

*See my list of
Bible verses*

LUTHERAN OUTDOOR MINISTRIES CENTER
Oregon, IL 61061

CYCLES AND STREAMS
a one day retreat

WHAT DID NOAH DO ABOUT TRASH?

Materials

INTRODUCTORY
SONG

Sing "Rise and Shine." People may like to do actions. Interrupt at end of song with, "What do you mean, "Everything was hunky dory?"

Song Sheet

DISCUSSION

Ask: How do you visualize all these critters in an enclosed vessel and what life would be like? (Where does the word "head" come from naval parlance?)

REVIEW "THE
FLOOD"

~~Hand out~~ the Revius' piece. (Stoat = Weasel)

On Song Sheet

If necessary tell people the Noah story found in Genesis 5:32-9:28.

ORGANIZE INTO
SMALL GROUPS

Each person imagine an animal on the ark. Move around and find others who selected the same animal.

IN SMALL GROUPS

1. Individuals get acquainted with each other with:
 - a: Name and where from
 - b. Why you chose the animal
2. Discuss what they think Noah did with trash.
 - a. What trash did Noah have?
 - b. What did he do about it?

LARGE GROUP
SHARING AND
DISCUSSION

Report back to large group. Write responses on newsprint.

Newsprint
Board
Masking Tape
Magic Marker

Items that should be mentioned are:

1. Biodegradable packaging (precycling)
2. Limited population
3. Recycling
4. Bioregionalism. (Live within means of system.)
5. Fuel - *also a best source*
6. In reality: probably threw trash overboard.

*Controlled
opposite*

Materials

SMALL GROUP DISCUSSION

Distribute work sheet (one per group) and read off the following questions for each of the columns. Give time to fill in each one and allow people to talk about their responses.

Four Column
Work Sheet

Imagine you are going through your waste-basket picking each item from it.

Column 1 - List everything you would find.

Column 2 - Review the list in Column 1 and list beside each item why it was thrown away.

Column 3 - Review Columns 1 and 2 and indicate what will become of each item in the trash.

Column 4 - Review the three columns and discuss what you might have done differently.

LARGE GROUP REPORT BACK

Ask people to share items in each column.
(Make notes on newsprint.)

Newsprint, etc.

1. Why do we throw things away?

Necessity	Community expectations
X Convenience	Education
X Comfort	Fun
X Sanitation	Sacred
Health	Given to a person
Protection	No reason at all
Appearance	Communication
Unwanted	Spoiled/dirty
Fear	Outlived usefulness
Hide things from others	
Indifference (don't really care)	
No trust in others	
Help space be sacred	
Unacceptable to culture	
Shame	

2. What will become of items in trash?

3. What might you do differently?

Materials

SMALL GROUPS DISCUSSION

Distribute Garbage Can with percentages with the following questions on the back. Ask the small groups to ponder answers to these questions.

Garbage Can
Sheets with
Questions on
back

1. What does your trash and how you deal with it say about you?
2. Does it tell anything about what is important to you?
3. What does your trash and your dealing with it say about what you believe about the world?
4. Does it say anything about what you believe about God or what your God is like?

REPORT BACK TO LARGE GROUP

Discuss:

What kind of answers were given?
Was there anything revealing about what was said?

Were you comfortable or uncomfortable about what you hear and said?

BIBLE STUDY OF MATTHEW 19:16-26

Read Matthew 19:16-26 and answer the following questions:

1. Why did the rich man grieve?
2. What did the man cherish?
3. Who or what, would you say, is this man's god?

Remind people that a person's god is:

1. What one puts first.
2. What one cherishes.
3. What one lives for.
4. What one relies upon for fulfillment.

PARALLELING REASONS FOR ITEMS DISCARDED AND PASSAGE OF SCRIPTURE

Ask participants to reflect on the reasons people use for discarding things and what they say about themselves, the world, and God. Is there any connection between that list and this passage of scripture?

10 JUDGMENTS SOMEONE MIGHT MAKE OF US IF LOOK AT OUR TRASH

Share with the group the following ten things a person might see when they look at our garbage:

1. We live with abundance. We take more than we need. We have more than we need. We confuse our wants and our

Bibles

needs.¹ We have a compulsion to consume.

2. We will pay the price for unblemished produce. We will impact our natural world with poisons to create a "perfect" piece of fruit and throw the produce in the dumpster behind the market place when it becomes "spoiled."
3. We are heavily dependent upon technology. But the messianic quality of technology has a demonic side as well. Thomas Berry says, "The immediate danger is not possible nuclear war, but actual industrial plundering."²
4. We are unable to deal with finitude, limits upon our system. This is noticed in how we deal with natural resources as well as the population explosion.
5. Advertising and packaging are tremendous industries that contribute to products in the landfill.
6. Communication in the written form has taken over. Over 40% of the landfill is paper.
7. Products have short term use. How often does a Styrofoam cup get used before it is pitched? A second cup of coffee maybe?³
8. Common space is a problem. We overuse it and treat it as a common dump. There has been little or no concern regarding social impact in the way common space is treated. What is common space? Land, water, air. Industry has probably been the greatest contributor to indiscriminate use of the earth and its resources when disposing of waste products. Industry is taking steps now to correct at least present practices.
9. A manicured environment is important to

many people. Grass clippings and dead leaves fill plastic bags in landfills. For the sake of appearance we deny one type of natural cycle and create a problem where recycling is virtually impossible.

10. It appears that science exists for the benefit of technology, the welfare of the human species' medical needs, and the fulfillment of the "good life". It is just within recent history science is being directed toward the care of the earth.

TIME FOR A SONG Learn Psalm 104.

Song Sheet

WHO SHUT THE DOOR TO THE ARK?

BRIEF PRESENTA-
TION ON GENESIS
7:11-16

Look at passage.

Bibles

Discuss what "shutting the door means."

BRIEF PRESENTA-
TION ON CYCLES
AND STREAMS

Introduce concept of Cycles and Streams.

OPTIONAL: Take a hike to find examples of natural cycles. Discuss their meaning. Introduce the concept of "waste stream."

Show poster.

Cycle and
Stream Poster

Distribute Cycles and Streams Handout.

Cycle and
Stream Handout

Ask each small group to review the items they found in the trash and list them under the categories of cycles and streams.

How would they respond?

Share insights.

Draw conclusions

OPTIONAL:
STUDY OF
PSALM 8

Use the Milling Process.

3 x 5 cards and
magic markers

Discuss

OPTIONAL:
STUDY OF
COLOSSIANS 1

Introduce Passage. Ask for responses to what the readers see.

CLOSING SONG

Sing: You will never learn to care for the
earth,
Until you learn to listen to the
earth.
Listen
Listen
Listen to the earth.

ENDNOTES

1. This compulsion to use, to consume, has found its ultimate expression in our own times, when the ideal is to take the natural resource from the earth and transform them by industrial processes for consumption by a society that lives on ever-heightened rates of consumption. That consumption has something sacred about it is obvious from the central position it now occupies. This is all quite clear from the relentless advertising campaigns designed to convince the society that there is neither peace nor joy, neither salvation nor paradise, except through heightened consumption. (Thomas Berry, The Dream of the Earth (San Francisco: Sierra Club Books, 1988), 115.)
2. Ibid., 72.
3. The difficulty with our industrial age is that its products last for a brief period and then forever remain as a trashed and toxic world in which we and all future generations are condemned to live for an infinite period. . . Human products do not consistently renew themselves in the manner of natural forms. (Ibid., 157.)

file: RETREATS\$TRASH\$CANDS
revised: 9/23/91

LUTHERAN OUTDOOR MINISTRIES CENTER
Oregon, Illinois

NORTHERN ILLINOIS SYNOD, ELCA
LUTHERAN MEN IN MISSION

CYCLES AND STREAMS
a one day event

October 26, 1991

M	9:00	Arrival and Coffee and . . .
O	9:30	Get Acquainted
R		Bible Study - "What Did Noah Do About Trash?"
N		
I		
N		
G		

A	12:15	Lunch
F	1:00	Hike to find Cycles (Milk House Ravine)
T		Presentation/Discussion
E		"Cycles & Streams"
R		Closing Program
N		
O	3:00	Departure
O		
N		

We welcome you to LOMC and this one day retreat. We hope you will find this experience enlightening and uplifting.

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Masking Tape
Magic Marker

*Write to Noah Type
for
Revisus' piece.
Organize into groups
Design floor plans
for a boat
Types boat
What did Noah...*

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Self-reliance

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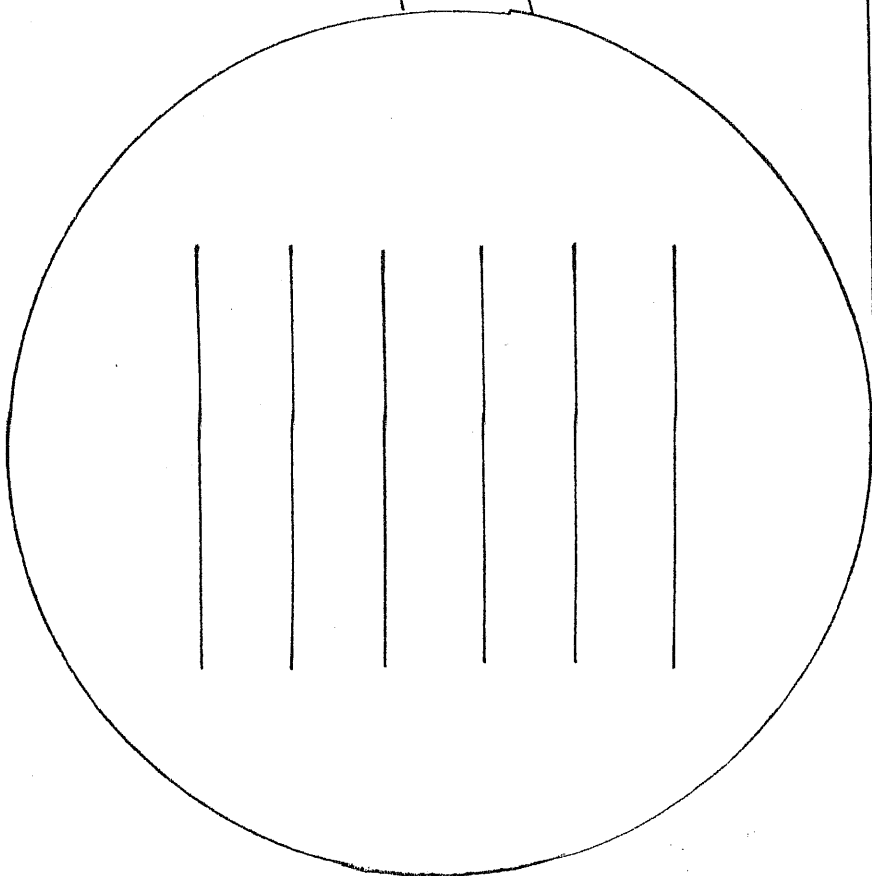
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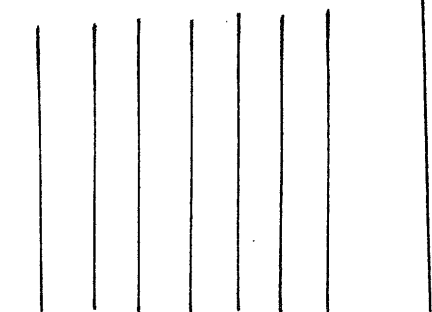
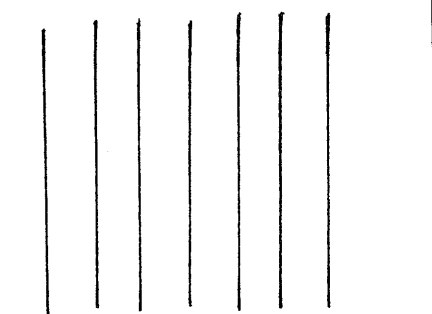
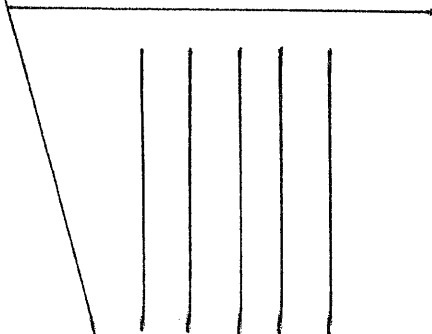
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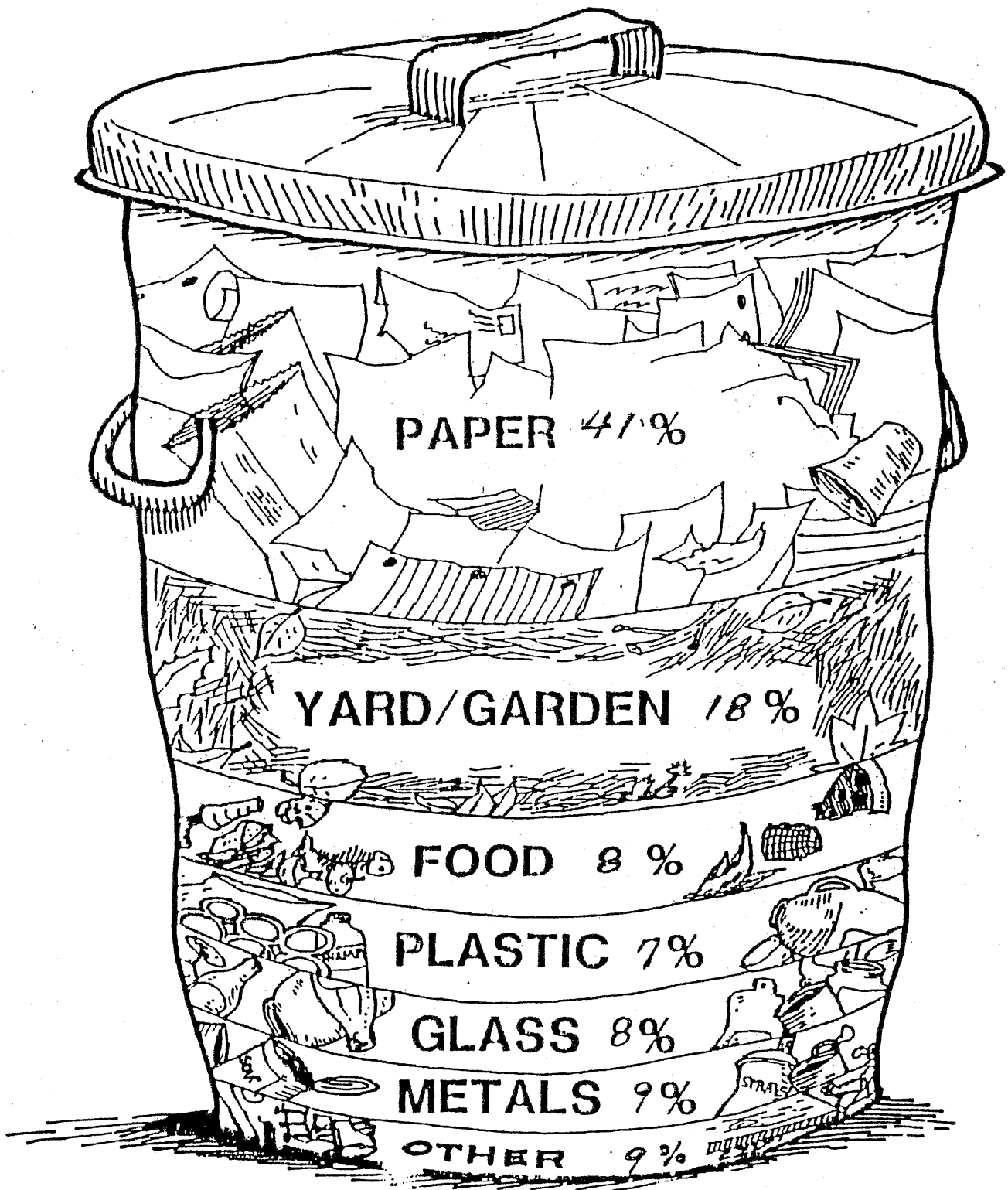
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1ST USE

2ND USE





PAPER 41%

YARD/GARDEN 18%

FOOD 8%

PLASTIC 7%

GLASS 8%

METALS 9%

OTHER 9%

RISE AND SHINE

Refrain: Rise and shine and give God the glory glory. (repeat)
Rise and shine and (clap) give God the glory glory,
Children of the Lord.

1. The Lord said to Noah, "There's gonna be a floody floody. (repeat)
Get my children (clap) out of the muddy muddy,
Children of the Lord. So . . . (refrain)
2. Noah, he built him, he built him an arky arky. (repeat)
Made it out of (clap) hickory barky barky.
Children of the Lord. So . . . (refrain)
3. The animals, they came on, they came on by twosies twosies. (repeat)
Elephants and (clap) kangaroosies roosies,
Children of the Lord. So . . . (refrain)
4. It rain and poured for forty daysies daysies. (repeat)
Nearly drove poor (clap) Noah crazy crazy,
Children of the Lord. So . . . (refrain)
5. The sun came out and dried up the landy landy (repeat)
Everything was (clap) fine and dandy dandy,
Children of the Lord. So . . . (refrain)
6. This is the end of, the end of our story story. (repeat)
Everything is (clap) hunky dory dory,
Children of the Lord. So . . . (refrain)

THE FLOOD

Jacob Revisus (1586-1658)

Translated from the Dutch by Peter Spier

High and long.
Thick and strong
Wide and stark
Was the ark.
Climb on board.
Said the Lord.
Noah's kin
Clambered in.
Cow and moose,
Hare and goose,
Sheep and ox,
Bee and fox.
Stag and doe.
Elk and crow.
Lynx and bear.
All were there.
Stork and frog,
Skunk and hog,
Ape and snail,
Stoat and quail,

Flea and hound,
Could be found.
Lark and wren.
Hawk and hen,
Finch and kite,
Flew inside.
Dog and cat,
Mouse and rat,
Fly and vole,
Worm and mole,
Creatures all,
Large and small,
Good and mean,
Foul and clean,
Fierce and tame,
In they came,
Pair by pair,
Gross and fair.
All that walked,
Crawled or stalked

On dry earth
Found a berth.
But the rest,
Worst and best,
Stayed on shore,
Were no more.
That whole host
Gave the ghost.
They were killed
For the guilt
Which brought all
To the Fall.
Later on
It was done:
Back on land
Through God's hand,
Who forgave,
And did save.
The Lord's Grace
Be the praise!

Materials

INSTRUCT IN FIRE BUILDING

TEACH CINQUAIN (See book)

Paper
Pencils

CANDEING (if weather permits) OR "OH, DEER"

PRAIRIE STUDY

1. Jack lead hike and share information
2. Each person find one spot on the prairie
 - a. Write a verser in cinquain
 - b. Share with small group
3. Find another spot
 - a. Compose a charcoal drawing
 - b. Share with small group

Paper
Pencils

Charcoal
Paper

WEDNESDAY

DEVOTIONS

CYCLES AND STREAMS

1. In small groups introduce Cycles
 - a. Play Web of Life game.
 - b. Divide small group and assign them to create the drama of a cycle and share with the other group
 - Water *nutrients*
 - Air *oxygen*
 - c. Play "Habitat Lap Sit"
 - d. Read or share the following information:

3/5 cards
Pencils
Ball of Yarn

Aldo Leopold describes the energy flow:

Plants absorb energy from the sun. This energy flows through a circuit called the biota, which may be represented by a pyramid consisting of layers. The bottom layer is the soil. A plant layer rests on the soil, an insect layer on the plants, a bird and rodent layer on the insects, and so on up through various animal groups to the apex layer, which consists of the larger carnivores.

The species of a layer are alike not in where they come from, or in what they look like, but rather in what they eat. Each successive layer depends on those below it for food and often for other services, and each in turn furnishes food and services to those above. Proceeding upward, each successive layer decreases in numerical abundance. Thus, for every carnivore there are hundreds of his prey, thousands of their prey, millions of insects, uncountable plants. The pyramid form of the system reflects this numerical progression from apex to base. Man shares an intermediate layer with the bears, raccoons, and squirrels which eat both meat and vegetables.¹

Land, then is not merely soil; it is a fountain of energy flowing a circuit of soils, plants, and animals. Food chains are the living channels which conduct energy upward; death and decay return it to the soil.²

passed on in the DNA to a daughter of the condor and eventually enter the life processes of a beetle feeding on the carcass of the daughter condor when she dies. It could be excreted by the beetle after incorporation into a molecule of uric acid and in turn be converted back into elemental nitrogen in the atmosphere by a soil bacterium. The nitrogen atom may again be brought into living parts of the ecosystem through the operation of a nitrogen-fixing bacterium residing in a special nodule on a root of an alfalfa plant. Following its incorporation into the plant's protein, it could then be passed on to a cow that eats the alfalfa and be built into the muscle protein of the cow, thus returning in a sense to its starting point.

The organisms involved in the decomposer trophic (feeding) level range from tiny bacteria to hyenas and vultures. These creatures are often highly specialized for the work they do and sometimes undergo intense competition for their food. The work of decomposers is also crucial to disposing of the wastes produced by humanity. Certain bacteria are an essential part of the sewage disposal process. Unfortunately, the nutrients released by their action are often just dumped into rivers or the sea, rather than being returned to the soil. Dangerous microbes that may be present in sewage or other wastes are also destroyed by the decomposers either in sewage treatment or in natural systems. Thus rivers can purify themselves, making the water safe again for human consumption - assuming their aquatic ecosystems are not inundated by poisons, overfertilized by a flood of nutrients, or heated up by effluent of power plants. . . .

Maintaining the nutrient-cycling functions of Earth's ecosystems in good health is crucially important. Without the functioning of the myriad organisms responsible for breaking down wastes and recycling carbon, nitrogen, phosphorus, sulfur, and all the other essential elements, all life on Earth would quickly grind to a halt. And that emphatically includes human life; the cycles also operate in - and are absolutely essential to - agricultural ecosystems.⁴

2. Have a general discussion on cycles
3. Introduce concept of Streams
 - a. The waste basket discussion
 1. Distribute work sheet (one per group) and read off the following questions for each of the columns. Give time to fill in each one and allow people to talk about their responses. Four Column
Work Sheet
 2. Imagine you are going through your wastebasket picking each item from it.
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7. Products have short term use. How often does a Styrofoam cup get used before it is pitched? A second cup of coffee maybe?
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CYCLES AND STREAMS - REVIEW PROCESS

1. Distribute "Cycles and Streams" Handout.
2. Use information from what was found in waste basket.
3. How would they respond?
 - a. Share insights
 - b. Draw conclusions

"Cycles and
Streams"
Handout

LEARNINGS

1. List five things you have learned.
2. Identify one thin you learned that can mae a difference in your life.

CYCLES AND STREAMS

Materials: News print, magic markers, tape, 3 x 5 cards, ball of string, pencils, garbage can sheet.

Play Web of Life Game

Dramatize Cycles:

Water

Oxygen

Life/Death

Geological (rock)

Play "Habitat Lap Sit"

Discuss":

1. Where does energy begin? What is its source?
2. How does this energy get to you?

Present the Nitrogen Cycle and read discussion of this cycle

Answer: What is a cycle?

Explain the concept of a metaphor - using a word or idea to imagine something. How would students understand the word "recycle?"

A second metaphor

As a total group - act out a stream/a river - no talking.

Discuss

What makes u-p a river: Components/Flow/Energy/ Pollution

Second metaphor - How would you understand the word "restream?" What does this bring to mind?

Talk about trash

A LOOK IN THE WASTE CAN

Column 1	Column 2	Column 3	Column 4
List everything you would find in your waste can.	Why was each item thrown away?	What will become of each item?	What might you do differently with each item?
1.	1.	1.	1.
2.	2.	2.	2.
3.	3.	3.	3.
4.	4.	4.	4.
5.	5.	5.	5.
6.	6.	6.	6.
7.	7.	7.	7.
8.	8.	8.	8.
9.	9.	9.	9.
10.	10.	10.	10.
11.	11.	11.	11.
12.	12.	12.	12.
13.	13.	13.	13.
14.	14.	14.	14.
15.	15.	15.	15.

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Single Adults' Retreat
July 26-28, 1991

"CYCLES AND STREAMS"

	FRIDAY	SATURDAY	SUNDAY
M O R N I N G		8:15 Breakfast 9:00 Bible Study and Learning Experiences	9:30 Bible Study (Please be out of the Retreat Houses by this time.) 11:00 Worship
A F T E R N O O N		12:15 Lunch 1:00 Pool Open Canoë Trip 5:30 Supper	12:00 Brunch 1:00 Pool Open 2:00 Store Open Departure at your lei- sure.
E V E N I N G	7:00 Junior Choir Concert, etc. 8:00 Register 8:45 Gather in Dining Hall for Get Ac- quainted, Snacks, and Devotions	6:30 Evening Ac- tivities Devotions Snacks	

The lodging assignment for Jeanne Bormann
is Meadows B-2

The Fall Single Adults' Retreat has not been scheduled. Do you
have any suggestions for a topic and leader?

file: SINGLES\SUMSCHED.91

LUTHERAN OUTDOOR MINISTRIES CENTER
Oregon, IL 61061

SINGLE ADULT RETREAT
July 26-28, 1991

Activity

Details

Materials

FRIDAY

Learn Names

Each person introduce oneself and tell the group one thing they threw away today.

Get Acquainted

1. Each person choose an animal that may have gone on the ark.
2. Move around the group acting out the animal.
3. Find another person who is:
 - a. Like you or
 - b. depends upon you or
 - c. you depend upon or
 - d. none of the above.
4. Group and talk about
 - a. Why you chose the animal you did?
 - b. How you think it was to live on the ark for over a month. Develop a story.
5. Report back to group

"Away with Waste" - a garbage game

1. Before the session begins hide a ball marked "garbage" in one of the backpacks.
2. Introduce the activity by talking about illegal dumping. Various places are used: air, soil, and water.
3. Discuss difference between illegal dumping and littering. (The former is usual intentional.)
4. Discuss "fines." Should there be any? For what reason? (Clean up, etc.)
5. Tell the participants that "garbage" is hidden on someone's person. Anyone caught with the garbage will be found guilty of littering. Anyone who is caught getting rid of their garbage, i.e. putting it in someone else's pack, or whatever, will be charged for illegal dumping.
 - a. At any time a person can call "littering." Each person must go through their own personal belongings. The one who has the "Garbage" must pay a fine to the person who calls. The calling person can determine the fine. The person possessing the "garbage" is not left to dispose of it. (Note possibly how people are treated.)
 - b. In the event a person sees another disposing of the "garbage" in someone else's personal belongings can call "illegal dumping." They can then excise a fine to that person. The one with the "garbage" is responsible for disposing of it. (Again note how the person is treated.)

Ball with word "garbage" on it and paper money.

Activity

Details

Materials

6. Money is distributed to everyone, a random amount. This money is used to pay fines.
7. This game can go on for a long time. It is up to the leader to determine this.
8. At the conclusion the group can process what happened. (This fits in with the notion of treating others as "trash," too.)

Expectations

1. Divide into several groups and ask them to write down their expectations of this event.
2. Share with rest of group.

Newsprint
and magic
marker

Team Building

1. Each person write down items on five pieces of paper they would bring with them on an ark if the situation were to arise.
2. Put them in priority and share them with others.
3. Create groups and let them organize their choices so there are only ten items on the ark.
4. Each group must defend its reasons when sharing.

Five pieces
of paper for
each person
and pencils

Contracting

Review schedule.

Devotions

- A. What's in the trash and . . . ?
 1. Review what each person said they threw away today.
 2. List on newsprint and add other items.
- B. Reasons for throwing things away?
 1. Brainstorm reasons for throwing things away. List these reasons on newsprint.
 2. Here are a few starters:

Necessity	Community expectations
Convenience	Education
Comfort	Fun
Sanitation	Sacred
Health	Given to a person
Protection	No reason at all
Appearance	Communication
Unwanted	Spoiled/dirty
Fear	Outlived usefulness
Hide things from others	
Indifference (don't really care)	
No trust in others	
Help space be sacred	
Unacceptable to culture	
Shame	
- C. Read Matthew 19:16-26
 1. Repeat the story either as a group or leader in own words.
 2. Answer the following questions:
 - a. Why did the rich man grieve?
 - b. What did the man cherish?
 - c. Who did this man claim as his god?

Newsprint
Tape
Magic Marker

Activity

Details

Materials

- D. Remind participants that a person's God is:
 - 1. What one puts first;
 - 2. What one cherishes;
 - 3. What one lives for; and
 - 4. What one relies upon for fulfillment.
- E. If someone was to look at the reasons people are using for discarding things what would they say the people believe about themselves and their God? What do they cherish?
- F. When the participants look at their own reasons for discarding things how do they interpret what is being said about: one's self and one's God?

SATURDAY

Devotions and
Bible Study to
"What Did Noah
Do about
Trash?"

- A. Become familiar with the Noah story.
 - 5:32 Noah 500 years old, then became father of Shem, Ham, and Japheth.
 - 6:1-4 Sons of God marry daughters of humans.
 - 6:5-7 Humanity's sinfulness/God's sorrow.
 - 6:8 Noah favored by God.
 - 6:9-10 Description of Noah's characteristics:
 - A righteous man
 - Blameless in his generation
 - Walked with God.
 - 6:11-22 Promise of God's destruction/God's instruction to Noah to build an ark/what to bring aboard the ark: animals and food.
 - 7:1-5 Further instructions from God regarding what Noah takes aboard. Seven pairs of clean animals; one pair that are not clean; seven pairs of birds.
 - 7:6-10 Noah and family and animals board ark 7 days before rain fall (Noah now 600 years old).
 - 7:11-16 Family and animals (of every kind?) entered ark by God's command, and God shuts them in (waters from beneath and above).
 - 7:17-24 Waters swelled for 150 days. All animal life died. What are swarming creatures?
 - 8:1-5 After 150 days water abated. Ark rests on Mt. Ararat.
 - 7:11 Flood begins on second month, seventeenth day
 - 8:4 Seventh month, seventeenth day waters abated and on Mt. Ararat.
 - 8:5 Tenth month, first day top of mountains appear.

Activity

Details

Materials

- 8:6-12 Noah sends out raven and dove. First time dove returns with nothing. Second time with an olive leaf. Third time the dove does not return. Where is the raven?
- 8:13-19 601 years of Noah. First month, first day waters begin to dry up. Second month, twenty-seventh day Earth is dry. Noah debarks the ark. Everyone leaves as families.
- 8:20-22 Noah builds altar and sacrifices one of every clean animal. God's promises not to flood the earth.
- 9:1-5 God instructs Noah and family to be fruitful and multiply. (See 1:28) Chapter 9 leaves out subduing the earth. Food to eat. God requires a reckoning from animals and people - each one for the blood of another.
- 9:6-7 Shedding of blood.
- 9:8-17 The covenant. No more flood to destroy Earth.
- 9:18-19 Sons emerge from ark and populate the earth.
- 9:20-27 Noah gets drunk. Becomes naked.
- 9:28 Noah lives 350 years after flood.

B. Using your imagination, what do you think Noah did with trash?

1. Allow some playful time to speculate.
2. Introduce several things that Noah did that impacted trash.
 - a. There was a limit to the number of species and humans. (Show the exercise in I E 2; V that provides participants with experiencing the relationship between population and garbage disposal.)
 - b. What kind of packaging did he use?
 - o Note that everything was biodegradable.
 - o Show the Exercises in I E 1, VI, VIII; 2, VI, VII; 3, III; 5, II, III to discuss packaging.
 - c. Noah could have been recycling.
 - o What did he recycle?
 - o Discuss composting (visit the compost site) (See III E 16)
 - d. Bioregionalism
 - o Introduce this concept. (See notes in Background Paper, p. 17)
 - o Demonstrate some type of "community study."
 - Forest Community (I E 10)
 - Count the parts of a Quadrant (I E 11)
 - e. Feces for fuel

See Recycling Study Guide

See 4 R's Project

Activity

Details

Materials

3. Discuss what Noah probably did with the trash - threw it overboard.
 - a. Is this what most people think?
 - b. Does this present any problems?
 - c. Discuss common ground.
 - o What is it? (Air, water, public land, roads, developing countries)
 - o How is it dealt with?
4. What do we do with trash? (Demonstrate exercises: I E 1, V, IX; 2, IV; 3, IV; 4; 5, V, VI, VII; 6 and play "Away with Dumps")

How We Deal with Trash

1. Divide into groups and discuss: "What does our handling of trash tell us about what we believe about the world?"
2. Each group make a brief presentation.

Bible Study for "Who Shut the Door to the Ark? Why?"

- A. Introduce discussion by talking about what happens when a door is shut.
 1. Assign groups to think about various doors that are closed and why: prisons, houses, lockers, cars, etc.
 2. Discuss with the entire group what shutting doors means in each instance.
- B. Imagine the ark. If necessary remind the group of its shape and dimensions.
 1. Guess/speculate
 - a. What type of door would the ark have?
 - b. How was the door shut? Who shut the door?
 2. Read Genesis 7:11-16.
 - a. What does the passage say about who shut the door?
 - b. What do the participants think the author meant by saying this? (Review some of the door shutting reasons given earlier.)
- C. What do you think God preserved in the ark?
 1. Do "What Would You Put in the Ark" (II E 6)
 2. Discuss and clarify what was being preserved:
 - a. The different organisms of God's creation
 - o Note that a small percentage of organisms exist today compared to what has existed since the beginning of time.
 - o We know a small percentage of the organisms that do exist today. The Rain Forest is an example of this.
 - b. The way organisms interact. (The natural systems cannot exist outside of the species themselves.)
- D. The story of the Flood in part reminds the reader that God preserve what God creates. That includes organisms and the way organisms work together.
- E. A way to describe the process is called "cycles."
 1. Take a hike to observe cycles.

ActivityDetailsMaterials

2. Tell the story of the nutrient cycle - See Background Paper (pp. 19-21)
- F. There are many things that exist that do not fit into cycles.
- G. Discuss the meaning of the "waste stream."
 1. This is a human process.
 2. Technology plays a significant role.
 3. Once an item appears in the stream it cannot be recycled in the natural way.
 4. Introduce the idea that what we call recycling today is really maintaining the stream.
- H. Discuss/review where garbage fits into the picture.
 1. In a cycle? (Necessary)
 2. In a stream? (Problem)
 3. In both instances management by people is necessary.
- H. Create a Cycle/Stream Display

Bible Study

Psalm 8

3x5 cards

Devotions

Sing Psalm 104

SUNDAY**Bible Study**

Colossians 1



Solid Waste Action Paper #8

The Real Wrap on Polyvinyl Chloride Packaging

*Prepared by:
The Solid Waste Alternatives Project
Environmental Action Foundation*

In June 1992, 18 environmental and public interest organizations issued a ten-point Environmental Challenge to the Plastics Industry to spell out the issues the industry must face if it is to improve the eco-profile of plastics. In addition to calling for more reusable plastic packaging, higher recycling rates, and a reduction in pollution from plastics production, the challenge calls for a phase out of rigid polyvinyl chloride packaging. This action paper elaborates on that point. For a full copy of the Challenge, contact SWAP, address and phone below.

Background: Despite regulatory scrutiny and grassroots campaigns to curb plastics in the wastestream, plastic packaging continues to proliferate. Unfortunately, recycling rates for plastic packaging still hover below 4 percent. Combine this with the fact that production and disposal impacts from plastic packaging pose threats to human health and the environment, and it becomes clear that policymakers must take a harder look at phasing out the use of certain plastics used for packaging. Polyvinyl Chloride (PVC) stands out as the most environmentally destructive packaging material because it poses environmental and public health threats in its production, use, recycling and disposal. One study shows that PVC accounts for 50% of the chlorine in the waste stream, making it a major cause of chlorine pollution of air and water.

In 1991 9.13 billion pounds of PVC were sold in the United States. Of those sales 694 million pounds, or 7.6 percent, were used for packaging materials such as flexible wrap for meats and cheeses, bottles, and blister packs. Figure 1 shows the major uses of PVC. The recycling rate for PVC in 1991 was only .1 percent of total sales, and only .2 percent for PVC packaging. (See Table 1)

Impacts of PVC Production: The single factor that sets PVC apart from other plastics in terms of hazards in production and disposal is the presence of chlorine in the resin. In fact, one-third of all chlorine produced in the world is used in the manufacture of PVC. Chlorine and its antecedents, the organochlorine family, are highly toxic and bioaccumulative. Organochlorines can cause cancer, birth defects, and liver and kidney damage. Other chemical compounds based on chlorine, such as polychlorinated biphenyls (PCBs) and dioxin, caused the environmental contamination at

PVC Distribution by Major Market

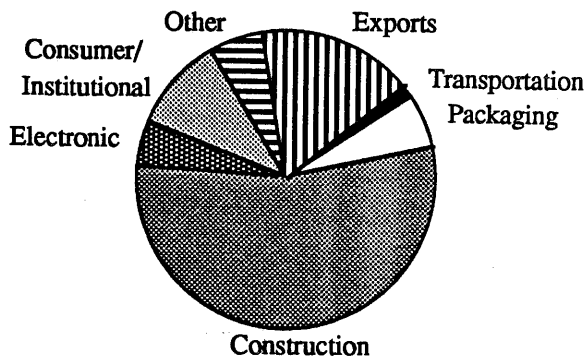


Figure 1

Source: Society for the Plastics Industry, 1992.

Love Canal, NY, and Times Beach, MO.

Both of the building blocks for PVC, ethylene dichloride (EDC) and the vinyl chloride monomer (VCM), are organochlorines and known carcinogens. Like other organochlorines, EDC has been proven to cause cancer and birth defects and damage liver and kidney functions. VCM is the primary component of PVC and has been shown to cause cancer in the brain and liver, and to have adverse effects on the respiratory tract

and the spleen. Indeed, health studies show that people living within a two-mile radius of PVC production facilities face increased cancer risks. And workers in PVC plants run cancer risks up to 16 times that of the general population and contract respiratory problems such as asthma from PVC plumes and dust.

A recent study by the Tellus Institute, a non-profit consulting firm, compared the relative environmental impacts of the production, use and disposal of various packaging materials and showed that the environmental costs of PVC are the highest of all packaging materials. PVC's impact is nearly 5 times that of polyethylene terephthalate (PET), the most recycled of all plastics, nearly 10 times that of any other plastic resin, and 33 times that of glass. "PVC's high environmental costs are largely due to vinyl chloride emissions in production," says Karen Shapiro, a principal author of the Tellus study.

PVC manufacturers question this study and claim it is based on old data and overestimates the energy use and other environmental impacts of PVC production. Bob Elcik, of Occidental Chemical, one of the major manufacturers of PVC used in packaging, argues that since 1976 the industry has minimized vinyl chloride emissions to the degree that residuals are almost undetectable.

Indeed, the industry argues that PVC production is environmentally superior because it is the most energy efficient packaging material. However, once recycling is taken into account, aluminum, glass, and other types of plastic come out ahead. Almost all PVC is virgin stock, thus requiring the full energy demand for every unit produced. By comparison, the production of recycled glass uses only about 40% of the energy input needed for virgin glass and the production of recycled aluminum uses only about 5% of the energy virgin aluminum production uses. Further, the industry's estimates of energy used in production do not take into the account energy used to produce the chlorine and ethylene in the EDC that is used to manufacture PVC.

Impacts of PVC Use: There is also evidence that the VCM can migrate from the packaging into fatty or alcohol-based foods. For this reason, food contact PVC packaging drew harsh scrutiny from the federal Food and Drug Administration (FDA) in the mid 1970s when regulators banned PVC from food contact applications after finding evidence of VCM leaching. By 1986, FDA reversed the ban based on industry studies showing reduced VCM migration and a reduced cancer risk of one in 10 million. The FDA allowed, based on only the industry's information, expansion of the use of PVC to liquor bottles, and later to other food contact packaging.

Table 1

Plastics Sales and Recycling Rates, 1991 In Millions of Pounds						
Resin	Total Sales	Total Recycled	% of Sales Recycled	Sales to Packaging	Packaging Recycled	% of Pkg Recycled
PET	2,348	353.3	15.0%	1,372	292.8	21.3%
HDPE	9,193	299.4	3.3%	4,440	280.5	6.3%
LDPE	12,143	56.2	.5%	4,900	46.9	1.0%
PS	4,877	24.3	.5%	1,617	23.9	1.5%
PVC	9,130	7.5	.1%	694	1.6	.2%
PP	8,155	150.0	1.8%	1,555	5.2	.3%

Source: Environmental Defense Fund, 1992

When the FDA announced its intention to allow the PVC industry to expand its share of the packaging market, the Coalition for Recyclable Waste (CRW), a national coalition of environmentalists, citizens and recyclers, demanded an environmental impact statement (EIS) to quantify the health and safety implications of the decision, as well as its impact on the waste stream. By November 1988, after being flooded by over 1,400 letters from CRW activists and at the urging of the Environmental Protection Agency, the FDA decided to conduct an environmental impact statement (EIS) for food contact PVC packaging. Four years later, FDA's Elizabeth Cox reports, "We are working on it, but we are not making any predictions on when the EIS will be completed."

PVC and Recycling: Of all plastics used in packaging, the recycling rates for polyvinyl chloride (PVC) are the lowest. Hovering at about one percent, it joins polystyrene and low density polyethylene film in pulling aggregate recycling rates for plastic packaging down to below 4 percent, despite a 38 percent recycling rate for PET bottles. Although the Vinyl Institute boasts that 1,200 U.S. communities "have access" to PVC container recycling, they admit that they only collect postconsumer PVC from 16 states and three Canadian provinces.

The increasing use of PVC as a "look alike" package for soft drinks, water, juice and other products usually packaged in PET is wreaking havoc on the PET recycling system. The two resins are virtually indistinguishable and, therefore, difficult to separate. "They not only look alike," says Marty Forman, president of Poly-Anna Plastics, "they act alike in common separation procedures at most recycling plants." But, PVC has a lower melting point than PET, so it burns at the temperature required only to melt PET, leaving black spots in the PET resin. According to Forman, the introduction of one PVC bottle into the recycling process can contaminate 100,000 PET bottles. This is no small problem for PET recyclers. It seriously undermines the economic viability of the PET recycling system. For example, the price that processors can get for postconsumer PET in bottle bill states, where there is no PVC contamination, is six times higher than in other states.

Even though only about .1 percent of PVC is recycled annually the PVC industry argues that recycling rates would increase if more PVC were used in consumer markets and more recycling facilities installed automated sorting technologies that can sort PVC from PET. Automated sorting machines are currently in place in only 20 recycling facilities nationwide.

PVC and Incineration: Because of its chlorine content, PVC has been linked to harmful incinerator emissions. A study commissioned by the German Federal Ministry for Research and Technology in 1989 found that although PVC packaging makes up only .5% of the volume of waste by weight, it is responsible for 50 percent of the chlorine in the waste stream. In the U.S., it was concern over incinerator emissions that prompted EPA to urge FDA to conduct an environmental impact statement before approving further PVC packaging applications.

Incineration of PVC is problematic because when chlorine is burned, hydrochloric acid (HCl) is formed. HCl is highly corrosive, contributes to acid rain, and may play a role in the destruction of the ozone layer. According to the Vinyl Institute, the PVC industry trade association, studies show that one-third to one-half of the HCl in incinerator emissions can be attributed to PVC. In fact, the incinerator giant Ogden Martin urged FDA in 1984 not to approve expansion of PVC packaging applications, stating that the proposed expansion may increase HCl emissions by as much as 50% and decrease incinerator efficiency, since HCl corrodes incinerator parts.

HCl is also considered to be a precursor to dioxin. EPA officials claim that PVC is not an important factor in the formation of dioxin, but Greenpeace scientists in Germany argue that the incineration of one kilogram of PVC produces 50 micrograms of dioxin — enough to cause cancer in 50,000 lab animals.

PVC is also a major source of lead and cadmium, since these heavy metals are often additives to PVC packaging. They become concentrated in incinerator ash, which is currently landfilled with municipal waste, and therefore may leach from leaky landfills.

Action To Date: Suffolk County, NY, and Portland, OR, passed local ordinances that restrict the sale of PVC food service packaging in 1987 and 1988. However, these have had minimal impact since PVC is most widely used for food serviceware. In addition, the Suffolk County ordinance has not yet been enforced because it has been embroiled in legal battles.

Recently, however, action on PVC packaging in the U.S. has been on the rise. The City of East Lansing, MI, considered a broad packaging ordinance which could have restricted PVC packaging because of its effect on stratospheric ozone, acid rain and groundwater. The ordinance was postponed, and will be addressed by the City Council again in June 1993.

In Wisconsin, the Governor's Council on Recycling considered a recommendation to the legislature in November 1992 to ban rigid PVC containers. The proposal was tabled, and later rejected due to heavy industry lobbying to defeat it. At the same time, consumer product manufacturers may see the writing on the wall. Procter and Gamble testified that it is voluntarily phasing out PVC in its packaging. According to Tom Rattray, associate director of corporate packaging development, P&G sells only two products in PVC bottles, and says it will phase those out within the next year. Progress has been slower in finding alternatives to PVC blister packaging, but Rattray reports that P&G found a PET alternative and plans to switch to it within a year as well.

In Europe and Australia, action to restrict PVC packaging has been much more widespread. The Swiss government instituted regulations in 1991 that ban non-recyclable packaging, PVC included. In Australia, PVC packaging is being phased out in all supermarkets. And several retail chains, Tengelmann in Germany, Irma in Denmark, and Ikea in Sweden, are phasing out PVC products and packaging. The motivating force behind the European phase outs seems to be concern about dioxin pollution from incineration.

What You Can Do: The case against using rigid PVC packaging is clear. Even with the uncertainties about the health risks of using PVC, the effects of PVC production, incineration and its effect on the PET recycling infrastructure are more than ample reason to limit its use. Here's what you can do to make that happen:

* **Don't Buy Products in PVC Packaging!** Vote with your dollars against PVC. The easiest way to identify PVC is to look for the plastics industry resin code. PVC's code is #3 and "V" for vinyl.



* **Work to Ban PVC Packaging!** Propose local bans of rigid PVC packaging. You can fight off the industry lobby by building a strong coalition of packaging reform advocates, anti-incinerator activists, plastics recyclers, and other interested parties. Beware: The plastics industry has launched a "mobilization campaign" to use grassroots strategies and get local plastics employees to fight legislation to restrict plastic packaging.

References:

PVC: Toxic Waste In Disguise, Greenpeace International, Amsterdam, the Netherlands; 1992.

Inventory of Material and Energy Use & Air and Water Emissions from the Production of Packaging Materials, Tellus Institute, Boston, MA; 1991.

The Vinyl Institute, Wayne, NJ; 1992.

Initial research for this report conducted by SWAP intern Jeremy Madsen.

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Materials

INSTRUCT IN FIRE BUILDING

TEACH CINQUAIN (See book)

Paper
Pencils

CANDEING (if weather permits) OR "OH, DEER"

PRAIRIE STUDY

1. Jack lead hike and share information
2. Each person find one spot on the prairie
 - a. Write a verser in cinquain
 - b. Share with small group
3. Find another spot
 - a. Compose a charcoal drawing
 - b. Share with small group

Paper
Pencils

Charcoal
Paper

WEDNESDAY

DEVOTIONS

CYCLES AND STREAMS

1. In small groups introduce Cycles
 - a. Play Web of Life game.
 - b. Divide small group and assign them to create the drama of a cyle and share with the other group
 - Water *nutrients*
 - Air *oxygen*
 - c. Play "Habitat Lap Sit"
 - d. Read or share the following information:

3/5 cards
Pencils
Ball of Yarn

Aldo Leopold describes the energy flow:

Plants absorb energy from the sun. This energy flows through a circuit called the biota, which may be represented by a pyramid consisting of layers. The bottom layer is the soil. A plant layer rests on the soil, an insect layer on the plants, a bird and rodent layer on the insects, and so on up through various animal groups to the apex layer, which consists of the larger carnivores.

The species of a layer are alike not in where they come from, or in what they look like, but rather in what they eat. Each successive layer depends on those below it for food and often for other services, and each in turn furnishes food and services to those above. Proceeding upward, each successive layer decreases in numerical abundance. Thus, for every carnivore there are hundreds of his prey, thousands of their prey, millions of insects, uncountable plants. The pyramid form of the system reflects this numerical progression from apex to base. Man shares an intermediate layer with the bears, raccoons, and squirrels which eat both meat and vegetables.¹

Land, then is not merely soil; it is a fountain of energy flowing a circuit of soils, plants, and animals. Food chains are the living channels which conduct energy upward; death and decay return it to the soil.²

Anne and Paul Ehrlich add to our understanding of the nutrient cycle:

Neither we nor any other organisms can live by sugars alone. All organisms must have access to a wide range of elements; among the more important are carbon, hydrogen, oxygen, nitrogen, phosphorous, potassium, sulfur, iron, calcium, magnesium, copper, manganese, molybdenum, boron, and zinc. As with sugars, the ultimate source of essential elements for all animals and decomposers are the plants at the pyramid's base.

Essential nutrients tend to move in cyclical pathways through ecosystems. To take a highly simplified example, phosphorus, which is critical to the ability of all organisms to make use of energy, is taken up through the roots of plants and passed on to animals that eat the plants. Carnivores, in turn, obtain their phosphorus from herbivores. Decomposers in soil break down organic molecules containing phosphorus and once again make the phosphorus available for plants to pick up through the roots. In outline, if not in detail, the phosphorus cycle resembles those of other nutrients.

The ways in which nutrients cycle in ecosystems can be extremely complex. The most intricate is that of nitrogen, which as a necessary component of protein is essential to all living beings. There is a huge pool of nitrogen in the atmosphere, but it cannot be used directly by higher organisms. Certain specialized microbes (mainly blue-green algae and a few groups of bacteria) are able to "fix" atmospheric nitrogen - that is, to convert it to forms in which it can be used by other organisms. The best known of the bacteria live in nodules on the roots of plants of the legume family. The legumes include peas, beans, peanuts, clover, and alfalfa. Thus these valuable plants not only provide protein-rich plant foods for human beings and forage for their animals, but they also, with their microbial companions, replenish soil with vital nitrogen. Nitrogen fixation takes place in aquatic habitats, too, mainly by the action of the blue-green algae. Many of these are free-living, but an important one lives in symbiosis with a water fern in rice paddies.

Once the nitrogen has been fixed in soil or water, it is taken up by plants and passed on through many different living pathways. Eventually, in the process of decomposition, another group of microorganisms returns some of the nitrogen to the atmospheric pool. . . .

Intimately related to the functions of ecosystems in generating and maintaining soil are those of waste-disposal and nutrient cycling. Decomposer organisms, which dispose of all the wastes produced by organisms and dispose of their bodies when they die, often live in the soil. The large, complex organic molecules found in droppings and dead bodies are reduced by the decomposer system to simple inorganic chemicals - mainly nutrients - which are then returned to their starting points in the system, often by circuitous pathways. Thus the cycling of nutrients and disposal of wastes are two aspects of the same biological process.

To return to the nitrogen example, a nitrogen atom in the muscle protein of a dead cow in the coastal mountains of southern California may move into a strand of the DNA (the molecule that holds the genetic code) of a California Condor after the condor dines on the cow's carcass. That nitrogen atom may be

passed on in the DNA to a daughter of the condor and eventually enter the life processes of a beetle feeding on the carcass of the daughter condor when she dies. It could be excreted by the beetle after incorporation into a molecule of uric acid and in turn be converted back into elemental nitrogen in the atmosphere by a soil bacterium. The nitrogen atom may again be brought into living parts of the ecosystem through the operation of a nitrogen-fixing bacterium residing in a special nodule on a root of an alfalfa plant. Following its incorporation into the plant's protein, it could then be passed on to a cow that eats the alfalfa and be built into the muscle protein of the cow, thus returning in a sense to its starting point.

The organisms involved in the decomposer trophic (feeding) level range from tiny bacteria to hyenas and vultures. These creatures are often highly specialized for the work they do and sometimes undergo intense competition for their food. The work of decomposers is also crucial to disposing of the wastes produced by humanity. Certain bacteria are an essential part of the sewage disposal process. Unfortunately, the nutrients released by their action are often just dumped into rivers or the sea, rather than being returned to the soil. Dangerous microbes that may be present in sewage or other wastes are also destroyed by the decomposers either in sewage treatment or in natural systems. Thus rivers can purify themselves, making the water safe again for human consumption - assuming their aquatic ecosystems are not inundated by poisons, overfertilized by a flood of nutrients, or heated up by effluent of power plants. . . .

Maintaining the nutrient-cycling functions of Earth's ecosystems in good health is crucially important. Without the functioning of the myriad organisms responsible for breaking down wastes and recycling carbon, nitrogen, phosphorus, sulfur, and all the other essential elements, all life on Earth would quickly grind to a halt. And that emphatically includes human life; the cycles also operate in - and are absolutely essential to - agricultural ecosystems.¹

2. Have a general discussion on cycles

3. Introduce concept of Streams

a. The waste basket discussion

1. Distribute work sheet (one per group) and read off the following questions for each of the columns. Give time to fill in each one and allow people to talk about their responses.

Four Column
Work Sheet

2. Imagine you are going through your wastebasket picking each item from it.
Column 1 - List everything you would find.
Column 2 - Review the list in Column 1 and list beside each item why it was thrown away.
Column 3 - Review Columns 1 and 2 and indicate what will become of each item in the trash.
Column 4 - Review the three columns and discuss what you might have done differently.

LARGE GROUP REPORT BACK

Ask people to share items in each column. (Make notes on newsprint.)

Newsprint,
etc.

1. Why do we throw things away?
Necessity Community expectations
Convenience Education
Comfort Fun
Sanitation Sacred
Health Given to a person
Protection No reason at all
Appearance Communication
Unwanted Spoiled/dirty
Fear Outlived usefulness
Hide things from others
Indifference (don't really care)
No trust in others
Help space be sacred
Unacceptable to culture
Shame

2. What will become of items in trash?

3. What might you do differently?

10 JUDGMENTS SOMEONE MIGHT MAKE OF US IF LOOK AT OUR TRASH
Share with the group the following ten observations outsiders might make when they look at our garbage:

1. We live with abundance. We take more than we need. We have more than we need. We confuse our wants and our needs. We have a compulsion to consume."
2. We will pay the price for unblemished produce. We will impact our natural world with poisons to create a "perfect" piece of fruit and throw the produce in the dumpster behind the market place when it becomes "spoiled."
3. We are heavily dependent upon technology. But the messianic quality of technology has a demonic side as well. Thomas Berry says, "The immediate danger is not possible nuclear war, but actual industrial plundering."
4. We are unable to deal with finitude, limits upon our system. This is noticed in how we deal with natural resources as well as the population explosion.
5. Advertising and packaging are tremendous industries that contribute to products in the landfill.
6. Communication in the written form has taken over. Over 40% of the landfill is paper.