite children to draw their experience and then share with the group the images that they created.

Source: <spiritofmaat.com/archive/may1/cornell.htm>

[Spirit is] that
wisdom
which is pure
from above,
which is gentle
and easy to be
entreated,
not hurtful, nor
destructive,
but is to the
preserving
of the whole
creation.

– George Fox

Closing [10-15]

Wonder Movement Circle

Stand in a circle.

One person begins saying his/her name and something wonderful in our world and does a simple motion or gesture to go with it. [Example: "Sandy--dandelions:" mime blowing the ripe seeds.]

Everyone repeats the name and wonderful thing and does the movement.

The second person says his/her name and wonderful thing and gives a motion to go with it.

Everyone repeats the first two names and items before going on to the third. After the third, repeat all three and so on, with each person in turn adding a new item to this chorus.

When everyone has participated, ask each child to finish the sentence "Today I learned..."

Close with silent worship.

Having a clear closing is more important to children than to most adults. If you have a usual way of closing all your sessions, see how you can adapt that to this curriculum. If not, you and the children may develop one. You could, for example, always repeat one of the songs sung at the opening. Thank you!



I Wonder How Many...?

1. How many
butterflies can you
see?

There are at least
five, six if you count a
future butterfly. You
can color the page.
2. Watch a butterfly
flutter by.

Are there different
kinds of butterflies at
your home?

What kinds of plants
do they like to visit?

Butterflies are
among the top three
pollinators [along
with bees and birds]
and they're beautiful.
Certain moths will
eat up food crops.

Find out which ones
are a problem in your
area.

How can there be enough food for people, moths, and butterflies?





WRITE YOUR OWN HAIKU

A haiku is a very short poem, usually nature-based. Traditionally, in Japan, the poems have exactly 17 syllables, usually in three lines or phrases of five syllables, seven syllables, and five syllables. Sometimes translations from Japanese take fewer or more syllables. Here are some samples.

I look again
In the corner -
Winter chrysanthemum, red.
-- Nakamura

On the winter river
A sheet of newspaper
Floats open.
-- Seishi Yamaguchi

Funny fluffy cloud
Making faces in the sky
Whoosh! It fades away.
--- D

Wind frees the blossoms
As thunder announces rain
Daffodils bow down.
-- Sandra Moon Farley

Fallen autumn leaves
Hugging the rain-washed world,
Tapestry on sidewalk.
-- Sandra Moon Farley

Honey bees searching
Flying through the lovely field
Also dragonflies!

Now it's your turn. Think of an image of something you love – people, plants, or animals, or a place you love outdoors. Use the haiku form to describe what you see or feel, or observe what a person, animal or nature is doing. The best ones often make you think, especially in the last line. Haiku poems use very few words. Rhyming is not expected.

by _____ date _____

Read your haiku aloud and decide which ones you like best. You could recopy some and draw an illustration around or next to each one.



Navajo Way Blessing Ceremony

With beauty before me may I walk.
With beauty behind me may I walk.
With beauty below me may I walk.
With beauty above me may I walk.
With beauty all around me may I walk.

Today I will walk out, today everything negative will leave me.
I will be as I was before, I will have a cool breeze over my body.
I will have a light body, I will be happy forever, nothing will hinder me.

I walk with beauty before me.
I walk with beauty behind me.
I walk with beauty above me.

I walk with beauty around me. My words will be beautiful.

In beauty all the day long, may I walk.
Through the returning seasons, may I walk.
On the trail marked with pollen, may I walk.
With the dew about my feet, may I walk.

With beauty before me, may I walk.
With beauty behind me, may I walk.
With beauty below me, may I walk.
With beauty above me, may I walk.
With beauty all around me, may I walk.

In old age wandering on a trail of beauty, lively may I walk
In old age wandering on a trail of beauty, lively may I walk

My words will be beautiful

2. EARTH IS OUR HOME

This Lesson's Goals

- » *To present the point of view that we are joint tenants of God's creation, along with plants and animals*
- » *To relate and promote love of home and love of the Earth*
- » *To associate "Mother Earth" or "Mother Nature" with good family relationships*
- » *To apply observation and discernment skills*
- » *To accept responsibility for Earthcare globally as well as locally*

Sample Agenda

Posting a simple agenda can help both the teachers and the children stay on track. Pick and choose which activities work best for your group.

- 1. Opening:** Silent Worship, Song, Scripture
- 2. Small Group Activities**
- 3. Closing**
- 4. Sharing of Take-Home Materials**

Opening [15 min.]

Use your own familiar pattern to begin your class.
Center in silent worship.

Use the songs, word games, and Scripture to introduce the theme of the lesson, being at home on the Earth.

Songs

All God's Critters Got a Place in the Choir
Ancient Mother
The Earth is My Mother
Earth was Given as a Garden
God of the Earth, the Sky, the Sea
This is My Father's World
This Pretty Planet

Scripture

Psalms 104: 13-18

From thy high pavilion thou dost water the hills;
the Earth is enriched by thy provision.
Thou makest grass grow for the cattle

and green things for those who toil for man,
bringing bread out of the Earth
and wine to gladden men's hearts,
oil to make their faces shine
and bread to sustain their strength.
The trees of the Lord are green and leafy,
the cedars of Lebanon which he planted;
the birds build their nests in them,
the stork makes her home in their tops.
High hills are the haunt of the mountain-goat,
and boulders a refuge for the rock-badger.

Job 12:7-10

New Revised Standard Version (NRSV)

7 "But ask the animals, and they will teach you;
the birds of the air, and they will tell you;
8 ask the plants of the earth,
and they will teach you;
and the fish of the sea will declare to you.
9 Who among all these does not know
that the hand of the LORD has done this?
10 In his hand is the life of every living thing
and the breath of every human being.

Scripture Reflection

- » What did you understand from the psalm and the passage from Job?
- » What does God do or provide for people and for animals?
- » What animal homes are mentioned in this psalm?

Small Group Activities

Select three or four activities from those listed, giving consideration to the age and size of your group, season and weather, and space and materials needed.

1. Word Connection [5]

Materials: Paper and Markers

Make a list of words the children connect with "home." Try to accept all responses. Make sure everyone has contributed something. You may want to make lists to go with "nest, den, hive, or house" for comparison.
Examples: family, food, gardening, bed, hugs, home plate, homework, safe,.

2. Building Houses [15-20]

Materials: Lego® sets, wood blocks, Lincoln Logs®, 3x5 index cards and tape, or other building materials

Form groups of 3-4 for a cooperative building project. Supply them the materials

above and invite them to build houses.

Debrief: How did you decide what kind of house to build? What makes a good house? What makes it a home?

3. Animal Homes [10-15]

Materials: Pictures of animal homes and various human habitation, paper and markers

Look at the pictures. Discuss how they are both similar and different. What are common elements of good places to live for different species? What do animals need in their "homes" to thrive?

Have students respond to this aloud and record their ideas on an "animal needs" chart. Answers could include: Access to water, shelter for danger and weather, a place to raise a family, ample space to find food.

There is
enough for
everyone's
need, but
not for
everyone's
greed.
– Gandhi

4. Habitat Lap Sit [5-10]

Explain how the different parts of the environment work together to create an optimal living space or home for animals. Have students stand in a tight circle in a large open space to perform the "Habitat Lap Sit" (from Project WILD.)

Randomly assign students to be water, food, shelter, or place to raise young within the circle. Ensuring that the students are spaced close together, instruct the students to sit at one time. Hopefully, the students will end up sitting in one big circle upon one another's laps.

Instruct the students to all stand at the same time and remove one group from the circle, such as the food kids.

Then again instruct the remaining students in the circle to sit down. The students will attempt to sit down again. Ask the students to explain what happened. Students will respond about why the circle sit didn't work the second time.

Review why it is important for animals and people to be able to have all these "elements" in their homes. What can we do to protect all these elements?

5. People [and Animals] in My Home Tableaux [10-20]

Ask a child to name the people who live in their home and then help that child pose other class members in a tableau, or living still picture, of a home scene. Family pets may be represented as well. Every child should get a turn.

As time allows, let the children give each of the characters a line to say or an action to do and then bring each frozen picture to life. You can discuss themes or issues, such as Friends testimonies, that may be seen in the tableaux or use this to begin a serious relationship role-play.

6. Special Plot [5-10]

Visit the plot of ground your group previously selected [see chapter 1]. Look to see what animals and plants make that place their home. If your group didn't start this activity in an earlier lesson, add it here so you can see how your special plot changes with seasons and weather.

7. Share a Story about Earth as Home [10-30]

There are number of books and films which would spark a good conversation about our home, Earth. *Born with a Bang* by Jennifer Morgan is a children's introduction to the science story of the Universe.

The Everything Seed by Joy Troyer is excellent and has a Power Point presentation for purchase that is also wonderful.

Other options include: *Dear Children of Earth: a Letter from Home* by Schim Schimmel, *Our Planet* by Lionel Bender and *The Lorax* by Dr. Seuss (also in video).

Snack ideas

Serve something that smells like home to you. It could be rice pudding, jam tarts, applesauce with cinnamon, hot cocoa, or chocolate chip cookies. Ask what other foods smell like home.

8. With Whom do We Share Our Meeting? [5-10]

Materials: Paper and markers.

Look around the Meeting House. Ask, "Who else calls this home? What animals live there?" (Don't forget microbes, bugs, underground dwellers, and animals that may pass through in their migrations.)

Together make a site "map" of all the other things present. Include plants, animals, rocks, soil, pavement, etc.

9. Hello, Earthlings [5-10]

Materials: Poster-sized paper and makers.

Imagine that you encounter a visiting extra-terrestrial. Brainstorm responses to these questions:

- » What aspects of your home planet would you most want to show?
- » How would you explain the idea of home to an alien?

Make a large set of concentric circles on a poster size piece of paper. With the children's participation, invite them to answer the alien who asks, "What is home?", naming the different levels and meaning of home: (center circle) our personal homes (houses or apartments, etc.), (2nd circle) our town or city, (3rd circle) our state, (4th circle) our country, (5th circle) our continent, (6th circle) our hemisphere and (7th circle) the planet.

Reflect on how the earth is home to everyone. Place them on the map.

What seasons of the year have the children chosen to describe? How much will the outside area change from season to season? How will that change who lives there? Consider ways we can care for the homes of our non-human neighbors.

This could be followed by an art period where we draw our responses, or by creating skits in which we act out the encounter with an alien who asks, "What is home?"

10. Mandalas of Home [10-15]

Give each one a sheet of drawing paper. Use concentric circles [a target] to describe the meaning of "home." A plain paper plate also works. You could think of this as a graph with each circle having a different value. In the center, each person writes or draws a meaning of "home." In the second circle, go the senses from home: things to smell, touch, hear, see, and taste. In the outer circle, put activities that take place in and around home.

Discussion: Ask questions that will help the children to think about home.

- » What smells or tastes do you associate with home?
- » What is the difference between a house and a home?
- » What do people mean when they say they feel at home in nature?

Closing

Join hands to form a circle. Have each person express thanks for a part of the natural world that helps make our homes.* Possible items: oak trees for sturdy tables,, human builders, cotton plants, trees for paper used in books. Close with silent worship.



Coloring Your Home

Color and discuss what comes to mind when you think of these parts of HOME.



Sharing Your Home

With whom do share your home?

Look around the outside of where you live. Make a list of who else calls this place "home". What other animals live here? Don't forget microbes, bugs, underground dwellers, and animals or birds that may pass through in their migrations. What might you do to be sure all your "neighbors" have food, water and shelter?

Now make a drawing or "map" of where you live and mark where each living thing you identified calls home. Also include plants, rocks, soil, pavement, etc. Place these neighbors on your map.

3. SOIL IS HOME TOO!

This Lesson's Goals

- » *To notice the abundance of life on Earth, especially in unlikely places*
- » *To show the wonders of the soil*
- » *To introduce the concept that the amount of life in a place can be increased, decreased, or can even be destroyed*
- » *To experience that dirt is not "unclean" or "ungodly"*

Opening [15-20 min.]

Use your familiar opening pattern to begin your class, including time for silent worship.

Songs

Teach a new song during this lesson with a familiar tune. The words reflect the musings of a Quaker, Francis Hole, who studied soils and rocks.

Darkle Darkle Little Grain

Words by Francis Hole,

Tune: Twinkle Twinkle Little Star

Darkle darkle little grain!
I wonder how you entertain
A thousand creatures microscopic.
Grains like you from pole to tropic
Support land life upon this planet!
I marvel at you, crumb of granite!

Sample Agenda

- 1. Opening:** Silent Worship, Song, Scripture, Sharing
- 2. Soil Is Also Home, Soil Illustration**
- 3. Small Group Activities:** If your total program time is less than one hour, you may want to focus on two to four activities from those listed below, allowing for the age and size of your group, season and weather, and space and materials needed.
- 4. Closing**
- 5. Sharing of Take-Home Materials**

If you can do the planting activities, try to divide this chapter into two or more related lessons a week apart, if possible.

The first week, the opening is a little longer than usual because of the planting. The second week, spend a short time comparing growth and then do modeling clay and gardening.



Scripture

Psalms 65: 9-13

Thou dost visit the earth and give it abundance,
as often as thou dost enrich it with the waters of heaven,
brimming in their channels, providing rain for men.
For this is thy provision for it,
watering its furrows, leveling its ridges,
softening it with showers
and blessing its growth.
Thou dost crown the year with thy good gifts
and the palm-trees drip with sweet juice;
the pastures in the wild are rich with blessing
and the hills wreathed in happiness,
the meadows are clothed with sheep
and the valleys mantled in corn, so that they shout,
they break into song.

Soil is also home! But for whom? [5-10]

Materials: A tray, gardening soil, magnifying glass

On a tray, make a pile of one pound of good garden soil. Ask what it is made of. (It has rocks and minerals in the form of clay, silt and sand along with decomposed plant matter). Does anyone live here? (Tiny microbes work hard to process the dead plant and animal material in our soil. Some of these keep us healthy and happy). Half of our pound is made of this organic matter (the microbes and the decomposing plant matter). Anyone want to guess how many microbes live in this pound of soil? We would need a good microscope to see any of the more than 500,000,000,000 microbes in just this pound. But not all the living things in soil are invisible to our eyes. What else might we find? (Worms, spiders, centipedes, beetles, ants, etc.). Use magnifying glasses to invite children to observe what is in the soil.

Organic Material: approx. 50% (microbes and decaying plant matter)

Water: approx. 40%

Dry Matter: approx. 10% (Contains the sand and minerals that are in the soil.)

Soil Illustration [15] [a multi-week activity]

Materials: Various planting materials (such as organic garden soil, aged manure, compost, forest floor humus, playground dirt, highway shoulder, lake or pond mud, and sand), four pots, healthy plants (pansies, strawberries, or other favorites), gloves, tape and markers

Identify each soil and talk about the balance necessary for healthy plant growth.

Then, with the help of several children, wearing exam or food-handling gloves, fill four or more pots, numbering and labeling each. The list below is a sample. Use what you have readily available.

Transplant the plants that are as similar as possible, one into each pot. Keep a list of which pots have which soil combination. The plants will be observed weekly to see how they have fared. Ask the children which pots they think will do the best or worst and why. Keep notes of their predictions.

A teacher takes the pots home and carefully gives each plant the same amount of water and sunlight. When the plants are brought back, have the children help identify and record changes in them. Compare these changes with their earlier predictions. Usually the combinations of soil and compost or manure show the greatest growth.

Small Group Activities

Select three or four activities from those listed, giving consideration to the age and size of your group, season and weather, and space and materials needed. Some of these activities are best done out of doors to minimize clean up.

1. Soil type and plant discussion [5-10]

Why might it be important for just one person to take the plants home and care for them during the week?

Subsequent week[s] discussion:

- » Which plants grew best?
- » Why?
- » What kind of soil seems to be best for these plants?
- » Do you know of places where plants do not grow?
- » Is it because of climate or soil or other conditions?
- » Based on our experiment, what will increase the ability of the soil to support growing plants?
- » What happens to plants when soil is damaged or destroyed?

2. Trembling Earth [5-10]

Materials: Good soil, worms

Take the pound of good soil in a box or tray and ask the children what would make that soil move. Put a live worm in your soil. Does it move? How much would the soil move for the following things?

Earthquakes or trucks driving past, elephants or cats walking, wind blowing through trees and gently lifting the roots, not-so-gentle winds, plants growing, burrowing

animals, the tidal pull of the sun and moon

What happens when soil is exposed and it rains? Share about the importance of protecting soil from erosion from wind and rain. Suggest the importance of using mulch and cover crops to protect soil from being lost.

3. Clay in our soil [10-15]

Materials: Clay Soil and/or terra-cotta ceramic clay. There are self-hardening clays that are available online or at the local art/school supply stores.

Ask children to test soil to determine how much clay is present. Collect a handful of soil and add enough water to make a ball. If you can make a ball, try to roll the ball into a snake shape. If you can, you'll know your soil contains clay because fine clay particles adhere when they are moistened.

Clay is earth in a very real sense. Playing with this could be a whole class time. Find some clay soil and perhaps mix it with some terra-cotta ceramic clay and spend time making animals and people. Set figures aside for a Sculpture Show closing.

Discussion: The Bible tells how God made us and all creatures from the dust of the Earth. In a way we really are made of dirt, because soil is what plants grow in, and we have to eat plants (or eat plant eaters) to survive. How does life depend on the soil?

Snack Ideas

Choose things that grow under the ground: carrots, potatoes, radishes, or peanuts. [Only if no one is allergic to peanuts.] If you can eat snack outside, consider with the children, the difference between daily use of an area and occasional use. What will best protect soil?

For related activities, learn more about vermiculture at <working-worms.com> And consult *Manure, Meadows, and Milkshakes* and the Hidden Villa web-site at <www.hiddenvilla.org/OnlineCurric>

4. Spin the Globe [5-10]

Materials: 12"-18" globe

Spin the globe. Ask a child to stop the globe with one finger. Talk about the place where that finger lands.

What is the soil like there? How might we guess? [climate, elevation, rainfall, etc.] What lives there? [plants and animals] Repeat so each child gets a turn and you have made the point that there is life everywhere and that lives and grows in any given place is affected by soil conditions.

5. Special Plot [5-10]

Return to your square of land. Bring a trowel, or an old serving spoon you can dig with. First, discuss what the children think might happen if they dug up that plot and planted vegetables there.

- » Would that increase or reduce the total life in the area?
- » Would it enrich the soil?
- » Would the new growth help or harm things already living there?

Then dig up a small sample of soil.

- » How can you tell if that soil is rich? Is it easy or difficult to dig?
- » Are there worms and insects in the dirt?
- » What might we add to our soil if we wanted it to be healthier and able to grow food for us?

Having natural history reference books may be helpful, but you can probably think of animals and plants for most parts of the world.

Closing [5-10]

Worms

Do not skip this activity! It has been popular and memorable. In colder weather, plan for indoor worm farming or add the worms to compost piles that can keep them warm.

Materials: Soil, small plastic jars or sealable bags, earthworms. You can get worms in bait shops and garden shops, Worms take-home page (Page 6)

Form a circle. Tell the children you are giving them some of the number-one most important living things in the history of the Earth [as ranked by Christopher Lloyd in *What on Earth Evolved*] to take home to enrich the soil. Pass small plastic jars or sealable sandwich bags around to each child. Have each child half-fill his/her jar or baggie with some of the soil you have been studying. Give each an earthworm or two.

Ask each child to tell when and where the worms will be released and how they will help the soil there.

Remind everyone to wash hands after digging in the dirt, before eating. Not all the microbes in the soil are friendly to stomachs.

Share the take-home pages. Ask each child to finish the sentence "Today I learned..."

Close with silent worship.



WORMS

Watch your worms and draw six pictures:

1. What do worms eat?

[rotting leaves, dead vegetable matter]

Worms also like water.

2. Worms also eat dead animals.

3. Well-fed worms make more worms

4. The worm defecates [poops]

5. Worm poop is fine grained, nitrogen rich soil. It is full of microbes and it helps plants grow.

6. What plants might grow in that rich soil?



In the Dirt

Circle items that:

1. Live in the dirt [have under-ground homes]
2. Grow in the dirt [have roots in the ground]

carrots	moles	kelp	robins
tornado	mistletoe	radishes	
worms	books	beets	snails
seeds	hippopotamus	a	spring
stars	ants	roof	whales
potatoes	bicycles	ladybugs	
foxes	wells	apples	songs
eagles	clouds	ground	squirrels
cellar	friends	subway	ducks
octopus	earthquakes	onions	
sharks	bats	cats	yams
peanuts	butterflies	volcanoes	

Answer Key: circled items – carrots, moles, radishes, worms, beets, snails, seeds, a spring, ants, foxes, potatoes, wells, ground squirrels, cellar, subway, earthquakes, onions, bats, yams, peanuts, volcanoes.



4. The Seeds of Life



This Lesson's Goals

- » To affirm the value of diversity in the seed gene pool
- » To promote the positive value of variety in all life
- » To witness the miracle of life that can emerge from a simple seed
- » To recognize how peoples' understanding of God's creation of the world may be expressed in a variety of ways and may be seen as all starting with a seed
- » To develop appreciation of seeds as symbolic of God's gift of life

Opening [15-20 min.]

Gather for opening silent worship.

Week one: Open with the activity Two Peas In a Pod and follow with another activity about the value of diversity and end by planting seeds.

Week two: You could begin by reading *The Everything Seed* by Carole Martignacco and build a lesson around seed identification, seed art, and stories about sunflowers.

Sample Agenda

Posting a simple agenda can help both the teachers and the children stay on track. Pick and choose what you like. Also, this chapter could easily be two lessons. If you did the planting in different soils the previous week (Chapter 3), the follow-up activity is How Did They Grow?

- 1. Opening:** Silent Worship, Song, Scripture, Sharing
- 2. Large Group Activity**
- 3. Small Group Activities:**
4. If your total program time is less than one hour, you may want to focus on two to four activities from those listed below, allowing for the age and size of your group, season and weather, and space and materials needed.
- 5. Closing & Sharing of Take-Home Materials**

Songs

All God's Critters Got a Place in the Choir
Johnny Appleseed Grace
In the Bulb There is a Flower
Inch by Inch, Row by Row
I Am an Acorn

Scripture

Genesis 1:11-12 and Genesis 1:29

Then God said,

"Let the earth sprout vegetation, plants yielding seed, and fruit trees on the earth bearing fruit after their kind with seed in them"; and it was so. The earth brought forth vegetation, plants yielding seed after their kind, and trees bearing fruit with seed in them, after their kind; and God saw that it was good."

Then God said,

"Behold, I have given you every plant yielding seed that is on the surface of all the earth, and every tree which has fruit yielding seed; it shall be food for you; "

Scripture Discussion

God said, "I have given you every plant yielding seed that is on the surface of all the earth, and every tree which has fruit yielding seed; it shall be food for you; " Who is this food for? What other living things depend on seeds and plants? How might we be sure there is enough for all God's creatures?

Large Group Activities

Two Peas in a Pod [5-10]

Materials: Use peanuts in the shell [allergy alert], sunflower seeds with shells on, almonds with husks [minor allergy alert], snap peas, or walnuts.

Give a seed to each person. Share these instructions:

- » "Observe your seed very carefully. Do not mark it in any way."
- » "Compare your seed with one other person's. Talk about what is alike and different."
- » Collect all the seeds and put them in a central place.
- » Ask each to find his or her own seed again.
- » When they have found their seeds, ask how they identified their own. Note the value of looking closely to see very small differences. Discuss what made this easy or hard to do, in what way all the seeds looked alike and yet were unique.
- » Finally, invite the participants to keep or eat their seeds.

How Did They Grow? [5]

[This could be part of the opening if you planted the previous week.] Bring back the potted plants that have been growing in different soils and fertilizers. [see Chapter 3]. Ask the children to help arrange the pots in order of health. Discuss which of the combinations worked best and why.

Small Group Activities

1. Why More is Better [5-10]

Discussion prompt: Why would members of the same family (whether people or plant) be susceptible to the same disease? Validate children's guesses and speculations.

Teacher shares: Sometimes a plant disease comes along and destroys all of a certain species of plant. When one variety of potato became the main crop in Ireland in 1845, a potato blight hit the country very hard. The potatoes turned black and rotten in the fields and in storage. 10% of the population died in the first three years. Half the population either died or emigrated before the end of the century.

Discussion prompt: Still, today, it turns out that people grow fewer varieties of many plants now than in the past. Why? Validate children's guesses.

Teacher shares: One reason is that farmers want all their wheat to ripen at the same time or all their tomatoes to be the same size at harvest to ship better. So they plant specially made seeds, which produce plants that are easier to get to market. But this has its risks. Lack of diversity means huge farms could be wiped out all at once by a disease affecting one particular plant family. This is why so many of us, in our home gardens, grow lots of different varieties of plants. Where one variety might get sick and die from disease, other varieties will resist the disease and make healthy seeds for us to plant again another year.

Discussion prompt: Can you guess how many different varieties (types) of tomato there are in the world? Other than preventing disease, why would having more varieties of plant seeds be important?

Teacher shares: There are more than 10,000 varieties of tomatoes!! It makes sense because every garden habitat has different condition. Different varieties evolve to match these conditions. Some handle heat better, or don't need as much water, or can draw the food they need even from poor soil. Because there are so many different varieties, more of them can thrive and contribute to their plant community.

You can count the number of seeds in an apple, but no one can count the number of apples in a seed!

2. Sunflower Storybooks [5-15]

Read from the picture story books *Sunflower House*, *Sunflower Sal*, or *This is the Sunflower*. Could you find a place to grow a sunflower house?

3. The Universe in an Acorn [10-25]

The Everything Seed written by U.U. minister Carole Martignacco, combines the facts of science and the wonder of myth. The story starts with a plant's origins in a seed to the birth of the universe.

Invite children to share what they heard in the story. Asking each child to offer one aspect that interested or surprised them in the story. This may be a good way to discern what other queries you might offer.

4. Seed Identification [10-15]

Materials: Bring in as many seeds as you can find in your kitchen and garden. **Examples:** rice [white, brown, wild], peas [chick, green, black-eyed], beans [kidney, pinto, navy, lima, acorns, almonds, anise seeds, apple seeds, avocado pit, caraway seeds, cashews, cocklebur, coconut, corn, dandelion seeds...

Look at a variety of seeds, see how many the children can identify. Give younger children fewer and more common seeds to identify. Consider with the children:

- » How can we tell each seed from the others?
- » Can we eat it, or the fruit that grows outside it?
- » How/where does it grow?
- » How does it travel?
- » What varieties does it come in?
- » What would happen if there was only one kind of seed?
- » Why would this be important do you think?

Snack Ideas

Serve mixed nuts and seeds or nut butters on rice cakes, crackers, popcorn, or wheat bread [allergy alert]. You can include pumpkin seeds (pepitas), walnuts, almonds, sunflower seeds, etc. To drink: coconut milk. Or serve chocolate soy milk. Both come from beans, as do coffee and most colas.

5. Seed Sprouting [10]

Materials: A bag of mung beans, seed peas or white beans. Paper towels. One plastic bag for each person.

Give each child 6 to 12 mung beans, seed peas, or white beans, two sheets of paper towel, and a plastic bag.

Wet one of the paper towels. Fold the beans loosely in the wet towel and wrap that up with the dry towel so both are "damp" and place them inside the plastic bag for carrying home.

Keep the beans at room temperature and damp for a week. Peeking is okay. Bring them back in a week to show. Sprouted beans are edible or may be planted.

Be sure to use fresh beans. Give the sprouting a trial run at home. If you take two weeks on this lesson, the sprouted seeds from the first week can be brought back and eaten at snack, or planted as the closing activity for the second week. You may need to sprout extra beans so everyone gets some.

“To plant a seed is to activate the deepest Mysteries of the Universe.”
– Thomas Berry

6. Seed Art [5-15]

Materials: Seeds and seed pods in a mix of colors, shapes, and sizes. Those used for the seed identification activity will do. Yogurt lids or another container with a raised side. Optional: Glue sticks and magnets.

Give each child a small circle with a raised edge, such as a yogurt lid or frozen juice lid. Ask the children to make designs or simple pictures using a variety of seeds. When all are done, and everyone has looked at the designs, photograph the art. Then return the seeds to the craft supplies or put the disks outside where birds, squirrels, or mice may enjoy the seeds. This can be a good time to continue discussing the value of seeds.

How do seeds “know” what plant to grow into? How do we see genetics as one of God’s wonders?

Talk about “playing with your food” and places that use food as decorations or materials for art or crafts which don’t get eaten. Is that wasteful?

Look at illustrated cookbooks to see how different cultures [Japanese sushi for example] view the presentation of food as an edible art form. Does it make a difference to us what our food looks like?

You can glue seeds to the disk and put a strip magnet on the back to make refrigerator art, but remember, as with potato prints, apple dolls, or macaroni jewelry, the food used can’t be eaten or the seeds planted.

Closing [15-20]

Sing “Inch by Inch” or other appropriate song.

Ask each child to finish the sentence “Today I learned...”

Close with silent worship.

Seeds Word Scramble

Rearrange the scrambled letters to spell 12 seeds. Don't peek at the answers below until you have tried all twelve.

Which ones can you eat?

1. EASP
2. CRON
3. NEPAUTS
4. DIKYEN EBNAS
5. WORNBIER
6. DACAVOO IPT
7. FRRENUSLOW EDESS
8. CHAWESS
9. DAMNOL
10. EWATH
11. ARCNO
12. OOTNCCU

Answer Key: peas, corn, peanuts, kidney beans, brown rice, avocado pit, sunflower seeds, cashews, almond, wheat, acorn, coconut

5. WE CIRCLE THE SUN

This Lesson's Goals

- » *To share an appreciation of the light and warmth that the Earth receives from the Sun*
- » *To affirm humanity's place in the cyclical nature of life on this planet*
- » *To understand that Sun is the source of energy for Earth and all on it*
- » *To see how plants and animals respond to light*
- » *To see the power of sunlight*
- » *To reflect [pun intended] on the metaphorical use of Light and Dark in Quaker practice*

Opening [5-15 min.]

Gather for a few moments of silent worship.

Sing a song or two and read the scripture to introduce the lesson's theme on the gift of the Sun's energy.

Share: Nearly everything on our planet depends on the miracle of the Sun's energy in one way or another. In many ways, we are sun-eaters. We eat light directly and take in vitamin D. We eat it through our foods which have converted it into edible energy.

Ask: how do we rely on the sun? Do we need sunlight? What did you eat for lunch or dinner? How did your vegetables grow?



Sample Agenda

Posting a simple agenda can help both the teachers and the children stay on track. Pick and choose which activities work best for your group.

- 1. Opening:** Silent Worship, Song, Scripture, Sharing
- 2. Group Activity:** Plants Grow Toward the Light
- 3. Small Group Activities:** If your total program time is less than one hour, you may want to focus on two to four activities from those listed below, allowing for the age and size of your group, season and weather, and space and materials needed.
- 4. Closing**
- 5. Sharing of Take-Home Materials**

Songs

It's a Beautiful Day
Turn, Turn, Turn
In the Bulb There is a Flower
Sing and Rejoice

Circle of the Sun
Morning Has Broken
Spring Has Now Unwrapped the Flowers
Vivaldi's The Four Seasons [for listening]

Scripture

Ecclesiasticus 42: 16, 22, 43: 1–5

As the sun in its brilliance looks down on everything, so
the glory of the Lord fills his creation.
How beautiful is all that he has made,
Down to the smallest spark.
What a masterpiece is the clear vault of the sky!
How glorious is the spectacle of the heavens!
The sun comes into view proclaiming as it rises how
marvelous a thing it is, made by the Most High.
At noon it parches the earth, and no one can endure its
blazing heat.
The stoker of a furnace works in the heat, but three
times as hot is the sun scorching the hills.
It breathes out fiery vapors, and its glare blinds the eyes.
Great is the Lord who made it, whose word speeds it on its course.

Scripture Discussion

Consider the technical knowledge available at the time Ecclesiasticus was written and notice that the scriptural passage takes on even greater power.

Plants Grow Toward the Light [5]

Showing how plants grow toward the light can be a two-week program, setting up the pots the first week and evaluating the second week.

Materials: A variety of potted plants, tape and markers

Two-week version: Bring a few potted plants of different types and set them in a place where they can get sunlight from a window or from one direction only. Water them, as needed.

Mark the sides to show which is toward the sunlight. Don't move them for a week and see if there are any changes. Ask the children what changes they might expect. You could take photographs.

Second week: Bring back the pictures and compare the plants. Have they grown? Have they oriented toward the light? Which are the most heliotropic?

One-week version: Bring some house plants on which you have subtly marked the

direction that is toward the light. Ask the students to point out which way the pots were facing as the plants grew. Help them to figure out why plants grow toward the light.

Children might enjoy seeing a time-lapse video of plants turning toward light.
<tinyurl.com/plantsturntolight> and <tinyurl.com/plantsturntolight2>

Small Group Activities

Select from these activities. Consider your group size and ages as well as facilities. Do you have a solar oven? Is there a place to hang wet things to dry?

1. Light and Dark [5-10]

Learn the chorus to 'Sing and Rejoice' which has a quick, almost ragtime feel.

- » What is positive about light? Quakers often speak of God as the Light, why?
- » What is positive about dark? What living things are active when it is dark?

2. Solar Evaporation [5-10]

Materials: Cloths, dishtowels or paper towels, water

Dampen some cloths, dishtowels, or paper towels.

Feel how wet they are. Hang them up or lay them out in direct sunlight.

Check 30 minutes later to see how much they have dried out. Your local humidity will be a factor. In dry climates, a difference is clear in half an hour.

Without the sun we would not have the water cycle. Ask the children how the sun might be important to our water cycle.

Answer: The sun warms water in lakes, streams, and oceans. The water evaporates and goes into the atmosphere. As it cools, water droplets come together to form clouds. When the clouds can no longer hold water, precipitation falls in the form of rain, snow, sleet, or hail. Water then returns to our lakes, streams, and oceans to be warmed by the sun and so the cycle begins again.

With older children, you may discuss the effects of temperature and humidity on drying time. One concept to offer is that warm air has a greater carrying capacity for water vapor. When it cools below the dew point, what happens?

3. Solar Power Discussion [5-10]

Materials: Poster paper and markers. Prepare ahead of time a line drawing of a neighborhood on a large piece of paper. Include streets, parks, parking lots, homes, a school, a few stores. Post the drawing where everyone can see it.

What do you use energy for? Children generate a list. Do you know what makes that energy now? (Fossil fuels) Are there any down sides to fossil fuels? (Pollution, global warming, water contamination, it is non-renewable – it will run out eventually, etc.) Any ideas how we could make energy that wouldn't have these problems?

Energy from the sun can be converted directly or indirectly into other forms of energy, like electricity and heat. You can cook with solar ovens and stoves, heat water with solar water heaters and produce electricity through solar panels. (Ideally have photos or mini examples of all these uses).

Reference the map you made. Ask the children where they might be able to install solar panels. Indicate each area by tracing it with a bright colored marker. Ask why they suggested these locations, if there are any locations they wouldn't put solar panels and why, what they might use instead, which areas might need the most energy and how they think life would be different if they lived in a solar powered neighborhood.

Excellent resources are available on solar energy for children on the web. Consider the materials developed by the National Energy Education Development Project. need.org/solar

Snack Ideas

Brew tea by sunlight. Enjoy sun dried fruits such as raisins, figs and apricots. If you were able to obtain a solar oven, eat what you cooked.

4. Solar Oven [10-20]

Materials: Solar oven and food to prepare and cook

Consult solarcookers.org

On a clear day with bright sunlight, set up a solar oven and cook a snack in it. Melt cheese on crackers, or bake a quick bread such as banana muffins. Once your group has some experience with solar cooking equipment, they can set up a solar cook-off event for your Meeting, school, or with families.

5. Sun and Season [10]

Materials: Globe, light source

Ask your group if anyone knows how the sun is related to the seasons. Who has lived in more northern or more southern latitudes? Temperature is more uniform in the equatorial areas, though there are still often wet and dry seasons.

Use a globe and a strong light source to illustrate basic workings of the solar system: how the Earth's axis tilt creates longer and shorter days and how these are reversed in the southern hemisphere.

How different might the Earth be if all days and seasons were the same?

Many spiritual traditions have festivals that mark the change of season. These are celebrations which explore the meaning of each season to the community of life. Share the solar calendar with the children: the two equinoxes (March and September 21st) and the two Solstices (June and December 21st).

Depending on the season, invite the children to develop a celebration for the upcoming equinox or solstice.

Ideas for rituals and celebrations may be found here:

littlebinsforlittlehands.com/winter-solstice-activities-kids

rhythmsofplay.com/ways-celebrate-spring-vernal-equinox

greenchildmagazine.com/celebrating-autumnal-equinox

rhythmsofplay.com/ways-to-celebrate-the-summer-solstice

This is a good time to see how much the sun has dried the wet things from the evaporation test.

Closing

Circle of the Sun [5-10]

Stand in a circle, facing the center, and ask a series of questions, such as the ones on the next page, of each child in sequence around the circle. As each answers, he/she turns to face out with hands up. When all are facing out, the group has made an image of the sun radiating light.

Consider the number in your group and select a line of questions that will get to the sun before you run out of people.

If you ask about energy sources, you can lead each one back to the sun, except for geothermal which is residual from planet forming, and atomic energy which is a replica

of what the sun does. The point: the sun is the source of most energy on the Earth.

To complete the circle, turn back to the center, take hands, lift them overhead, and lean back to make a second linked circle of the sun. Squeeze hands and then release.

Close by singing "Circle of the Sun" or ask each child to share: "Today I learned..." and close with silent worship.

Hand out a Take-Home Page.



Circle of the Sun Activity

Questions:

1. How do your muscles move?
2. Does that take energy?
3. Where does your body energy come from?
4. What have you eaten today?
5. Suppose you ate a raisin, what dried it?
6. What was the raisin before it was dried?
7. What do grapes need to grow?
8. Where does the water come from?
9. Where does rain come from?
10. What forms the clouds?
11. What evaporates the water?
12. Where does soil come from?
13. Where do plants get energy to grow?

Possible Responses:

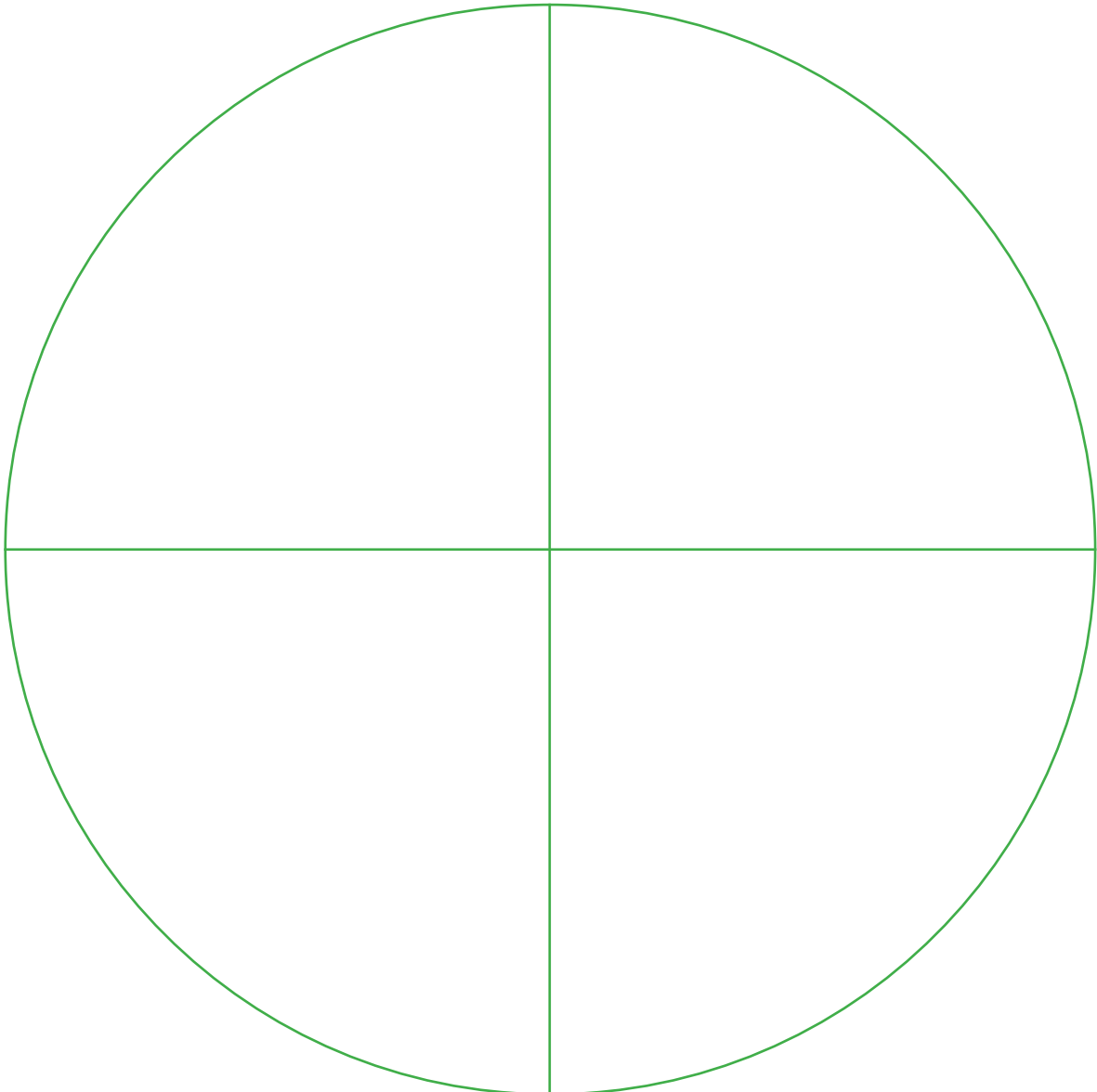
1. My brain tells them to, the nerves contract.
2. Yes.
3. Food.
4. Answers vary.
5. Heat, sunlight.
6. A grape.
7. Soil, water, sunlight.
8. Irrigation, rain.
9. Clouds.
10. Water vapor.
11. Sunlight.
12. Dead plants, worms etc.
13. The sun.



Our Seasons

Color an image for each of the seasons:

- » What plants or animals do you associate with each season?
- » What colors do you associate with each season?
- » What season is the most colorful where you live?
- » Which holidays or special events occur in each season?
- » Is this the same northern and southern hemispheres?





Making a Sundial

People used to tell time only by the sun. (This works best on sunny days.) One early kind of clock is a sundial. You can make one if you have an outdoor place in direct sunlight most of the day. It is possible to do a limited version indoors if you have an unshaded sun-facing window.

Materials:

- » strong dowel or metal rod sixteen to twenty inches long (a pencil works too)
- » mallet or hammer
- » string or circular object such as a plate
- » compass [or know north/south]
- » clock



Step 1: Locate a good relatively bare sunny place for your sundial. Hammer your rod or stick into the ground so it is firmly in place and straight up and down. It should stick up a foot or thirty centimeters to cast a good shadow.

Step 2: Draw or mark off a half circle or more about a foot in radius on the side of your rod away from the sun, [where the shadows will fall,] with the rod at the center of the circle.

Step 3: At exactly noon, standard time, look to see where the shadow of your rod falls. [It should be close to due north of the rod in the northern hemisphere]. Mark the spot. Use chalk on sidewalk, pebbles or sticks on the ground, markers on a plastic sheet.

Step 4: To completely calibrate your sundial, you will need to mark where the shadow falls each hour from sunrise to sunset and number your marks.

Step 5: If you have marked the shadow points carefully and numbered them, you can use your sundial to tell time. If the shadow is halfway between the marks you made for 2 o'clock and 3 o'clock, you can guess that the time is 2:30.

- » When is the shadow the longest?
- » When is it the shortest?
- » How will your dial work in other seasons of the year?

How is Spirit revealed in the workings of a sundial?

6. WATER, WATER EVERYWHERE

This Lesson's Goals

- » *To show the significance of water and water sources*
- » *To show the dangers of pollution and the importance of preventing water pollution*
- » *To learn ways to keep water available to meet the needs of plants, animals, and people*
- » *To recognize the significance of water ceremonies in our culture and others*

Opening [10-15 min.]

Gather for silent worship. Use the songs, presentation, and scripture to introduce the theme of how precious water is.

Take care with water activities. Set up procedures for handling things like dyes and bleach safely.

Songs

Wade in the Water
Eternal Father! Strong to Save
Peace Like a River
Spirit of God in the Clear Running Water

Sample Agenda

Posting a simple agenda can help both the teachers and the children stay on track. Choose which activities work best for you.

- 1. Opening:** Silent Worship, Song, Scripture
- 2. Group Activity:** How Much Water is There?
- 3. Small Group Activities:** If your total program time is less than one hour, you may want to focus on two to four activities from those listed below, allowing for the age and size of your group, season and weather, and space and materials needed.
- 4. Closing**
- 5. Sharing of Take-Home Materials**



Scripture

Isaiah 58:9-12

If you feed the hungry from your own plenty,
and satisfy the needs of the wretched,
then your light will rise like dawn out of darkness
and your dusk shall be like noonday;
the Lord will be your guide continually
and will satisfy your needs in the shimmering heat;
he will give you strength of limb;
you will be like a well watered garden,
like a spring whose waters never fail.

Scripture Sharing

In Isaiah, God asks people to care for the hungry and less fortunate and then says that as a reward, the generous will be like a well watered garden.

- » What does that mean?
- » How is water a blessing?
- » In what other Bible stories is water a good thing or a bad thing?

How Much Water Is There? [5-10]

Materials: Bring in a twelve-inch diameter globe

When you close your eyes and think of water what do you see? Ask if anyone sees something other than liquid water.

Water is found in three forms: gas as in clouds, steam; liquid as in rivers, lakes, seas; solid as in ice, snow, sleet. Where do we find these three forms?

Look at the globe. Discuss the fact that all the water on Earth is all that there ever has been or ever will be. Note that 71% of the surface is water. Of that, 97% is sea water. About 80% of the remaining fresh water [or 2% of all the water] is contained in the Antarctic ice sheet.

The water in lakes, rivers, oceans, ice caps, and vapor in the atmosphere keeps us alive. Water is sacred.

Because of its importance to life, water has had ceremonial as well as practical uses. The presence of water in a place is seen as a sign of blessing.

How many place names refer to water sources? Think of names that include "springs, falls, ford, wells, rill, creek, beck, bay, cove, harbor, beach, shore, lake," etc.

Small Group Activities

Select from these activities. Consider your group's size and ages as well as season and facilities. Is there room to dance? Do you have a safe place to boil water?

1. Magic School Bus at the Waterworks [15-20]

This illustrated book by Joanna Cole deals with the water cycle and water purification. The protagonists shrink and swim through the system. How are the systems where the children live like that one or different?

2. Toilet Talk [5-10]

Keith Helmuth, a Friend and former farmer, suggests we consider whether flush toilets are a good use of our technology.

Ask the children what they think might be wrong with flush toilets from this Quaker's point of view. After some initial silliness with the topic, see how many ecological reasons they think of.

Keith Helmuth's four main points about flush toilets are:

- » They use a lot of water to do little work.
- » They get people used to thinking of water as a tool to carry off waste.
- » They let people think there is such a place as "away" where it is safe to send waste.
- » They remove some needed nutrients from the "soil – to plant – to animal – to soil" cycle.

What are the building codes for toilets in your area? Are waterless or composting toilets permitted? If not, should you work to change the building codes?

The pamphlet, *If John Woolman Were Among Us: Reflections on the Ecology of Flush Toilets and Motor Vehicles*, Canadian Quaker Pamphlet No. 32, by Keith Helmuth, may be available from QEW.



3. Water Cycle Demonstration [10]

Materials: Water, Pyrex pot, stove, ice cubes

Simple physics experiment! Heat water in a Pyrex pot so the children can see it boil. (Proverbially, this will take longer than you expect.)

While waiting, give out ice cubes. Talk about the nature of water. Sing "Itsy Bitsy Spider"

to show the water cycle:

"The itsy bitsy spider went up the water spout. Down came the rain and washed the spider out (precipitation). Out came the sun and dried up all the rain (evaporation). Then a big puffy cloud formed in the sky again!" (condensation)

- » When the water boils ask, "If there is only water in the pot, then what is in the bubbles?" [water vapor]
- » With tongs or an oven mitt, hold a pie plate full of ice cubes over the steaming pot. Soon it should begin to collect moisture and cause a little "rain" to fall.
- » If you have only solar heat, you can still demonstrate evaporation and condensation by putting water in a large black plastic garbage bag, placing it closed, in the sun, to warm up and then holding the plate of ice cubes over the open top of the bag. The effect will take a little longer.
- » How does this process happen on a global scale?
- » How can human activity affect that process? Can people cause rain or drought?
- » Where in this global process of evaporation and condensation can pollution occur? How and where might pollution spread?

Older children may know how evaporation of water relates to humidity, clouds, rain, rivers, lakes, and oceans.

4. Water Pollution [10-20]

Materials: Water, glass bowl, glass cup, food coloring, dirt/crumbs/sawdust, coffee filter, bleach

1. Pour fresh water into a clear bowl.
2. Dip some into a glass, drink it or offer it to a child. Pour the remainder back in. Who would drink from it now?
3. Dip your hand in the water, shake it off. Who will drink it now? How can this water be made pure?
4. Put a few drops of food coloring or paint in. Watch how it spreads. How might the dye be removed?
5. Sprinkle crumbs, dirt, or sawdust on the water. Is it easier to cover the bowl so pollutants can't get in? Try pouring the water through a coffee filter. That will remove the particles but not the food coloring.
6. Finally add chlorine bleach and be prepared to wait 5 to 10 minutes for it to work.

Consider visible versus invisible pollution. Who could drink this bleached water? How long before it's potable? Where it would be safe to pour this water? How is the drinking water in your area purified? How does pollution get into rivers, lakes, and bays? Can it get into the water piped into our homes? What is the most common source of pollution found in water?

In the United States, non-point pollution or runoff from streets, yards, gardens, parks, and farms is responsible for at least half the water pollution.

Ask the children to take on the role of a water engineer/consultant: what would they suggest families and communities do to prevent water pollution? Consider inviting the children to share their ideas at an upcoming Meeting for Business and ask the wider community what they are prepared to do to prevent water pollution at the Meeting and in their homes.

Resource: *Water: The Fate of Our Most Precious Resource* by Marq de Villiers

5. Should We Ban Water Bottles? [10]

Consider modeling a thoughtful discernment process regarding water stewardship and practical decision making. Many communities and schools have begun banning plastic water bottles.

Why would they do that? Divide into smaller groups and ask groups to generate a list of queries to consider whether it is showing good stewardship to purchase bottled water.

Show "The Story of Bottled Water" at <tinyurl.com/thestoryofbottledwater123> and share the fact sheet here: <www.banthebottle.net/bottled-water-facts>

With older children, hold a Meeting for Worship for Business to discuss what the guidance should be for Meeting activities around serving bottled water.

Why should we use a water bottle instead of bottled water? Most bottled water comes from the same place, the tap. Bottles become trash, whereas your water bottle is used again and again. Note that many new water fountains have water bottle filling ability and they often provide statistics on how many bottles don't end up in landfills.

Encourage the children to bring their own water bottles to class and use them.

"[It is] Wonderful how completely everything in wild nature fits into us, as if truly part and parent of us. The sun shines not on us, but in us. The rivers flow not past, but through us, thrilling, tingling, vibrating every fiber and cell of the substance of our bodies, making them glide and sing.

– John Muir

6. Living with Drought or Flood [10]

Materials: Bring in samples of water saving devices used by people living in droughts or dry climates, like un-thirsty plants, a low-flow shower head, a toilet tank space-filler or low flow model, a drip irrigation system, a squeeze-controlled hose spray nozzle, rain water collectors, or a bucket to collect shower water to flush with

Talk about them and other ways to conserve water. Ironically, in the midst of major floods, there is no water service in many areas. How do people manage with a flood of polluted water, and nothing drinkable?

Talk about flood prevention and how flood control levees sometimes make flooding worse. What ideas do they have to deal with the challenges of drought and floods?

Discuss experiences the children have had with too much or too little water.

Snack Ideas

If they are in season, the most appropriate snack is watermelon! Or learn to make sushi or watercress sandwiches. With either of these, you can serve ice water in elegant stemware glasses and then toast to each other's health!

7. Rain Dance/Prayer [10-15]

Rain dances and songs are a way people in many cultures have prayed for rain. Why would people do that? Water is seen as sacred and is honored in the practices and beliefs of many religions. Why? Water cleanses, and is often used symbolically to make a person clean, externally or spiritually, ready to come into the presence of the divine light. It also literally can wash away impurities and pollutants. Water is also a primary building block of life. While we don't act this way, we all know that without water there is no life.

Mayim is a well-known Israeli rain dance. You may easily find the music, videos and instructions on the internet and teach it to the children. Native American rain dances are also readily found on YouTube.

World Water Day is held every year on March 22nd. Consider celebrating with a water blessing ceremony, Meeting for Worship by a body of water or restoring a stream or other waterway in your community. Visit <worldwaterday.org>.

8. Water in its Many Forms [10-25]

Snow walk: If you have fresh snow on the ground, it's a good time to look for animal tracks in the area of your special plot or a nearby park. What animal tracks are visible? When and how were they made? How do the animals and plants in our area live through winter?

Make a snow cave. Consider the insulating qualities of snow and how people have

used snow caves for blizzard survival. Where will this snow go as it melts?

Rain walk: Step in a water puddle and walk on the sidewalk or make water footprints on paper or hand prints with water on a warm sidewalk. Watch them disappear. Why? What's happening? Discuss rain and other precipitation.

9. Perceptions of Water [5-10]

Materials: Bring in an eye dropper and bottle. Fill it with filtered water.

Tell the children to hold out their hands. Place a drop of the water in each palm. Ask them to hold it carefully, and cherish it. Roll it around, notice its fluidity. Smell it if you can. What does it feel like? What does it weigh? Notice that you see your skin through it. Now imagine where it came from.

After they propose sources, you invite them to imagine it came from: a tear from a baby crying, someone's urine, the faucet in the kitchen, the ocean, the toilet

How did your feeling change with each different possible source? So, we have feelings about water! Imagine all the places from your body that water can exit: eyes, nose, mouth, bowels, skin, and where does it go?

Can you make water talk? Most will say no. Ask them to rub the water in their hands until disappears. Where did it go? Some evaporates and some is absorbed in the skin. So, now say "hello." Well, you just made water talk. When water is absorbed into you and becomes you, then it talks through you. What else do you think water might want to say?

The above exercise can be done another day with a piece of ice.

10. Marbleized Paper Stationery [10-20]

Materials: Paper marbleizing kit, sheets of paper

This craft uses water to disperse the colors. There are egg dying kits that use the same principle. If you have not done this activity before, you may want to practice first.

In dishpans, float various paint colors on the surface of the water. Each child selects 2 or 3 pieces of paper of different sizes and weights to dip. Lay out news-papers for drying. Follow directions for refreshing the colors and let the children experiment with different dipping or swirling techniques. Allow time for drying.

As the children take turns, talk about all the things that float on water. You might enjoy sharing *A Drop of Water* by Walter Wick, with its beautiful water photographs, or read from *The Secret Life of Water* by Masaru Emoto and discuss his theory of water's response to thoughts and ideas.

Use the marbled paper for making note cards, stationery or in other art projects. Some may be framable, just as they are.

Field Trips & Service Projects

World Water Monitoring Day [10]

Held early each fall, this program engages communities in monitoring the condition of local rivers, streams, estuaries, and other water bodies.

See their website at <worldwatermonitoringday.org> for ways to be involved locally.

Storm Drain Labeling Service Project

Find out where your storm drains send the run off. Consult with your water and sewer authority for information about local storm water policies. Borrow a stencil from the public works department and the quick drying paint needed to make reminder signs on the curbs by the storm drains. If they don't have a warning sign, help them develop one. In some cities, the sign is painted light blue with some ducks and reads "Caution: drains to the bay." Go around your neighborhood with the group and paint signs above all the storm drains.

Closing [10]

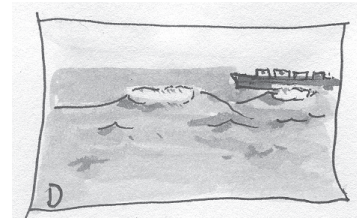
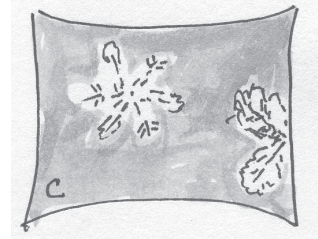
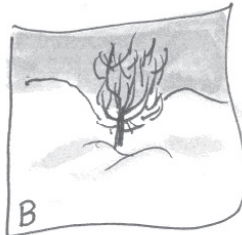
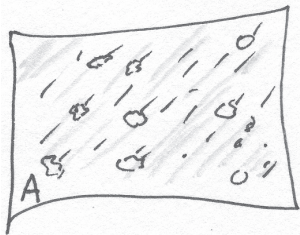
Gather in a circle. Ask each child to name a different way they could help take care of our precious gift of water. Sing a song from the opening. Ask each child to finish the sentence "Today I learned...". Enter into silent worship.

Other resources

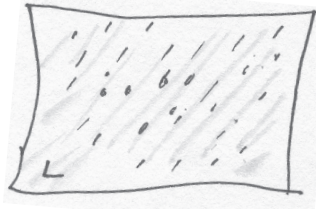
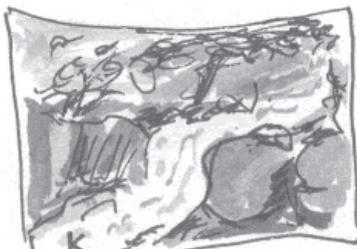
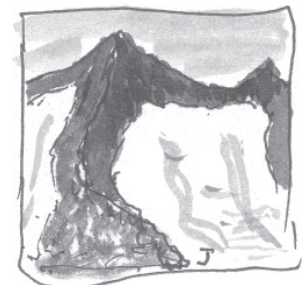
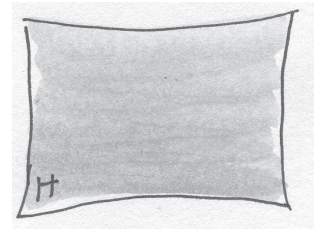
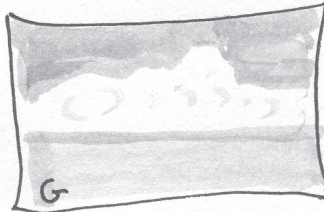
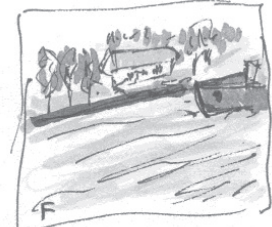
A Long Walk to Water by Linda Sue Park
One Well: The Story of Water on Earth by Strauss and Woods
The Snowflake: A Water Cycle Story by Waldman
A Drop Around the World by McKinney and Maydak

Forms of Water

Match the forms of water with the sketches.



1. ____ Sea Water/ Salt Water
197% of all water!
2. ____ Water Vapor In The
Air/Humidity
3. ____ Collected Water
Vapor In The Air/
Cloud
4. ____ Precipitation
- 4a. ____ Rain Drops
- 4b. ____ Hail Stones
- 4c. ____ Snow Flakes
5. ____ Underground
Water
6. ____ Glaciers/Ice Pack
7. ____ Snow Pack
8. ____ Streams/Creeks
9. ____ Lakes/Ponds
10. ____ Rivers



KEY: 1-D, 2-H, 3-G, 4a-L, 4b-A, 4c-C, 5-I, 6-J, 7-B, 8-K, 9-E, 10-F

7. AIR, WIND, & CLIMATE



This Lesson's Goals

- » *To become more alert to the global nature of air quality issues, particularly to the accumulation of greenhouse gases, methane and CO₂*
- » *To assert the value of all plants, and trees in particular, to the air cycle*
- » *To know we are air and recognize our connection to atmosphere.*
- » *To recognize the mythic connection of air and breath with movement of the Holy Spirit*

Sample Agenda

Posting a simple agenda can help both the teachers and the children stay on track. Pick out which activities work for you.

- 1. Opening:** Silent Worship, Breathing Exercises, Song, Scripture
- 2. Science Presentation**
- 3. Small Group Activities** If your total program time is less than one hour, you may want to focus on two to four activities from those listed below, allowing for the age and size of your group, season and weather, and space and materials needed.
- 4. Closing**
- 5. Sharing of Take-Home Materials**

Opening [10-15 min.]

Invite the group to open with silent worship.

Share a few breathing exercises:

- » *Inhale. Hold your breath. How long can we hold our breath?*
- » *What does it feel like when we breathe on our hands?*
- » *Close your eyes and breathe deeply into your lower abdomen/ stomach area. What do you notice?*
- » *Pay attention to your breathing. As we become quiet, we breathe in a slow, calm way.*
- » *Jump up and then jump up and down several times. Sit quickly. Now pay attention to breathing. How has it changed?*
- » *What is it that we are breathing?*
- » *Any guesses? Who/what else breathes?*
- » *Do we need air to breathe?*

Songs

God of the Earth, the Sky, the Sea
Spirit of God in the Clear Running Water
My Roots Go Down
We Shall Not be Moved

Scripture

Psalm 33: 6

By the word of the Lord
the heavens were made,
and all their host
by the breath of his mouth.

Scripture Sharing

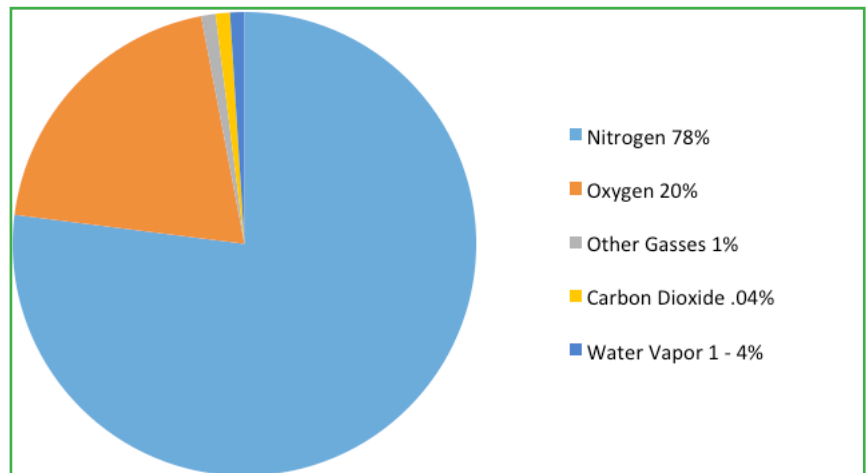
What do you think this passage is saying? Think about/ imagine how with each breath we exhale, we are adding the air that came from us into the air that is in the room. And with each inhalation, we take in some of the other people in the room. We are all connected through air.

Science Presentation

The science presentation on air can be done with the whole group or the small groups.

Air is mainly nitrogen and oxygen, with small amounts of argon, carbon dioxide, helium, hydrogen, methane, neon, and other gases.

All animals - including us! - breathe in oxygen, O₂, and use it to digest food and to power their bodies. They exhale carbon dioxide, CO₂. Most forms of fire use oxygen to burn fuel and give off carbon dioxide; especially the engines in cars and trucks.



Plants do the reverse: they use CO₂ in the process of photosynthesis and give off O₂. Up until the last 100 years, plants have kept in balance with the oxygen needs of animals, fires, and machines, by using CO₂ and giving back O₂. The small amount of CO₂ [.04%] that is present helps to capture the warmth of the sun within the Earth's atmosphere. Without it, the Earth would be a lot colder and less livable.

Now this balance is being changed by three factors. First, more people are using a great many more machines and producing a lot more CO₂. Also, other gases are given off by industrial production. Second, fewer plants are available to absorb the CO₂,

because we've polluted the ocean, where plankton live, and we've cut down forests all around the Earth. Tiny plankton and large trees are the two most important plants for replenishing the air with O₂. The major forests that remain include parts of the northern pine and fir forests and the tropical rain forests. Third, more cattle are being raised to feed people. These cattle give off measurable amounts of methane, another "greenhouse gas."

If too much CO₂, methane, and other gases are given off by people, machines, and cattle, the atmosphere changes so that less heat leaves the Earth. This is called the greenhouse effect and it is causing global warming. You might think being warmer would be good, but the changes don't happen evenly around the world. Some places turn into deserts while others receive excessive rains, causing floods. More heat also means more energy to drive winds and turbulent weather. Ice at the North and South poles is melting, reducing habitats for polar bears and penguins, and putting more water into the oceans. Land close to sea level is becoming more prone to flooding. When people began using fossil fuels to run their machines, they didn't know what a serious problem throwing off the CO₂ balance would be. We now understand better and more and more people are working to transition away from the fossils fuels we have been using (oil, coal and gas) and using wind and solar power instead.

See *We are the Weathermakers* by Tim Flannery for the history of climate science supporting this outcome.

Today, we will learn more about how good air is important for the lives of all of God's creatures. We can do something together that will help.

- » *Explore what the children understand about the challenges to the earth's atmosphere and the greenhouse effect.*
- » *Calculate personal impacts and compare with others at Ecological Footprint Quiz <myfootprint.org> and here: <botany.org/PlantTalkingPoints/CO2andTrees.php>*

Small Group Activities

Select three or four activities from those listed, giving consideration to the age and size of your group and the availability of the materials. For the demonstrations with water you may want towels, aprons, or plastic table covers. You might consider a trip to a working greenhouse as an additional lesson in this chapter.

1. Playing with our breath [10-15]

Materials: Nine inch latex balloons. Check ahead for any latex allergies.

Give one balloon each person. Stretch them to prepare. Then take a big breath and fill the balloon as much as you can. It is a measure of your lung capacity. Blow the balloon up and count the breaths. You will have captured your breaths!

Let the air out little by little, making squeaks through the narrow opening. "Talk" to the

people near you with only the sounds from the balloons. This is how our voice works too - with air passing over the vocal cords and vibrating.

Feel your throat as you hum. Our voices travel to the ears of others through vibrations in air. Hum and feel the vibrations. Put your hand in front of your mouth and say Pow. Feel the air? Now fill your balloon again and let it go. Notice the powerful wind that shoots out and the how the balloon shoots forward. Be sure to get yours back. Blow it up again and tie a knot in it.

Our game now is to keep all of the balloons in the air and not let any touch the floor/ground. It is hard to keep everything in the air at once.

Sit back down and pay attention to the breathing in the group. Silently listen to all of the breathing and remember we are sharing the breath of life.

Snack Ideas

Many foods come from plants and all plants need air. You might consider focusing on snacks that come from trees. Enjoy apples, almonds, oranges, walnuts, bananas, etc. If possible, choose a place by a tree to eat your snack. Talk about that tree. Name it. Do birds live in it? Are there any insects on it? How old is it? Does it produce seeds? Fruit? Nuts? Are there any trees on or around your Special Plot? Shading it? Compare grasses and trees as oxygen producers.

2. How Much Wind? [5-10]

Invite the children to ask how they might measure the wind. Why would people want to measure the wind? Why would that be useful?

In 1805, an Englishman, named Sir. Francis Beaufort developed a way to measure wind speed. Even though it is based on observations anyone can do without any special equipment, it is the most common measurement used even today. Print and distribute copies of Beaufort's Wind scale and practice measuring wind speed.

- » *Make pinwheels, fans or kites: <janbrett.com/piggybacks/piggybacks_the_hat_pinact.htm and <wikihow.com/Make-an-Easy-Kite>*
- » *Visit: <wiki.kidzsearch.com/wiki/Beaufort_scalegmail>*

3. Our Atmosphere

Materials: Inflatable globe and a piece of tissue paper.

Use the globe and tissue paper to represent the air, the atmosphere that surrounds Earth.

Share the photos in the back of this section that highlight the atmosphere. What do the children notice? Note how thin and fragile it is.

4. Finding Balance [15]

Read the Abenaki story of Gluskabi and the Wind Eagle (<firstpeople.us/FP-HTML-Legends/GluscabiandtheWindEagle-Abenaki.html> or in the book/ CD *The Singing Sack*).

Discuss what Gluskabi learned. Why was the wind important? What made life difficult when the wind couldn't do its job? Consider how this relates to our situation with fossil fuel energy use throwing our atmosphere out of balance.

Smile,
breathe and
go slowly.

– Thích Nht
Hnh

5. Wind as energy [15]

God's gift of air to breathe and the movement of air (wind) to maintain a healthy place to live for all of us, is also a form of energy. It is a clean, infinite, non-polluting energy that has been used for years by farmers and millers. Now it can be used to produce electricity and help us turn the lights on and drive our cars.

How did one young man turn this free gift of the wind into a resource for his community? Share the story of *The Boy Who Harnessed the Wind* by William Kamkwamba, Bryan Mealer, Elizabeth Zunon.

6. Parachute Games and Global Warming [10-15]

Materials: Bring a parachute large enough for everyone to hold onto the edge at once.

Raise and lower the parachute in unison and feel the air flow. Note how the parachute catches air and fills up.

Going Inside. Raise the parachute together. Then have everyone take a step toward the center and bring the edge of the parachute down behind them and sit on the edge. You now have a nice circle of folks inside a parachute "dome."

Talk about what you experienced today. Sing a song. After a few minutes you may notice that the air inside the parachute has become warmer than outside air. Ask how that happens. Heat from the sun and our bodies is trapped inside by the parachute the way greenhouse gases trap heat on the planet.

7. Helping the Air [10-15]

Materials: Magazines to cut photos, scissors, paper, glue, markers.

Draw or clip and paste pictures of people helping the air.

Include such ideas as:

- » *conservation of energy*
- » *use of non-combustion power*
- » *reducing travel*
- » *planting trees*
- » *protecting forests*
- » *shopping at local farmers markets*
- » *protecting oceans and rivers*
- » *eating less meat*
- » *using fewer toxics*
- » *recycling*
- » *consuming less*
- » *having smaller families*

8. Tree Breath Meditation [10-15]

Use the guided imagery meditation at the end of the chapter to invite the children to experience our interconnection with other life and breath filled beings. It is an invitation to understand our interdependence and connection specifically with trees and the source of the life energy we breathe in through the air.

9. Tree Seedlings [10-15 + long term]

Materials: Two-liter beverage bottles, soil mixture, water, scissors.

Trees are one way for all of us to help solve the problem of greenhouse gases changing the global temperature. Why might that be? Forests, both natural and urban, help to improve our air quality. Heat from the earth is trapped in the atmosphere due to high levels of carbon dioxide (CO₂) and other heat-trapping gases that prohibit it from releasing the heat into space (the "greenhouse effect"). Trees help by removing (sequestering) CO₂ from the atmosphere during photosynthesis to form carbohydrates that are used in plant structure/function and return oxygen back into the atmosphere as a byproduct. Roughly half of the greenhouse effect is caused by CO₂. Therefore, trees act as carbon sinks, alleviating the greenhouse effect.

Wangari Maathai said that a typical human being uses the oxygen output of ten trees

in a lifetime. Find out why her tree-planting work in Kenya was recognized with the 2004 Nobel Peace Prize. You may want to share Wangari's story of transforming her community with tree planting: <www.greenbeltmovement.org/wangari-maathai>

Seek advice about what types of trees are native to your area that will grow from seeds and secure some of those seeds. Collecting seeds in the field could limit this activity to fall. Save two-liter beverage bottles. Cut off the tops, poke drain holes in the bottoms, fill with appropriate soil mixture, and plant several seeds in each bottle. You can thin later.

Label each bottle and put the bottles where they can get the water, warmth, and light they need. Germination of tree seeds takes longer than beans, so plan on this being a project of several months. Seedlings can be given away, taken home, or planted at the meetinghouse.

Question: What in the world is so important that you could not live without it, even for five minutes? Yet it is nearly invisible! Sometimes we act as if it is nothing, yet it is everything.

Answer: AIR.

10. Juice Lid Wind Chimes [10-15]

Materials: five lids from juice cans [one small, if possible, and four large] for each person, twine or nylon fishing line, and an ice pick.

- » *With the ice pick, an adult punches holes near the rims of the lids: four in the small spacer and one in each large chime disk.*
- » *Cut four twenty-inch lengths of line, and tie one to each chime. Run each line up through a hole in the spacer and tie off so the chimes hang three to six inches below the spacer.*
- » *Gather all four lines above the spacer and tie them in a knot so the spacer is level. Then make a loop above the knot so the chimes may be hung in a favorite tree.*
- » *What does a wind chime tell about air? Why has wind often been associated with the Holy Spirit?*

Younger children may need help tying knots. Chime disks can be decorated with stickers. What other wind chimes can you make using mostly natural or recycled materials?

When we look into the sky it seems to us to be endless. We breathe without thinking about it, as is natural. We think without consideration about the boundless ocean of air, and then you sit aboard a spacecraft, you tear away from Earth, and within ten minutes you have been carried straight through the layer of air, and beyond there is nothing!

Beyond the air there is only coldness, emptiness, darkness. The “boundless” blue sky, the ocean which gives us breath and protects us from the endless black and death, is but an infinitesimally thin film.

Closing [5-10]

Tree and Wind Appreciation

Stand in a circle around a tree. Consider doing one or more of the following:

- » *Sing songs from the opening.*
- » *Each one tells something about that tree or a tree known from home.*
- » *Think of the value trees have for us.*
- » *Listen to the wind in the trees.*
- » *Hang a wind chime in the tree.*
- » *Water the tree.*
- » *Read aloud one of the quotes in this chapter and ask each child to finish the sentence “Today I learned...” and close with silent worship.*
- » *Give out the Take-Home Page.*

An Iroquois Prayer of Thanksgiving

We return thanks to our mother, the Earth, which sustains us.

We return thanks to the rivers, which supply us with water.

We return thanks to the herbs, which give medicines to cure diseases.

We return thanks to the corn, and to her sisters, the beans and squashes, which give us life.

We return thanks to the wind, which blows away diseases.

We return thanks to the moon and stars, which give us their light when the sun is gone.

We return thanks to the sun, which looks kindly upon the Earth.

Lastly, we return thanks to the great Spirit, in whom is embodied all goodness, and who directs all things for the good of its children.

Word Search

Circle the words from the list that you can find in the grid. Tell someone how each word is related to our earth and what we've been studying.

H	A	M	N	O	S	T	G	R	E	A	T	M	Y
G	R	E	E	N	H	O	U	S	E	D	P	A	N
W	I	T	W	H	I	U	L	T	Z	A	H	K	O
S	C	H	A	I	R	B	R	E	A	T	E	E	S
O	E	A	C	H	N	E	R	E	R	X	O	Y	I
X	C	N	R	I	D	D	E	E	I	A	O	T	P
Y	A	E	E	B	I	X	W	F	E	C	N	O	N
G	P	O	G	L	O	B	A	L	L	Z	A	R	T
E	S	P	I	N	X	N	R	E	Q	O	E	N	F
N	S	P	I	R	I	T	M	C	U	U	O	A	E
F	O	L	D	E	D	A	I	U	A	L	G	D	E
Y	B	T	R	E	E	S	N	N	I	L	E	O	R
S	M	E	L	T	I	N	G	S	R	Y	M	T	D

GLOBAL WARMING
CARBON DIOXIDE
GREENHOUSE
HURRICANE
TORNADO

BREATHE
MELTING
ICECAPS
METHANE

BREEZE
FLOOD
TYPHOON
OXYGEN

CALM
AIR
WIND
SPIRIT
TREES

Tree Breath Meditation

"Sit on an arm chair in a quiet place; forearms rest on arm rests, back resting on backrest, feet side by side resting on the floor and bottom resting comfortably on the seat. Close your eyes and breathe in and out. Allow breath and body to slow and relax.

Imagine that you are sitting beneath a large and great tree on a warm day. There is soft breeze rustling the canopy of leaves above you. There is lush green grass under your feet and extending as far as the eye can see. A small creek can be seen running alongside a sloping hillside nearby. There are trees and shrubs dotting the landscape both far and near. The sky is a lovely blue padded by fluffy white clouds. In the treetops of some trees nearby birds are occasionally singing.

You bring your attention to your feet resting in the grass, you feel your legs and hips quietly relaxing, your spine is long, and breaths are long and slow.

You are aware of the great and majestic tree behind you rising from the earth with tremendous power. Its grand branches extending above and you are able to sense an energy moving through the branches to endless leaves at their tips. Just as you are breathing in and breathing out, so also is the great tree drawing in heavy air and releasing lighter air; the kind of air you can use to vitalize your entire being with. It as if when you breathe out the tree absorbs all that you no longer need, and as the grand tree releases air you receive it into your lungs and through your whole body.

Your mind and body are vitalized and clarity comes vividly as you breathe. The majestic tree is vitalized by what you release, taking what it needs to grow and energize itself. Just like the great tree you also are revitalized by the air you receive, your body creates energy to grow, to heal to enliven all the functions for your fullest life experience. You and the magnificent tree breathe in and out, in and out.

The breeze whispers its presence as it brushes softly across your checks carrying light air from the many trees and green plants all around you. You are surrounded by all that you need in this moment. You feel alive and fulfilled.

The grand tree and all the other green plant life near and far breathe with you day and night, night and day. You feel peace knowing that wherever you go the green landscapes around you breathes as you do; both you and all plant life are mutually nourished and strengthened by the presence of each other. You know now that no matter what happens in life you can always stay with your breath and feel simultaneously grounded and wondrously free.

You give thanks to this real awareness within. You feel peace knowing you will automatically receive air and give air without any need to think about it. The great tree also has this experience.

It is time now to return to your usual routine of life; it is time to return where you sit on your arm chair. You can be happy in the knowledge that this vision of you sitting beneath the great tree is now yours and it will be with you always. You feel your head, neck and shoulders, your arms resting on the armrests, your back leaning on the backrest. You are aware of your hips sitting on the seat, your legs bent at the knee and feet planted on the ground. You are back in the quiet place where you came to sit. You are about to count down from 5 to 1 and then you are going to open your eyes. Five, four, three, two, one.

Take a moment to stretch after a meditation as you have been still for a time. Invite the children to reflect on their experience.

Source: <meditation.hotforyoga.tv/tree-breath-meditation>

Calm and Turbulence

by Sandra M. Farley

It is wise to seek shelter from the storm.
But the blowing wind may blow blessings which we need.
Sailors who have been becalmed
pray for a wind, any wind, by which to sail.

Picture the world beneath the sea.
See how turbulence brings vital nutrients
up from the bottom of the ocean to the zone of light,
where the plankton thrive and the fishes swim.
The winds on the surface eventually stir the deep.

The turbulent dance of a creek over the rocks
bubbles oxygen into the stream,
where it nourishes the trout
and the other inhabitants of the watercourse.
There seems to be a purpose served
in most natural turbulence.

Our lives may also benefit from occasional bouts of turbulence.
Family upheaval or natural disasters can shake up our world.
When the patterns of our daily existence fall apart,
we get to face our priorities
and see what is really important.
It is tempting to complain about the upsets
and beg for calm.

Calm is needed, too. Time to sort it all out,
to listen to the "still small voice."
But let's not forget all the gifts of turbulence.

Consider: When have you observed turbulence in the natural world? Was it frightening, pleasant, or exciting? What human-made devices foster turbulence in order to function well? A blender is one example. What parts of your life are calm? When is your life full of turbulence? Do you think you need more of one or the other?

The Earth's Atmosphere



"The Earth's atmosphere is an extremely thin sheet of air extending from the surface of the Earth to the edge of space. The Earth is a sphere with a roughly 8000 mile diameter; the thickness of the atmosphere is about 60 miles. In this picture, taken from a spacecraft orbiting at 200 miles above the surface, we can see the atmosphere as the thin blue band between the surface and the blackness of space. If the Earth were the size of a basketball, the thickness of the atmosphere could be modeled by a thin sheet of plastic wrapped around the ball. Gravity holds the atmosphere to the Earth's surface. Within the atmosphere, very complex chemical, thermodynamic, and fluid dynamics effects occur. The atmosphere is not uniform; fluid properties are constantly changing with time and location. We call this change the weather."

grc.nasa.gov/WWW/K-12/airplane/atmosphere.html

8. INTERCONNECTION: THE WEB OF LIFE

This Lesson's Goals

- » *To see the vast variety in the world as a reflection of God's power, seeing value in the splendid diversity*
- » *To become aware of the interdependence of all life*
- » *To develop an attitude of brotherhood/sisterhood with all life*

Opening [10-15 min.]

Open with silent worship.

Use the songs, the Scripture, and the Black Elk quote to introduce the theme of how everything is connected.

The first peace, which is the most important, is that which comes within the souls of people when they realize their relationship, their oneness, with the universe and all its powers, and when they realize that at the center of the universe dwells the Great Spirit, and that this center is really everywhere, it is within each of us.

— Black Elk

Sample Agenda

Posting a simple agenda can help both the teachers and the children stay on track. Choose what activities work for you.

1. **Opening:** Silent Worship, Share Quote, Song, Scripture
2. **Activity:** We are Connected Human Chain
3. **Small Group Activities**
4. **Closing**
5. **Sharing of Take-Home Materials**

Songs

All God's Critters Got a Place in the Choir
Ancient Mother
The Earth Is My Mother
God Who Touchest Earth with Beauty
I Sing the Almighty Power of God
Magic Penny/Potluck

Potluck Words to “Magic Penny”

This potluck version was written by Young Friends [including two of the authors] in 1976 or 1977 at the first or second Western Young Friends New Year's Gathering.

Chorus:

Food tastes better when you pass it around
Pass it around, pass it around.
Food tastes better when you pass it around
It always seems like more.

Verse:

It's just like a loaf of rye bread
Hold it tight and it ends up dry bread
Pass it around, it ends up inside bread
'Till everybody is full

Scripture

1 Corinthians 12: 14–26

A body is not one single organ, but many. Suppose the foot should say 'Because I am not a hand, I do not belong to the body', it does belong to the body nonetheless. Suppose the ear were to say, 'Because I am not an eye, I do not belong to the body', it still does belong to the body.

If the body were all eye, how could it hear? If the body were all ear, how could it smell? But in fact, God appointed each limb and organ to its own place in the body as he chose. If the whole were a single organ, there would not be a body at all; in fact, however, there are many different organs, but one body. The eye cannot say to the hand, 'I do not need you'; nor the head to the feet, 'I do not need you.'

Quite the contrary: Those organs of the body which seem to be more frail than others are indispensable, and those parts of the body which we regard as less honorable are treated with special honor. To our unseemly parts is given a more than ordinary seemliness, whereas our seemly parts need no adorning.

But God has combined the various parts of the body, giving special honor to the humbler parts, so that there might be no sense of division in the body, but that all its organs might feel the same concern for one another. If one organ suffers, they all suffer together. If one flourishes, they all rejoice together.

We are Connected—Human Chain [5-10]

- » Start standing in a circle, facing center.
- » Select a child and say, “We are connected because . . .” and state a connection such as “your mother is my sister,” or “we both like to bicycle,” or “you came to my house and played with my dog,” or “we’re both wearing blue.” Any connection is okay. Join one hand with that child.
- » That child then goes to someone else, tells how they are connected, and takes the new person's hand, adding to the chain.
- » The new person then makes another connection and the game continues until

- everyone is connected to the group. If you have a large group, start two chains.
- » You can lead your chain into a spiral and out again or form circles. There are chants and songs from many cultures that go with both spiral and circle shapes.
 - » Ask how we are connected with the whole world. Where does that *connection start*?

Small Group Activities:

Select from the activities, giving consideration to the age and size of your group. This is mostly an indoor or clean-space lesson. Do at least one version of webbing. If you are making two sessions of this chapter, group together the totem activities for one time period.

1. Webbing Story [10-15]

Materials: a ball of yarn or string and labels, one made out for each character [bold print] in the story.

Give each child one or more labels. With younger children, have an older child or assistant serve as the “spider” to guide the web. As the story is read, the web [yarn] is spun to each character when mentioned. The players hold onto the yarn, forming a crisscross as the web is created. You may want to change elements of the story to fit your local habitat.

Snack Ideas

Select a seasonally appropriate snack. Focus on an appreciation of the food itself. Invite the children to look at the food and describe the colors and shapes. Observe the aromas. Consider its path to the table from sun, soil, water, farmer, to kitchen, cooked with care and love.

A. The **sun** rises in the morning, touching the tall **pine tree** first with its light. Soon the **robin** sings in the **willow trees**. The **earthworm** burrows under the **grass** to stay out of the **sun**. The **squirrel** goes looking for pine cones full of nuts in the pine tree. The **rabbit** and the **deer** come out to eat the grass. The **mouse** scampers down to the creek to get a drink of **water**. The **owl** swoops down from its hole in the **oak tree** and grabs the **mouse**. Up in the **sun**-lit sky the **red-tailed hawk** circles, sees the **rabbit**, and dives for it. The **rabbit** ducks into the **blackberry brambles** and finds a hole in the ground. That hole is the home of a **snake**, which chases the **rabbit** through the **grass**. The **red-tailed hawk** catches the **snake**. Some **children** come along picking and eating the ripe **blackberries**. The **deer** runs to hide among the **willow trees**. The **children** go to the creek to wash their hands in the **water**. The **squirrel** chatters at the **children** and drops a cone from the **pine tree**. The **clouds** begin to fill the sky, hiding the **sun**, and it starts to **rain**. The **children** pick up the cone full of nuts from the **pine tree** and hurry home. The **red-tailed hawk** lands on the **pine tree** to get out of the **rain**. Under the **clouds**, the **robin** finds **earthworms** in shallow **rain** puddles in the **grass**.

Stop now. Look at the web of interconnection your group has created.

Which animals depend on the grass? Which on a tree? Which need water?
The story can continue with people letting go of the web as they are named.

B. Lightning strikes the **pine tree** and singes the **red-tailed hawk**. **The fire spreads to the oak tree, the willow tree, and the** blackberry brambles. Where do the animals go when their homes and food are destroyed?

C. Not enough **clouds** form and no **rain** falls. There is no water and the creek soon dries up. How are the plants and animals affected by the drought?

D. The county clean-up crew comes along and pulls up all the **blackberry brambles** so the **children** don't come so often.

E. What else might be affected and how? Change or add **elements** drawn from your local ecosystems and the children's experiences.

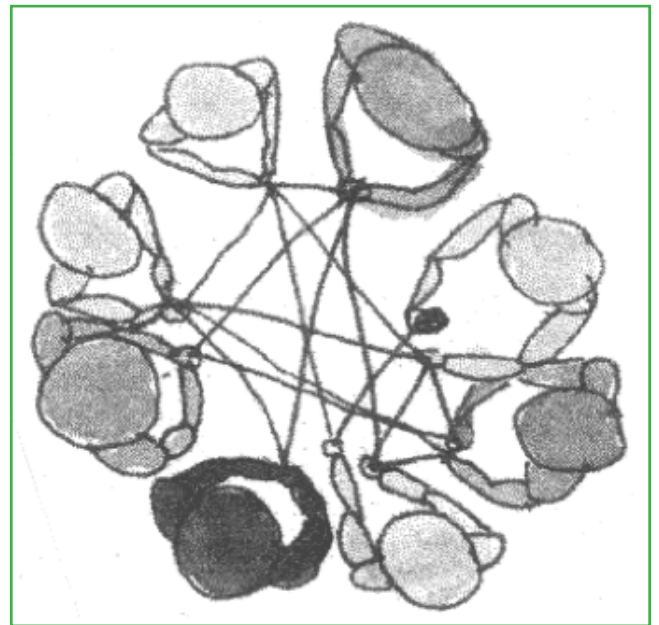
3. Webbing Game [10-15]

[Older children's version]

Materials: a ball of string or yarn.

Sit in a circle. One person names an animal or plant. Taking hold of one end of the yarn, he/she passes the ball of yarn to the player who can name that animal's food or habitat. The yarn gets passed crisscross about the circle as players explore the food chain and shared environments. Who eats that? Who else lives there? What plants does it need? What else needs that?

Remember that people are part of the food chain and part of the environment, too. Continue asking questions based on the previous response until a good web is formed and everyone is included, holding on to at least one part of the yarn.



Pull gently on the yarn, stretching it tight. Think of elements in your web that are threatened today. Ask the person holding the yarn for a threatened item to let go of the yarn. It won't take more than two or three such drops before the web loses its shape. Ask the children what this means. Consider what parts of the local web are missing or damaged and ways people can help repair them.

4. Spaghetti Tangle [5-10]

1. Form circles with 6 to 12 players per circle.
2. All players reach into the center of their circle and grasp hands with two other people. Make sure every hand is connected to just one other hand.
3. Then, without letting go, step over, duck under, go around, or through, etc. in order to untie the tangle. The results may turn out to be one or more circles or a real knot. There's no 'right' answer.
4. The point is that the players are the problem solvers. Debriefing questions might include: what did it mean to the group that we were all physically connected? Did we need to include everyone in our solution? Why or why not? How is this related to our connection with the natural world?



5. Chain of Life [10-15]

You will need stickers or small pictures of animals and plants, tape or glue, and paper strips for making paper chains.

Give each person several strips of paper. Each takes a strip labeled with a different animal or person, makes it into a loop, labels the next strip for a thing the first needs, and loops it through the first. The third link will be a thing the second loop needs, and so on.

Help the children see where one of their items shares a need for something in another's chain and link to it. Some chains may branch or circle. Work until everyone's links are connected. This could create quite a three-dimensional web. What would happen if one of the links became extinct?

6. Story Reading [15-20]

Read aloud and show the pictures of either *Hawk, I am Your Brother* or *Everybody Needs a Rock*. Both books were written by Byrd Baylor and illustrated by Peter Parnal. Both

are good quiet reading and could be used at other times, but they relate best to this chapter with a sense that all is interwoven.

7. Animal Totems [10-15]

Many people have favorite plants and animals. In some families and tribes, each person is expected to identify his or her personal totem animal or plant, as one he or she relates to in a special way. This may involve a totem quest or journey, often including time alone in the wild.

Ask the children to choose their own totems – what animal or plant has special meaning to them. Ask each to share the connection and tell some characteristics of their choices.

Feel the love of
God: then . . .
You will find a
magic, living
relationship uniting
the trees, the sky,
the stars, all people,
and all living things;
and you will feel a
oneness with them.
– Paramhansa
Yogananda

8. Totem Images [10-25]

Materials: whatever you have. Modeling clay may be best, but you can use paper, fabric, or craft sticks held together with yarn, tape, and glue.

Native Americans who live along the north Pacific coast carve images of family totems on log poles, which they place in front of their homes. Ask each child to choose a plant or animal totem and make an image of it.

Display the images and talk about how the children feel connected to these animals.

9. Totem Movement Circle [10-5]

See Wonder Movement Circle in Chapter 1. The sequence can be refined and rehearsed for presentation to other groups.

1. Stand in one or more circles of five to twelve people per circle.
2. One person makes a movement or action to go with his or her totem animal or plant. For instance, "eagle" lifting arms like gliding wings.
3. Everyone copies the action and repeats the totem name for the first person. Remember to treat each totem choice with respect.
4. The second person does an action and names a totem. Everyone repeats the first two.
5. The third person gives a totem action, then everyone repeats all three, and so on, until all the actions and totem names have been given and repeated in sequence.

10. One with Nature [5-10]

Consider teaching one or two songs with movements which reflect the connection of all living things. Both "My Roots Go Down" and "Turn the World Around" are easy to learn and provide upbeat and joyful ways to relate our unity with the living earth. Lyrics may be found after the handouts and audio and video are readily available on the internet.

11. The Cosmic Walk [30-60]

Further instructions and the text may be found at the end of the chapter.

The Cosmic Walk is a ritual created by Sr. Miriam MacGillis of Genesis Farm in New Jersey. It is an invitation to understand the interconnection between time and the unfolding universe. It is a simple ritual that can be conducted in a large room or outdoors.

Materials: This activity requires preparing a spiral and printing cards which trace the passage of time to the present.

This may be offered as an intergenerational activity. You may need to ask the older children or adults to be the readers of the points along the time line.

Closing [10-15]

Each small group presents something to represent its totem.

In a period of worship, ask each one to think about his/her totem, its beauty, strength, its life force. Let the Spirit of God enter both you and your totem.

Alternately, invite the children to share their ideas about the web of life and their connection to all living things. Invite each child to finish the sentence: "Today I learned...."

Follow with silent worship.

Give out copies of the Take-Home Page.

Description of the Cosmic Walk

The Cosmic Walk is a ritual created by Sr. Miriam MacGillis of Genesis Farm. It has subsequently been modified and presented by many people around the world.

The Cosmic Walk is a way of bringing our knowledge of the 13.75 billion year Universe process from our heads to our hearts. It is a simple ritual that can be performed in a large room or outdoors.

A spiral representing the entire 13.75 billion years of the cosmic and evolutionary journey is laid out on the floor or ground. At Genesis Farm this spiral is painted on the floor of the library, but one can also use a rope. **The spiral should be at least 100 feet long (137 feet is easier to deal with) with each instance of emergence in time marked at a proportionate distance along the length of the spiral (10 feet = 1 billion years for a 137 foot spiral).**

Each such station is marked by an unlit votive candle and by a card describing the emergence. The first station, located at the very center of the spiral, represents the Great Emergence of the Universe itself. This primordial act is represented by a lit candle by itself or sometimes within a large, faceted glass bowl. One person, the walker, lights a candle from the primary candle and walks the spiral, starting with the Great Emergence and lighting each candle in turn. The walk is synchronized with the reading of the text below by a second person, the reader. The ritual is accompanied by music, traditionally "The Fairy Ring" by Mike Rowland.

This ritual works for any size of group, the limitation being the audience's ability to see the candles well. For fewer than about 15 people, it is feasible to have each person walk the spiral, in turn, reading the cards to themselves in silence. Since the Cosmic Walk was born, many variations in text, process, and music have emerged.

The Narrative for the Cosmic Walk

This is a story, the story of the Cosmos, the story of Earth, the story of human, of gazelle, of mountain, the story of you and me. It is the narrative of one single integrated activity, Universe. (Start music, Fairy Ring.) In the beginning was the Mystery. Through the Mystery all things came to be. Not one being had its emergence but out of the Mystery.

1. Great Emergence 13.7 billion years ago

Out of the mysterious chaos some 13.7 billion years ago time, space, and energy stabilize into the gift of existence. Our Universe is born hot and tiny. As the Universe expands and cools energy condenses into matter, sub-atomic particles, radical new beings with new powers, and they in turn transform into atoms of hydrogen & helium, new beings with new powers.

2. 380 thousand years later the Cosmic Web emerges.

The rapid expansion of the Universe stretches out the small fluctuations in the primal distribution of matter into gigantic filaments drawing matter into the Cosmic Web, the primordial creator of all subsequent forms.

3. 13.4 billion years ago (bya) primal stars emerge.

Concentrated by the gravitational force of dark matter these gaseous filaments collapse into enormous stars. Many of these short-lived beings become black holes, gathering together other stars and black holes to eventually become the stupendous black holes that live at the center of today's galaxies.

4. 13 bya galaxies emerge.

Flowing dark matter draws together stars, black holes, and gaseous clouds into small galaxies wherein stars are born, live, and die. Over time these clusters merge into the giant galaxies we see today. As they live, stars transform their hydrogen and helium into heavier elements: carbon, oxygen, aluminum. Some stars, in their death throes, become supernovas, giving out to the cosmos their precious gifts of selenium, tungsten, uranium. Many of these treasures will be gathered into the bodies of future generations of stars and planets. Supernovas are the mothers of the Universe, creating in their wombs the seeds of life. Birth, death, and resurrection are an ancient theme of the Universe.

5. 12 bya interstellar dust produces molecules.

Within the interstellar dust these chemical gifts of the supernovas are nurtured into simple organic molecules, vital components for the later emergence of life.

6. 7 bya gravitational repulsion of dark energy cancels gravitational attraction of matter.

The Universe starts to accelerate its expansion drawing apart galaxies and galactic clusters. Thus galactic evolution decreases significantly and the life-producing spiral galaxies are spared further collisions and destruction thereby permitting their resident stars to create planetary systems.

7. 4.6 bya our grandmother star births the solar system.

Our ancestral star gives herself into the transforming mystery of a supernova. Our Sun and a great disk of matter, all the planets and other members of our solar system family emerge from the dispersed body of our grandmother star. Here begins the story of our blue-and-white pearl of a planet.

8. 4.3 bya the Great Bombardment creates the Earth-Moon dance.

For tens of millions of years, Earth sweeps around the Sun gathering unto herself some of the disbursed body of our grandmother supernova, swelling as she does. Collisions great and small have kept Earth a churning, molten mass. During this time a large planetoid crashes into Earth. Some of the outer layers of the molten Earth and planetoid splash out into Earth orbit solidifying into Moon. Eventually the cataclysms of birth are over, and Earth and Moon begin to cool. Their relationship with each other and Sun will choreograph the exquisite dance of life.

9. 3.8 bya life emerges; cells invent photosynthesis.

As the young molten Earth quiets and cools, an atmosphere begins to form. Then come the first rains drenching the young planet and forming the vast covering of her oceans. Within the newly formed oceans a rich variety of chemicals gather together to birth the wonder of life. Earth comes alive and soon learns to eat the Sun. Molten rock, now in the form of small bacteria, learns to capture Sun's photons and store the energy in chemical bonds. In doing so, they claim a new source of food, water, for their rapidly growing population. However, however, their feasting liberates oxygen. Eventually the atmosphere becomes oxidizing, threatening all life.

10. 3.4 bya Earth's magnetic field deflects Sun's cosmic rays.

The strengthening magnetic shield protects Earth's early atmosphere and oceans from being stripped away by Sun's energetic radiation. Life is guaranteed a home.

11. 2 bya oxygen-loving bacteria and the nucleated cell emerge.

These tiny creatures invent respiration, breathing, and a new source of energy for Gaia. In the process they also enter into communion with larger cells thereby protecting them from oxygen. This communion leads to the nucleated cell, the basis for the evolution of all complex life.

12. 1 bya sexual procreation emerges.

Single-celled organisms learn to share their genetic heritage and bequeath to their progeny an extravagance of possibilities.

13. 800 million years ago (mya) death is invented.

Single-celled beings relinquish their immortality and enter into a great variety of novel relationships creating multi-celled sexual beings. Later, life invents purposeful cell death to facilitate the growth of these multi-celled organisms and the florescence of complex life. Death becomes a condition for creative life.

14. 600 mya ecosystems emerge; multicellular organisms begin to eat one another.

Predator organisms arise, ones who have learned to use the complex biomolecules of neighboring organisms, thereby saving their own genetic resources for the development of greater physical capabilities. Here begins the predator-prey dance that promotes the vast diversity of life: the power of the lion and the speed of the gazelle.

15. 540 mya sight is invented; eyes emerge.

Earth sees herself for the first time and is dazzled.

16. 460 mya plants and animals move on land.

Leaving the water, they seek the adventure of weather and gravity.

17. 400 mya insects invent flight.

Earth teaches herself to fly.

18. 235 mya dinosaurs emerge.

For 170 million years, these creatures explore the extremes of size, speed, and strength.

19. 215 mya mammals emerge.

Molten rock has reshaped itself to be able to express a mother's love for her child.

20. 150 mya birds and flowers emerge.

Birds follow the insects into the vast vault of the sky while Earth adorns herself magnificently in color and fragrances, and invites the sky creatures into a new dance.

21. 65 mya the Cenozoic Era begins.

With the disappearance of the dinosaurs, mammals are given unlimited opportunities to explore new habitats, new food and new varieties of size, shape, defenses, and creative expressions. This new community of animals, plants, birds and insects produces the great florescence of Earth life which will last 65 million years.

22. 6 Mya juvenile African apes stand up, walk on two legs, and leave their forest home.

The savannah offers the challenges and opportunities for these courageous young creatures to evolve into humans with brains and nervous systems complex enough that Earth would eventually bring forth a conscious self-awareness of herself.

23. A few Mya hominids extend childhood development

In animals, adult intelligence and flexibility are correlated with the immaturity of their babies. Primate babies have relatively long infant maturation periods. Hominids extend that greatly but at great cost to the vulnerability of their children and the demands of parenthood.

24. 200 thousand years ago modern humans & language emerge.

Pondering Earth and cosmos in their range of beauty and harshness, humans shape language, art, music, and ritual to respond to the mysteries of existence.

25. 3,000 years ago classical civilizations & religions emerge.

Over several thousand years, humans invent writing and more complex technologies and with them arise a variety of religious perspectives that gradually become institutionalized as Hinduism, Confucianism, Judaism, Buddhism, Christianity, and Islam.

26. 150 years ago humans learn of their descent from a common ancestor.

Charles Darwin confirms the wisdom of indigenous traditions that life is "all our relations".

27. 80 years ago astronomers observe the expansion of the Universe.

Family Graces

Before eating, many Quaker families pause for a few moments of silence, holding hands. It is appropriate to use that time for prayers of thanks to God for giving us the food we are about to eat.

Some families say or sing a grace to return thanks. Some cultures give thanks for the lives of animals killed for food.

- » *What does your family do before meals?*
- » *Find out about grace at your grandparents' or great grandparents' tables.*
- » *How do people who come from different family traditions decide what they will do about having grace when they eat together?*
- » *Would you like to try doing grace differently at your house?*
- » *How do you feel about having grace at a friend's house, or in a restaurant?*
- » *Should we thank the plants that gave up their fruits, seeds, roots, and leaves to feed us?*
- » *How can we show reverence for life while we are consuming it?*
- » *How might you appreciate the food we eat with all your senses? How might you take the time to notice smells, colors, etc.?*
- » *Appreciate all that it took to bring the food to the plate in front of us. Sun, water, soil, farmers, markets, the person who prepared it with love. Taste it with this deep appreciation.*
- » *Another form of Grace is to share what we are grateful for that day.*

Try one of these graces -- sing them, if you know the tune.

Oh, the Lord is good to me,
And so I thank the Lord
For giving me the things I need:
The sun, the rain, and the apple seed.
The Lord is good to me!
If we have earned the right to eat this
food,
Happy indeed are we.
But if unmerited these gifts to us,
May we more thankful be.



Give thanks for the Mother Gaia
Give thanks for the Father Sun
Give thanks for the plants in the garden
Where the Mother and the Father are One.
Earth who gave to us this food
Sun who made it ripe and good

Dear Earth, Dear Sun, by you we live.
Our grateful thanks for you we give.

Thank you for this food, this food, this glorious, glorious food,
and the animals, and the vegetables, and the minerals that made it possible.

The Five Contemplations by Buddhist Thich Nhat Hanh may also be said before meals:

1. This food is a gift from the earth, the sky, the universe, numerous living beings and much hard work.
2. May we eat with mindfulness and gratitude so as to be worthy to receive it.
3. May we transform our unwholesome mental formations, especially our greed, and learn to eat with moderation.
4. May we keep our compassion alive by eating in such a way that we reduce the suffering of all beings, preserve our planet and reverse the process of global warming.
5. We accept this food so we can nurture our brotherhood and sisterhood, strengthen our community, and nourish our ideal of serving all beings.

[More hymns of thanks: Worship in Song #45 to #52 or Rise Up Singing, page 197]



A Food Web

Draw a line from the food to what eats it.
Some things both eat and get eaten.

GRAINS TROUT HAWK

DEER BEAR

ROBIN RABBIT

HUMANS MOSQUITO

LETTUCE MOUSE

SNAKE HAY

COW BAT

DEAD LEAVES GRASS

CAT CUPBOARD MOTH

EARTH WORM

9. SHARING OUR HOME & PROTECTING EVERYONE'S NEEDS

This Lesson's Goals

- » *To develop awareness that the Earth has natural limits and introduce the concept of carrying capacity*
- » *To become informed about ways in which the capacity to support life is reduced by human activities*
- » *To explore what may happen when plant or animal populations have limited access to their habitat*
- » *To promote the desire to nurture and protect life on Earth*
- » *To recognize our responsibility for the changes we make in our environment*

Agenda

Posting a simple agenda can help both the teachers and the children stay on track.

- 1. Opening:** Silent Worship, Song, Scripture
- 2. Activity:** Global Size Comparison
- 3. Small Group Activities**
- 4. Closing**
- 5. Sharing of Take-Home Materials**

Opening [10 min.]

Use your familiar pattern to begin your class. Gather for silent worship.

Song

Three New Verses to "It's a Small World"

Original song © by Sherman and Sherman, with additional words by Mary Hallesy and the 1976 LeConte Lodge Summer Staff, in Manure, Meadows, and Milkshakes.

There is just so much water and so much air
And just so much land and food everywhere
There's so much we must share,
oh it's time we're aware
It's a small world after all. [Chorus]

On this spaceship earth we are all a crew
And we've got to learn what we must do
It is time we're aware we use more than
our share
It's a small world after all. [Chorus]

Scripture

Genesis 9: 1-3, 8-14

God blessed Noah and his sons and said to them, "Be fruitful and increase, and fill the earth. The fear and dread of you shall fall upon all wild animals on earth, on all birds of heaven, on everything that moves upon the ground and all the fish in the sea; they are given into your hands. Every creature that lives and moves shall be food for you; I give you them all, as I once I gave you all green plants.

* * *

God spoke with Noah and to his children with him: "I now make my covenant with you and with your descendants after you, and with every living creature that is with you, all the birds and cattle, all the wild animals with you on earth, all that have come out of the ark.

I will make my covenant with you: never again shall all living creatures be destroyed by the waters of the flood, never again shall there be a flood to lay waste the earth."

God said, "This is the sign of the covenant which I establish between myself and you and every living creature with you, to endless generations:

My bow I set in the cloud
sign of the covenant
between myself and earth.
When I cloud the sky over the earth,
the bow shall be seen in the cloud.

Scripture Discussion

- » What do you understand from the Scripture?
- » Do the animals fear and dread us? Why or why not?
- » What kind of agreement is a covenant? Some say this covenant with Noah gives humans the right to control everything in the world. What do you think?
- » If God gave us plants and animals what is our responsibility?
- » God didn't save just Noah alone or just farm animals. Why?
- » What is needed after a major flood, fire, hurricane, or other disaster?
- » What does "fill the Earth" mean? Is the Earth full now?
- » How do we know the right amount of everything to fill the Earth the best way?
- » How much life can Earth support?

Global Size Comparison [5-10]

Materials: Bring a twelve-inch-diameter globe, two sizes of marbles, and some pinto beans.

Ask several children to show, with their hands, how far up from the surface of the globe they think the air goes. Hold your finger not quite touching the globe. That is how high the breathable atmosphere goes.

Bring out a big "boulder" marble. In proportion to the globe, it represents all of the

Earth's atmosphere up to a height where it is no longer breathable. Pass it around.

Then show a regular-size blue marble to represent all the water all the oceans, lakes, and ice caps – all the blue stuff on the globe! The average ocean depth isn't much more than the paint on the surface of the globe.

A pinto bean represents all the soil down to bedrock. Most of that land cannot be cultivated to grow crops. The spots on the pinto bean may show the amount of arable land. Pass it around. What does this show about the nature of our planet? How much extra do we have of the stuff needed for life here?

The point to make is that what looks like abundant life to us is a very fragile shell about the surface of the Earth. Though similar in set-up to the opening of *Water, Water Everywhere* (Chapter 6), the focus here is on the relative size of the biosphere.

Small Group Activities:

Select from the activities, giving consideration to the age and size of your group. Some of these activities are best done out of doors or in a large room.

1. Animal Collage [10-15]

Materials: Scissors, Wildlife magazines, 3 x 5 card, glue or paste

Have the children cut five animal pictures from wildlife magazines, looking for many different kinds. Give each child a card and some glue or paste. Have each fit as many animals as possible onto the small paper.

Ask what happens when there are too many animals or people in a small space.

Snack Ideas

Serve snacks that have "carrying capacity" – sticks carrying peanut butter [\[allergy alert\]](#), olives stuffed with pimento, crackers with cheese, chips carrying dip or salsa. Carry your snack to another room or outside. We can expand our personal carrying capacity with trays, boxes, backpacks, etc. What expands the carrying capacity of the Earth?

2. Carrying Capacity: Three Activities [15-20]

The expression "carrying capacity" was first used to understand how much cows or sheep a specific amount of land could "carry" before the soil was degraded and unusable. We use carrying capacity also to refer to the number of animals a habitat can support over a given period of time.

The greater the access to the four elements of habitat (water, food, shelter, nesting area), the larger the carrying capacity of an area. To protect other creatures, we must protect their access to all four elements of a healthy habitat. In addition, the amount of life the soil can support is its carrying capacity. A big tree can't grow in a small flower

pot. Sometimes the soil gets tired and the land needs rest. Crops won't grow as well as before. The Earth needs time for worms and microbes to enrich the soil.

1. Wagon Capacity

Materials: A child's wagon

Load the wagon with children. How many can be pulled at once? Does it matter who pulls? Does the surface of the ground make a difference? What happens when there are too many riders? How many cats could ride in the wagon at the same time? Remember that the nature of cats is different from that of children. How many dogs, depending on the breed, could ride? Dogs and cats? How many animals can live on the same piece of land? What are the determining factors?

2. The Bathtub Metaphor

Ideally an outdoor activity. **Materials:** Wide bowl, access to water

Ask the students to consider that the bowl represents the amount of greenhouse gases that the atmosphere can absorb before destabilizing the climate. Ask how much water it can hold before overflowing. Fill the bowl $\frac{3}{4}$ full. How much more can we add? Fill it to the edge of the bowl. What happens when more than it can hold is added? How is the bowl like the atmosphere around planet Earth? What will happen to this bowl if we keep adding more pollution or greenhouse gases?



3. People Power

Materials: Objects of different weight

Ask the children to carry some heavy things, such as chairs or boxes of books, and then some big light things like a feather comforter. How long or how far can they carry things? What helps? [Rest, organization, load sharing, hand trucks or dollies]

How much can each child carry alone? Can two people carry more separately or together?

3. Sharing the Earth for All Creatures [10-15]

All ecosystems function very well when undisturbed. They maintain a balance. People often make changes, both large and small that disturb that balance. Usually it is because we are expanding –building roads, taking down forests for pasturing animals, building new towns and neighborhoods on farm and open land. When we make these changes, there are direct impacts on the animals and plants that live there.

Our roads and buildings break ecosystems into smaller chunks. This is called habitat fragmentation.

When habitats are fragmented, in order to survive, the animals and plants in that habitat must learn to adapt. Often their food source is limited, or their nesting areas are gone. The big risk is that some plants and animals cannot adapt.

Play “Musical Remnants”

Materials: Hula hoops or large sheets of paper, markers or crayons

Lay some hoops out in different spots around the room e.g. Tell the students that each hoop represents a different habitat type and explain what these are. Alternatively you could use large sheets of paper and ask the students to draw a different habitat type on each sheet. Examples include: pond/pond edge, forest/forest edge, desert, prairie, etc.

Assign each student a role as a different type of animal ensuring that there is at least one student representing each major category (mammals, birds, fish, reptiles, amphibians and invertebrates).

Discuss the different habitat needs of the animals and ask the students to head to the hoop that will make the most suitable home for them. Let them know that it is okay for them to live in the same hoop.

Explain that the game you are about to play is similar to musical chairs. Each time the music stops you will remove one hoop and the animals that live there will have to find a new hoop home to move to. Encourage them to discuss what is happening as you go.

- » *Is there enough habitat for all of you?*
- » *Is there another type of habitat that you can move to?*
- » *Why not?*
- » *What do you think will happen to the animals with no habitat left?*
- » *When you are finished, play a second round. This time assign a small number of students as predators.*
- » *What happens as the habitat shrinks and predators and prey are confined to the same small area?"*
- » *What would people need to do differently to make sure there was habitat for all living things?*

Adapted from Wildlife Corridors for Kids.

4. New Neighbors [5-10]

Materials: Have pictures, information, and art materials so the children can draw pictures of birds making homes among human settlements

Around the world, many species of birds have adapted to the buildings in human settlements. Ask what wild birds the children know of that nest or roost on things built by people. [storks, swallows, wrens, pigeons, owls, hawks]

Why do you think they use human settlements now? Are there any living around the building where you meet? What benefits do the birds get from living here?

With older children, extend the discussion to other animals [such as spiders, raccoons, or mice] that have found a niche in which to live amid human cities. Consider how people and animals fit into a variety of niches in order to thrive. Evolution may be seen more as a collaboration among those who fit in and less as the survival of the fittest.

Closing [10-15]

Consider making a bird feeder as a closing activity.

Hand out copies of the Take-Home Page, How Many Fit?

Encourage the children to get their families to talk about the possible ways they can increase the carrying capacity of their home through a garden, bird feeder, etc.

Close with each child sharing: "Today I learned..." and enter into silent worship.

Bird Feeder [10-15]

Materials: Quart milk or juice cartons, peanut butter, birdseed, scissors, little sticks or dowels, tape or staples, coat hangers

Open up a one-quart milk or juice carton and fill it with birdseed mixed with peanut butter [allergy alert]. The children will enjoy stirring it together. This may be a little messy. Cut holes in the side and provide perches with little sticks. Reclose the top with tape or staples. Suspend it with a coat hanger in a place where birds will feel safe to come and eat. Step back and wait quietly to see if birds come. It may take a while. Consider it a time of worship.

How might the birdfeeder increase the carrying capacity of the neighborhood?



How Many Fit?

Look at these places; think about the usual number of people (or animals) there. What would be the ideal or best number? How many would make it crowded?

PLACE	usual number	ideal number	too crowded
Our family's car			
Our kitchen or dining room table			
Our dining table, expanded for a holiday			
The bathroom at home			
My school classroom			
Worship at our church or meeting			
Cats or dogs at our house			
My bicycle or skateboard			
In front of where I live			
In back of where I live			

- » *Were these questions easy or hard for you to answer?*
- » *When is it good to be a bit crowded?*
- » *Where would you rather be alone?*
- » *What places feel too crowded most of the time?*

10. WHOSE JOB IS IT? TAKING RESPONSIBILITY

This Lesson's Goals

- » *To consider the spiritual and ethical dimensions of being responsible for the impacts of our behavior and choices*
- » *To seek ways to take minimize the negative environmental impact of daily activities*
- » *To minimize the production of waste*

Sample Agenda

Posting a simple agenda can help both the teachers and the children stay on track.

1. **Opening:** Silent Worship, Songs, Scripture
2. **Small Group Activities**
3. **Closing**
4. **Sharing Eco-Friendly Survey**

Opening [5-10 min.]

Open with silent worship.

Use the scripture parable and the following quote to introduce the theme.

“Now to act with integrity, according to that strength of mind and body with which our creator hath endowed each of us, appears necessary for us all.” – John Woolman

Songs

He's Got the Whole World in His Hands
When I Needed a Neighbor Were You There?
It's a Small World [Alternate verses, chapter 9]
Earth Was Given as a Garden

Scripture

Luke 10: 30-37

[A lawyer asked] "And who is my neighbor?" and Jesus replied,

"A man was on his way from Jerusalem down to Jericho when he fell among robbers, who stripped him, beat him, and went off leaving him half dead. It so happened that a priest was going down by the same road; but when he saw him, he went past on the other side. So, too, a Levite came to the place, and when he saw him went past on the other side. But a Samaritan who was making the journey came upon him, and when he saw him he was moved to pity. He went up and bandaged his wounds, bathing them with oil and wine. Then he lifted him onto his own beast, brought him to an inn, and looked after him there. Next day he produced two silver pieces and gave them to the inn-keeper, and said, Look after him; and if you spend any more, I will repay you on my way back." Which of these three do you think was neighbor to the man who fell into the hands of robbers?" He answered, "The one who showed him kindness." Jesus said, "Go and do as he did."

Good Samaritan Discussion

Jesus told this story as an answer to the question, "Who is my neighbor?" Who are our neighbors on this Earth?

In Jesus' story, the person who was least expected to help turned out to be the helper. Who do we expect to care for the Earth and endangered species? Who does? Why might they do that?

Small Group Activities

Select from the activities, allowing for the age and size of your group. If rain or snow makes a litter walk impossible, spend longer on the opening game and careers. Bake bread, rolls, pies, or cookies to give away. You might still be able to do litter skits, with some imagination.

1. Who is responsible for waste? [5-10]

Discuss with the children what we mean by litter. Generally speaking, litter is waste material which has been abandoned by its user. Bring in a food item in a wrapper of some kind. Open the food wrapper and ask the children what we should do with the wrapper. Who is responsible to do something with the wrapper? Why?

Do they think that those who generate the waste should take responsibility? Why or why not. Share that many Friends feel that we are responsible and that we are bound to provide the means for the management of any waste we create in a way which will not impose undue burdens on future generations or nature.

2. Litter Walk [5-15]

Try this as a field trip activity. Before a litter-collecting walk, talk about who and what are hurt by litter. Why would we pick up litter that other people threw out?

1. Take bags along on your walk to collect your findings. Tongs or rubber gloves may be useful for things you don't want to touch. Some items may be toxic or dangerous.
2. Pick up as much litter as your group can in a one block area.
3. Sort the litter. What items can be recycled?

3. Do Disposable Items Make Sense For Us? [10-15]

Materials: Plastic silverware, plastic cup or plate, biodegradable silverware, plate and cup, ceramic plate, drinking glass, metal silverware

Many Friends believe that waste should be managed in a way that provides protection for the health of people and the environment. There is a concern that household waste and byproducts of industrial processes are a serious problem because they persist in the environment – either as physical objects or as toxins in water, air, plants, and animals (including our food).

As background read this article on plastic cutlery: thelmmagazine.com/2010/04/the-life-of-a-plastic-fork There is an excellent infographic on why we need to reduce plastics in particular here: treehugger.com/green-home/excellent-infographic-shows-why-we-must-say-no-plastic.html

As an example, share information with the children about the choices we all have when we must decide whether we use products that last a long period of time and can be re-used or ones that are considered disposable. Bring in plastic silverware, a cup or plate. Ask the children if these are made for long term or short term use. What happens to them when you are done using them? Most will say they will go in the trash. If we put these in a compost pile, how long will these take to return to the natural world and do no harm? Note the range of guesses.

Now show them a set of biodegradable silverware, plate and cup. Ask the children how long do you think these will take to decompose? How is going in the compost pile different from going to a landfill?

Finally, show the children a ceramic plate, normal drinking glass and metal silverware. Ask them how many times they think they could use these before they need to be disposed of? Which do they think the meeting should use for serving food? How about for picnics? Ask the children what they think your meeting should use to limit harm. What would they recommend the meeting do?

Suggest they bring their proposal to meeting for business.

4. Lethal Litter: Six-Pack Rings [10]

Birds and small animals can get heads or legs caught in these.

Collect and bring several plastic six-pack rings, one for each child if you can. With scissors, cut open all segments of the rings. This makes them less dangerous to animals. Can the pieces be recycled with plastic bags rather than put into the garbage?

Discuss how little effort it can take for people to prevent animal deaths.

5. Pollution is Litter Too! [10-25]

Many homes and meetings use pesticides and herbicides to kill insects and control weeds. We now know that these chemicals are harmful and leave behind residues that injure living things.

A recent report says: "Of those same 30 lawn pesticides, 19 are detected in groundwater, 20 have the ability to leach into drinking water sources, 30 are toxic to fish and other aquatic organisms vital to our ecosystem, 29 are toxic to bees, 14 are toxic to mammals, and 22 are toxic to birds."

Acquaint yourself with the issues and read the Pesticides and Children fact sheet beyondpesticides.org/programs/lawns-and-landscapes/overview/hazards-and-alternatives?pid=295

Instead of using dangerous chemicals on lawns, what else could we do to not pollute the water or harm fish and other animals with the byproducts of these chemicals? One approach is to transition to planting for wildlife.

Consider the resources for gardens for faith communities.
nwf.org/Garden-For-Wildlife/Create/Places-of-Worship/Sacred-Grounds.aspx

6. Preventing Litter: Buy Nothing Day and Swap Day [5-10]

After discussing litter, ask students: "what would prevent so much litter and garbage?"

Acknowledge all their suggestions. If sharing comes up as a suggestion, build on this idea. How could the children create a swap day for toys, clothes or other items? Or collect items they no longer use or need to be shared with other children?



Consider this as a service project the children could organize.

If the children suggest buying fewer things, tell them the story of BUY NOTHING DAY. Depending on their interest, you could develop a Buy Nothing Day for the meeting.

More information at buynothingproject.org

Snack Ideas

Plan a healthy fruit snack which involves no packaging. Have a compost bucket handy for the children to put peels, skins, etc. Comment on the importance of being responsible for our waste. If the meeting doesn't have a compost system, ask a member to take the compost to their pile.

7. Special Plot [5]

Visit your special plot.

Look for natural ways plants and insects have to protect themselves from frost, acid rain, or UV radiation. Are human-made protections of some sort needed? What is our responsibility?

8. Meeting Waste Audit [5-15]

Materials: Save a bag of waste from the meeting from the previous week for this activity

In order to learn how to be responsible for the products we use and then throw away, we need to know what our meeting uses and tosses. Invite the children to do a waste audit. This is a project which sorts and classifies the trash you create in order to decide what you can reuse or recycle.

GreenFaith also has a sample audit sheet for families.. Use their how to guide and worksheet. greenfaith.org/resource-center/stewardship/waste-reduction-and-recycling/waste-audits

9. How Eco-Friendly is Your Meeting House? [30]

Use the attached survey from Canadian Yearly Meeting's Ecology-Action Network to do a scavenger hunt around your meeting house to determine how eco-friendly it is. Engage your meeting's Earthcare group or another relevant committee to help.

Closing [5]

Sing one or two of the songs from the opening.

Invite each child to share "Today I learned . . ."

Close with silent worship.

How Eco-Friendly Is Your Meeting House? A Five-Star Rating System

From Canadian Yearly Meeting's Quaker Ecology-Action Network

IS YOUR Meeting House or place of worship an eco-Friendly place which inspires reverence for all Creation? Try this quiz as a starting point to address sustainability and outreach issues inherent in the concept of designated buildings for meeting for worship.

There is a maximum of six points per best practice, but give credit for any points that apply, total them up, and see what your score reflects.

Try it!

Energy Conservation (1-3: check the one item that best applies)

1. We had an accredited energy-use audit done on water and electricity use, but we have not yet acted on these recommendations. ___/1
2. We have instituted some energy-saving measures that are already cost-effective, or will be within five years, and have not sacrificed comfort for efficiency. ___/2
3. We had an accredited energy-use audit done and have instituted all or nearly all of the energy-saving measures recommended, and it is as comfortable than before these efficiency measures were taken. ___/6
4. We generate some of our power from renewable sources like solar or wind, or we access renewable-source energy off the electric grid. ___/4

Water Conservation (Check any that apply)

1. We have aerators on the taps, and they don't drip. ___/2
2. Toilets are low-flow types. ___/3
3. Rooftop runoff is maximized for the garden, and/or we're "off the grid." ___/3

Recycling (1 or 2 / 5 or 6, check only the item that applies)

1. We try to blue-box everything recyclable, but still we often put out some garbage that could have been recycled. ___/1

2. We provide receptacles for kitchen wastes and compost this either for our Meeting House grounds or take it home. ___/2

3. We blue-box everything we can and provide waste containers for different types, throughout the Meeting House and outside. ___/3

4. We try to minimize paper use. ___/1

5. At least some of the paper products we use are partially recycled paper products, and not chlorine-bleached. ___/1

6. All paper products we use are from 100-percent recycled paper or from non-tree sources, and are not chlorine-bleached. ___/3

Cleaning Products (Check any that apply)

1. We use at least some cleaning products that are non-toxic. ___/2

2. All of our cleaning products are non-toxic. ___/3

Landscaping (Check any that apply)

1. We do not use chemical pesticides or fertilizers on our grounds. ___/2

2. We encourage wildlife with birdfeeders, bird houses, and/or edible berry bushes, etc. ___/2

3. We have a space for young Eco-Friends to call their own. ___/2

4. We grow only hardy native species of perennials and shrubs, instead of annuals. ___/3

5. Our grounds are naturalized or near maintenance-free because we have xeriscaped, planted only hardy species, etc. ___/4

Transportation

(Check any that apply)

1. We have a bike rack. ___/1

2. We have adequate bike racks that are user-friendly (re: U-locks). ___/2

3. We actively encourage car-pooling to Meeting or alternate transportation. ___/3

Outreach, Inreach (Check any that apply)

1. We have a Sustainability or Ecology Committee or Working Group. ___/2
2. We encourage communication with other local faith groups who may be addressing these issues, and we have participated in some local workshops together to promote eco-friendliness. ___/2
3. We have helped publicize the success of our efforts in local news media and/or have posted news about our efforts in publications or websites. ___/3
4. We have researched ownership and habitation history of the property. ___/5

Scoring

- Five stars if you get more than 50 points: ***** Dazzling!
Four stars if you get more than 40 points: **** Very bright!
Three stars if you get more than 30 points: *** Quite shiny!
Two stars if you get more than 20 points: ** Twinkling
One star if you get more than 10 points: * Flickering

(Actually, take a bow if you are reflecting any Light at all. Keep up the great work!)

This rating system is a project of the Quaker Ecology Action Network (QEAN) of Canadian Yearly Meeting, Religious Society of Friends (Quakers). See quaker.ca/qean

WORKING WITH OTHERS

This Lesson's Goals

- » *To find ways to walk gently over the Earth speaking to that of God in everyone and responding to that of God in everything*
- » *To encourage ourselves and others to live simply*
- » *To praise and affirm those who act in caring ways toward the Earth*
- » *To remind ourselves of the many ways we can have a positive effect on the environment*
- » *To share our discoveries with Friends, families, and community*

Sample Agenda

Posting a simple agenda can help both the teachers and the children stay on track.

- 1. Opening:** Silent Worship, Share Quote, Song, Scripture
- 2. Activity:** Heavy Living
- 3. Small Group Activities**
- 4. Closing**
- 5. Sharing Take-Home Page**

Opening [5-10 min.]

As you come to the final sessions of activities, find ways for the children to recall the previous lessons and all they know about Earthcare.

There may be activities from earlier chapters you wish to include here as repeats or because they were skipped then due to season, time, space, people, etc.

Songs

Simple Gifts
Inch by Inch, Row by Row
When I Needed a Neighbor, Were You There?
That Cause Can Neither Be Lost nor Stayed
God, Who Stretched the Spangled Heaven
The Spacious Firmament on High

Scripture

Psalms 19: 1-4

The heavens tell out the glory of God,
the vault of heaven reveals his handiwork.
One day speaks to another,
night with night shares its knowledge,
and this without speech or language
or sound of any voice.
Their music goes out through all the earth,
their words reach to the end of the world.

Heavy Living

Ask the children to give examples of activities that would typify wasteful or "heavy" living. ("Heavy" living means using much more than your share of the Earth's resources.)

- » *How does living lightly or gently differ from heavy living?*
- » *How can technology encourage both lighter and heavier living?*
- » *How can we spread the word about the wonder of creation, our place in it, and what we must do to care for the Earth?*

Small Group Activities

Select three or four of these activities, giving consideration to the age and size of your group.
Useful reference books: *Planet Patrol: A Kids' Action Guide to Earth Care* and *Kids Care!: 75 ways to make a difference for People Animals, and the Environment*.

1. Heavy Living Scenes [5-15]

Review some of the examples of heavy living given in the group sharing. Add some more. Act out some Earth-damaging activities. Then ask them to act out the contrasting scene of living lightly, or ecologically in the same situation.

2. Letters of Thanks [10-15]

Materials: Use e-mail to save paper or make post cards or note paper with leaf prints or sun prints or make marbled paper and fold your own envelopes. Pens, markers, crayons, stamps

Identify individuals or groups or businesses that have helped the environment. Internet web pages, magazines, and newspapers are good sources of information. Focus on local people. Write thank-you messages to the "good guys." Tell them how much you appreciate their efforts.

3. The Nut Game [10-15]

Materials: Bowl with nuts for everyone

With a bowl of shelled peanuts, **[allergy alert]** cashews, or almonds in the center of your circle, ask each person to tell something he or she does to preserve the environment. Each person who now follows that practice gets to take and eat one nut. Play until everyone has eaten enough or the nuts are gone.

This may substitute for Snack. You may want to allow good intentions to count for getting nuts. If you have nut sensitive people choose a different small treat. •

"It were Happy
if we studied
Nature more in
natural Things; and
acted according
to Nature; whose
rules are few,
plain and most
reasonable."
– William Penn

4. Origami [15]

Materials: Previously used paper cut in squares. You want thin paper that holds a crease and doesn't tear easily. Old phone books, wrappings from gifts, Sunday funnies, magazine pages, foil gum wrappers, and correspondence, all can be used if flattened and cut square.

Children (especially first to third graders) need to start with larger pieces of paper and simpler forms before cranes. You may tell the story of Sadako, and learn about children's peace gardens. Or you can let the folding continue quietly as you read other books.

Ask someone with this skill to come teach you and the class how to fold origami cranes and other designs from nature. Look for designs of local or endangered species. Sending home origami napkin rings may help families convert from paper to cloth napkins.

5. Encouraging Others [15-30]

Using ideas from the Nut Game or Heavy Living, think of how to show people practical ways of changing their lives to make an environmental difference.

A play or skit could be rehearsed and presented to friends and families. It could be video-taped. Use it for the closing today.

Invite the children to make posters, bumper stickers, or banners which might interest magazines such as Owl, Ranger Rick, or BeFriending Creation. Submit several.

6. Witness Discussion [5-10]

Collect information from newspapers, magazines, or the Internet about people such as Wangari Maathai in Kenya, Jack Ross, a Canadian Quaker, or Diane Wilson [see Nobody Particular] who have put their lives or reputations “on the line” for environmental causes.

Is there a local activist you can invite to your class? Is there a young Friend or local high school student who has chosen a public witness relevant to your community. Discuss the issues and principles, the methods employed, and the results.

Consider which issues might move your group to action and what form of action your witness might take. Are there any actions currently happening that your group or community could join in or show its support of?

Is Earthcare recognized as a testimony in your Yearly Meeting? If so, lead a discussion with your group. What recommendations would your children make to them? How might these recommendations be shared? An Epistle and/or a presentation at your Annual Sessions?

7. The Earth Charter [10-15]

The Earth Charter is an important international statement that embodies many values and principles held by Friends. Print out a copy of the Charter to read the principles (perhaps not every subsection) with the children. Projects could include having a child or a pair of children make an illustration for each item and create an exhibit, singing the Charter and then endorsing it officially online.

- » *Helpful resources here: <earthcharter.org/discover>*
- » *Raffi song about the Earth Charter <youtube.com/watch?v=3rexBvopdC4>*
- » *<www.littleearthcharter.org/LEC_home.html>*
- » *There are action steps for youth activities also available here: <earthcharter.org/youth>*

8. Kabarak Call for Peace and Ecojustice [10-15]

Share the Kabarak Call for Peace and Ecojustice from Page 6. This Call was approved on 24 April 2012 at the Sixth World Conference Friends, held at Kabarak University near Nakuru, Kenya. It is the culmination of the Friends World Committee on Consultation World Consultation on Global Change which was held in 2010 and 2011.

Ask for reactions and responses to the text. How might we respond to the call? Invite the children to write their own call for peace and ecojustice. Share with your meeting.

9. Earth Saints/Heroes [10-15]

Remember that heroes for the Earth are not just modern-day activists. Find biographies and read aloud about one or more Earth Saints. Here's a list to start with:

Rachael Carson
Teresa of Avila
Wallace Stegner
Walt Whitman
John Muir
Loren Eilsey
Bill McKibben

Aldo Leopold
E. F. Schumacher
Henry David Thoreau
Wangari Maathai
Diane Wilson
Al Gore
Bertha Cáceres

Closing [10]

If this is your last class, gather everyone around the site of one of the children's projects after rise of Meeting: The bird feeder or wind chimes they put up, the tree they planted, the recycling bins they set up, and their special plot or garden or planter box.

Especially invite all the teachers and others who helped with this program, the folks who joined you on field trips, etc. [A public relations opportunity for First Day School!]

- » *Thank people who helped the children learn about Earthcare.*
- » *Ask the children to present something from the program: a skit, pictures, a movement circle, etc. to show how Earthcare can improve their lives or something they learned.*
- » *Take this opportunity to summarize the activities you have done in the past weeks. Recall your favorite ones.*
- » *Underscore how our care for the Earth is related to our love of the Creator and the creation, and that we are called to walk gently over the Earth, answering that of God in everything.*
- » *Close with worship.*

Thanks, Friends!

The Kabarak Call for Peace and Ecojustice

The Kabarak Call for Peace and Ecojustice was approved on 24 April 2012 at the Sixth World Conference Friends, held at Kabarak University near Nakuru, Kenya. It is the culmination of the FWCC World Consultation on Global Change which was held in 2010 and 2011. It is being circulated with the Conference Epistle.

In past times God's Creation restored itself. Now humanity dominates, our growing population consuming more resources than nature can replace. We must change, we must become careful stewards of all life. Earthcare unites traditional Quaker testimonies: peace, equality, simplicity, love, integrity, and justice. Jesus said, "As you have done unto the least... you have done unto me". We are called to work for the peaceable Kingdom of God on the whole earth, in right sharing with all peoples. However few our numbers, we are called to be the salt that flavours and preserves, to be a light in the darkness of greed and destruction.

We have heard of the disappearing snows of Kilimanjaro and glaciers of Bolivia, from which come life-giving waters. We have heard appeals from peoples of the Arctic, Asia and Pacific. We have heard of forests cut down, seasons disrupted, wildlife dying, of land hunger in Africa, of new diseases, droughts, floods, fires, famine and desperate migrations – this climatic chaos is now worsening. There are wars and rumors of war, job loss, inequality and violence. We fear our neighbors. We waste our children's heritage

All of these are driven by our dominant economic systems – by greed not need, by worship of the market, by Mammon and Caesar.

Is this how Jesus showed us to live?

- » *We are called to see what love can do: to love our neighbor as ourselves, to aid the widow and orphan, to comfort the afflicted and afflict the comfortable, to appeal to consciences and bind the wounds.*
- » *We are called to teach our children right relationship, to live in harmony with each other and all living beings in the earth, waters and sky of our Creator, who asks, "Where were you when I laid the foundations of the world?" (Job 38:4)*
- » *We are called to do justice to all and walk humbly with our God, to cooperate lovingly with all who share our hopes for the future of the earth.*
- » *We are called to be patterns and examples in a 21st century campaign for peace and ecojustice, as difficult and decisive as the 18th and 19th century drive to abolish slavery.*
- » *We dedicate ourselves to let the living waters flow through us – where we live, regionally, and in wider world fellowship. We dedicate ourselves to building the peace that passeth all understanding, to the repair of the world, opening our lives to the Light to guide us in each small step.*

Bwana asifiwe. A pu Dios Awqui. Gracias Jesús. Jubilé. Salaam aleikum. Migwetch.
Tikkun olam. Alleluia!

Thank you, Friends!

Visit www.quakerearthcare.org for more.



Quaker Earthcare Witness