CLEAN WATER HANDBOOK

CARE FOR THE SICK

P·E·A·C·E

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PEACE Clean Water Handbook

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Matthew 25: 35;
"...For...I was thirsty and you gave me something to drink...

Matthew 25: 40;
...whatever you did for one of the least of these brothers and sister of mine, you did for me..."

Our sincerest thank you to Living Water for providing us with the WASH program. They continue to help people around the world providing clean water, WASH-health-hygiene.g.

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Health, Hygiene, & Evangelism

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INTRODUCTIONS

Message:	Materials:
1. The P.E.A.C.E Plan 2. How much the students matter to God & the team. 3. Affirm participant for taking the time to attend and help their communities understand the importance of clean water and healthy behaviors.	1. Inflatable world globe 2. Kazoos

U.S. team introductions:

Use the globe to show them your journey.

Briefly share About the P.E.A.C.E. Plan

- The P.E.A.C.E. Plan = churches working together to find solutions to the global giants.

Global Giants	Solutions
Spiritual emptiness	*Planting churches, Promoting reconciliation*
Bad leadership	*Equipping servant leaders*
Poverty	*Assisting the poor*
Disease	*Caring for the sick*
Illiteracy	*Educating the next generation*

Introduce each team member.

Briefly share:

- your name and motivation for coming
- something positive you have discovered about the local culture/country
- how you help at your home church

Participant Introductions:

- Their name, occupation, if they are married & how many children
- Where they go to church, how they help at church
- What would their friends and neighbors say is one of their talents, skills, or strengths
- Their favorite food

Optional Group discussion:

•Where they get their water, problems/health issues with the water supply, how they

Teach participants a U.S. song:

God Has the Whole World in His Hands.

The song celebrates that we are all God's children, brothers and sisters, and that God loves each every one of us very much.

The words to the song are:

God has the whole world, the whole wide world in his hands.
He has the tiny babies in his hands
He has you and me brother, you and me sister, in His hands
He has all of us children
He has the wind & the rain, the clouds & the sunshine
He has rich & the poor, the meek & the humble in his hands
God has the whole world, the whole wide world in his hands.

Hand out the gift kazoos. Demonstrate how to hum not blow.

Opening Prayer:

Dear Lord, Thank you for your love for all of your children in the world. You have brought each of us here today for a reason. Please help us get to know each other and develop bonds of friendship. Please help us learn from each other. Please use each of us to serve you by helping others, by helping others who thirst for your word and by helping your people who thirst for clean water. Please bless our time together. Amen
Note: encourage the students to play local worship songs (some on the kazoo) and teach you their dances as stretch breaks, after lunch, and before going home for the day.

Community Observations

Before you teach the class, research the water and sanitation issues. After you arrive, prepare by walking around the community, visiting markets and homes, and talking with people from the local area. (Be careful not to make people defensive or uncomfortable with intrusive questions or criticism). Learn as much as you can about:

Health

- What sickness and diseases are prevalent?
- Are they caused by contaminated water or unsanitary conditions?
- Is the infant mortality rate high? What is life expectancy?

Water

- How is water collected? How far do people walk? Are there access issues?
- Are the containers clean? Are lids used? How is water stored?
- Are the water containers used for anything other than collecting clean water?
- What do locals think about the quality of their water? Do they think water or sanitation issues are causing sickness, disease, or death?
- What is the infant mortality rate? Life expectancy?
- Test the water for e-coli contamination.

Hygiene

- Do adults have clean hands & nails? Children?
- How clean do babies and children look?
- Do you see places to wash hands? Is there soap?
- Is the same cup used by many people (does the school have one cup at water source)?

Sanitation

- How is food prepared?
- Are fruits and vegetables eaten raw/unpeeled washed first?
- How clean is the cooking area?
- How are the eating and cooking utensils stored?
- Is food left open to flies or is it covered?
- Are latrines used? If so, where are latrines located in relationship to the wells (or water sources, gardens)?
- Are animals allowed to run free in the village (including areas where food is being prepared and near the wells)?
- Are sewers open?
- How do people dispose of trash?

SHOWD Teaching Tips

Message:	**Materials:**
Students will begin to think about the most effective way to teach in order to bring behavior changes.	Pictures ◊ 1 copy for every 3 participants

Method:

1. Hand out the 1st picture and ask SHOWD* Questions.

2. Then repeat with the 2nd picture.

3. Discuss how people learn best.

4. Discuss how people change habits, traditions, and behaviors.

** This WASH Program uses the SHOWD method of teaching. SHOWD encourages participation and self- discovery. The program uses pictures and other visual teaching tools to involve participants in the learning process.*

• Sit in a circle of equals don't stand at the front lecturing like an expert talking down to students.

• Trainers should refrain from directly answering questions. It is best to answer questions with another question that helps clarify their thinking. For instance, if asked, "Does this work in all circumstances?" You can ask a question like, **"Can you think of a circumstance where it might not work?"** Another option is to ask, **"What do the rest of you think?"** Encourage group discussion; facilitate group consensus, if possible.

• After redirecting them with questions, you may answer their questions directly; but at least allow them a chance to come up with an answer first.

• If you don't know, say so. It is good if you do not know everything. Do not pontificate on scientific, agricultural, or animal husbandry issues, especially if you are not an expert.

• Don't say a participant's answer is wrong – instead say **"yes and…"** or **"does anyone have other thoughts?"**

SHOWD stands for:

S- What do you **see**?

H- What is **happening**? What is the problem?

O- Are you familiar with this? Have you seen this? Does this happen in **our** village/ community?

W- **Why** does this happen?

D- What are you going to **do** about it?

Additional Teaching Tips

1. Train small groups. A group size of 12 to 24 is ideal. If there are too few participants then the class may be too demanding to accommodate participant comfort levels with interaction. If there are too many participants, then students will not be able to see the pictures or participate enough.

2. In poor communities, arrange in advance for snacks and meals. Pay for the food and drinks so that participants can learn more effectively, freed from hunger and thirst.

3. Honor participants' time. Ask the senior person who is making arrangements for appropriate start and end times for the class. End on time. Ask participants if the start and end times are acceptable (when you are training over several days).

4. Do not place more rigorous hygiene demands on overseas communities than in the U.S. Do not expect overseas participants to wash their hands every time they shake hands with someone or to use a new bar of soap for every hand washer or to wash their hands after touching one animal and moving to the next animal.

5. If the group starts to get off track, after a short time say, **"We'll have a chance to discuss this at another time. Let's go back and talk more about the topic we were on."**

6. If a participant is having difficulty deciding where to place a drawing, ask, **"What do you see in the picture?"** After they answer, say, **"So if that is a picture of _____, where do you think it would go?"** If they still are having trouble, ask **"What do the rest of you think?"** and have the group come up with a solution.

7. Understand the focus of each lesson and then adapt to your circumstance. Don't feel like you have to follow the lessons word for word. Pick and choose the lessons that are relevant for your participants. Change the order around as appropriate to the situation.

8. Be sensitive overseas that some of the participants may not be literate. If you want someone to read, take notes or record ideas be sure to ask for volunteers and don't assign the task.

9. Have fun! Make the training fun for participants. This breaks down barriers between rich and poor, educated and street-wise, etc. and helps participants gain self-confidence.

10. Speak to adults as adults and children as children.

11. Move around the room. Change your position to add interest when you are speaking.

12. Please feel free to supplement the lessons with photographs, drawings, food, etc. appropriate

Sustainability

Train trainers:

- Trainer are church leaders committed to holding classes at church to train others or
- Faculty at a school who have agreed to train parents and students, for example.

Think about how you can empower local trainers/agents of household and community change:

- What do you want participants to do?
- What do they need to do this?
- How can they practice?

Make it easier for committed trainers to train others by supplying the manual and teaching tools to the senior person in the group.

Practice Teaching

Schedule time for participants to practice teaching the lessons. Practice enhances learning and behavior change. Practice is essential to equip participants to teach others. To practice, let students select a lesson and give them time to practice. You may find it helpful to form small groups so more people can be part of practicing. After a lesson is practice taught, facilitate learning by asking other participants:

- **"What did you like about how** (the practice teacher) **taught."** Give lots of positive reinforcement.

• **"What would you like to see more of?"** Refrain from direct criticism when suggesting additional ideas. Invite participants who have practice taught to join the teaching team the next time the class is given. If participants are training others on their own, go and watch to support their efforts. Affirm their efforts.

Please maintain the integrity of this program by not giving a certificate or copies of the lessons to anyone who has not completed the entire program as taught by a certified trainer. If a participant misses one or two lessons, ask another participant to teach the lesson(s) to them at break or after the class.

2 DIFFERENT PICTURES FOLLOW "SHOWD" LESSON.
Make 10 Copies EACH


Healthy Habits
• Wash hands
• Boil water
• Build Latrines
• Wash Food
SHOWD 01


I can see a sick man
What do you see in this picture?
Cows are in the river
Why is the boy not using the pit latrine?

SHOWD02

1. Community Mapping

Start the day by sitting in a circle and asking everyone to introduce themselves. Introductory questions may include occupation, family, church ministry, talents, what people are most proud of in their community, and favorite food.

This lesson is of upmost importance as participants will get to know more about each other as they group together, in goups of 5's mixed from different villages/areas, talking among themselves as they draw a village or area. It creates Comradery, a spirit of friendship and community in the group, removing their shyness so they will be more open to ask questions and to participate in discussions during the training.

Message:	***Materials:***
1. Students will make a map of their community to be used as a tool for • *student introductions* • *discussion of current conditions* • *a means for future planning* *2. Facilitators learn about the students and their villages*	1. 5 large sheets of paper 2. 5 packs of thick multi-colored markers 3. Tape to put the drawings up on the wall

Method:

1st Day:

1. Tape sheets of paper on the wall.

2. With large/medium classes, group people together from different areas/villages.

3. Tell participants, "We would like to learn more about you! Please show us your village/community/neighborhood by drawing a map. It doesn't need to be too detailed or precise. Some of the other things you might include are:

- **The name of your village.**
- **Physical features: roads, paths, houses, buildings, churches, schools, clinics…**
- **Plants: farms, gardens** (if participants earn a living by farming or supplement their diet by gardening).
- **Animals: cows, chickens, goats** (if participants earn a living from animals or use livestock to supplement their diet by raising animals).
- **Water sources: streams, ponds, rivers, lakes, wells…**
- **Sanitation locations: latrines, open fields…does each home have an outhouse or flush toilet or are there communal facilities?**
- **Waste disposal sites: trash, garbage…is it burned? Buried?"**

4. "Please tell us your names and the name of your village/community. Pretend that you are giving a tour and explain to all of us what you have put on your map."

5. Ask them:
"What are you most proud of in your community?"
"What would you like to see changed?"

6. "Later we will look at these maps again."

2nd or 3rd Day (use as part of closing to discuss group commitment to change):

1. If time is short, stay in a large group and ask for a few volunteers from each Community Mapping group to share:

> **"After attending this class, what would like to add or change in your community to make it a healthier place to live?"**

If time allows, participants from each community mapping team should meet to discuss the question and start planning. Ask each group to give a short, summary report to the larger group.

2. Praise them for their answers if it applies to better hygiene behavior and encourage them to work together to make these changes.

2

2. Unhealthy/Healthy Community

• If you have a large group of students and several teachers, you may want to break up into smaller groups to encourage participation and help students feel more comfortable.

• If several are teaching, assign one to facilitate the Unhealthy discussion and another to facilitate the Healthy discussion.

Message:

1. Students begin to identify unhealthy and healthy practices in their community.

- *Students are led to discover for themselves the cause of some health problems in their communities.*
- *This lesson is more about the questions than the answers. Students should not be expected to know the answers yet. The lesson is designed to help students start to think about health issues.*

2. Facilitators will gain understanding of the students' perception of water, sanitation, and hygiene practices in their community.

- *This is not a teaching lesson so gently raise questions but don't push.*
- *This exercise should also be used to encourage students to feel comfortable participating. If students give wrong answers facilitators should not correct them but simply praise participation.*
- *In future lessons, if students give wrong answers, facilitators should ask the group if they agree and encourage discussion of the topic, allowing the group to correct misunderstandings (not the facilitator).*

Materials:

1. Pictures (1 copy for every 3 participants)

2. Optional: To reward and encourage participation, you might give out small hygiene prizes. If students are from a developing country please give out one type of item & at the end of the exercise give the same gift to everyone (e.g., manicure set) and thank them all for attending.

Method:

1. Hand out copies of the **unhealthy** village drawing and ask questions:

a. What is happening in the picture?

b. Do you like what you see here?

c. Is this a healthy community?

d. What unhealthy things do you see?

e. What kinds of health problems can this cause?

f. Do you see this happening in your community?

g. Why does this happen?

h. What things that are good for your health do you think are missing from the community?

i. Which things are missing from your community?

2. Leave the unhealthy drawings with participants and hand out the **healthy** village drawings; ask questions:

j. What differences do you see in the second picture?

k. Do you like what you see here?

l. What things in the picture do you think are the most important in keeping people healthy?

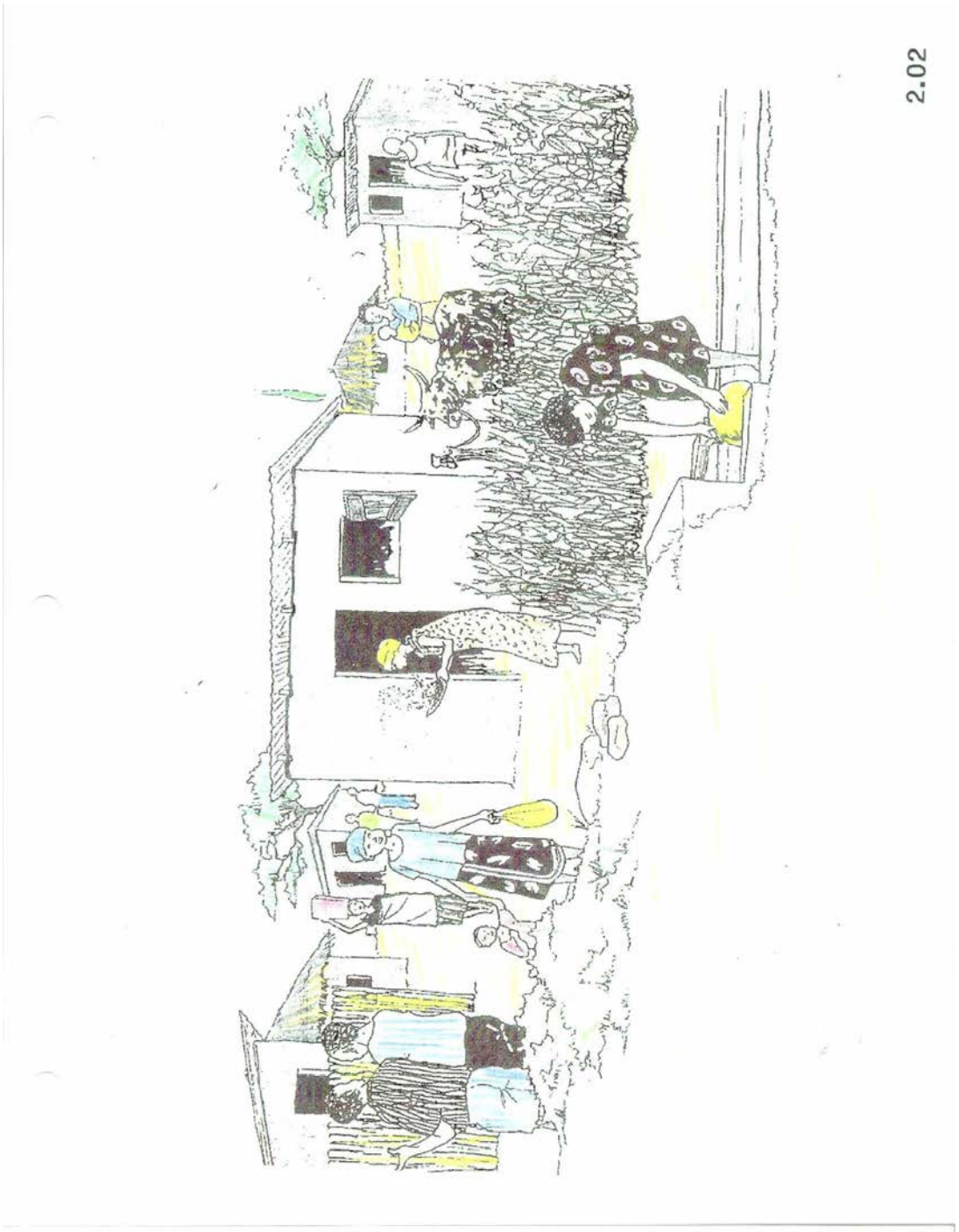
m. What can people do to take care of themselves to stay healthy?

n. What can people do to make their community a healthy place to live?

o. In what ways is your community similar/different?

FOUR PICTURES (2.01-2.04) FOLLOW "HEALTHY/UNHEALTHY" LESSON.
Make 5 copies EACH


2.01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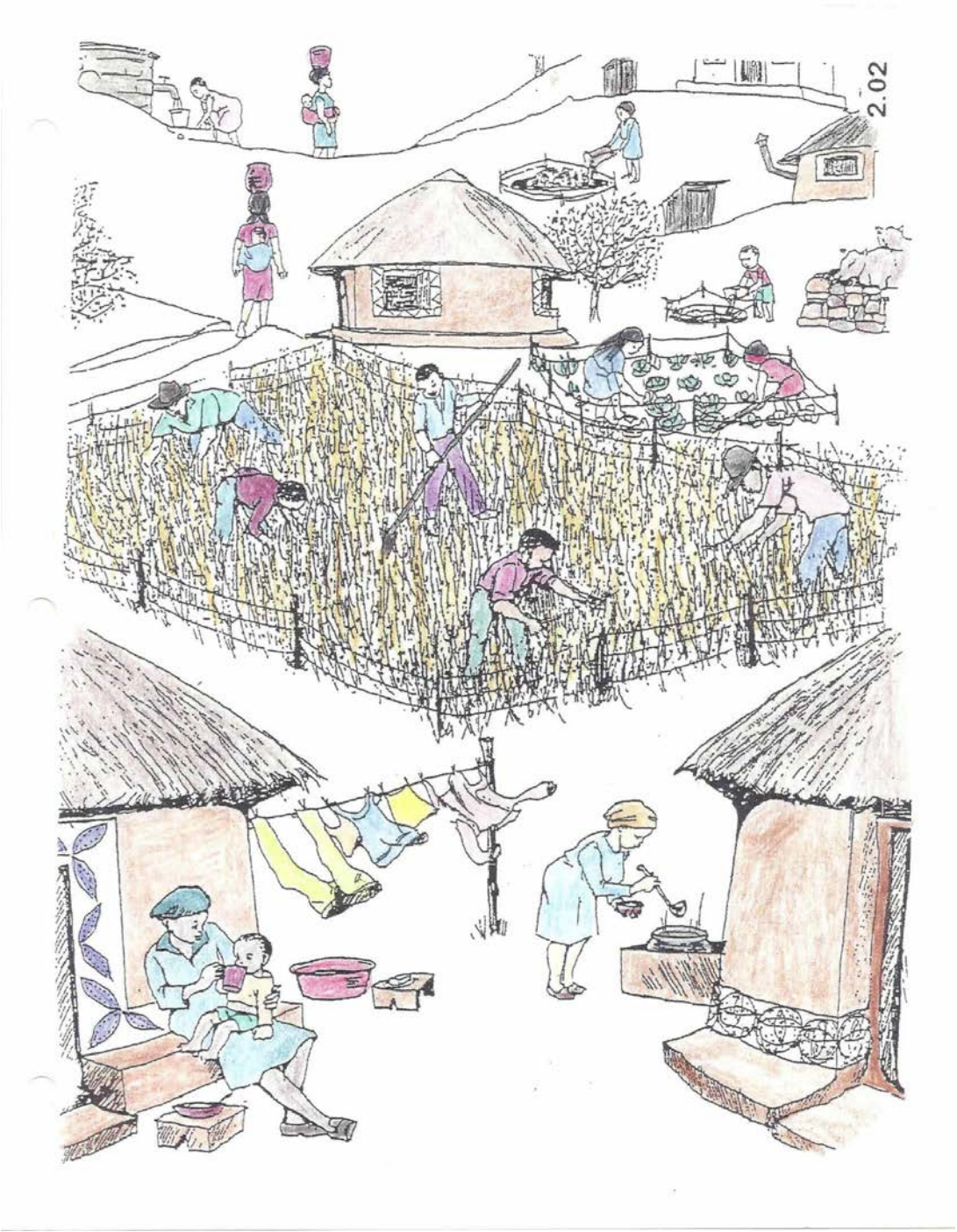

2.02


2.01

3

3A. Hand Washing: How to Wash Hands

Message:	***Materials:***
1. Germs make us sick	*1. Glitter*
2. Germs are too small to see	*2. 3 Basins (1 filled with water)*
3. Germs spread easily from person to person by shaking hands	*3. Soap*
4. Hand washing removes germs	*4. Hand Towel*
5. Tippy Taps use very little water	*5. Pitcher filled with water*
6. Washing hands regularly improves health	*6. Tippy Tap filled with water*
	7. Optional: Kazoos
	8. Optional: Song (below)

Method:

1. Put three basins on the floor in the center of the circle of participants.
    - Fill the first basin with water; put the bar of soap behind the basin & the clean towel nearby.
    - Leave the second basin empty; put a pitcher of water in front of the basin.
    - Leave the third basin empty; put the Tippy Tap (1/2 filled with water) in front of the basin.

2. Put glitter on your dampened hands, being careful not to show anyone, except another teacher. With glittered hands, shake hands with no more than 3 people (depending on the class size) who they in turn will shakes hands with other people.

3. Ask everyone to stand and greet one another with a handshake, **"Everyone may not have had a chance to say hello. Let's take a minute so everyone can shake hands and say hello."** (Suggestion: teach students to say hello in English and to shake hands like Americans.) You should also greet people, transferring the glitter to their hands.

4. Ask the group to stay standing and ask, **"Do you see anything on your hands?"**

- Show the group your hands. **"What do you see?"** (Shiny stuff, glitter.)
- **Please sit down if you don't see any shiny stuff, glitter, on your hands.**
- **Also, please sit down if you shook hands with me.**
- **Please continue standing if you did not shake hands with me. When we all shook hands, I was the only one with glitter on my hands at the beginning."** Ask one or two of the students, **"How did you get glitter on your hands if you didn't shake hands with me?"**

  (The glitter transferred when students who shook hands with the facilitator then shook hands with others.) Ask every one to sit down.

- **"I used glitter to represent germs. You can see the glitter, but you cannot see real germs. They are too small to see with our eyes.**
- **I was the only one with glitter on my hands. Look how many of you now have glitter on your hands. When you shook hands the germs traveled to the other person's hand. Germs can make us sick."**

5. **"How can we get the glitter/germs off our hands?"** Wipe them on pants and ask if that will get rid of them. (No…show that there is still glitter on your hands.) **"Do you have any other ideas?"** (Wash hands.)

6. Wash your hands in the first basin with water only. **"Are my hands clean?"** (No… show that there is still glitter on your hands.) **"How can I get rid of more of the germs?"** (Wash hands with the soap.)

7. In the same first basin, wash hands again with water and soap.

- **"We need four things to get all the germs off: water, soap, time, and motion. It is important to wash hands for at least 30 seconds and to rub vigorously. Please count to five with me as I wash each part of my hands."** (Alternate English and the local language):
  - **Palms (1,2,3,4,5)**
  - **Back of left hand and wrist (1,2,3,4,5)**

- **Back of right hand and wrist (1,2,3,4,5)**
- **Between fingers (1,2,3,4,5)**
- **Under left finger nails (1,2,3,4,5)**
- **Under right fingernails (1,2,3,4,5)**

• Show hands are clean. **"But if we dry them on our pants, what happens?"** (We are putting germs back on our hands.)

• Dry them on the clean hand towel.

8. Pick up the first basin and take it over to someone who says they have lots of glitter on their hands. Invite them to wash their hands (with the dirty water). If they agree, quickly move the basin away and ask the other students if that is a good idea. (No) **"When you share a basin to wash your hands, you are putting germs back on your hands."**

9. Ask for two volunteers. In the second basin have one person pour water over the hands of the other to demonstrate both the pouring method and the proper hand washing technique: palms, back of hands and each wrist, between fingers, and fingernails.

Option: Ask participants to count or kazoo a song or sing the optional song twice.

Note: Make sure that less water is used with this method than with the first method. Also make sure that enough water is used so that the Tippy Tap method results in significantly less water usage (the Tippy Tap generally uses 1/10th of the water as compared to the pitcher method of pouring water over hands to wash and rinse them).

"This is better because you are not reusing the same water." Offer them the dirty towel. If they try to take it, pull it away and ask the group if that is a good idea. (No. Some of the glitter "germs" were removed onto the towel.) Ask for other ideas. Dance and say **"A good way to dry our hands is to air dry them by shaking them and air drying them." Wave to Jesus.**

10. Hold up the Tippy Tap and ask, **"Has anyone seen one of these before."** Ask for two strong volunteers, select two strong guys (have some fun, for example, feel their biceps to see if they are strong enough). Select a third volunteer, someone young who says they have seen a Tippy Tap before. Ask the strong guys to pretend they are trees and give them each strings to hold up the Tippy Tap while the third volunteer washes their hands with the Tippy Tap.

Option: Ask participants to count or kazoo a song or sing the optional song twice.

11. Ask for another volunteer to come up and tell what they observe about the basins. Ask the student to compare the amount of water used with each of the hand washing methods.

(There is lot of water in the first basin, less in the second from the pitcher, and a minimal amount in the third from the Tippy Tap.)

- Ask the student if all of the water looks dirty. (Yes, all of the methods removed the dirt.)
- Ask people if they believe that all three methods removed the germs. (Yes… No…)
- Compare your hands and the hands of the volunteers who washed their hands using the pitcher and the Tippy Tap to show that all hands are clean and glitter free.

12. "The Tippy Tap uses only a small amount of precious water. It still removed the dirt and germs, just like the other methods of hand washing. Is water precious here? Do you think that using a Tippy Tap a good idea? Would you like to learn how to make a Tippy Tap?

• Later today, you will learn how easy it is to make a Tippy Tap."

3B. Hand Washing: When to Wash Hands

Message:	***Materials:***
1. Germs usually enter our bodies through our mouths. *2. The biggest source of germs is poop.* *3. Another big source of germs is from people who are already sick.*	*Pictures* *Optional: Songs* *Optional: Review*

Method:

1. Pass out the pictures to participants.

2. "The best thing we can do to get rid of germs and avoid getting sick is to wash our hands before or after doing certain activities. Please stand, show your picture

to everyone, and tell us how the activity pictured represents an important time to wash hands."

After participants show the pictures put them on the floor in the center of the circle so everyone can see them. Affirm answers, ask the group to help anyone who has difficulty, continue to ask how the activity pictured is an important time to wash hands, and add additional information (especially information noted below in bold quotations):

- before cooking or serving food
- before eating
- before nursing a baby
- before handling clean drinking water
- after urinating or pooping – **"The biggest source of germs is poop."**
    - **"Why should we wash our hands, if we are not going to eat or drink?"** (We might forget to wash our hands later or we might shake hands with others and they might forget to wash hands before eating.)
    - If the local culture greets with hand shakes, affirm that this wonderful, friendly tradition should continue; stress that washing hands is the behavior change.
- after cleaning a baby's messy bottom
- after working in the fields or tending animals - **"Animal poop is also a big source of germs."**
    - This means when the work is finished before you do other things where you might put your hands in your mouth. (It does not mean washing hands after touching each animal. *Don't put a bigger or unrealistic hand washing expectation on participants than U.S. standards!).*
- before and after touching someone who is sick (the picture could represent a mother or a nurse)

"Another big source of germs is people who are already sick."

- We need to wash our hands because we don't want to give the vulnerable sick person additional germs (there are many types of germs and sicknesses).
- We need to wash our hands when finished because we don't want to catch what they have or pass it on to others.
- If you are caring for several sick people, wash hands before and after touching each person.

- after coughing or sneezing into your hand
    - Suggest coughing or sneezing into one's own shirt or elbow so germs don't get on hands or spread to others through the air.

3. "Hand washing is one of the best ways to stop germs from making us sick."

Optional Review:

1. **"What four things do we need to wash our hands?"** (Water, soap, time, & motion.)

2. **"How long should we wash our hands to get them clean?"** (30 seconds or 5 seconds for each part):

- Palms
- Back of left hand and wrist
- Back of right hand and wrist
- Between fingers
- Under left finger nails
- Under right fingernails

Optional Songs:

1. Wash Wash Wash Your Hands

Tune - Row Row Row Your Boat

Wash, wash, wash your hands.
Wash them nice and clean.
Wash on top, wash on bottom, fingers in between.

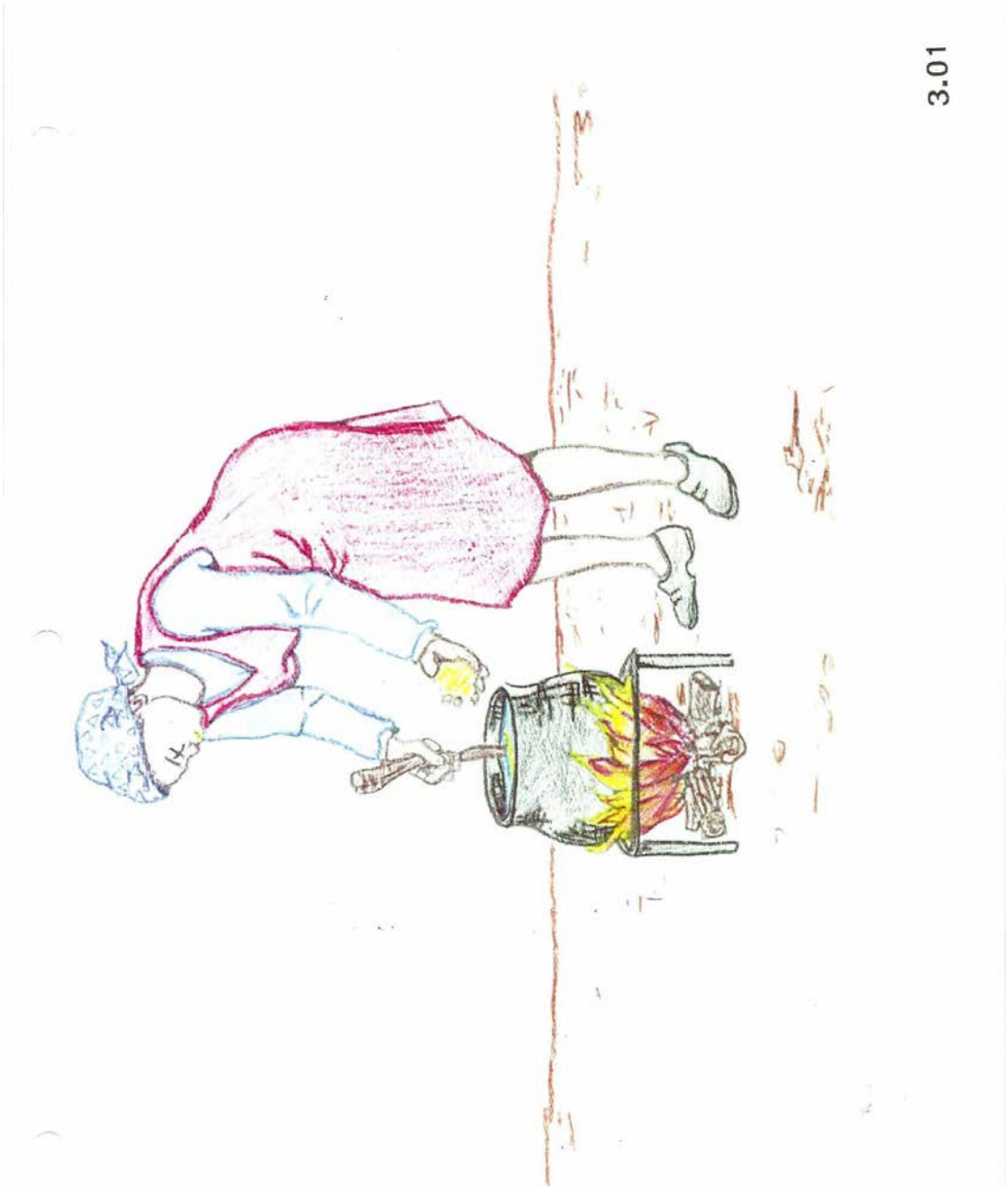
After participants learn the song, it is fun to divide the group and stagger start times, singing it in rounds.

2. Makes Them Clean; Makes Them Clean.

Tune - Frere Jacques

Tops and Bottoms, Tops and Bottoms (Rub top and bottom of hands.)
In between, In between (Rub fingers inside on both hands.)
All around your hands, All around your hands (Be sure to include the wrists.)
Makes them clean. Makes them clean.

NINE PICTURES (3.01 thru 3.09)
FOLLOW "HAND WASHING – WHEN TO WASH HANDS" LESSON.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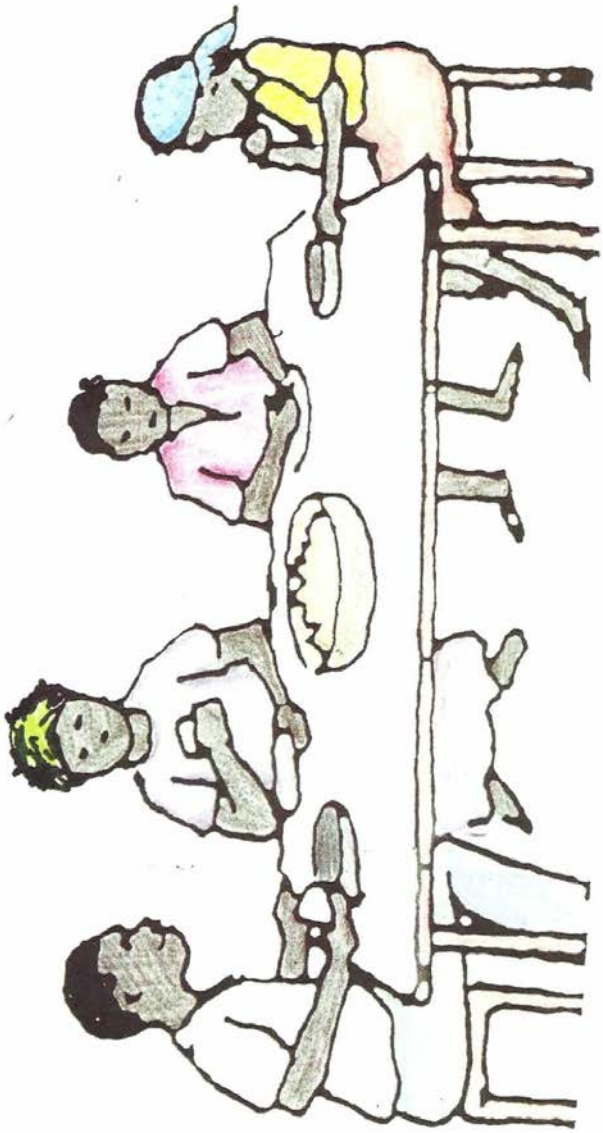

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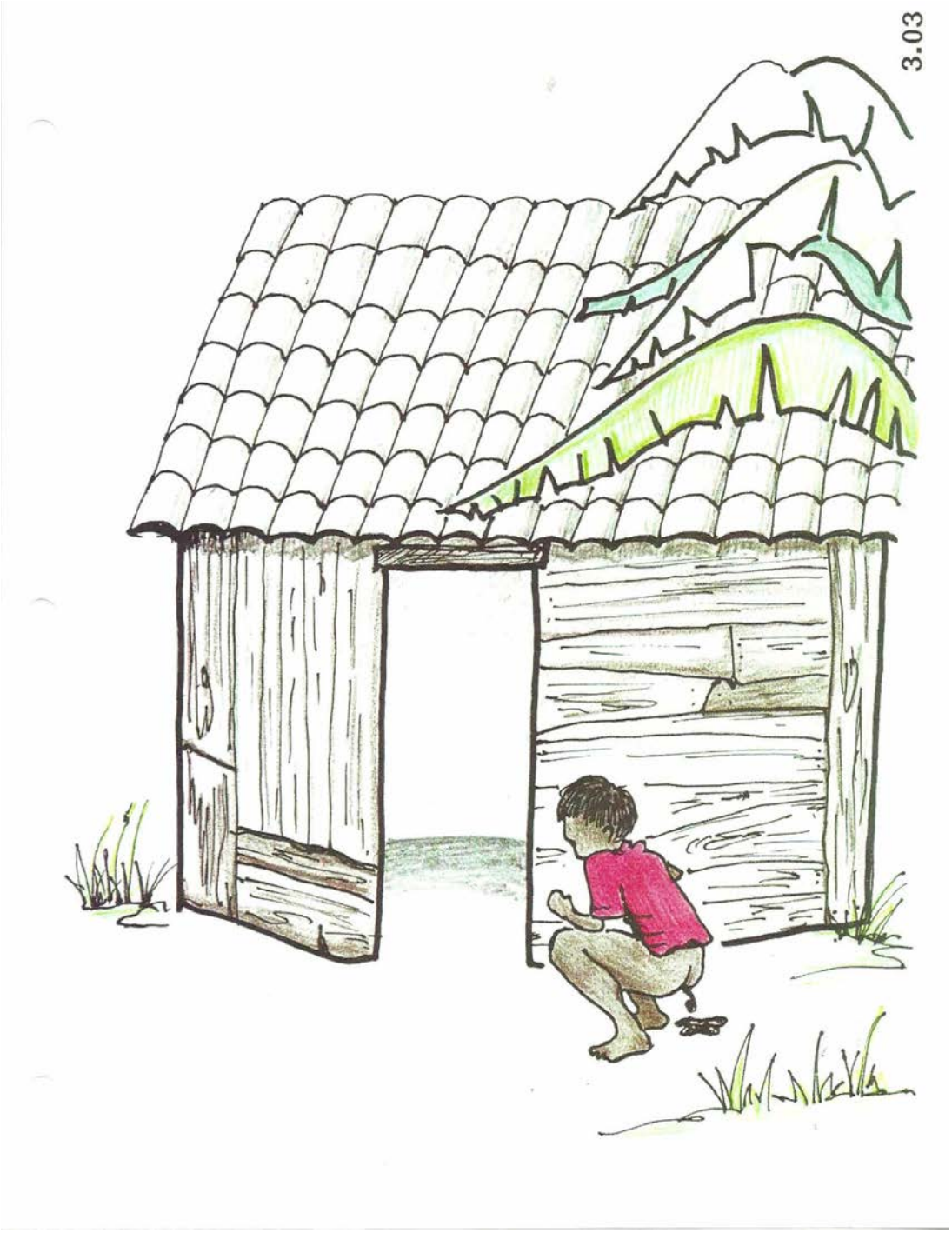
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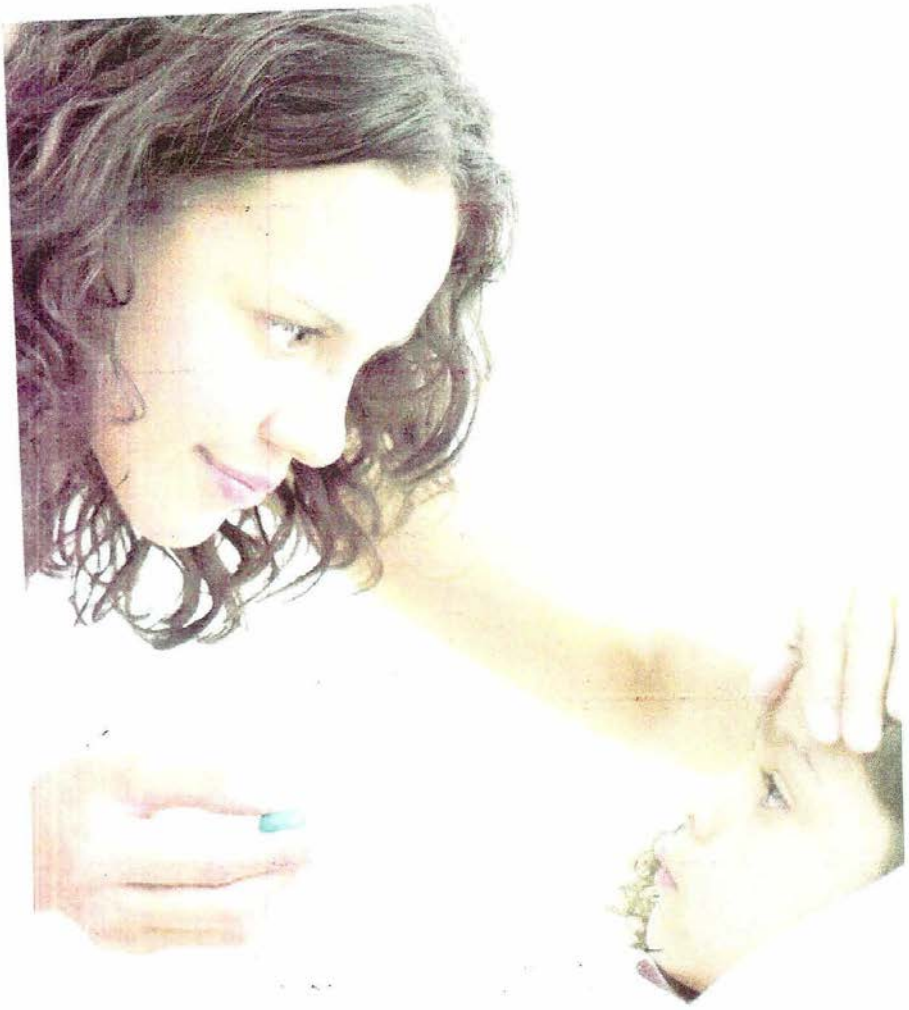

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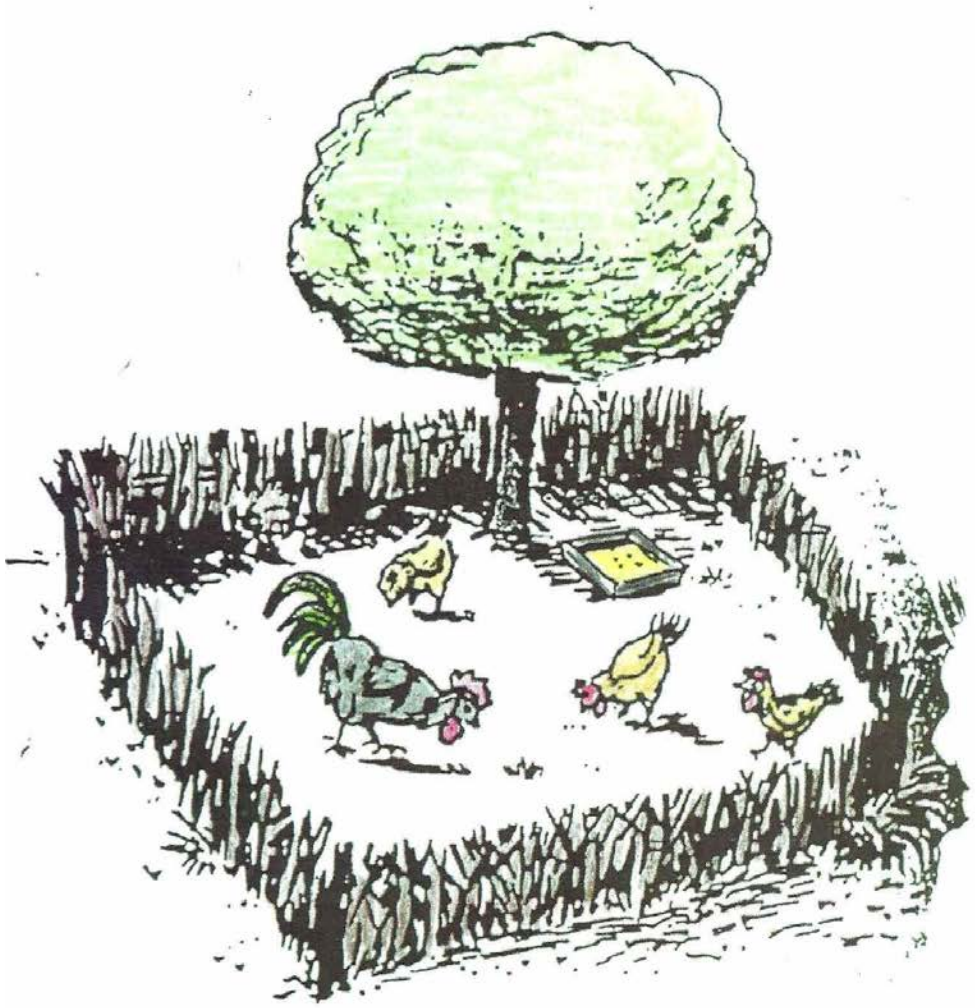
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3C. Craft: Hand Washing

Clean Healthy Hand/Dirty Unhealthy Hand

Message:	***Materials:***
This craft will help participants remember the lesson and teach their family and friends about germs and the importance of washing their hands.	*1. Paper Plates (white, one per student)* *2. Crayons - brown, black, light blue, pink, green, & purple* *3. Glitter Glue or Glitter & Glue*

Method:

Show an example of the finished craft and explain what the participants will be making. You might also want to have one person demonstrate the lesson as you explain the craft. Encourage creativity. Adapt eye, lip, and soap color to reflect the participants' location.

1. Begin by having participants place their hand in the center of the plate and trace their hand on both sides of the plate using a black crayon.

Front of the Plate—Clean Healthy Hand (Happy Face)

2. To make the fingernails, draw a **smile** or "**U**" from one side of each finger to the other side.

3. Draw a **HAPPY** face in the center of the hand: happy eyes, eyebrows, and a big smile.

(Students can color the eyes/eyebrows black or brown and the smile red or pink or appropriate colors for the participants.)

4. With the pink crayon (or another appropriate color for the location), draw soap bubbles around and on the hand.

5. With the light blue crayon, draw drops of water around and on the hand.

Back of the Plate—Dirty Unhealthy Hand (Sad Face)

6. To make the fingernails, draw a **smile** or "**U**" from one side of each finger to the other side.

7. With the black or brown crayon, color the top of the fingernails to show dirt under the nails.

8. Draw a **SAD** face in the center of the hand: sad eyes, eyebrows, and a big frown.

9. With the black, brown, green and purple crayons, draw different kinds of germs, worms, and parasites on the hand.

10. Have each student put some glue on their dirty “hand” then take a pinch of glitter and sprinkle the glitter in the glue or smear some glitter glue on their plate. Reinforce the concept that the glitter represents germs that make us sick even though they are so small that we can’t even see them with our eyes. Doctors and scientist can see them with microscopes.

11. Ask the students to take the plate home and share what they have learned with their family and friends.

4

4. Germs

Message:	***Materials:***
1. Poop is a major source of germs that cause sickness *2. Flies spread germs* *3. Magnification helped scientists learn about germs* *4. Germs from poop get into water sources*	*1. Pictures* *2. Magnifying glass* *3. A page of printed material in the local language*

Method:

1. Show the drawing of someone stepping in poop, picture 4.01 and ask, **"What is happening in this picture?"** (Someone is stepping in poop, flies are on the poop)

2. **"What happens when we step in poop?"** (It goes where we go, it gets all over…)

3. **"If we step in poop and it goes where we go, does this also happen with flies?"** (Yes)

4. Show picture 4.02 of food with flies on it. **"Where are the flies now?"** (On the food) **"Do you think they are leaving anything?"** (Yes, poop)

5. We just saw how glitter can be spread from one person to another through touch. Another way that germs can be spread is by flies."

6. "Doctors and scientists have figured out that there are lots of germs in poop and germs are so small that we cannot even see them! If we get these germs in our mouths and swallow them so they get inside our bodies, they make us sick. Do people in your communities ever get stomach aches or diarrhea?" (Don't wait for an answer.)

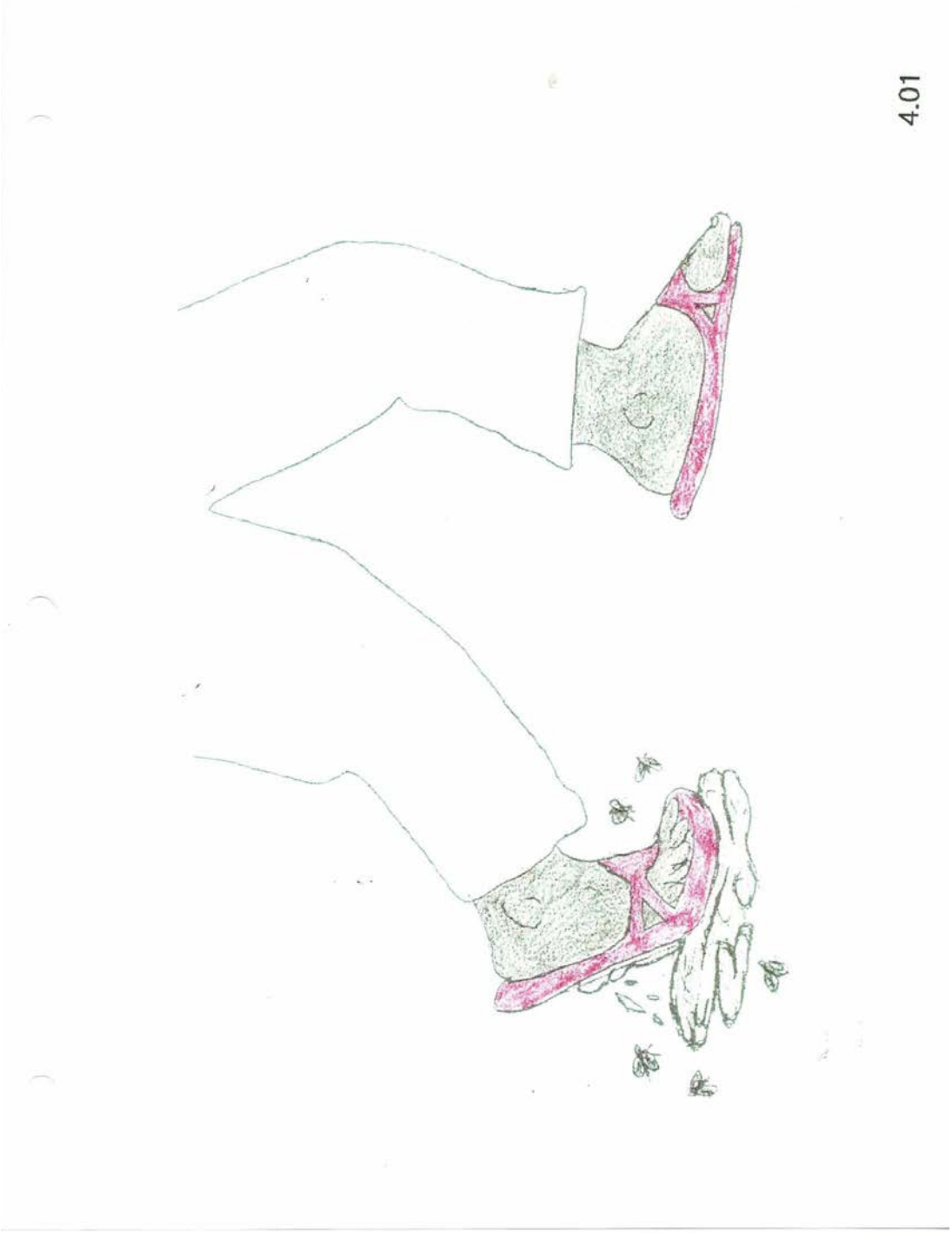
7. "Sometimes people wonder, how do doctors know about the germs, if we can't even see them? Show drawing 4.03 and the magnifying glass. **"Have you ever seen something called a magnifying glass? It is a special glass that makes things look bigger?"**

8. Show next drawing, 4.04. **"Doctors use something called a microscope to make small objects look larger. The microscope uses many magnifying glasses together. See the fly - his head looks very big! Is it really that big?"** (No)

9. Show the last picture 4.05. **"Doctors and scientists have looked at drops of water under the microscope. When they looked at the water drops they can see germs that are so small that they could not see them with their own eyes. They have also found that many of these disease-causing germs live in diarrhea. This is how we know that the germs from poop are getting into water sources and causing sickness and diseases."**

10. Pass the magnifying glass around (or put it out at break) for the participants to look through at a page of printed material in their language.

FIVE PICTURES (4.01 thru 4.05) FOLLOW "GERMS" LESSON.



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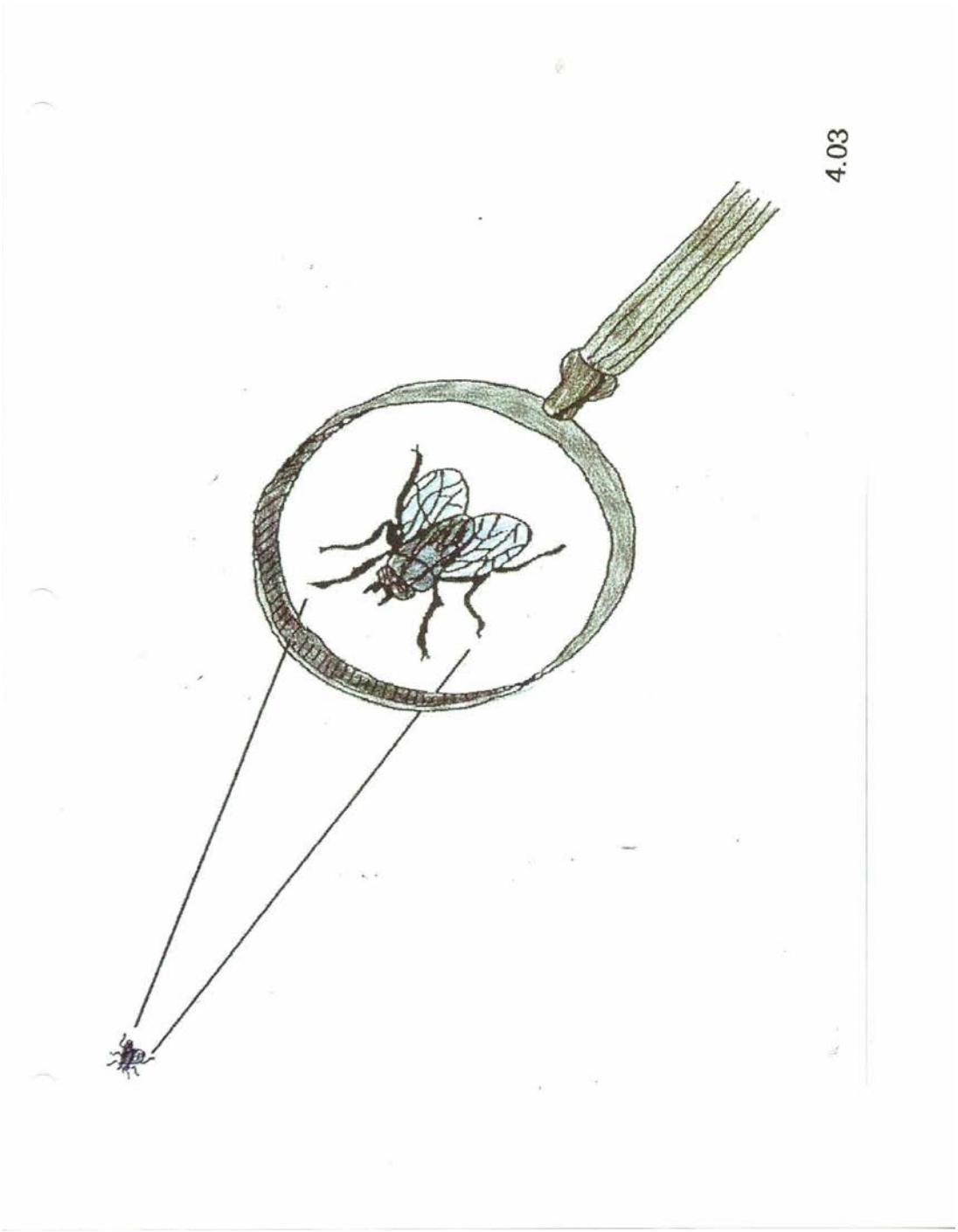
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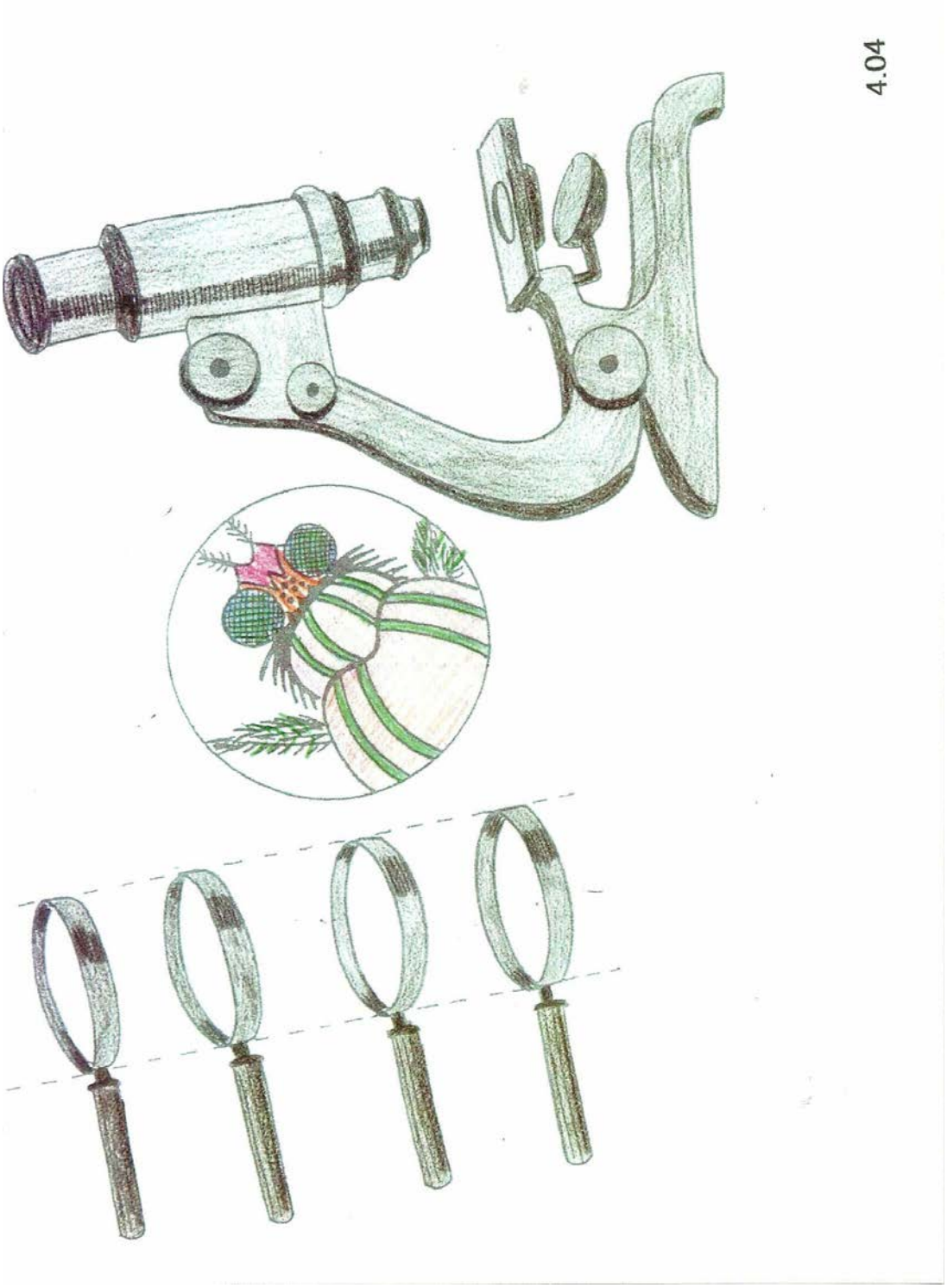
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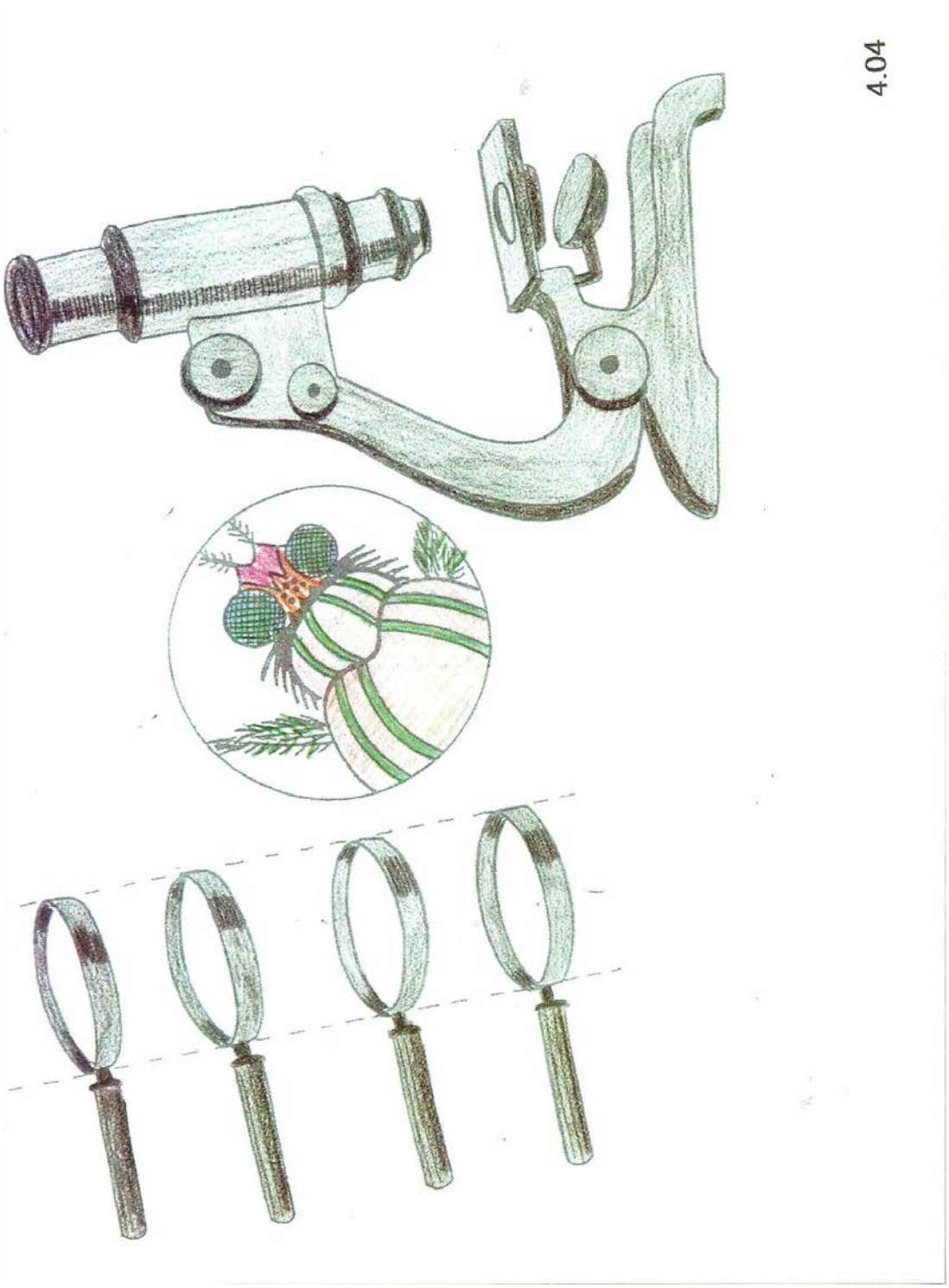
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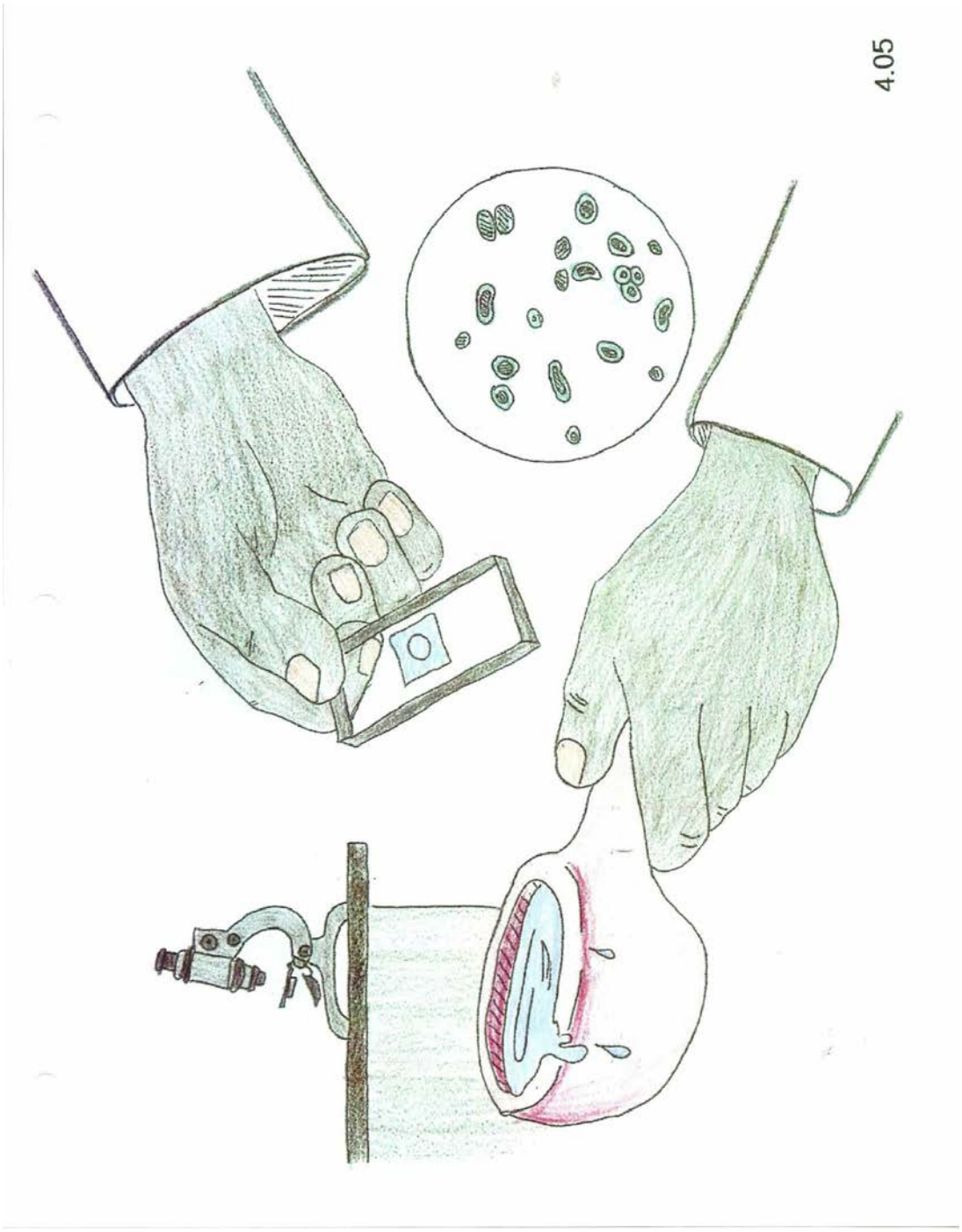
4.05

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5. Tippy Tap

Message:	***Materials (one for each participant):***
• *Tippy Taps use a minimal amount of water.* • *Tippy Taps can be conveniently hung outside homes and latrines.* • *Making a Tippy Tap is simple.* • *The Tippy Tap can be made with materials locally available.* • *Live healthier lives by using the* *Tippy Tap to wash hands before eating.*	1. Plastic Jugs (with a handle) 2. Nails (to punch holes) 3. String (thick, strong, plastic coated; to speed up the lesson, cut the string before the class starts): • Two pieces of string – 1.0 meter (4 feet) • Two (or three) pieces of string – 0.5 meter (2 feet) 4. Scissors (number depends on whether the trainer or participants cut the string) 5. Candles 7. Matches 8. Nylon Footies or Socks 9. Bars of Soup 10. Plastic Cup or ½ plastic water bottle 11. Wooden Sticks for foot pedal ***Options:*** A. Paper plates (to catch wax drippings) B. Gift soap for each participant - to restock the Tippy Tap and to share with family and neighbors as they teach them how to make their own Tippy Tap

Notes:

• Make and test a Tippy Tap with local materials in advance of teaching to make sure your final product will be acceptable. Show Tippy Tap to class before starting so they see the finished product.

• To make teaching easier, hand out supplies **one step at a time**. Do not hand out supplies in advance of teaching each step or it becomes confusing. Make sure everyone is and stays on the same step helping the slow people to keep up.

Method:

1. Poke holes: four in the plastic jug and one in the plastic cup or water bottle.

- Heat the point of a nail over a candle to melt the plastic and make it easier to poke the holes.

A. Poke two holes through the sides of the handle about 1/3 of the way from the top of the handle. These holes will be used to string the Tippy Tap up to a tree or other support. Push the heated nail through both sides of the handle (the two holes must be lined up to facilitate putting the string through both holes).

B. On the side opposite the handle poke a small hole in the middle about 1/4 of the way from the top of the jug. This hole is where the water will flow out. It should not be too large or too far down or water will be wasted.

C. On the side opposite from the handle poke another hole just below the lip of the jug. This hole will be used to secure the foot pedal (or hand pull).

D. Poke a hole in the center of the bottom of the cup (or ½ water bottle). The cover will protect the soap against rain and sun.

E. Before blowing out the candles, if string end is frayed, dip the end in the hot wax and twist together.

2. Attach strings: to hang the Tippy Tap, the soap, and the foot pedal.

- Cut string on an angle to help thread through the holes. If the string frays, dip the end in the hot wax and twist together.

E. Distribute (or cut) a piece of string to use to hang the Tippy Tap. The length of the string will vary depending on where it will hang. Cut the string approximately two times your arm span or about 1.0 meter (4 feet). Thread this string through the two holes punched in the handle (pinch the plastic together to make it easier to thread

through both holes or use the nail to poke it through). Tie a knot on each side of the hole to keep the string from sliding when the Tippy Tap is used.

- Remember to hang the Tippy Tap in a way that makes it easy to untie when you need to refill the Tippy Tap.
- The Tippy Tap should hang about waist high for ease of use.

F. Distribute (or cut) string for the foot pedal.

a. The first foot pedal string should be about 0.5 meter (2 feet). Tie it around each end of the wooden stick and hold the string at mid point forming a triangle shape. Tie a knot at the top leaving a loop above the knot.

b. The second foot pedal string should be about 1.0 meter (4 feet) long. On the side opposite the handle thread the string through the hole just below the lip of the jug.

Make a knot on the inside of the lip so the string does not come loose when stepping on the foot pedal.

c. Tie the other end through the loop of the string attached to the wooden stick.

d. Screw the lid on to keep the water clean and help hold the string in place.

- The foot pedal should hang about 1/8 meter (about 6 inches) off the ground.

G. Distribute (or cut) a piece of string to hold the soap; it should be about 0.5 meter (2 feet). Put the soap in a nylon footie or thin sock. Thread the string through the hole in the plastic cup or tin can then tie one end around the footie or sock so the soap hangs down in the cup or can. Next tie the other end to one side of the string that the Tippy Tap hangs from.

- Do not tie a knot on either side of the hole in the cup or can. The cup or can needs to slide up to expose the soap and down to cover the soap.

3. Fill the bottle: ½ full of water and it is ready to hang up and use.

4. Discuss

Encourage participants to modify the Tippy Tap for local use. Emphasize that there is no perfect way to make a Tippy Tap. Encourage them to think of ways to make the Tippy Taps better for their area. For example:

H. Strings

- strings for hanging the device can be longer for trees far apart or shorter if both strings will be looped over a branch, pole, or door
- the string for the foot pedal should be shorter if the device will be hung low to the ground (for ease of use by older people) or longer if the device will be hung high off the ground (away from animals and children)

• For heavy duty use at a church or school, construct a wooden structure and put the handle of the Tippy Tap through a wooden pole (instead of hanging it up with strings).
The wooden structure and pole can be built to accommodate several Tippy Taps.

• A hand pull is an alternative to the foot pedal. Tie the shorter string through the hole and tie a know to make a circle at the end, large enough to put a hand through and tip the Tippy Tap with a wrist. (The longer string is unnecessary for Tippy Taps with hand pulls.)

I. Hole

The water hole can be:

• punched higher to conserve water or

• punched lower or larger to make water flow out more easily

J. Local materials

What other local materials can be used:

• for the plastic container?

• to protect the soap?

• to tie the soap onto the plastic container?

• for string to hang up the containers?

• to poke holes in the plastic container?

5. Option: Hand out gift soaps (to restock the Tippy Tap and help others make Tippy Taps).

THREE PICTURES (5.01 thru 5.02)
FOLLOW "Tippy Tap" LESSON.

5.02

Wooden Tippy Tap Support

Alternative Foot Pedal

Tippy Tap with Hand Pull


ARMA SU PROPIO TIPPY TAP
2m de palo de forma "Y" x2
1m de palo recto x2
Herramientas para cavar
Recipiente de agua
Grava
Jabón
Un clavo y una vela
Hilo
1. Cava dos huecos de 18 pulgas (45 cm) de profundidad y 2 pies (66 cm) de ancho
Pon aceite debajo de los palos para prevenir termitas
2. Coloca los palos de forma "Y" en los huecos y asegura que esten nivelados
3. llena los huecos con tierra y piedras y empaquelo duro
4. Caliente el clavo y haz dos huecos en el recipiente de agua
5. Haz un hueco en el jabón amaralo con el hilo
6. Cuelga el recipiente yel jabón y llenalo con agua
7. Amarra el hilo al recipiente de agua
8. Amarra el otro lado del hilo a la palanca de pie
9. Usa el hoyo lleno de grava para capturar el agua
Watershed Management Group
tippytap.org
save water, save lives!
grampari

6. Disease Transmission

Message:	*Materials:*
Participants will discover more about how diseases and illnesses are transmitted.	1. Pictures 2. Plastic & real food (perhaps an apple or other fruit that is usually eaten unpeeled and a piece of bread) 3. Play dough 4. Glitter 5. Plastic fly (put some play dough on the fly's feet or mouth so the glitter will stick) 6. Water (in a pitcher or cup)

Method:

1. Hand out the plastic and real food to people in the room.

2. Make a play dough pile of poop and put it on display.

3. Begin this lesson by reminding them of what they have just learned from the Germs lesson.
"Germs make us sick. We can't see germs."

4. Sprinkle glitter on the poop stating, **"There are many germs in poop. Poop is the biggest source of germs that make us sick."**

5. "Flies love to land on the poop? Here is a fly and it is landing on this pretend poop and is going to begin flying around. Let's see where it lands."

6. Have the fly land on the food, someone's hand, someone's face, and in the water.

7. Lay down the drawing of the boy pooping and state **"this boy is pooping and leaving his poop on the open ground."**

8. Now lay down the drawing of the mouth at a distance from the boy. **"We are going to use this picture of a mouth to represent our bodies. We are going to talk about ways that germs can travel from poop to get inside our bodies and make us sick."**

9. Hand out the pictures. Ask students to stand, show the other students their picture, and tell how the picture represents ways that germs can get into our bodies. **"If you are having trouble figuring out your drawing, don't worry some of the drawings need to be improved, just ask the group to help. I'll start; here is a picture of a fly. Where did we see the fly land earlier?"** (on the poop, then on the food, hand, water, face). **"Flies spread the germs from the poop everywhere that they land and the germs then get in our bodies from our dirty hands and contaminated food and water."**

Affirm all answers. You may need to repeat the question ("How does the picture represent ways that germs can get into our bodies?") or ask the group for help by asking,
"Yes and does anyone else have other ideas for how the picture could represent ways that germs from poop get into our bodies? What else could the picture mean?"

Some of the important points that the pictures should represent are:

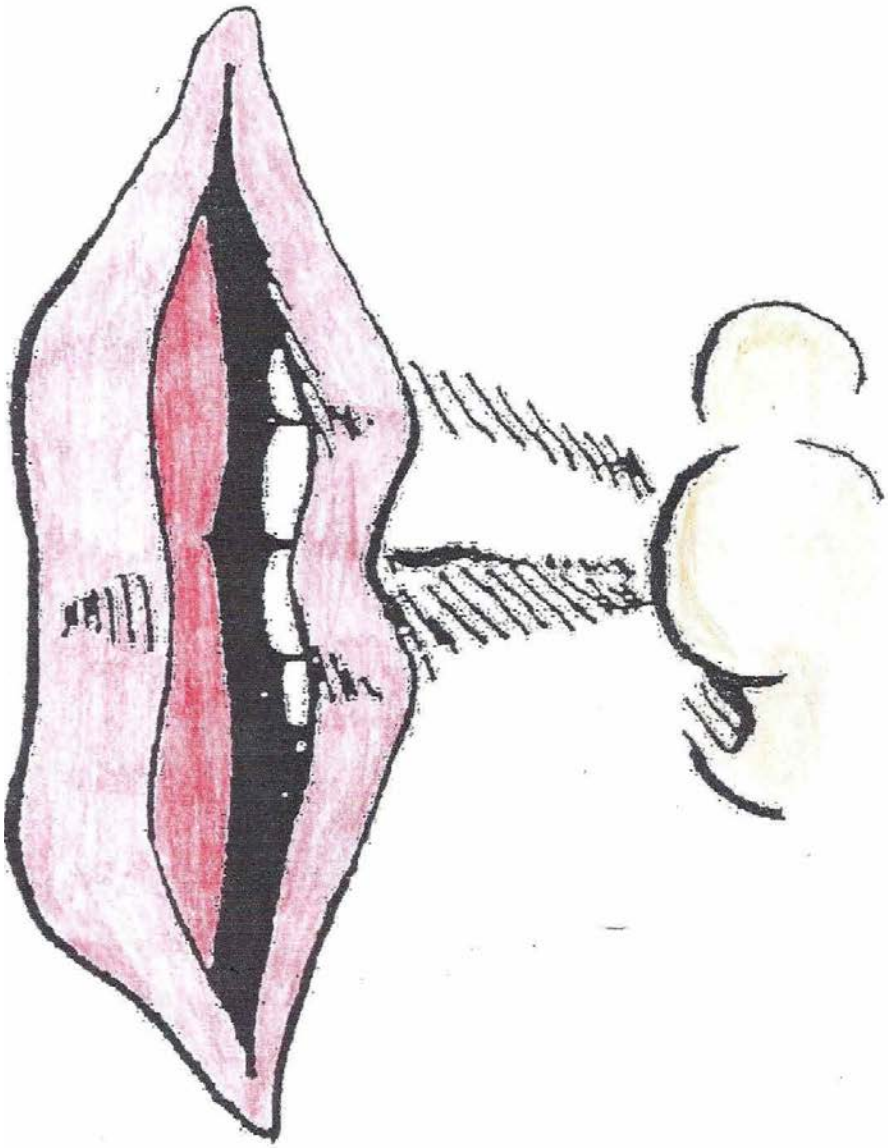
- Hand - Hands get germs on them when we poop or shake hands with other people and they have dirty hands. The germs can get in our bodies when we eat, drink, or touch our mouth.
- Food - Food that we eat can be contaminated with germs from flies or dirty hands.
- Water - Germs from poop can wash into our water supply when it rains, when animals and people bathe in the water, when flies land in the water, and when people wash dirty clothes in the water.
- **Chicken - Animal poop is also a big source of germs that make us sick. Animals pass germs to us by stepping in poop and spreading germs to our hands when we take care of them.**

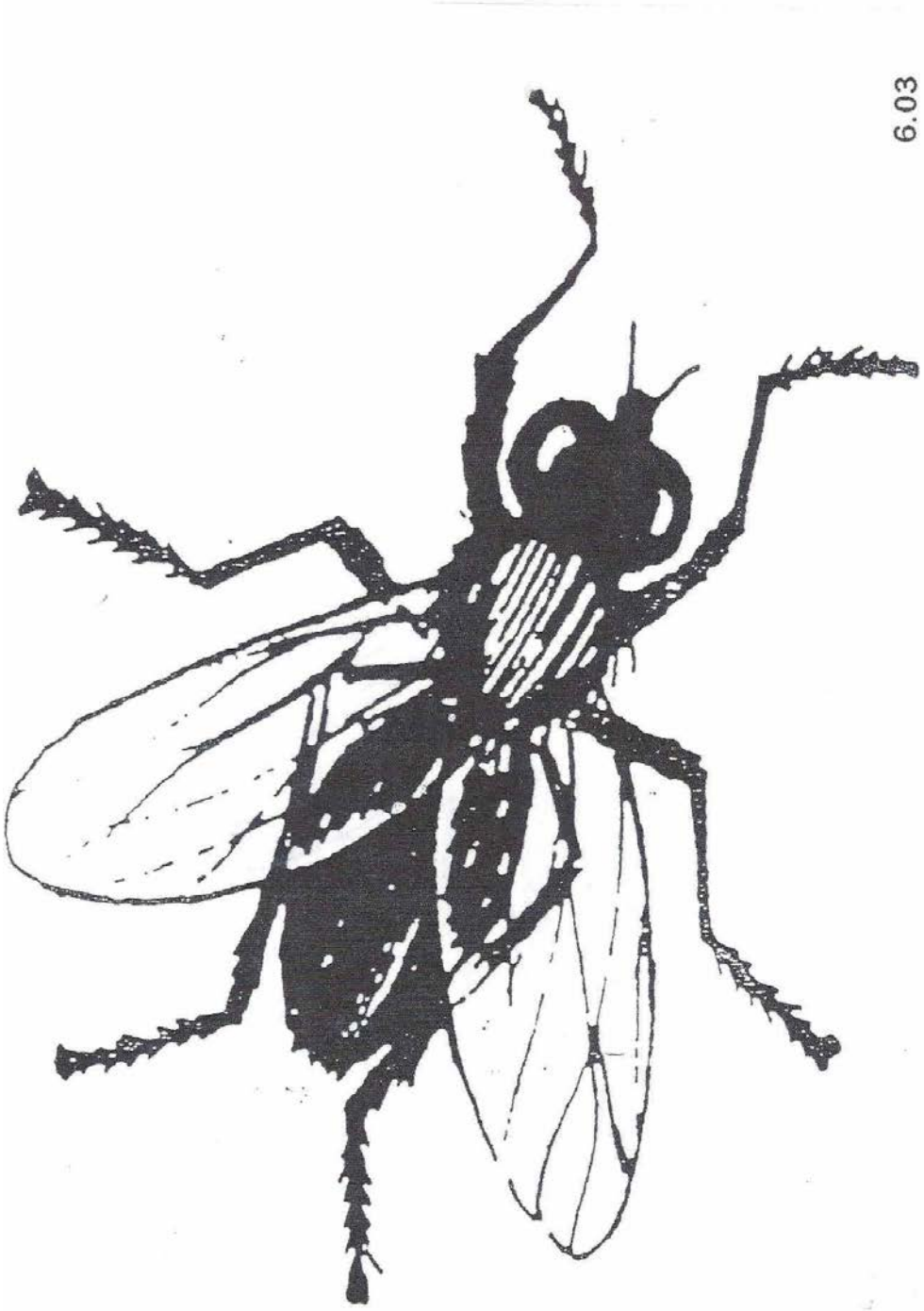
10. After the discussion, place these drawings down in a line between the boy pooping and the mouth. (fly, hands, food, water, chicken)

11. **"Next let's talk about what we can do to stop or "block" the germs from getting into our bodies and making us sick."** (Leave drawings out for the next lesson

SEVEN PICTURES (6.01 thru 6.07)
FOLLOW "Disease Transmission" LESSON.


6.01

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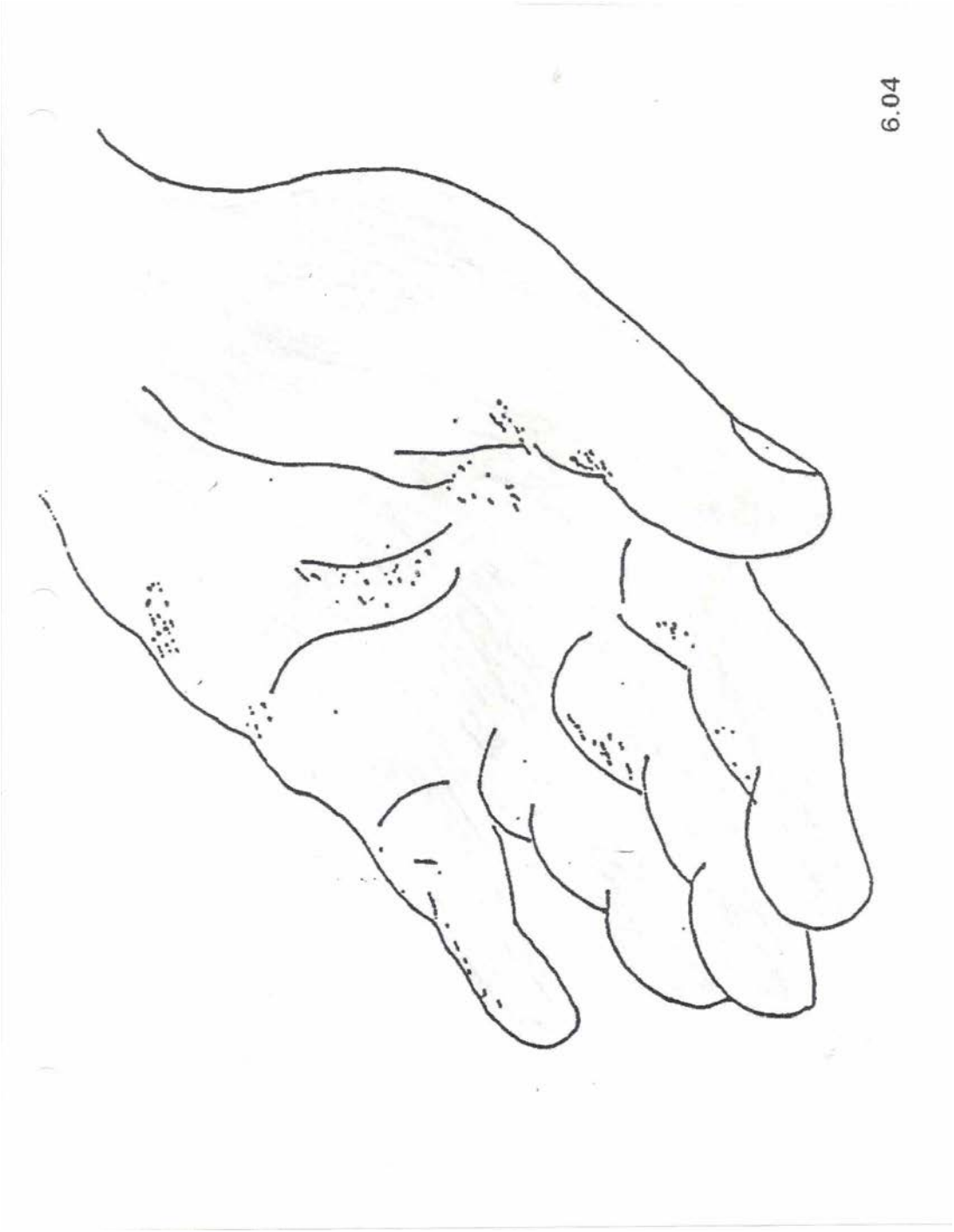
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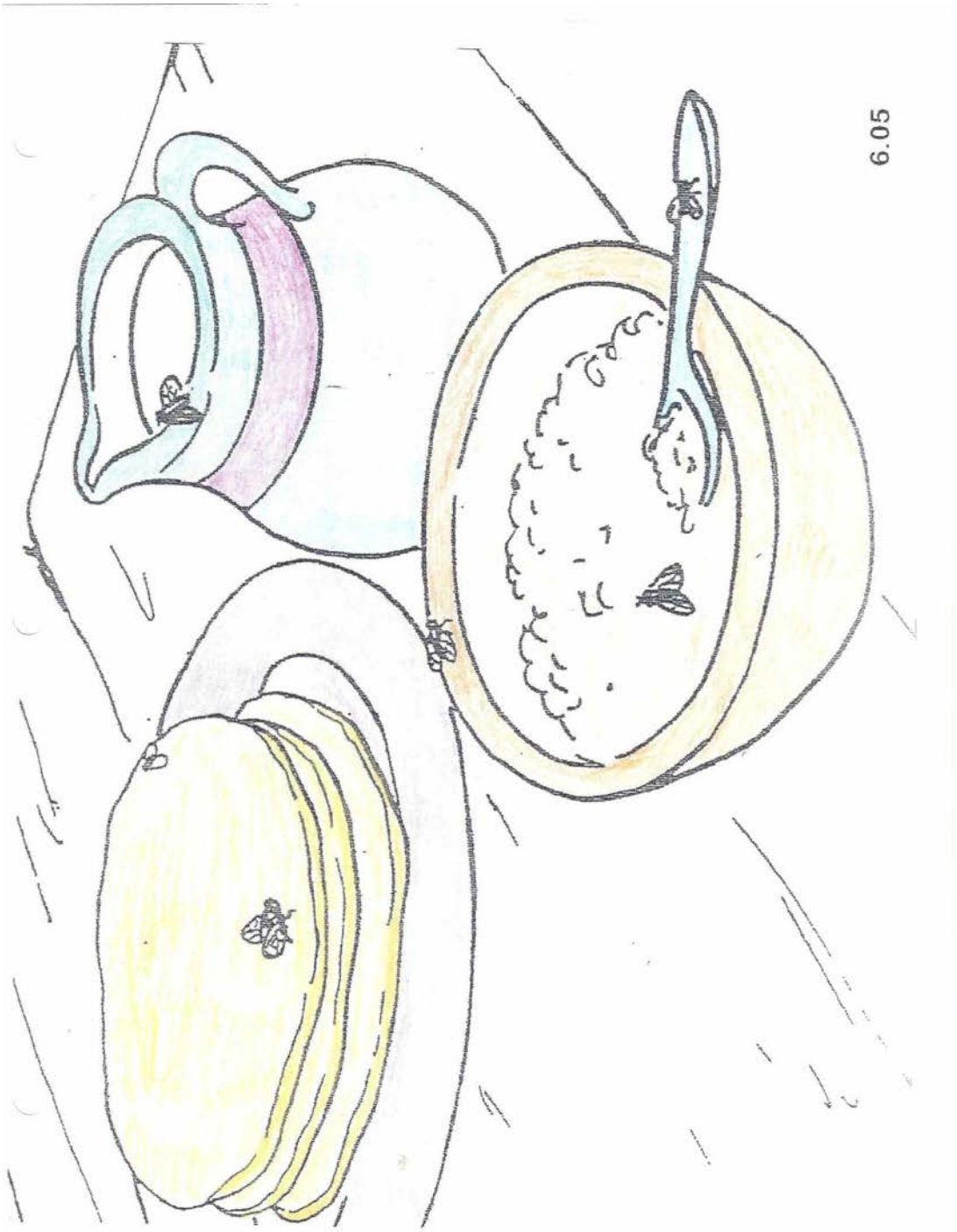
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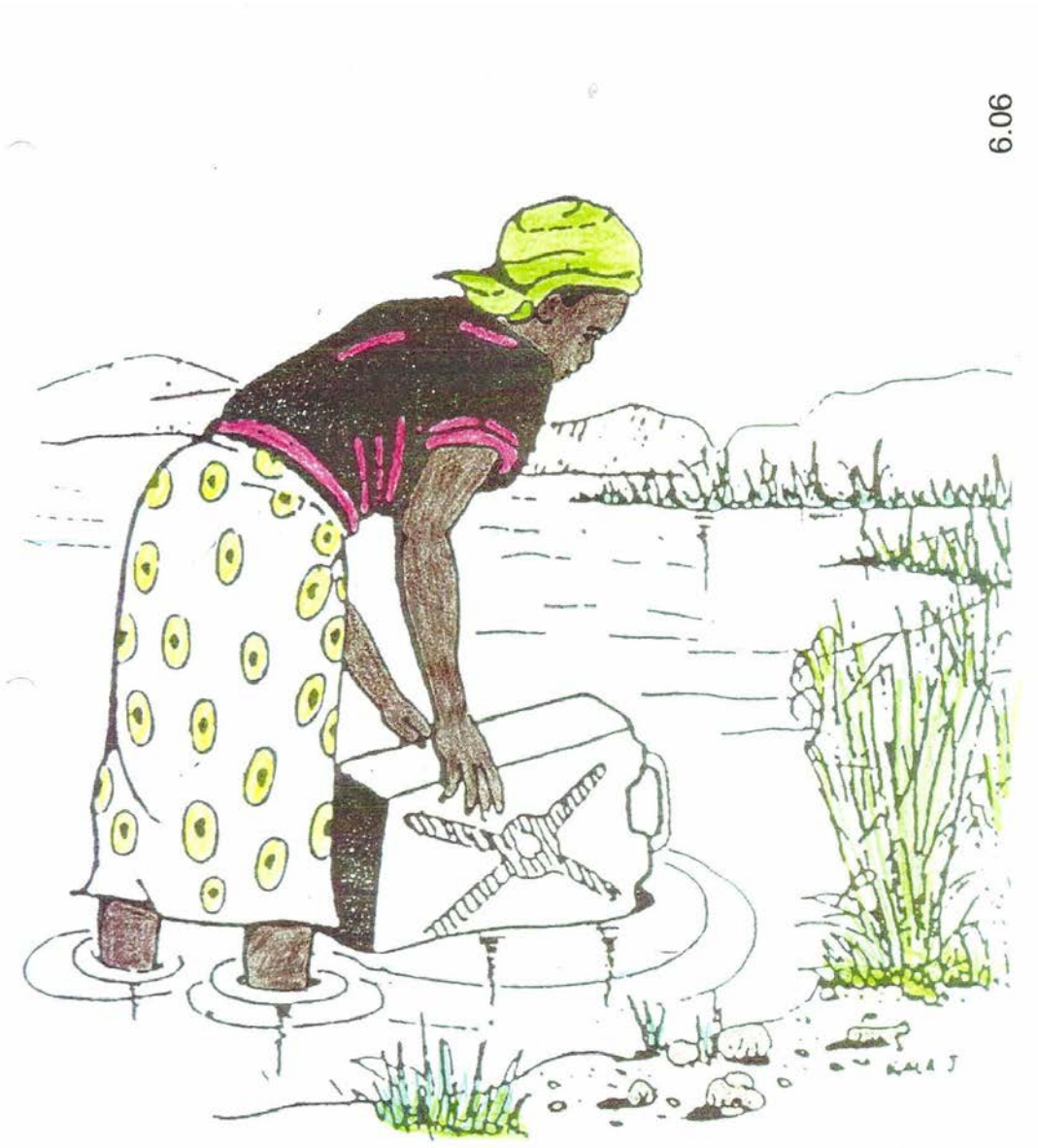


6.06


6.07

7

7. Disease Blocking

MESSAGE:	***MATERIALS:***
1. Discuss better hygiene behaviors concerning sanitation, water, and food. *2. Learn how to block the spread of germs and transmission of diseases* *3. Reinforce the importance of hand washing*	*Pictures*

METHOD:

The transmission drawings from the previous lesson should still be on display. If not, then place them out again with the drawing of the person pooping on the left, the mouth drawing to the right, and the fly, hand, water, food, and animal between them.

1. Pass out the blocking drawings to the group for:

- ◊ 7.01 Cooking Food
- ◊ 7.02 SODIS
- ◊ 7.03 Chlorinator (do not use if no chlorinators are in use or planned for the area)

2. "We've just learned that poop has germs that can make us sick. Now we are going to talk about good hygiene behaviors that can stop germs in poop from entering our bodies. For example:

7.01 Cooking Food – **"This is a picture of cooking food. If we heat food before we eat it, heat it very hot right before we eat it, then the heat will kill the germs. I am going to put this picture in front of the food picture because cooking food before we eat it blocks germs from getting into our body."**

7.02 SODIS – **"This picture shows a way of making water safe to drink so I will put it under the picture of water. This method uses the sun to kill germs. Would you like to learn how to clean water using the sun tomorrow?"**

7.03 Chlorinator (Optional) - **"This is a picture of another way of making water safe to drink. It is a machine that kills germs in water. We have brought this technology with us and are working with (the local church to install one at the hospital/clinic). We wanted you to see it so you would help explain what it is to other people. The water will have a different taste than you are used to but the new taste is good because it means the water is safe to drink without boiling. I am also placing it under the picture of water because it kills germs in water and stops them from getting into our bodies.**

3. "Look at your picture. Please stand and take turns telling the group what is happening in your picture and how that could prevent germs from getting in to our bodies and making us sick. If you are having trouble figuring out your drawing, don't worry some of the drawings need to be improved, just ask the group to help." Ask someone to start and go around the circle one by one. Ask each person to place the good hygiene behavior drawing below the drawing of ways germs enter our bodies.

- Affirm all answers. You may need to repeat the question or ask the group for help by asking **"Yes and what else could the picture mean? How could this good hygiene behavior prevent germs from spreading and prevent germs from getting in our bodies so we stay healthy?"**

Poop	*Fly*	*Hand*	*Dirty Water*	*Food*	*Animal*	*Mouth (represents our body)*
Bury Poop	*Use a Latrine*	*Wash Hands*	*Boil Water*	*Cook Food*	*Fence Well Pump*	
Wash Hands	*Bury Trash*		*Purify Water*	*Cover Food*	*Fence Animals*	
	Wash Hands			*Wash Foods (eaten raw unpeeled)*	*Wash Hands*	
			Use Clean Water from a Drilled Deep Well	*Wash Dishes, Utencils, Jerry Cans*		
			Wash Hands	*Wash Hands*		

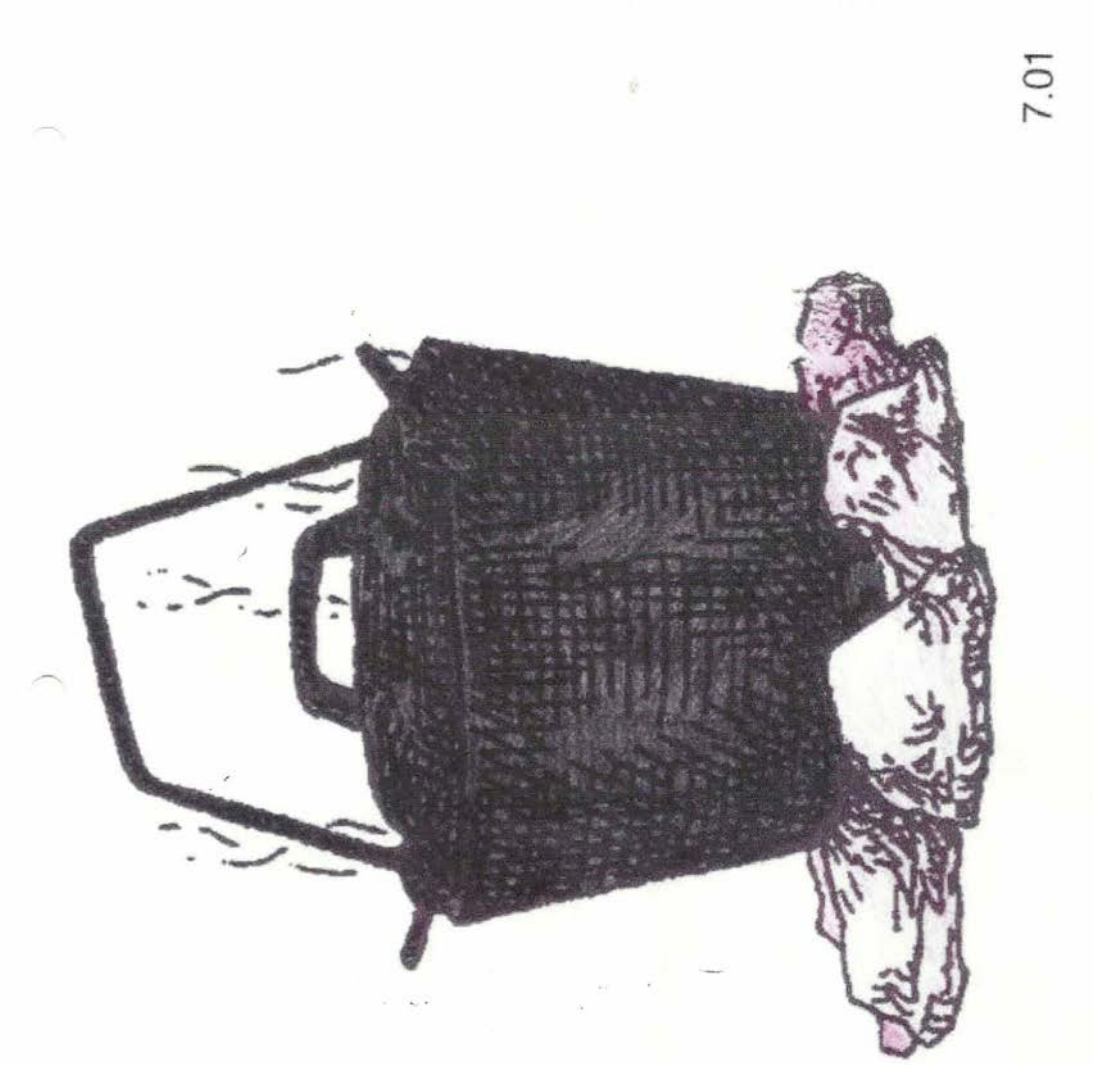
Some of the important points in this exercise and additional information that the facilitator can add are:

- Bury poop so people don't step in it or touch it and spread the germs.
- Cover food to keep flies from landing on it and spreading germs.
- Boil water to kill germs.
- Use a latrine so people don't step in poop or touch it and spread the germs.
    - Latrines should have covers over the top so flies can't enter and carry off germs.
    - A vent with a screen will allow smells out but keep flies inside.
    - Be sure the latrine is located in a place where rain can't wash poop into water sources.
- Bury trash so it doesn't rot where flies can land on it and carry the germs where they will make us sick.
- Use clean water from a drilled deep water well.
- Put a fence around pumps and keep the area clean. Keep animals out so they don't contaminate the pump by licking, urinating, or dropping feces. Keep children from playing on the pump and damaging it.
- Fence animals so they don't poop all over.

- Wash fruits and vegetables (foods that you eat raw & unpeeled) with clean water to remove germs.
- Wash dishes, utensils, and jerrycans with clean water and soap; air dry them.
    - To clean the inside of a jerrycan, shaking clean stones and water inside several times can help remove stubborn mold and other contaminants.
    - Consider using a jerrycan and other water containers only for water so they are easier to keep clean.
- Wash hands before preparing, serving, and eating food or clean water so germs don't get into anyone's mouth.
    - Note: After the first person shows a picture of hand washing, ask if anyone else has a similar picture. Ask them all to stand and ask, "Which way of getting germs in our body can be blocked by hand washing?" (all of them).
      Ask participants to place their picture in each column "Hand washing is the most important way to stop germs from entering our bodies and making us sick."

4. "Look at all the ways we can stop the germs from spreading and keep germs from entering our bodies. As you can see, if we apply these good hygiene behaviors there are many ways we can help our families stay healthy."

FIFTEEN PICTURES (7.01 thru 7.19) FOLLOW "Disease Blocking" LESSON.



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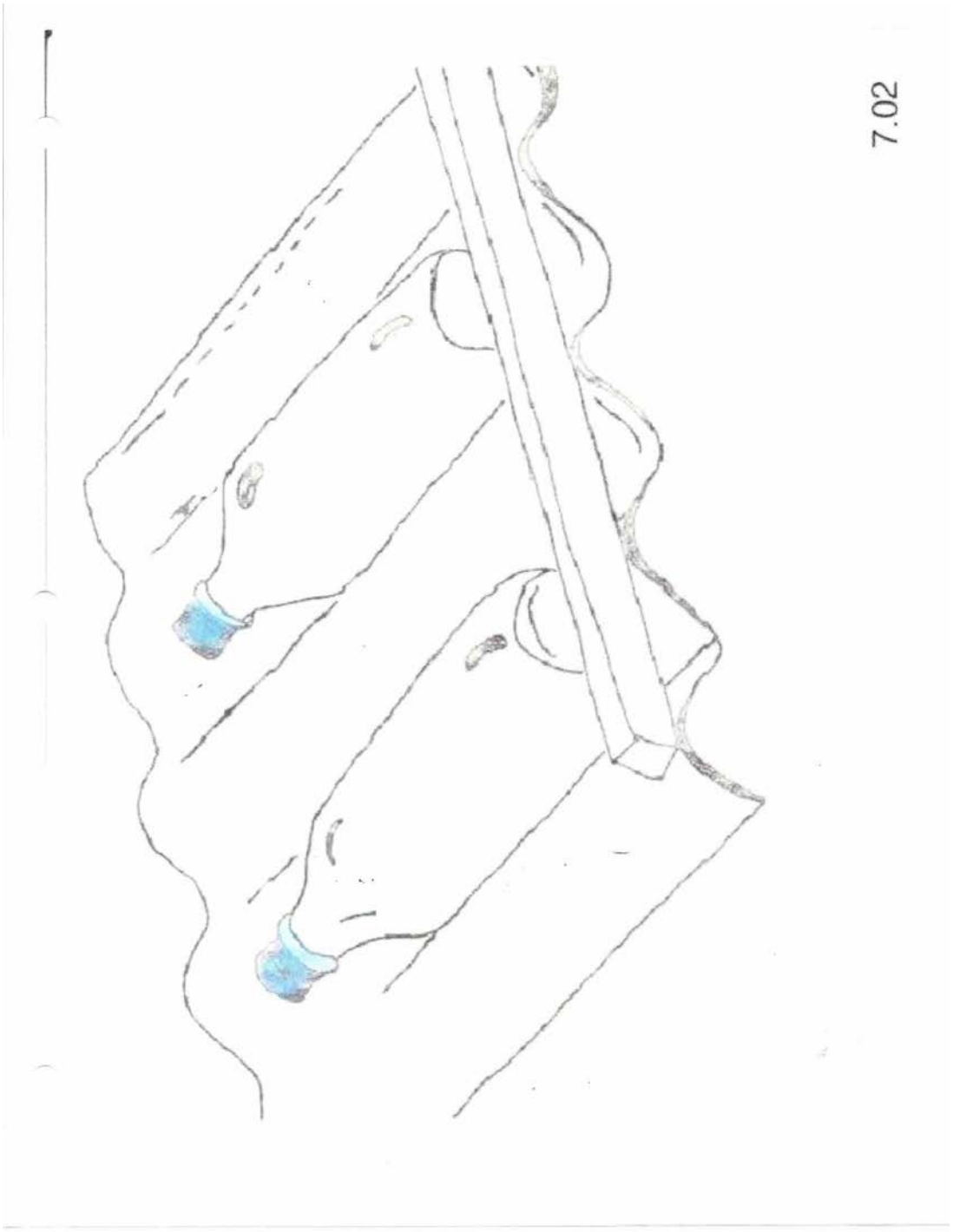
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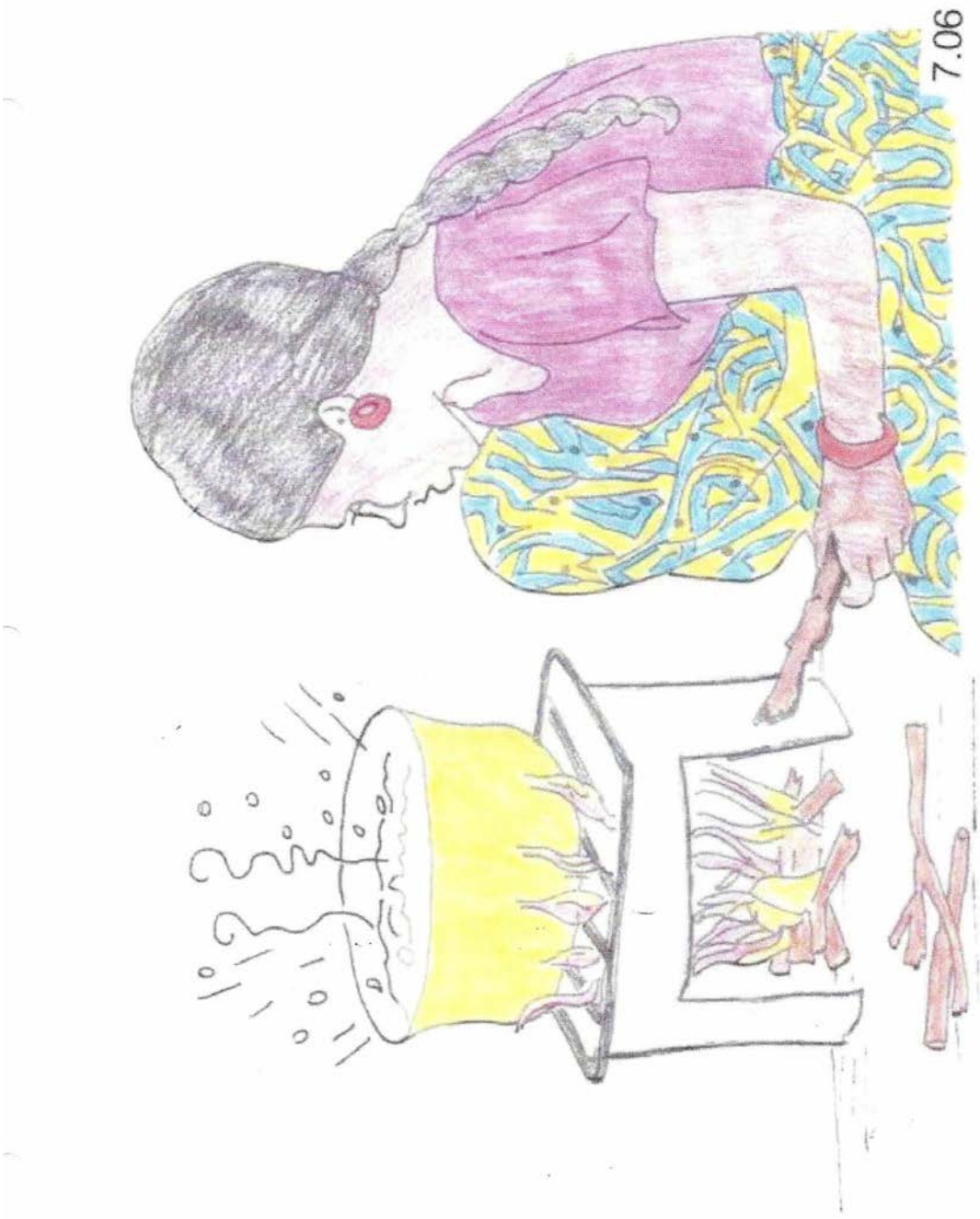
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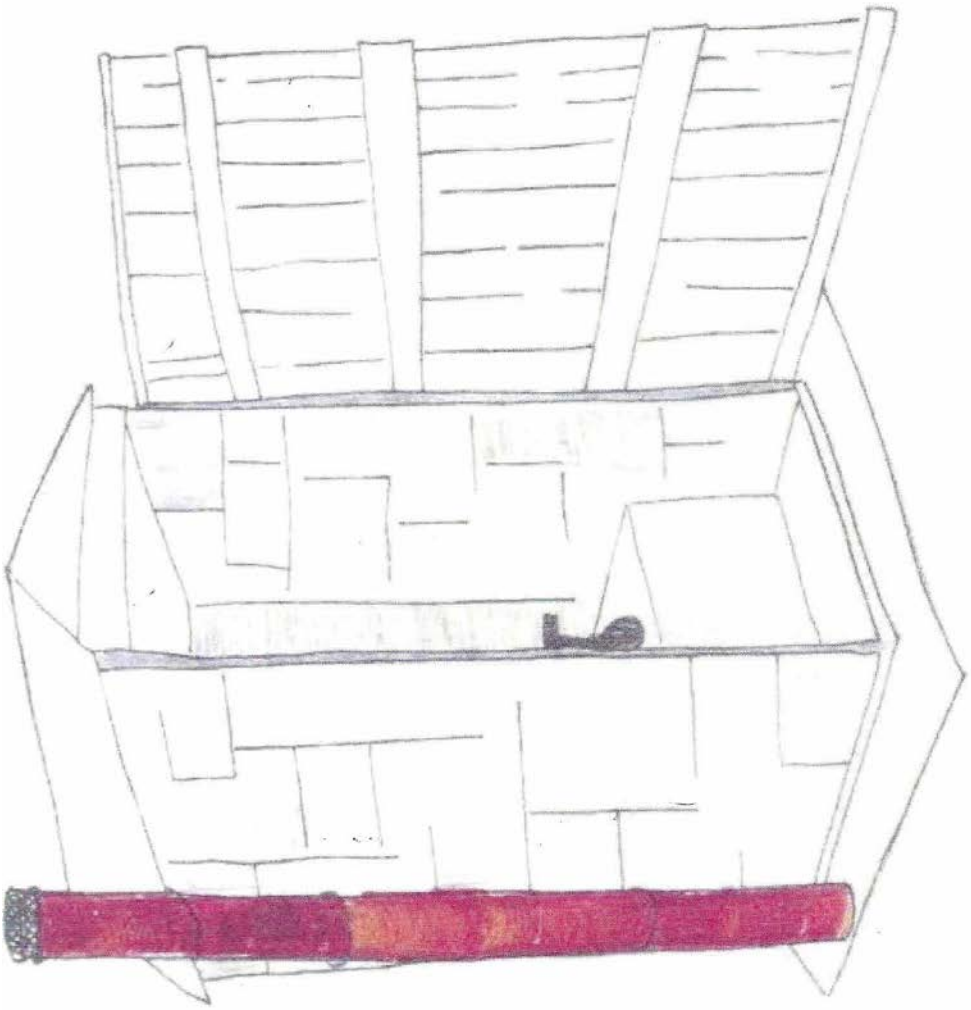


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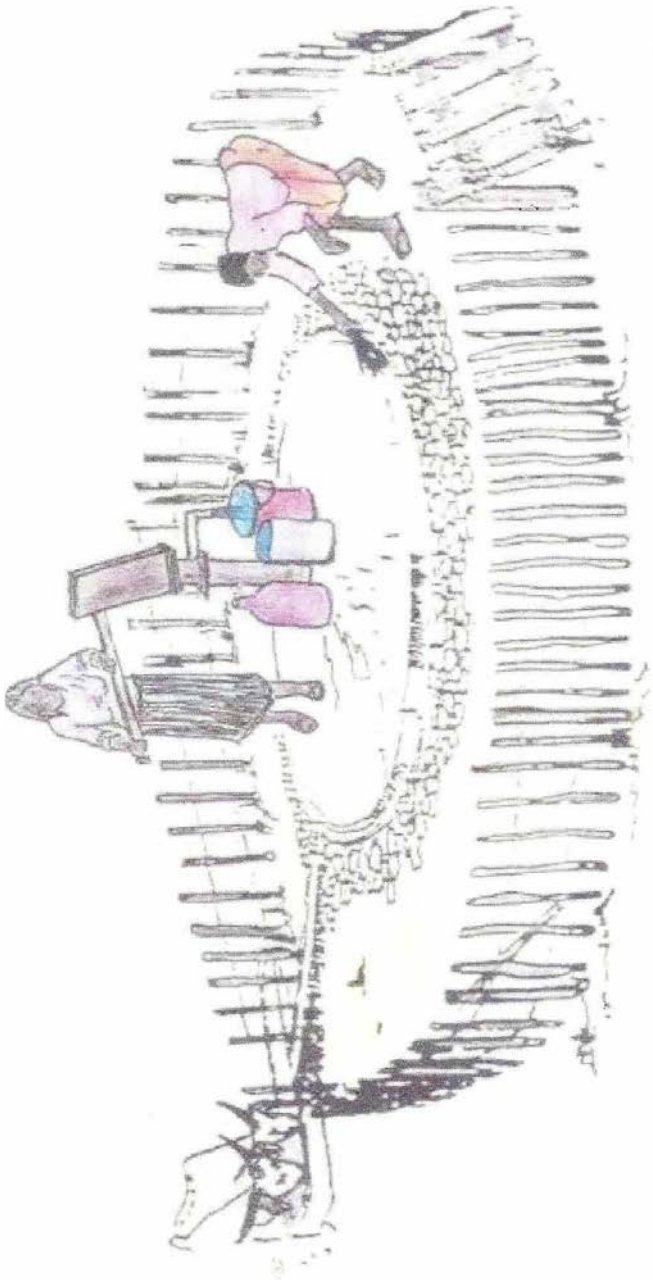

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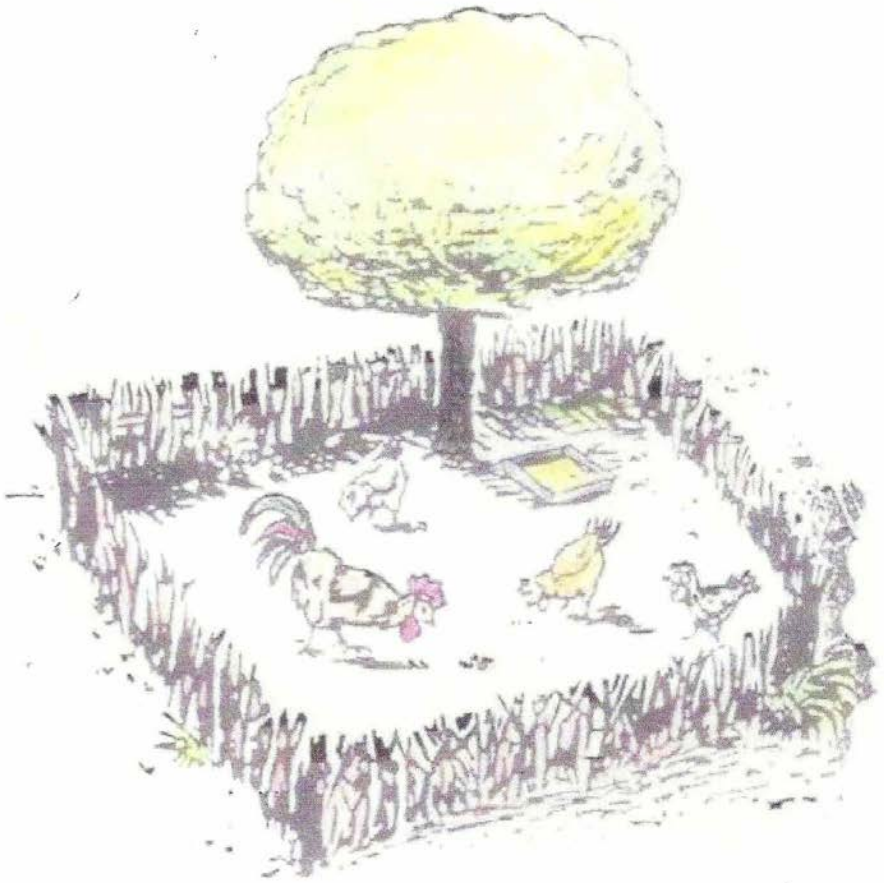

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7.14


7.17

8

8. Fly Catcher: Craft

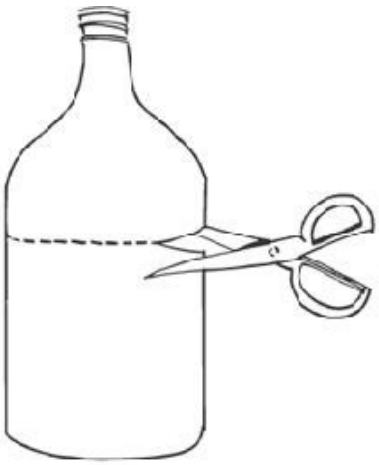
Message:	*Materials:*
1. Flies carry germs.	*1. Bottle (empty, preferably 2 liter)*
2. Trap flies to curb the spread of sickness and disease.	*2. Hole punchers*
	3. Sissors, knife or razor blade
	4. Fruit (or other fly bait)

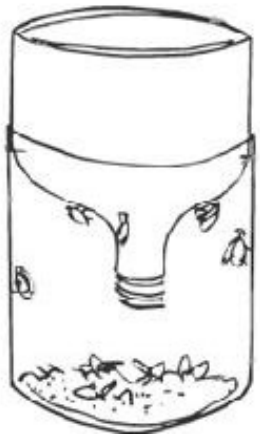
Prior to class, assemble a Fly Catcher to show finished product.

The Fly Catcher is a simple device for trapping flies. Since flies are significant carriers of disease, it is important to implement some measure of control. We recommend placing one of these devices in each latrine and in each individual dwelling.

Method:

1. Take an empty plastic bottle and make a hole in the cap just big enough for one fly to enter.
2. Using a scissors, knife, or razor blade, cut the circumference of the bottle just below the shoulder.
3. Place a small amount of bait (fruit or other food) in the bottom of the bottle.
4. Invert the neck of the bottle, and fit in inside the bottom of the bottle.
5. Place the device in a corner of the latrine or dwelling.
6. Empty every few days and re-bait. **Bury dead flies to prevent any larvae from hatching**.





9. Diarrhea

Message:	***Materials:***
1. Diarrhea is caused by germs. *2. The biggest problem with diarrhea is usually dehydration.* *3. It is very important to give an abundance of clean water to children and adults who have diarrhea.* *4. Oral Re-hydration Solution (ORS) helps rehydrate and save lives.*	*1. A clear plastic bottle;* • *Draw a line around the bottle at the 2/3 full mark and the half- way mark.* • *Poke a hole in the bottom of the bottle.* • *Have the top open so you easily pour water into the bottle* *2. A pitcher to hold extra clean water to pour into the "bottle".* *3. Coke, coffee, or some other form of liquid that is dark in color representing dirty water/germs.* *4. One Dixie cup labeled ORS* *5. A wash basin to collect the fluid that will pour out of the bottle.*

Method:

1. **"In this class, we have fun pretending and using our imagination. For this lesson, would you pretend that this water bottle is a person? Would you pretend that it is my three year old daughter? I know that the bottle doesn't look like a child but it is a useful aid to discussing some important things."**

2. Say, **"Most of our body is made up of water."** Pour water from the pitcher into the bottle to the top line. Hold your finger over the hole in the bottom of the bottle. Ask, **where do we have water in our bodies?** (Eyes, mouth, blood, stomach, kidneys, brain)

3. **How do we lose water from our body?** (Tears, sweat, diarrhea, vomit, urine) Pour some of the dark liquid slowly into the bottle. **"In this lesson, we are going to talk about diarrhea, one of the most harmful ways that we lose water. When we drink dirty water from the river or lake or tap it can cause diarrhea."** Release your hold on the hole in the bottle. **"My daughter has diarrhea because she drank dirty water."**

4. Let the water pour out of the bottle. **"What happens when our children get diarrhea from dirty water?"** (The child loses water, the germs leave the body) **"As the child loses water it becomes dehydrated. What does dehydrated mean?"** (Not enough water in our bodies) **"Can this child's body function well? Does this child have enough water to digest food? Does this child have enough water for the kidneys to function? Enough water for the brain to think? Is this child healthy?"** (No) **"The water that is lost through diarrhea must be replaced or the child will have a harder time recovering from the sickness; the child may even die from dehydration."**

5. Pour water from the pitcher into the bottle. **"Sometimes people want to take a medicine that stops the diarrhea. If we block the hole at the bottom of the bottle what happens?"** (The dirty water/germs stay inside). **"This shows what happens sometimes when we give medicines to stop diarrhea. We may keep the sickness in our bodies. Before you use this type of medicine, be sure a health care provider recommends it. Normal diarrhea is God's way of getting the germs out of our bodies."**

6. Add more water to the bottle. **"When we become dehydrated, it is hard for our bodies, especially children's to rehydrate, to get enough water back into our bodies."**

7. Pour the cup of Oral Rehydration Solution (ORS) into the bottle, the child. Explain that, **"Doctors have developed a solution that helps rehydrate the body in the fastest time possible. "This solution does not stop the diarrhea but helps the body soak in the water keeping it from becoming dehydrated. It may take three to five days for the diarrhea to go away completely; ORS helps the child stay hydrated. If diarrhea is unusually severe, go to the doctor. But, start ORS right away so you help your child rehydrate while you are travelling to the doctor."**

8. **"Would you like to know how to make ORS at home?"** (Yes) **"Later, we will teach you."**

10

10. ORS: Oral Re-hydration Solution

Note: Do not teach this lesson if you are not distributing ORS spoons. ORS measurements are very precise. Inaccurate amounts of sugar or salt may cause more harm than help. If ORS measuring spoons are not available, encourage drinking lots of clean water and juice or buying local pharmacy versions of ORS, if available.

Message:	***Materials:***
1. ORS helps re-hydrate at the fastest possible rate. *2. ORS keeps people from dying from dehydration.*	*1. Picture* *2. ORS spoons (one for each student)* *3. 2 Small (500-600 ml) bottles of water* *4. Salt* *5. Sugar* *6. Three Large cups for mixing the ORS (16 oz) Options:* *A. Gift notebooks and pens for participants to take notes.* *(You can also use these gifts for the Latrine lesson.)* *B. Small (Dixie) cups to use for giving each student a taste.* *C. Small (500 ml) water bottles (full or empty) for participants to use as ORS measuring devices at home.*

Method:

1. Show the picture of the baby and the flower. **"We learned in the last lesson that diarrhea can cause dehydration. Dehydration is a serious health problem for everyone but especially for children. Without water babies wilt and die as quickly as flowers. Children need to stay hydrated or they can die. Now I will show you how to quickly hydrate children with ORS."**

2. Option: Hand out the gift notebooks and pens.

3. Invite two students to make some ORS with you.

4. **"Before you start, be sure to wash your hands with clean water."** (Wash hands or pretend all three of you are washing your hands.)

5. **"Use clean water to make this solution. This can be boiled water or water from the pump or water filter or bottled water. Measure out 250 ml. - 300ml. (8.4 oz; half of a typical small water bottle) of water per dose of ORS solution."**

6. **"Using the small scoop of the ORS spoon, measure first a level scoop of salt, and dissolve it in the measured water.** (Invite the students to sing or kazoo a song while you stir.) **Taste the water on the back of the hand. Does it taste saltier than your tears? If it does, toss it out and start again. Too much salt in the mixture causes the body to become more dehydrated."**

7. **"Add a level scoop full of sugar to the mixture, using the large scoop of the ORS spoon. Stir to dissolve. Make sure that you don't use too much sugar because ORS is harder to keep in the stomach if it is too sweet. If the child vomits give the ORS again, but this time, make sure that you use a level scoop and have the child drink the ORS more slowly."**

8. Have the volunteers taste the solution and report to the group. Option: Pour samples into small cups for all the students to taste and ask them how it tastes (better than most medicine).

9. **"If you are making ORS for an adult, make double the dose – 500 to 600 ml of water (typically a whole, small water bottle) and two scoops of salt and sugar."**

10. **"A child should take 1 dose of solution after each loose stool. An adult should take double the amount of ORS after each loose stool. If the diarrhea is severe, take one dose every half hour to stay hydrated.**

    - **There is no definitive age for a child/adult dose because It is unlikely that people can drink too much ORS."**

11. **"You should not add ORS to liquids such as milk, fruit juice, or soft drinks. Why?"** (it would contain too much sugar).

12. **"Do not make ORS solution for more than one day at a time. The solution will lose its effectiveness. Mix ORS for one day only."**

13. A person with diarrhea needs more calories (not less):
"Because of the nutritional losses from diarrhea, people need more calories during the acute and recovery stages of diarrhea. Children who receive increased nourishment during this time suffer less and recover faster.

- **Continue to breast-feed frequently.**
- **If children are already taking solid food, make sure they get all the different foods they need for a balanced diet and especially foods with:**
  - **Protein - meat, chicken, fish, eggs, beans, soy**
  - **Potassium - coconut water, fresh lemon and orange juices, raw tomato, banana, plantain, and papaya."**

14. Review:

1. **"Should ORS be made with juice?"** (No)
2. **"How much solution should a child take?"** (1 dose, half a typical water bottle, 1 scoop)
3. **"Should the salt and sugar be measured level or heaped onto the spoon?"** (Level)
4. **"Does ORS contain more salt or more sugar?"** (sugar)
5. **"How much should an adult take?"** (2 doses, a whole small water bottle, 2 scoops)

15. Signs of dehydration:

- sunken eyes
- no tears
- dark urine
- no urine
- wrinkles around mouth
- when pinched, the skin on back of hand does not snap back normally
- a pressed fingernail does not regain its color within 2 seconds

16. When to seek immediate medical help:

- If the child is small in age (under 6 months) or size – they can dehydrate and die very quickly so don't delay seeing a doctor
- If the sick person has green in their vomit

- If the sick person becomes increasingly ill
- If the sick person does not answer clearly when spoken to
- If the sick person has blood in their stool

17. Cautionary Note:
Parents should not force children to drink the ORS solution. Parents should offer and encourage drinking ORS. Clean water and fruit juices also help rehydrate (just not as fast as ORS). If a child with severe or prolonged diarrhea will not drink, parents should seek medical attention.

18. Hand out the ORS spoons to each participant. Ask participants to use the ORS spoon to help their families and their neighbors.

19. Option: Hand out a water bottle (it can be full or empty) to each participant to use as an ORS water measuring device at home.
Note: Over the counter versions of ORS may available for purchase in local pharmacies.
Distributing ORS spoons and teaching how to make the solution at home allows treatment to begin right away and is usually cheaper.

11

11. Sin and Salvation

Spiritual Application of the Diarrhea Lesson

Message:	*Materials:*
1. We all fall short and need Jesus. *2. Salvation is available to everyone no matter how black with sin our lives have been.* *3. You can be sure of salvation right now.*	*1. The Diarrhea "Bottle" filled about 25% with clean water* *2. Two Pitchers or Cups – one filled with coke or coffee & one filled with clean water* *3. A pan to collect the fluid that will pour out of the bottle*

Method:

1. Hold the bottle of clean water with your finger over the hole. Say **"The lesson about diarrhea reminds me of other things we face in life. Often I have the best of intentions but make so many mistakes.**

- After each mistake/sin, pour some dirty water into the bottle:

  a) "I want to be a really good mom/dad but I am often impatient with my children."

  b) I love my husband/wife but sometimes I am critical of him/her.

  c) Sometimes I am just plain selfish and want the biggest plate of food or the most comfortable chair.

  d) Maybe some of you like me have not always told the truth or not bothered to help when a neighbor needed some help.

  e) Maybe some of us here today have made even more serious mistakes… cheated, stolen, lied, or committed adultery.

  f) Maybe some of us have lived our lives angry, unforgiving, seeking revenge over how a boss or our father or neighbor treated us.

  g) Maybe someone here today is even guilty of a very serious crime like robber or murder."

2. **"But no matter how serious our mistakes, no matter how black our souls have become, there is a God who loves us. A God who cried while we were mistreated and who was sad when we mistreated others. Like a loving parent, Jesus looks forward to us coming to Him to restore our relationship."**

- Release your hold on the hole in the bottle and let the dirty water run out as you pour clean water into the bottle after each statement:

  a) "Just like a loving father, Jesus likes to hear from us. We call that prayer when we talk with Jesus.

  b) And, like a loving father, God wants us to listen to His words of wisdom. God's wisdom is found in the Bible.

  c) Jesus wants us to spend time with the rest of our family by attending church and enjoying the company of other believers.

3. **The first step is really simple; all you need to do is ask Jesus into your life. Jesus is the living water, the water that will quench your thirst forever. I can tell you how to ask Jesus into your life. I can say a special prayer for us now. If you would like, say the words "me too" silently in your mind, while we bow our heads for a moment and talk with Jesus."**

- Pour enough clean water into the bottle so the water is clear by the end of the prayer:

  "Dear God, I admit that I am a sinner. I have done many things that don't please you. I have lived my life for myself. I am sorry and I repent. I ask you to forgive me. I believe that you died on the cross for me to save me. You did what I could not do for myself. I come to you now and ask you to take control of my life; I give my life to you. Help me to live every day in a way that pleases you. I love you, Lord, and thank you that I will spend all eternity with you. Amen."

4. Raise the bottle up to show the group (keep your hand over the hole):

"If you prayed that prayer for the first time or prayed it now to rededicate your life to God, no matter how black your soul you are clean and new again in God's eyes.

Congratulations! God loves you! Go and live your life in His service!"

Put the bottle down. **"Let's applaud everyone who prayed that prayer."** (Clap) **"Congratulations!"**

12

12-A. Worms and Parasites

- If puppets are new to participants, put the puppets on, one at a time, and show them to the participants. Explain that you are going to pretend that they are people talking. The puppets will make it easier to talk about some unpleasant topics.

Message:	***Materials:***
1. In addition to germs, there are other things that make us sick. *2. Parasites and worms also cause illness and harm.* *3. There are simple ways to avoid getting parasites and worms.* *4. You cannot get rid of worms and parasites on your own. Once infected, seek medical care.*	*1. Sick Puppet* *2. Healthy Puppet* *3. Curtain for the Puppet show* *4. Two copies of the Puppet Skit for the readers* *5. Pictures* *Option: Gift manicure set for each participant. (to keep nails short and clean).*

Method:

1. Introduce this lesson with a Puppet Skit (attached).

2. **"If people do not use latrines or bury stools, flies can move parasite eggs from the stools onto the things we eat, our dishes, water, and dirty hands. Then we swallow the eggs without knowing it."**
"If stools are not disposed of properly, cows and pigs can eat the eggs. The eggs get into their flesh. If the meat is not cooked hot enough to kill the eggs then when people eat the meat they get infected with the eggs."

3. Let's review: "How do worm and parasites get into our bodies?"
    1. By eating food with dirty hands.
    2. Putting dirty hands in our mouths.

3. Not wearing shoes.

4. Drinking contaminated water

5. Eating fruits and vegetables that have not been washed.

6. Eating beef and pork that has not been cooked well

4. "Let's talk about some of the symptoms that indicate when someone is infected with worms or parasites"

"Sometimes you can see them, for example, tiny white worms on a person's bottom (anus)." At night the female comes out to lay her sticky eggs. When the person scratches their bottom, the worms get under their fingernails and are carried to anything they touch.

"Other times a person gets thin but has no appetite and has a big belly that hurts." Their stomach is full of worms. If they do not get medicine, the worms may cause an intestinal blockage and the person needs emergency surgery or they will die.

"A person with worms will be very tired and weak." Worms take the nourishment from the food that the person eats. They get sick with other illnesses and sometimes have diarrhea and a dry cough. They can cough up worms. Children do not do well in school because they have trouble thinking and paying attention.

5. **"What should you do if you have been infected with worms or parasites?"**
(Seek medical help.)

6. Pass out the pictures and ask participants, **"Please stand and tell the group about your picture and how it shows a way to prevent becoming infected with worms and parasites:"**

a. Keep fingernails short.

b. Dispose of stools properly by burying poop or using the latrine.

c. Bathe regularly.

d. Keep clothes and bed clothes clean.

e. Wash fruits and vegetables

f. Wear shoes.

g. Make a clean place for small children to play and crawl.

h. Kill flies.

i. Always drink clean water.

j. Cook all meat well.

k. Wash hands frequently.

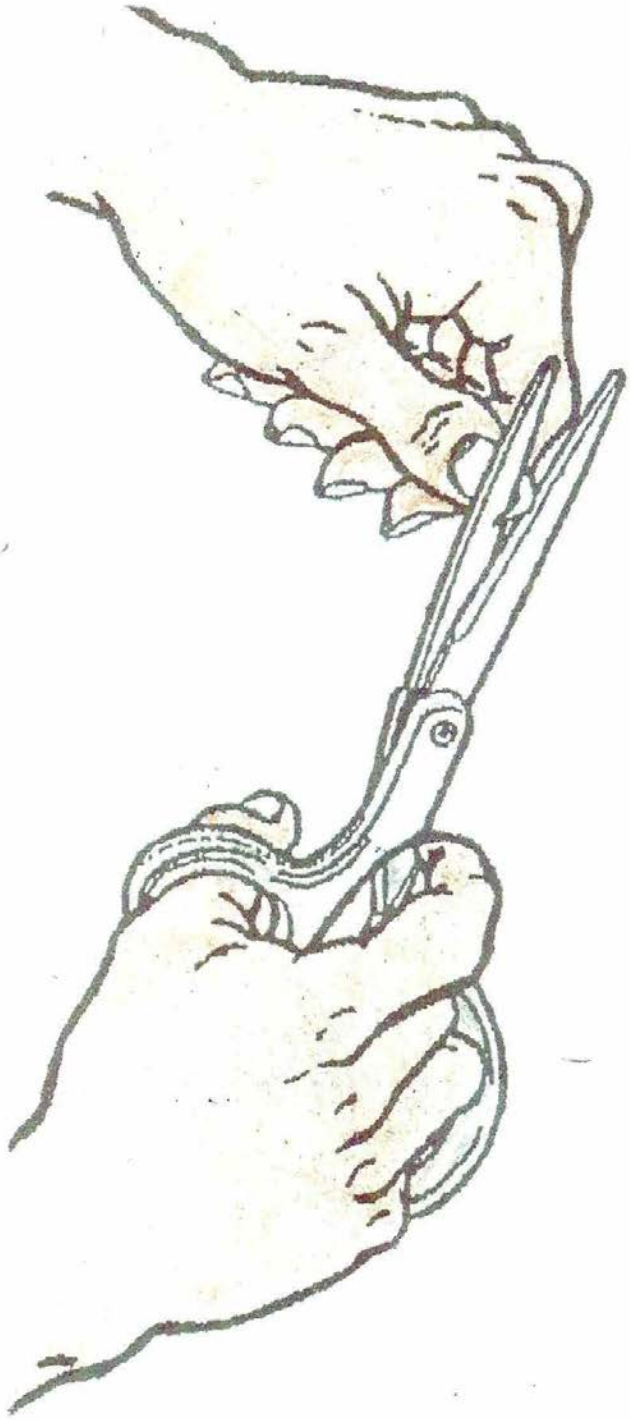
Option: Hand out gift manicure sets.

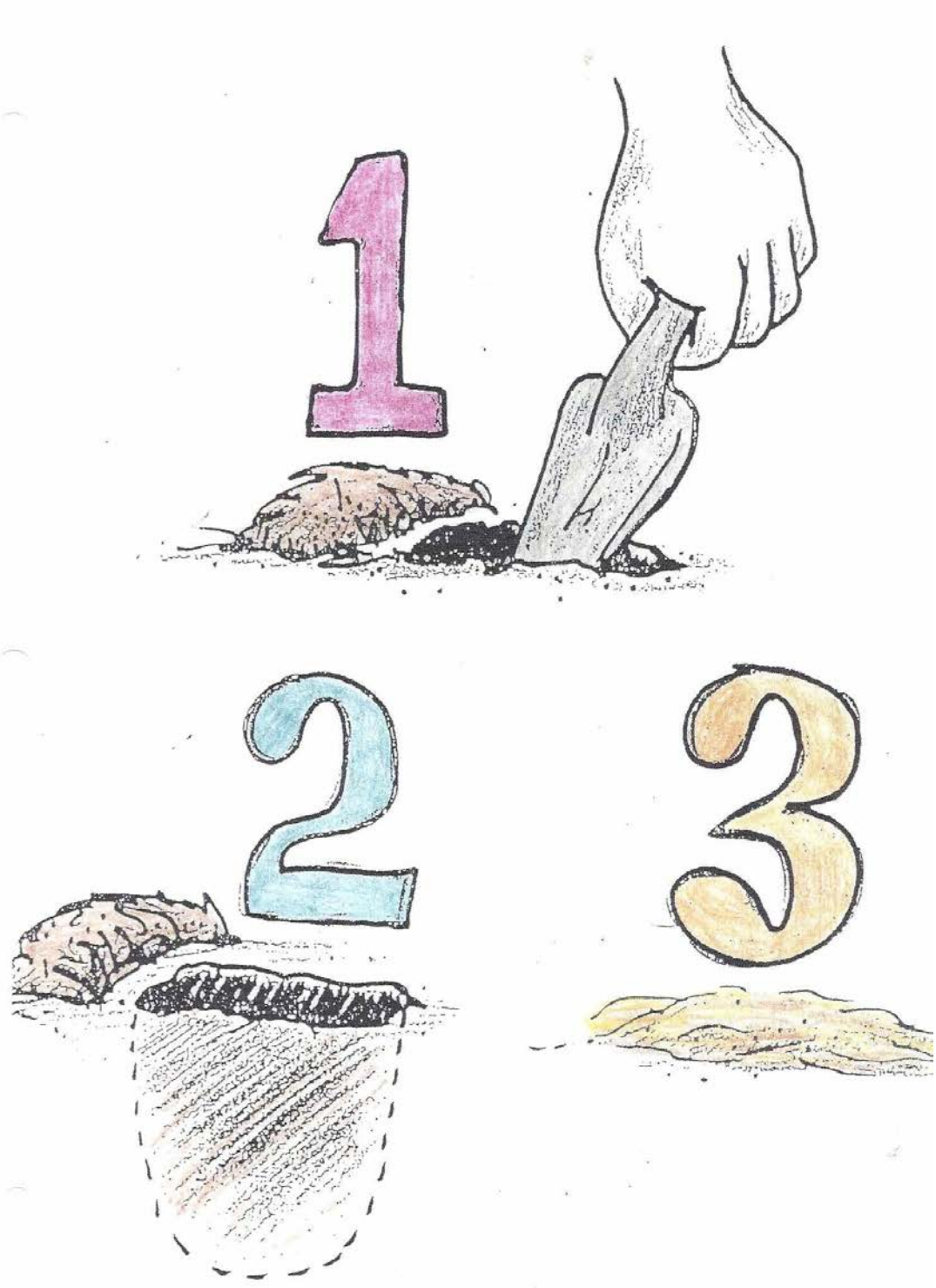
12-B. Worms and Parasites
(PUPPET SKIT)

- Ask two participants (one man and one woman) to put on the puppets and act out the skit. Ask two other volunteers (one man and one woman) to hold the curtain.
- Make two copies of this Skit and ask two students (one man and one woman) to read the dialog; please make sure to ask in advance who is a good reader (some students may be illiterate).
    - Put all the men on the healthy puppet side and all the women on the unhealthy puppet side, or vice versa; this will help the audience understand which puppet is talking.

Sick Puppet:	*I don't feel so good.*
Healthy Puppet:	*What's wrong?*
Sick Puppet:	*I'm always tired. I'm not hungry but my belly looks so big.*
Healthy Puppet:	*It sounds like you have worms and parasites.*
Sick Puppet:	*Yuck!!!! How did I get them!?!*
Healthy Puppet:	*1. By eating food with your dirty hands.* *2. By stepping in poop with bare feet.* *3. By drinking contaminated water.* *4. By eating fruits and vegetables that have not been washed.* *5. By eating beef or pork that has not been cooked well*
Sick Puppet:	*How can I get rid of them?*
Healthy Puppet:	*You have to go to the clinic to get medicine.*
Sick Puppet:	*How can make sure that I don't get them again?*
Healthy Puppet:	*The most important things you can do to protect yourself are:* *1. Wash your hands before you eat.* *2. Bury stools or use the latrine.* *3. Kill flies.* *4. Drink only clean water.* *5. Wash fruits and vegetables* *6. Cook all meat well.* *7. Always wear shoes* *8. Keep nails trimmed short and clean*
Sick Puppet:	*Thanks for helping me!*

EIGHT PICTURES (12.01 thru 12.08)
FOLLOW "WORMS & PARASITES" LESSON.

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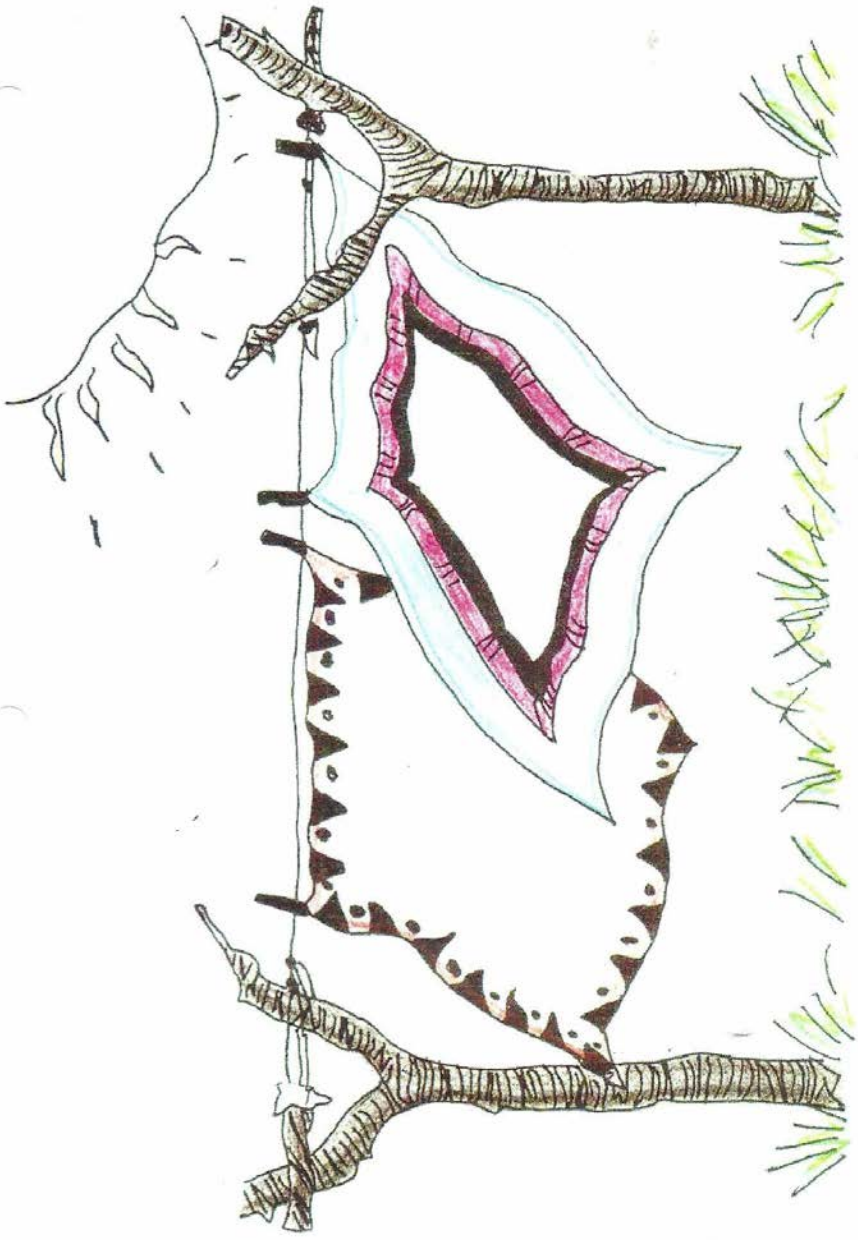


13

13-A. Latrines: Routine Use

- This lesson is designed for cultures that routinely use latrines or toilets (instead of pooping on the ground). However, the bathroom facilities are inadequate (e.g. too few, lack privacy, poorly constructed, dirty, no ventilation, lack access to hand washing with soap). Check out the local latrine or find out a little about local habits before including this lesson and adapt as appropriate.
- It is wise not to embarrass the host by focusing on the host's latrine.
  - Keep the discussion general and encourage students to identify concerns.
  - The facilitator should not point out problems.
- When training trainers, move quickly through each exercise to model how students might use the methodology to facilitate community group problem solving. "Model" means list a few answers, get the idea, and then move on quickly.
- Local trainers could spend much more time with each part of this lesson and make more comprehensive lists. As part of the lessons, trainers could encourage participants to form sanitation committees and develop action plans.
- If participants attend the same church or school (and the senior person is in attendance and agrees) you might facilitate forming clean water and sanitation committee(s).

Message:	***Materials:***
1. Students will identify issues with local latrines. *2. Students learn to work together in both small and large groups to solve problems.*	*1. Chalk board & chalk or Large sheets of paper & thick pen* *2. Markers (variety of colors) - approximately 5 sets – 1 set for each small group* *3. Tape (to hang papers on walls)* *4. Picture* *5. Paper & pens* *Option: Gift notebook and pen for each participant.*

Method:

1. Divide the class into small groups. Ask each group to **"Discuss any concerns about the adequacy or cleanliness of local latrines (at the church, or school, for example). Have someone in your group list your ideas on a piece of paper."** Give each group a pen and pieces of paper to record ideas.

2. Option: Hand out gift pens and notebooks to each participant.

3. Have each of the small groups report back to the larger group. Ask each group to **"Report one thing from your list."** Do this until all the groups have said what is on their list.

4. When all the groups have reported, ask everyone to go back to their small group to list. **"What are ways to solve the concerns?"**

5. Have each of the small groups report back to the larger group. Ask each group to **"Report one idea from your list."** Do this until all the groups have said what is on their list. Ask for a volunteer or the translator to write on a large piece of flip chart paper what they have discovered about ways to overcome the concerns.

6. Ask the large group which of their ideas will need to be considered in the **design** of a latrine and which ideas involve the use and **maintenance** of the latrine. Have two people write on large pieces of flip chart paper the two lists. (If time is short, then just write D or M by each item.)

7. Look at the list of maintenance ideas and have the large group decide which items are the responsibilities of each **individual** who uses the latrine and which should be the responsibility of the **community**. Write an I or C by each idea. (For example, sprinkling ash after using the latrine might be the responsibility of each individual while regular cleaning of the latrine might be the rotating responsibility of a group of families who use that latrine.)

8. When the discussion is finished

- Recommend **"please keep the lists and remember to include these excellent ideas at home or when your church/community plans latrines."**
- If participants attend the same church or school (and the senior person is in attendance and agrees) you might facilitate forming clean water and sanitation committee(s).
- Encourage local trainers when they are teaching the class to encourage groups to form committees, plan actions steps, or whatever is appropriate to implement solutions identified for clean water and sanitation concerns.

13-B. Latrines: Infrequent Use

- This lesson is designed for cultures that poop on the ground instead of using latrines or toilets. Find out about local habits before including this lesson and adapt as appropriate.
- When training trainers, move quickly through each exercise to model how students might use the methodology to facilitate community group problem solving. "Model" means list a few answers, get the idea, and then move on quickly.
- Local trainers would spend much more time with each part of this lesson and make more comprehensive lists. As part of the lessons, trainers could encourage participants to form committees and develop action plans to implement solutions to sanitation concerns.
- If participants attend the same church or school (and the senior person is in attendance and agrees) you might facilitate forming clean water and sanitation committee(s).

Message:	***Materials:***
1. Students will examine the community's attitude toward latrine usage. *2. Students will determine ways to minimize the disadvantages of latrine usage.* *3. Students learn to work together in both small and large groups to solve problems.*	*1. Chalk board & chalk or Large sheets of paper & thick pen* *2. Markers (variety of colors) - approximately 5 sets – 1 set for each small group* *3. Tape (to hang papers on walls)* *4. Picture* *5. Paper & pens* *Option: Gift notebook and pen for each participant.*

Method:

1. Divide the class into small groups. Ideally, small group members are from the same village/community. Ask each group to **"Talk about the advantages of using a latrine. Have someone in your group list your ideas on a piece of paper."** Give each group a pen and pieces of paper to record ideas.

2. Option: Hand out gift pens and notebooks to each participant.

3. After they have had time to complete their list ask **"Now please talk about the disadvantages of using latrines. Have another person in your group list your ideas on a piece of paper."**

4. Have each of the small groups report back to the larger group. Ask each group to **"Report one thing from your list of advantages."** Do this until all the groups have said what is on their list. **"Now please report one thing from your list of disadvantages."**

5. When all the groups have reported, ask everyone to go back to their small group to list. **"What are ways to avoid the disadvantages of using latrines."**

6. Have each of the small groups report back to the larger group. Ask each group to **"Report one idea from your list."** Do this until all the groups have said what is on their list. Ask for a volunteer or the translator to write on a large piece of flip chart paper what they have discovered about ways to overcome the disadvantages of latrines.

7. Ask the large group which of their ideas will need to be considered in the **design** of a latrine and which ideas involve the use and **maintenance** of the latrine. Have two people write on large pieces of flip chart paper the two lists. (If time is short, then just write D or M by each item.)

8. Take the list of maintenance ideas and have the large group decide which items are the responsibilities of each **individual** who uses the latrine and which should be the responsibility of the **community**. Write I or C by each idea. (For example, sprinkling ash after using the latrine might be the responsibility of each individual while regular cleaning of the latrine might be the rotating responsibility of a group of families who use that latrine.)

9. When the discussion is finished

- Recommend **"please keep the lists and remember to include these excellent ideas at home or when your church/community plans latrines."**
- If participants attend the same church or school (and the senior person is in attendance and agrees) you might facilitate forming clean water and sanitation committee(s).
- Encourage local trainers when they are teaching the class to encourage groups to form committees, plan actions steps, or whatever is appropriate.

14

14-A. Keeping Water Clean

Well Pumps

Materials:	***Materials***:
1. Use the pump properly	*1. Use the pump properly*
2. Protect the well from contamination	*2. Protect the well from contamination*
3. Protect water transport and storage containers from contamination	*3. Protect water transport and storage containers from contamination*
4. Serve water with clean hands	*4. Serve water with clean hands*
5. Store the water safely	*5. Store the water safely*

Method: Skit

Ask for a volunteer to stand and represent the pump.

- Begin by putting the pitcher or tippy tap container on your head and going to the pump.
- Pump the water (using the volunteer pump's arm) - show a full range of motion on the handle for the most water production
- Put the bucket on your head and head for home
- Place the bucket on the floor.
- Then say, **"I went to the clean water source. Now my water is not safe to drink. How did this happen?"**

Once they tell you how it became unsafe, act out the story again from the beginning. This time correct the step they mentioned. Don't include anything unless they tell you to include it. Do this in several steps, restating the proper way so they hear it several times. Be sure to include:

- Keep the well area clean.
- Keep animals and latrines at least 30 meters downhill from the water source.
- Wash the pitcher or tippy tap container (with soap or if no soap is available, scrub bucket with cloth & swish clean with a small amount of water 7 times or for a jerrican put clean rocks into the jerrican, shake & rinse out 7 times).
- Cover the pitcher or use a clean cap to protect the water in a jerrican. (Use the dirty towel from lesson 3. Hand Washing and let the participants catch the mistake. Then replace the dirty towel with the clean towel.)
- Store water up and away from animals, children, and insects.
- Wash hands before handling clean drinking water.
- Pour water into a smaller container so the whole supply is not contaminated if someone dips a dirty cup or hand into it. Cover the container with a clean towel.
- Store ladles in the smaller container only if the handle is not in the water (if the handle is in the water then users' hands will contaminate it).
- To keep a ladle clean, hang it up or store it in a clean towel
- Cups should not be dipped into water after someone drinks out of the cup
- Do not pour water from a used drinking cup back into the water container.
- Encourage use of water containers only for water transport and storage.

Proper Care of the Well Pump

Cover the following points:

- Do not use the water for 24 hours after the drill team dumps chlorine in it.
- When pumping water for the first time (after the 24 hours), pump the water out until there is no longer any chlorine smell or taste
- To pump water move the pump handle all the way up and all the way down without hitting the top and bottom. Use the very back end of the handle to pump. Place the bucket directly under the spout on the slab not on the neck of the spout.
- Deep water well water is clean and does not need to be boiled or purified if we are careful to protect it from contamination.
    - Build a fence around the pump to keep animals away.
    - Do not allow children to put their mouths on the spout or to play with the pump.
    - Keep the slab area clean from dirt, dust, and debris.
    - Be sure to use clean buckets/jerricans and cover immediately after collecting water.

- Make sure the buckets/jerrican used for water are only used for water and not other things. Clean the buckets/jerricans frequently. To clean jerricans, put clean rocks, water, and detergent inside and shake vigorously.
- Do not build any latrines or animal pens or bury any trash within 35 meters of the well.
- Do not build any latrines or animal pens or bury any trash up the hill from the pump that would allow rain or irrigation water to drain down hill to the well.

14-B Keeping Water Clean- Skit

Water Filters

Message:	***Materials:***
1. Protect the Water Filter system from contamination *2. Collect the water with clean hands and clean containers* *4. Store the water safely* *5. Facilitators should avoid lecturing and instead help students "self-discover", participate in learning about hygiene, in a fun and effective way.*	*1. Water Filter two bucket system* *2. Plastic cup* *3. Backwash syringe Option: angel wings or halo*

Method: Skit

"Did you know that water is so important that God appointed an Angel of Water? Do you know what book of the Bible mentions the Angel of Water? Revelation 16:5. Will you pretend for a few minutes that I am the Angel of Water?"

Option: Put on wings or a halo.

"God sent this Water Filter to help His children live healthier, better lives. I am here to see how it is being used. I need two volunteers to help me. Raise your hand if you are willing to help." Pick two volunteers. Ask: **"Can you play a 6 year old boy?" "Can you play a goat?"**

- Ham it up…ask their names or name them, ask about acting experience or experience playing boys or goats, ask them to audition…get down on their knees…baaa….
- Hand them their instructions and ask them to look them over while you get the Water Filter set up – shift the water containers around, touch, the spigot in the process, look in the clean water container and leave the lid on the floor.

- During the Skit, improvise around whatever the boy and goat do covering the important points as highlighted in this sample Skit. Agree with the audience then add a tip without lecturing or ruining the fun and spontaneity of the Skit.

1. Announce ***"Action!"***

2. Fill the cup with water and offer it to the boy. Then ask the class, ***"I filled this cup with clean water from the Water filter to give to this boy, and now the water is not safe to drink. How did this happen?"*** *(The cup is dirty)*

3. Pretend to clean the cup. Then fill it up again, touch the rim with your dirty hands before you give it to the boy, then say: ***"I filled this cup with clean water from the Water Filter to give to this child, and now the water is not safe to drink. How did this happen?"*** (Dirty fingers touched the rim; goat licked the cup or spigot…)

4. "So, what do you think might solve that contamination problem?" Pretend to clean, the cup, your hands, the boy's hands, the spigot, chase the goat away…as the class volunteers answers.

5. Then give the boy the cup and encourage him to get water from the spigot and say: "He filled this cup with clean water from the Water Filter, and now the water is not safe to drink. How did this happen?"

When the boy and the goat run out of things to do, ask the audience to applaud them and let them sit down.

6. Pretend you are thirsty and fill a cup of water from the spigot. Pretend that the water flow has slowed. Get out the backwash syringe and fill it with water from the dirty container to backwash the filter. Then ask, one last time, "I filled this cup with clean water from the Water Filter, and now the water is not safe to drink. How did this happen?" (Using dirty instead of clean water to backwash the syringe)

7. If these points have not come up, bring them up at the end:

- No lid or a dirty lid causes contamination
- Stagnant water or a dirty container may result in the water smelling bad so no one wants to drink it
    - Cleaning suggestions:
- daily - dump unused water into the dirty water container to run through the system again
- weekly - clean the container with dish soap

1. Instructions for Actor: Boy

Please play along with the Water Angel.

At appropriate times, do what any little boy would do.

For example:

- Touch the rim of the cup with your dirty hands or
    - Touch the spigot
- Dip your cup in the clean, uncovered water tank instead of using the spigot or
    - Dip your fingers
    - Dip a fruit or vegetable or a toy (whatever is available)

2. Instructions for Actor: Goat

Please play along with the Water Angel.

At appropriate times, do what any animal would do.

For example:

- Lick the lid laying on the ground
- Lick the spigot
- Lick the cup
- Lick the boy's face
- Lick the angel's hand
- Kick dirt on the lid or the cup or the open container

15

15. Clean Teeth

Message:	*Materials:*
1. The importance of brushing and flossing teeth for better health *2. Plaque and germs on teeth cause decay*	*1. Toothbrush & Teeth* *2. Play dough* *3. Glitter* *Option: Gift toothbrush(es) for each participant.*

Method:

1. Show the large tooth. **"I have a set of teeth here. Do they look healthy? Do you see any food or germs on them?"**

2. **"No, but on your own teeth, you can sometimes feel them and taste something. What does your mouth feel like in the morning when you wake up?"** (My teeth feel mossy. My breath smells bad. I feel a coating on my teeth.)

3. "My favorite food is _____." Place a small piece of play dough on the teeth. Ask several students what they like to eat and give them a small piece of play dough to put on the teeth.

4. **"All of these foods leave something on our teeth. The leftover food gathers together on our teeth and in the spaces between our teeth. If you leave leftover food sitting out for a week, what happens?** (It rots, decays, turns into germs). **"If we leave the food in our mouth, it turns into germs. Even when we can't see them, the germs are there."** Sprinkle the glitter on the play dough on the teeth.

5. **"When we brush our teeth everyday the germs come off easily and our teeth stay healthy."** (Using small circles, brush the play dough off of the teeth.) **"We recommend brushing for about two minutes."**

6. **"If we do not brush our teeth at least once a day, we will be more likely to get holes called cavities in our teeth. It hurts to have cavities!"**

7. Ask for three student volunteers.

   - Have two volunteers stand side by side with their arms outstretched, touching fingertips. Have the third student (holding the tooth brush) try and pass between

the two standing side by side. (This will be easy to do.) **"If we brush our teeth everyday, it is easy to get rid of the germs."**

- Next, have the two students lock arms. The third student tries again to break through their arms. (This will be harder to do. The student may not be able to break through.)
- **"If we do not brush daily, then the germs stay on our teeth and turn into a sticky substance, called plaque, that is much harder to remove and may even be impossible to remove with just a toothbrush."** Let the volunteers sit down.

8. **"The drama showed how easy it is to get rid of the food if we brush every day. If the food stays on our teeth for longer periods of time then it turns into sticky germs and plaque that are much harder to get off. The germs and plaque lock their arms around our teeth, like in the drama, and don't let us get rid of them with simple brushing; they stick around to cause cavities, decay, and gum disease."**

9. **"If we don't have a tooth brush we can use a cloth to clean our teeth. If you use a cloth, be sure to wash it and hang it out in the sun to dry. The sun will kill germs on the cloth. If you use a tooth brush, be sure to store it in a clean, dry place, too."**

10. **"Brushing teeth also helps your gums stay healthy. Brushing teeth keeps germs from building up above your teeth in your gums. Another good way to keep our gums healthy is to *floss*. Do you know what it means to *floss* you teeth? Flossing your teeth is when you use something to go between your teeth get out food that is stuck there. If food stays stuck between your teeth, it causes cavities and gum disease. What can you use to get food out from between your teeth?"** (A toothpick, dental floss – don't talk about if it is not readily available to participants)

11. **"If you ever get sores on your gums, a simple way to help your sore and bleeding gums is to rinse your mouth with a little salt water. Mix a tablespoon of salt with a cup of filtered water. Take a mouthful and mix it up all around your mouth. Spit it out. Repeat this until the whole cup of salt mixture is gone. Do this every day for a week even if your gums start to feel better."**

12. **"When we are children, our first set of teeth falls out to make room for our permanent teeth to grow in. God gives us a second chance but that's it! We have to keep our teeth healthy our whole life by brushing and flossing them every day. If we take a few minutes each day to brush and floss our teeth then our teeth will be healthy when we are old so we can still enjoy the tasty _____ in your country."**

Option: Hand out gift toothbrush (es).

16

16-A. Growing Strong Bodies

Message:	***Materials:***
The importance of including the three basic food groups (proteins, carbohydrates, fruits and vegetables) in our daily diet for physical health.	*1. Three-legged stool with removable red, white, and green legs* *2. Sheets of red, white and green paper or felt* *3. Pictures of food*

Method:

Introductory Story (attached)

Ask volunteers to read the story. After the story, ask the group:

- **"What did you learn from this story?**
- **"What kinds of food helped the children grow and become healthy?"**

Lesson

1. Put the three legged stool on the floor. Ask a student to remove one leg. **"What happens when the stool is missing a leg?"** (The stool falls down, is unbalanced.)

2. **"Our bodies are like this stool. To be healthy, we need to eat foods from three different groups."** Hand out all the food pictures to the students.

Hold up each leg one at a time and put the felt sheets out on the table/floor and discuss as follows:

> **A. Red: "The red leg represents foods that make our bodies grow and become strong. Flex arms to show muscles. "Some foods that make our bodies grow strong come from animals. We can remember this by thinking of the red blood of living creatures."**

Ask for people who have appropriate pictures to stand, tell what is pictured, and place the item on the red cloth. (Chicken, cow, goat, fish)

"Products that come from animals also to help our bodies grow and become strong." Ask for people who have appropriate pictures to stand, tell what is pictured, and place the item on the red cloth. (Eggs, milk, cheese)

"Not everyone can afford animals and some people prefer not to eat animals. Because our God knows all our needs and God likes lots of variety, He also put the nutrients that help our bodies grow strong into beans, ground nuts like peanuts, and lentils. We call these foods proteins."

Ask for people who have appropriate pictures to stand, tell what is pictured, and place the item on the red cloth. **"As you can see, not all of the items are red. We just use the red color to help us remember that most protein comes from living creatures, red blooded animals."**

B. White: "The white leg represents foods that give us energy to walk long distances (walk in place) work, play, and study. Many foods that give us energy are white such as rice and potatoes. Again, because God likes variety, many of the foods that give us energy are not white (corn, wheat, cassava). Other energy foods to remember are the things we make from these foods (bread, tortillas). We call these types of food carbohydrates."'

Ask for people who have appropriate pictures to stand, tell what is pictured, and place the item on the white cloth.

"Fats that we use in cooking like palm or sunflower oil and butter also give us energy. Sugary food like coca cola or cakes also fall in this group but they only give us short spurts of energy, so it is better to limit drinking and eating sweet foods and focus on natural foods that God designed. Sugar is also bad for our teeth."

Ask for people who have appropriate pictures to stand, tell what is pictured, and place the item on the white cloth.

C. Green: "The green leg represents foods that help our bodies fight sicknesses. (punch the air with both fists) **Foods that protect us are often green, leafy vegetables and fruits (that come from green, leafy trees). Eating fruits and vegetables help our bodies fight off sickness.**
Fruits and vegetables provide vitamins and minerals to our bodies. If people do not have enough vitamins and minerals from eating these foods then they are more likely to be sick, have eye problems or even become blind."
Ask for people who have appropriate pictures to stand, tell what is pictured, and place the item on the green cloth. (Lettuce, cabbage, green peppers, squash, tomatoes, carrots, oranges, apples, pineapples)

NOTE: Make clear that fruits and vegetables do not protect against all sicknesses. They will not protect people from getting malaria and AIDS, for example. However, vitamins and minerals will give sick people more strength to fight their illness.

3. **"It is important to eat foods from all three food groups everyday to have a strong and healthy body. We should try to have foods from each group at least once a day. We call this a balanced diet and that is why we use the three legged stool to help you remember.**
Another way to remember is to eat a "rainbow" of food - eat as colorful a variety of foods as possible."

"Let's review all three food groups and what they do." *Hold up the legs to the stool or the felt and lead students in making the hand gestures (flex biceps, walk, punch the air with both fists).*

4. **"Who is a good cook?"** Ask the volunteer to ***"make a meal"*** for _____ (the most senior or distinguished person in the class). Hand the person who is going to receive the meal the top of the stool as their plate. The cook can only include three foods and must include one from each food group. Have some fun - ask the class if all three groups are included; ask the recipient if they like the foods. If not, then ask the cook to *"make"* something else.

5. There are foods that include nutrients from several of the food groups such as:

- ◊ Milk - white and red
- ◊ Beans -green and red

(Beans and rice make an excellent meal combining to include all three food groups)

- ◊ Avocado, corn, bananas - green and white

God has blessed many countries richly with a lot of these wonderful foods!

In many countries, several foods from each group are often served at each meal. For example, rice, potatoes, and French fries, several types of vegetables, and both chicken and beef, are all served. While this variety is good it is not necessary at each meal. **"In many countries, cooks work much harder than American cooks. When I cook my husband dinner, I only serve three foods, one from each food group and then vary the food I cook for each meal. Don't tell him how much harder women work in other countries!"**

16 B. Growing Strong Bodies

Introductory Story

A Father Learns a Healthier Way to Feed His Children

There was a wealthy farmer and He had a wife and four children. He also had granaries full of corn, beans, peanuts and rice. However, he gave his wife instructions that she was to use only the corn for cooking. The other foods were for selling to get money so they could buy things. He himself often went to the market and bought different kinds of foods he liked such as roasted meat, bananas, mangos, and bean cakes. He felt good and his stomach was satisfied.

His children, however, were weak and often crying. They had skinny, skinny arms and legs, swollen bellies, coarse reddish hair, sad, sad eyes and were so tired all the time; they had no energy to play or work or study.

One day a health care worker came to visit. She was making home visits to see what the health needs of the people were in the village. The father was out but she talked to his wife and asked her what she fed the children. When the mother told her that she only gave them corn porridge, the health worker knew why the children were weak and cried often and had skinny, skinny arms and legs, swollen bellies, coarse reddish hair, sad, sad eyes and no energy.

She told the mother that was good but she also needed to give the children different types of food like beans, peanuts, rice, green vegetables and fruit. She told her how to make porridge putting peanuts into it for the children. She also gave the mother some seeds and showed her how to plant a garden to grow fruits and vegetables. She explained to the mother that eating foods like corn, beans, and peanuts will help build strong bodies and that fruits and vegetables will help the children's bodies fight off diseases and become healthy again.

After the health worker left, the mother decided to use some of the peanuts to add to the porridge. She also made some bean cakes and added some beans to the soup. She sometimes used rice instead of

corn. The seeds in her garden grew into carrots and tomatoes and avocadoes for the children to eat.

One day the father came home while they were eating. When he saw the children had peanuts, beans, fruits and vegetables, he became very angry and demanded to know who had given them this food. When he learned his wife had prepared theses foods, he reprimanded her strongly for disobeying his orders. He was so angry that he drove her out of the compound and the children all began to cry when their mother left. As the father saw his wife going and the children crying, he called her back.

When she returned, she explained to him why she had disobeyed his orders. She pointed out to her husband that the children were no longer weak and crying and no longer had skinny, skinny arms and legs, swollen bellies, coarse reddish hair, sad, sad eyes and no energy. Now they were much healthier and happier children. The wife showed to her husband their new garden that the children now had energy to help her plant.

The father listened to his wife. He admired the fruits and vegetables in the new garden. The father had to admit that the children were not fussing and crying as in the past, their hair was black, they were stronger and happier and he was no longer angry. He had to agree that there had been good changes in the children. After thinking about what the health worker had said, he too decided to follow the advice. He allowed his family to eat peanuts, rice, and beans and sometimes even brought mangos, bananas, and meat from the market for the children to eat. He was glad to see his children happy. There was less crying and their bodies did look strong and healthy. They had lots of energy to help more with household chores and did better in school.

The End

17

17. Nutrition Food Plate: Craft

Message:	***Materials:***
This craft will help participants remember the three major food groups and teach their family and friends about nutrition and the importance of a balanced diet.	*1. Paper Plates* *2. Crayons – red & green* *3. Glue sticks* *4. Small pictures of food from the three food groups (proteins, carbohydrates, fruits and vegetables)*

Method:

Each participant will "make" a meal. Hold up the model to show them the finished plate and explain the craft.

1. Give each student a paper plate and distribute the crayons.
2. Divide the plate into thirds with one of the crayons.
3. Color one third of the plate red, one third green, and leave the other third white.
4. Hand out the glue sticks.
5. Give each participant one food picture from each of the three food groups (include a variety of foods in each food group so that participants sitting next to each other receive pictures of different foods.)
6. Help participants glue the pictures on the appropriate color space on their plate.
7. Ask participants to take the plate home and share what they have learned with their family and friends.

18

18. Growing Strong in the Lord

Three Legged Stool

Message:	***Materials:***
The importance of having a relationship with the Father, the Son, and the Holy Spirit (spiritual balance) for spiritual health.	*1. Three-legged stool*

Method:

1. **"We just talked about eating a variety of foods, eating a balanced diet, for good physical health. Now let's talk about a balanced, healthy spiritual life."**

2. Take one leg out of the stool to draw attention to it and discuss the role of each leg as follows:

   A. Red: **"What does the red leg represent?"** (Growing strong) **"Red reminds us of the blood Jesus shed for our sins. The red leg represents God's amazing love for us. For spiritual health, we need to read God's word's of loving wisdom, the Bible, every day so we can grow strong as Christians. The Bible is protein for our spiritual body."**

   B. White: **"What does the white leg represent?"** (Energy) **"For spiritual health, the white leg represents the Holy Spirit and the power of prayer. We need to pray for guidance from the Holy Spirit each day. We need to listen to the voice of the Holy Spirit as He guides us through each day. The Holy Spirit gives us the energy to say and do the right things, the things that please God."**

   C. Green: **"What does the green leg represent?"** (Protection) **"For spiritual health, the green leg represents Jesus' church, the body of Christ. Christians need to help each other with all the problems we face in life. We also need to fellowship with other Christians to protect us from temptation, to keep us from straying into "sickness" and to help us recover from "sickness" when we stray."**

3. Ask three students to explain the significance of the each leg.

Optional: Facilitators may choose to wash participants' feet as a powerful demonstration of Christian humility and service. Use the wash basins, soap, and towels from earlier lessons.

19

19. Good/Bad Hygiene Review

Message:	*Materials:*
1. Students identify • *good and bad hygiene behaviors* • *common and uncommon hygiene practices in their community* • *easy and hard to change hygiene practices* • *good hygiene practices that the individual can change or that require community change* *2. Motivate students to incorporate good hygiene practices into their daily lives*	*1. Pictures (select the pictures most appropriate for your students)* *2. Sorting labels* • *good, bad* • *common, fairly common, uncommon* • *hard to change, easy to change* • *individual, community*

Method:

1. Ask a volunteer pass out the pictures to participants. Put the **Good** and **Bad** labels on the floor in the middle of the circle of participants. **"Look at your picture and decide if the behavior in the drawing is good for your health or bad for your health. Please stand and tell the rest of the group what is happening in your picture. Then place it under either the good or bad label."** If the student has trouble determining what the drawing represents, ask the rest of the group, **"What do you see happening in the picture?"** After the group defines the picture, have the student place the drawing in the correct pile. If someone is off base, ask the rest of the group for their opinions. No answer is wrong but it can be helpful to encourage group discussion about some of the pictures.

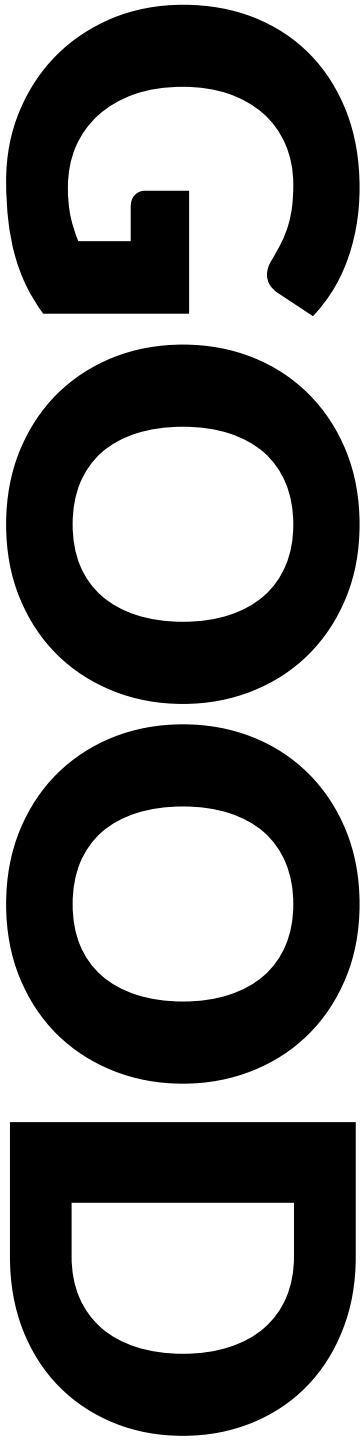
2. When finished with all the drawings, gather up the **Good** pile and redistribute the pictures to participants (put away the Bad pile). Then lay out the next set of labels **Common, Fairly Common, and Uncommon**. Using the Good pile of drawings, ask participants to sort the pictures using the new labels. Ask participants, **"Do you think**

that the good healthy behavior shown in your picture is common, fairly common, or uncommon in your community."

3. Praise the group for the practice of good behaviors that are Common in their community and set the drawings aside. Gather up the **Fairly Common** and **Uncommon** drawings and redistribute them to participants. Put out the next set of labels, **Hard** and Easy. Ask participants to sort the pictures into two piles by asking the group, **"Would it be easy or hard to make changes to implement the good healthy behavior shown in your picture?"**

4. Take the pictures in the **Easy** to change pile and redistribute them to participants (set aside the pictures with Hard to change behaviors). Put the next set of labels out, **Community** and **Individual**. Ask the participants **"Do you think that you would need to convince others in your community to change to this good healthy behavior or could each individual change their own behavior into this good hygiene practice?"**

5. Motion towards the drawings that are left in the **Individual** pile. Say, **"You told me these things were good for your health, but are not happening in the community. You also said they would be easy to do and that it only takes one person to start to make these changes. If you begin to do these things, you and your family will live a healthier life."**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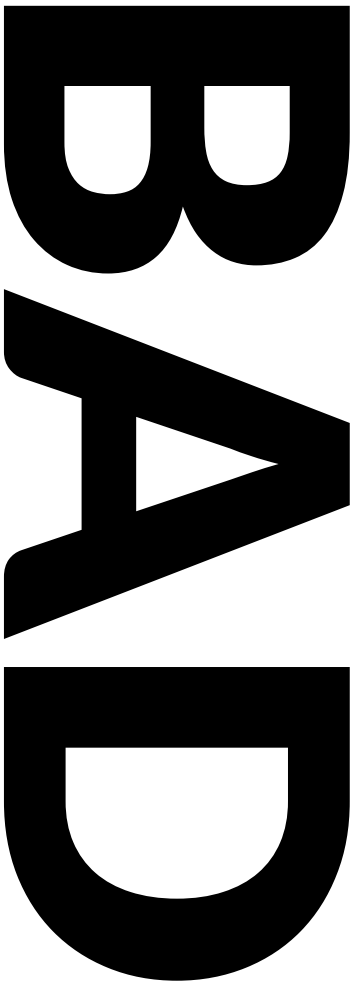
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COMMON

FAIRLY COMMON

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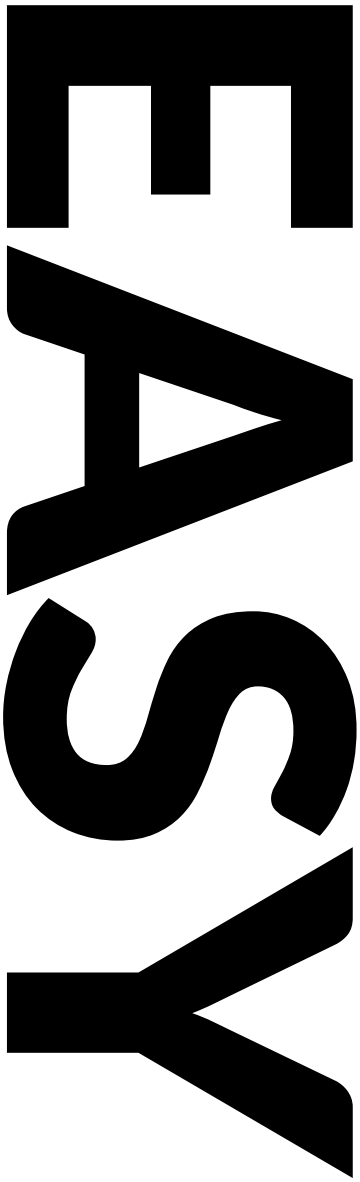
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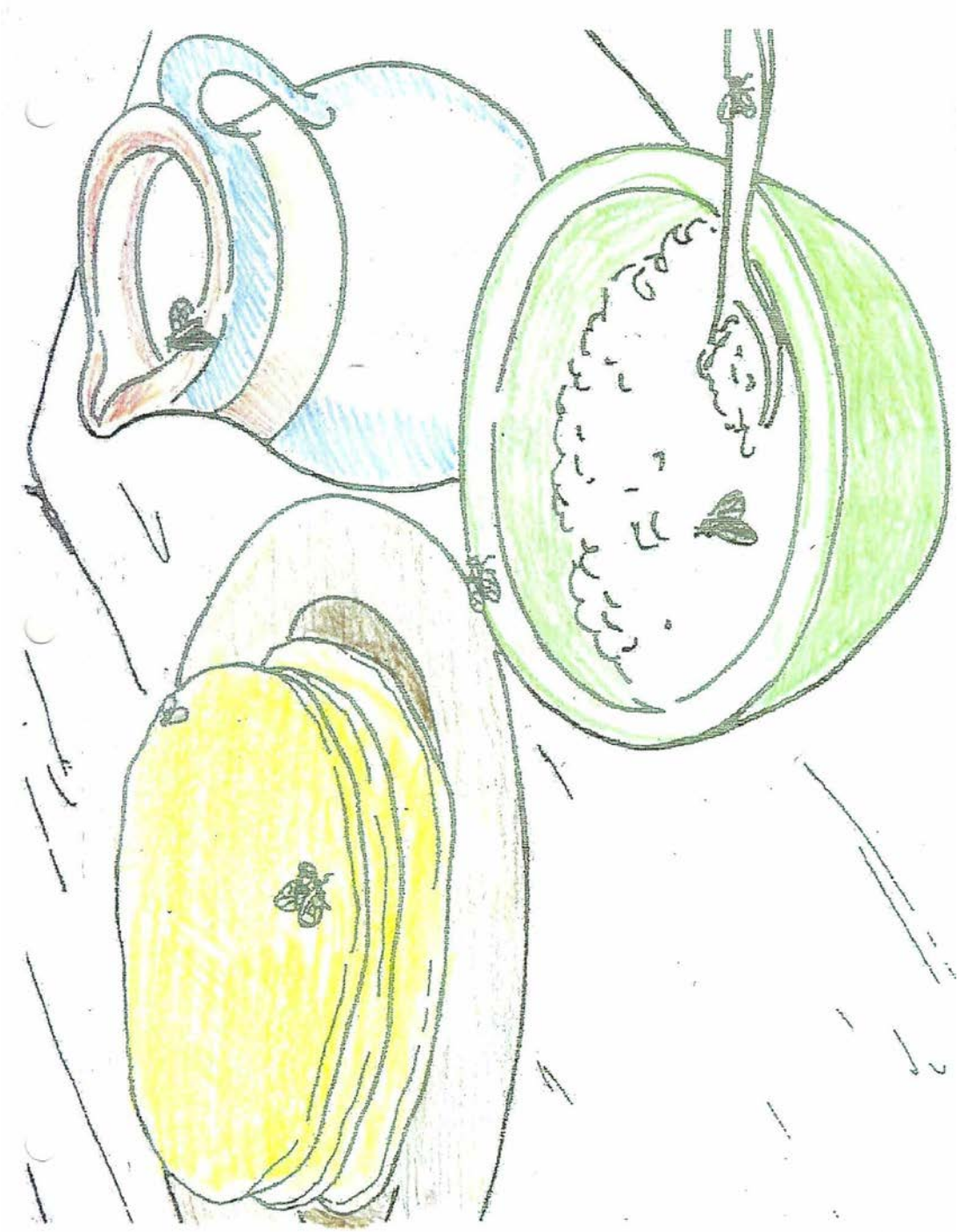
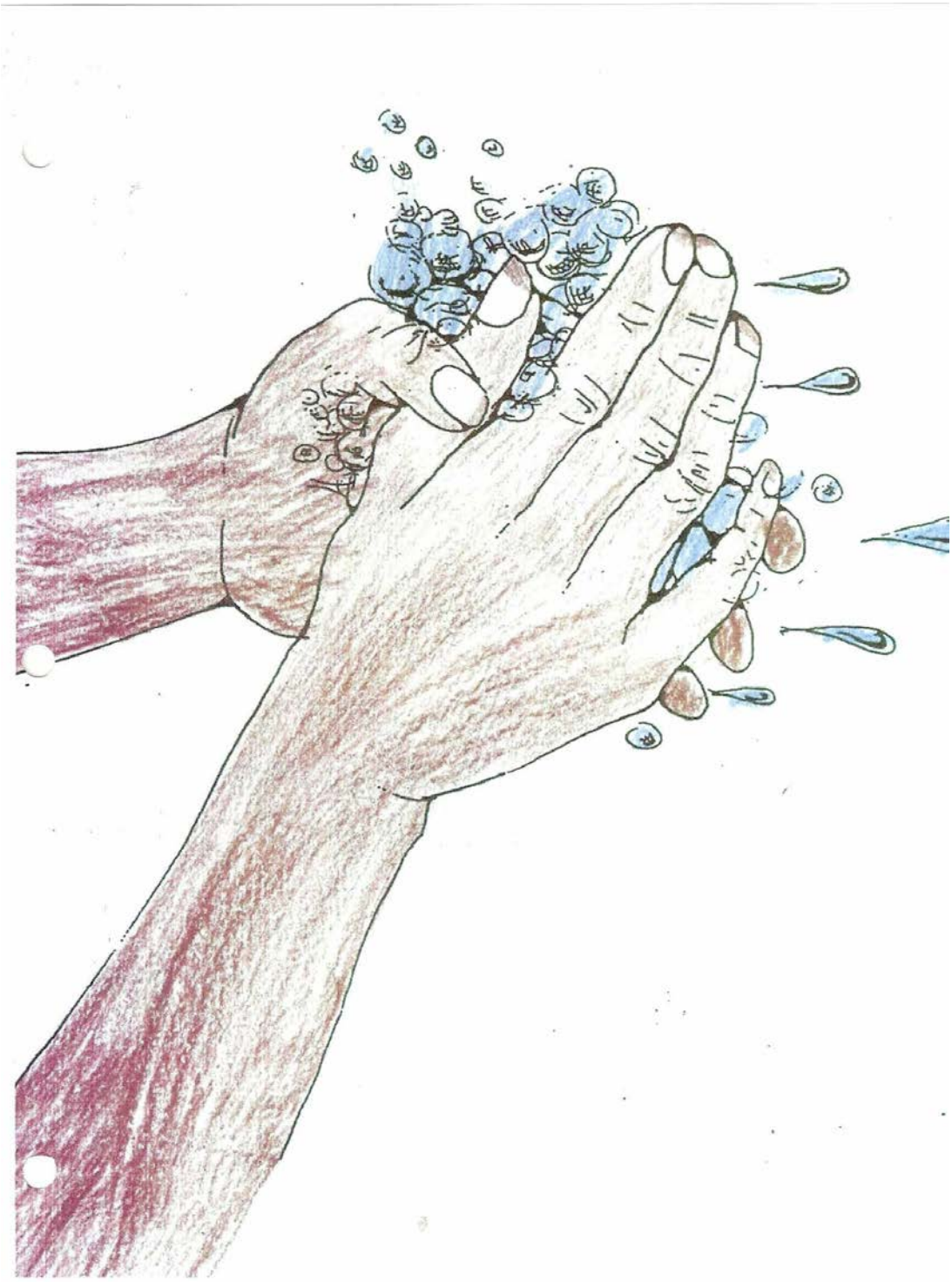
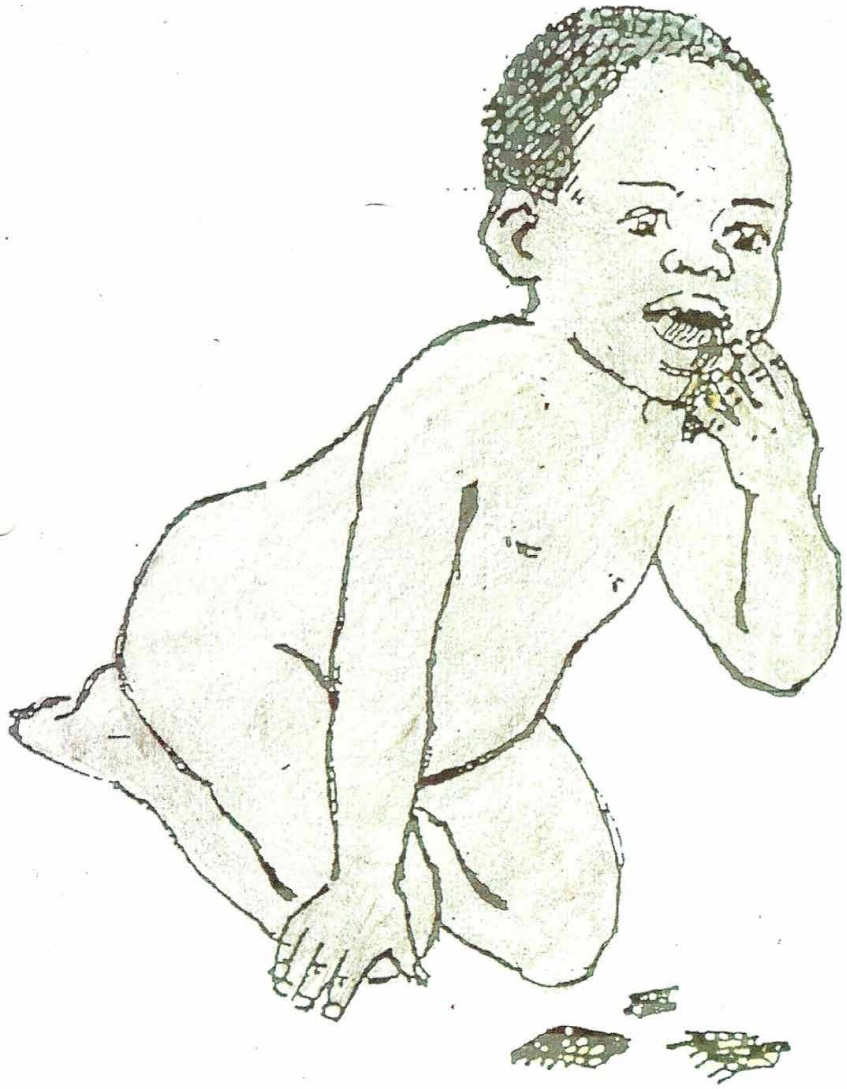
HARD

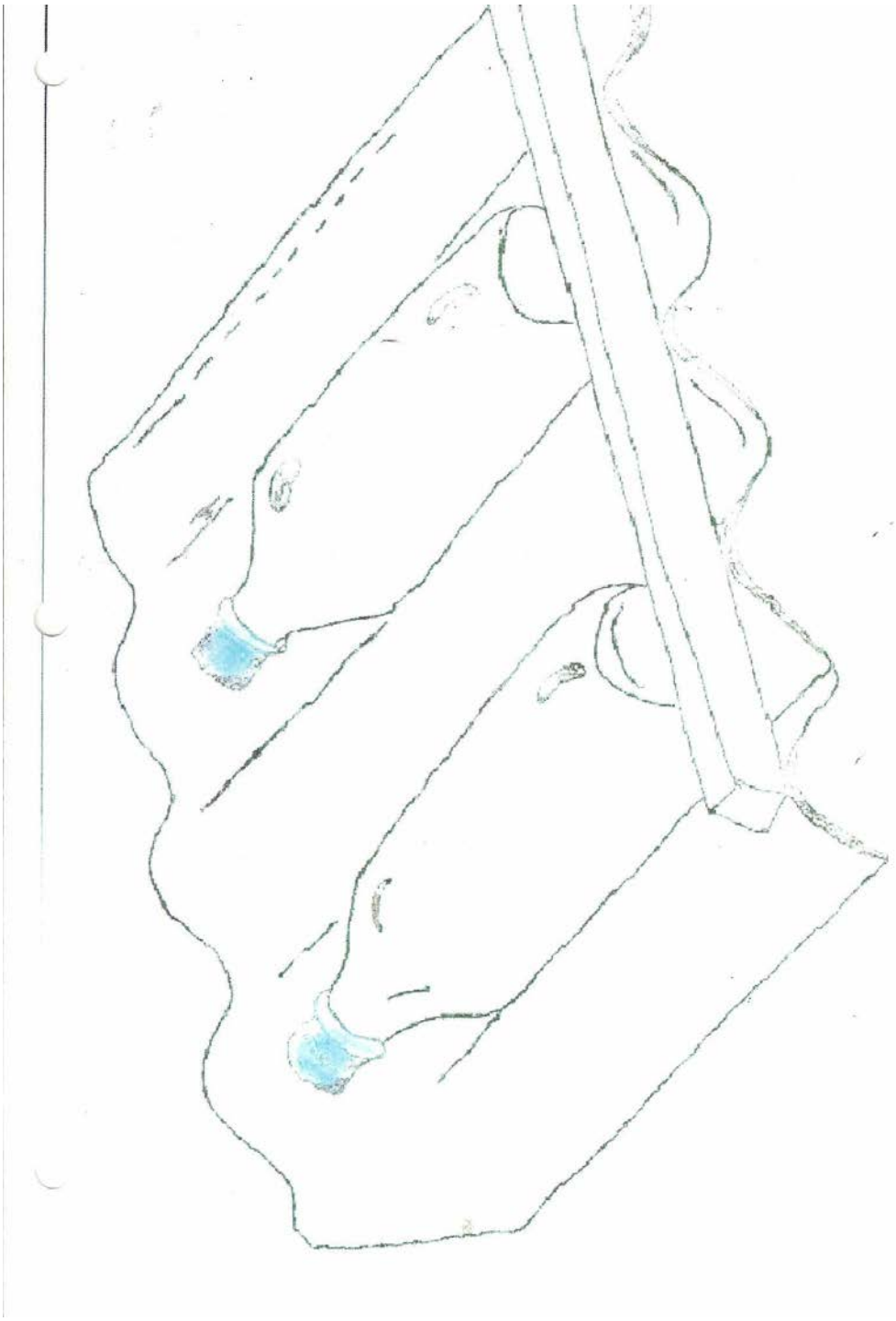
INDIVIDUAL

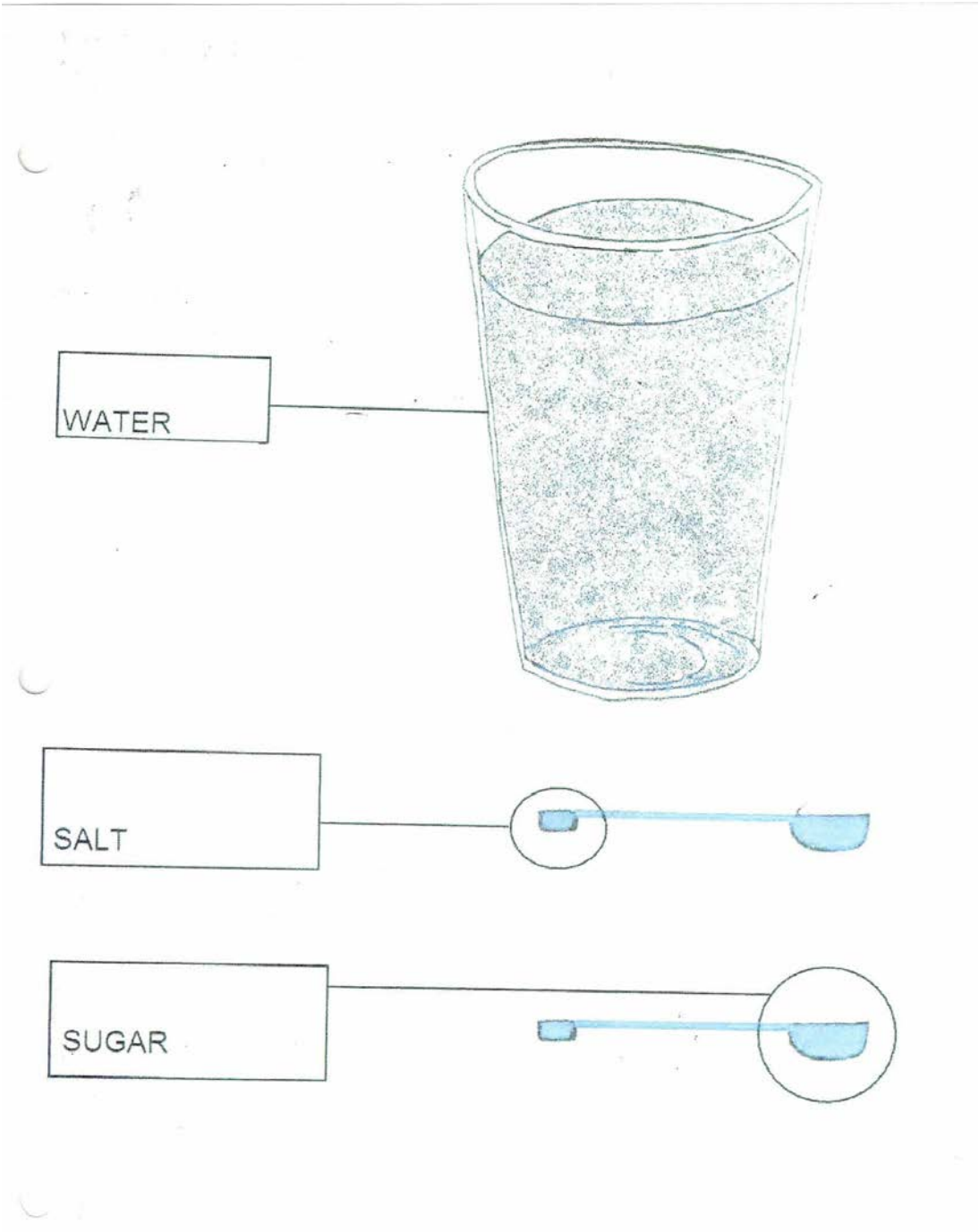
COMMUNITY







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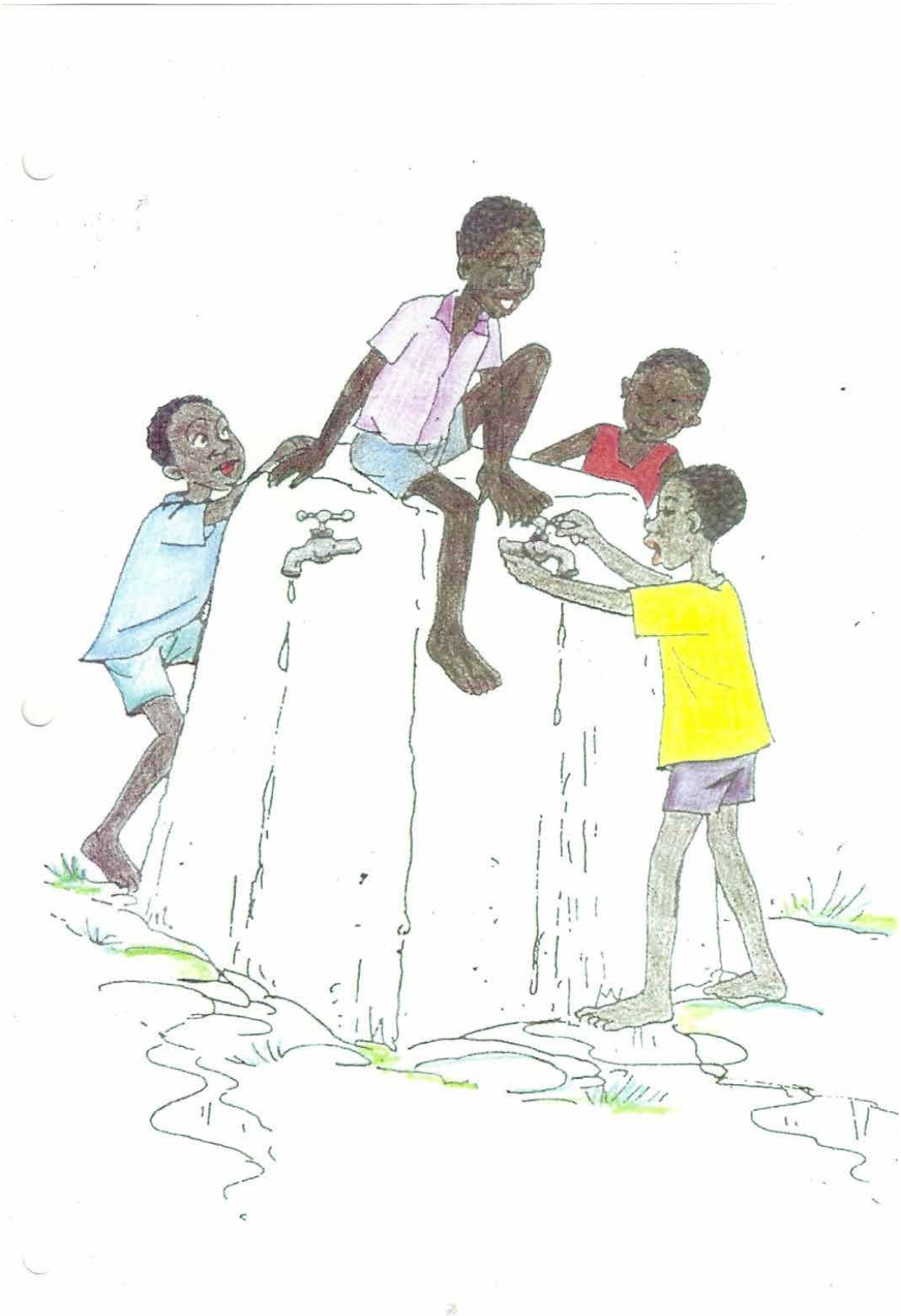
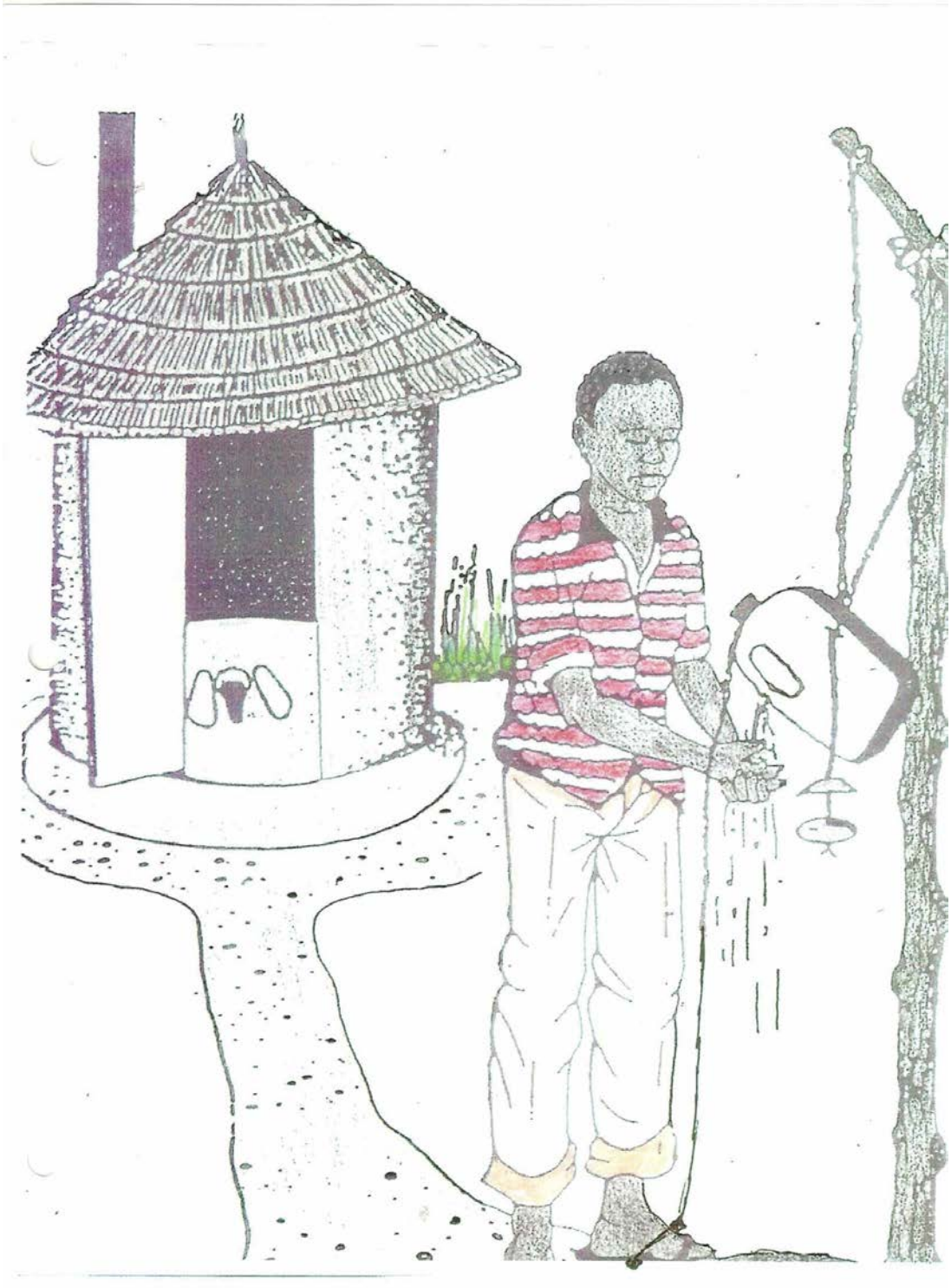
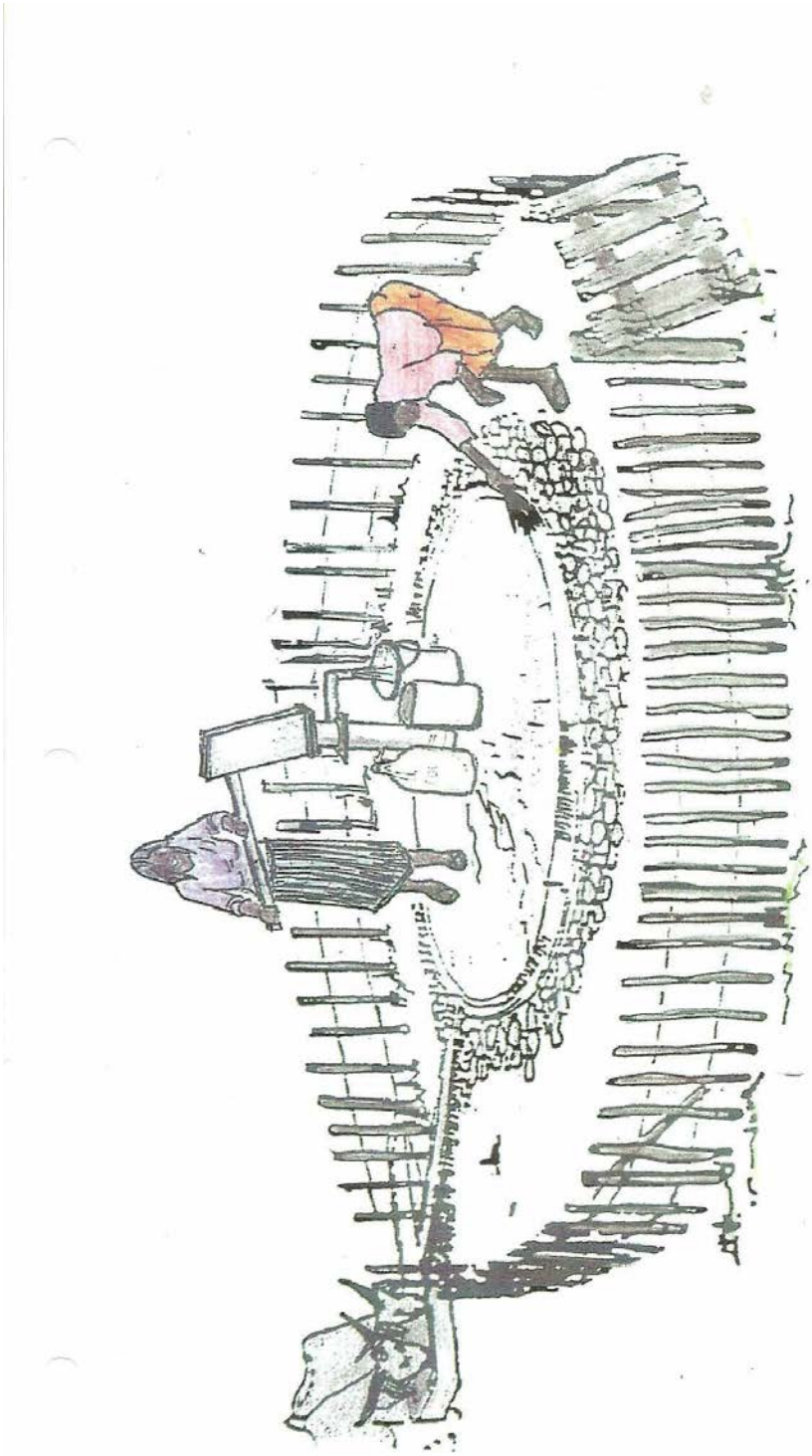
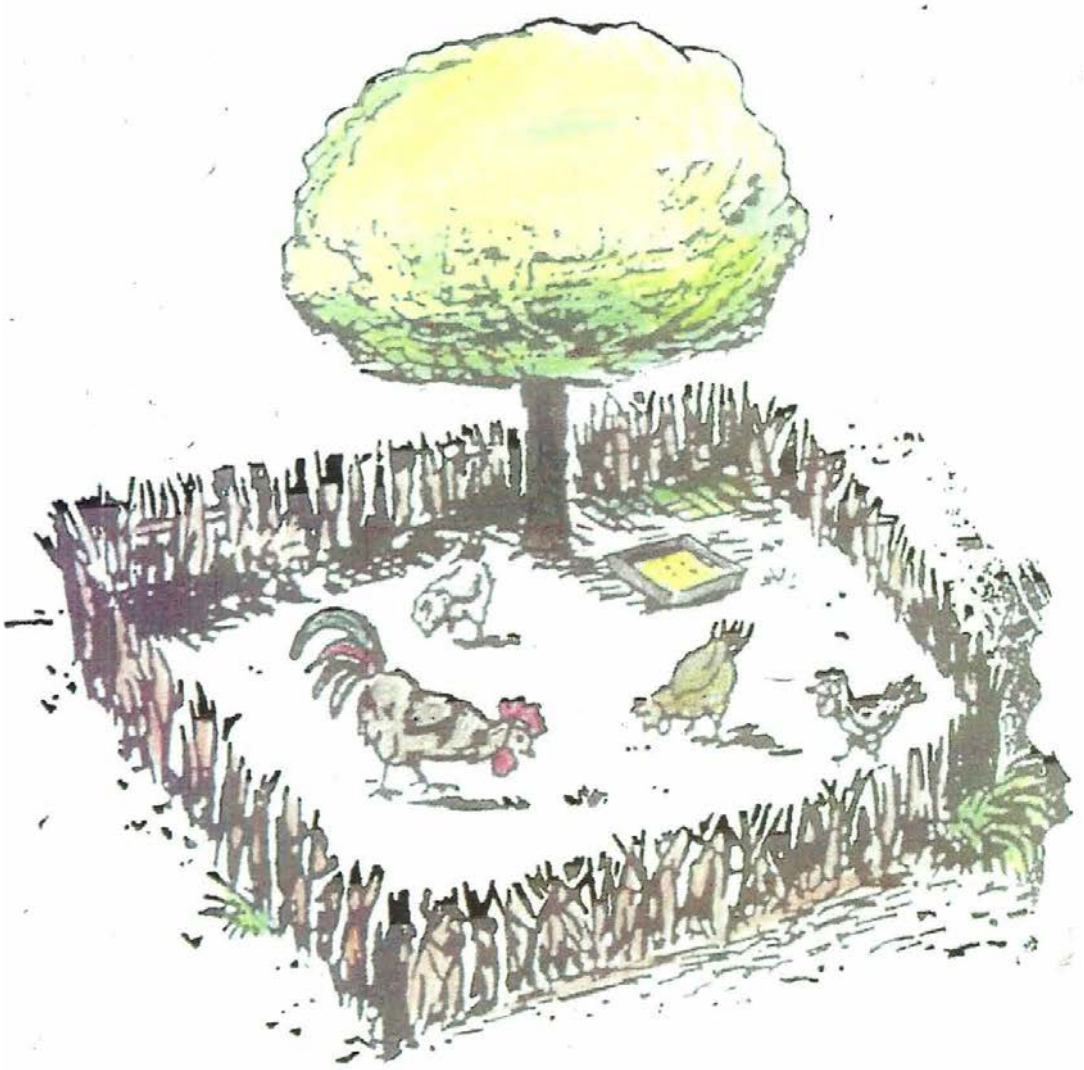
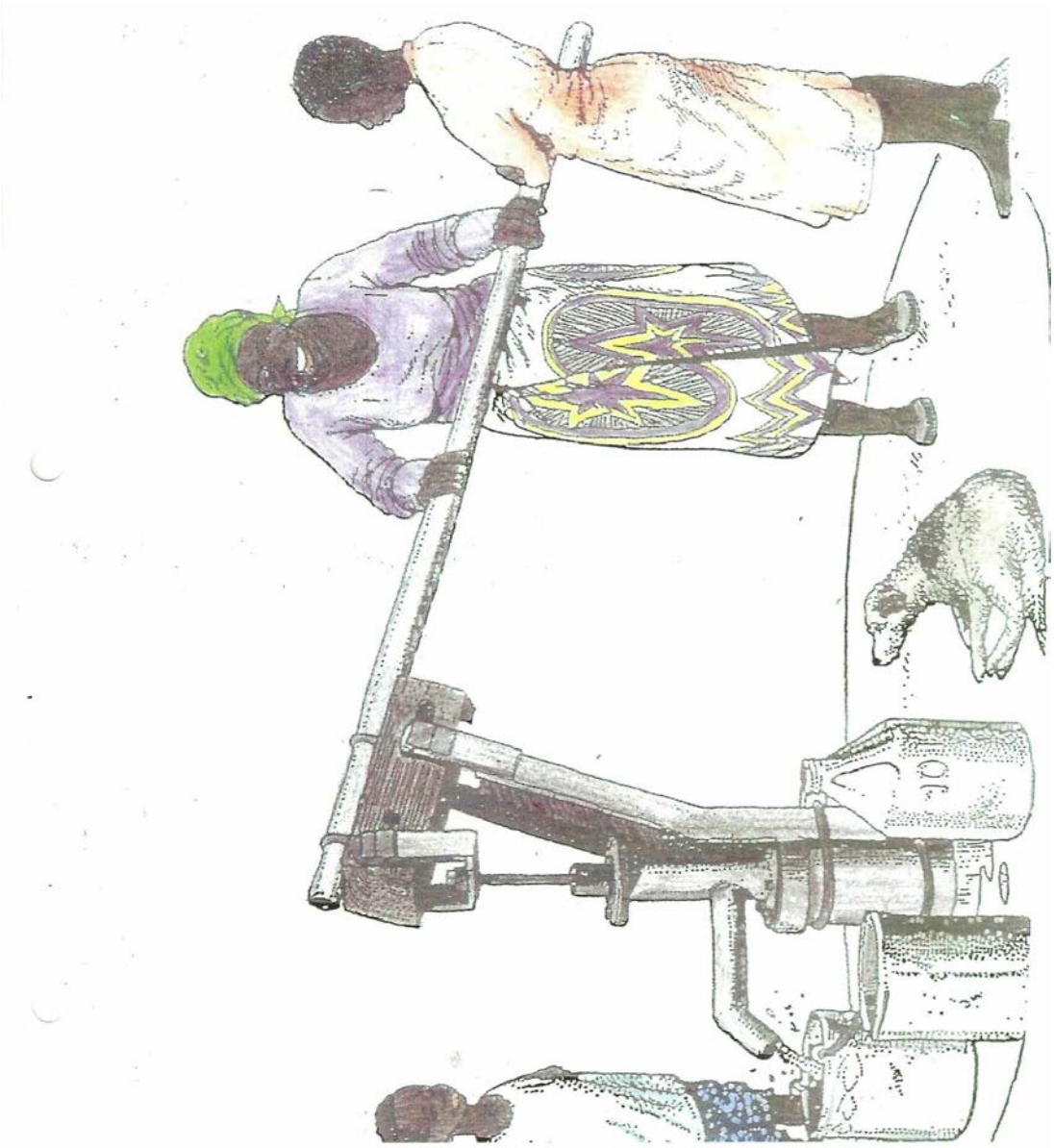
SALT
SUGAR

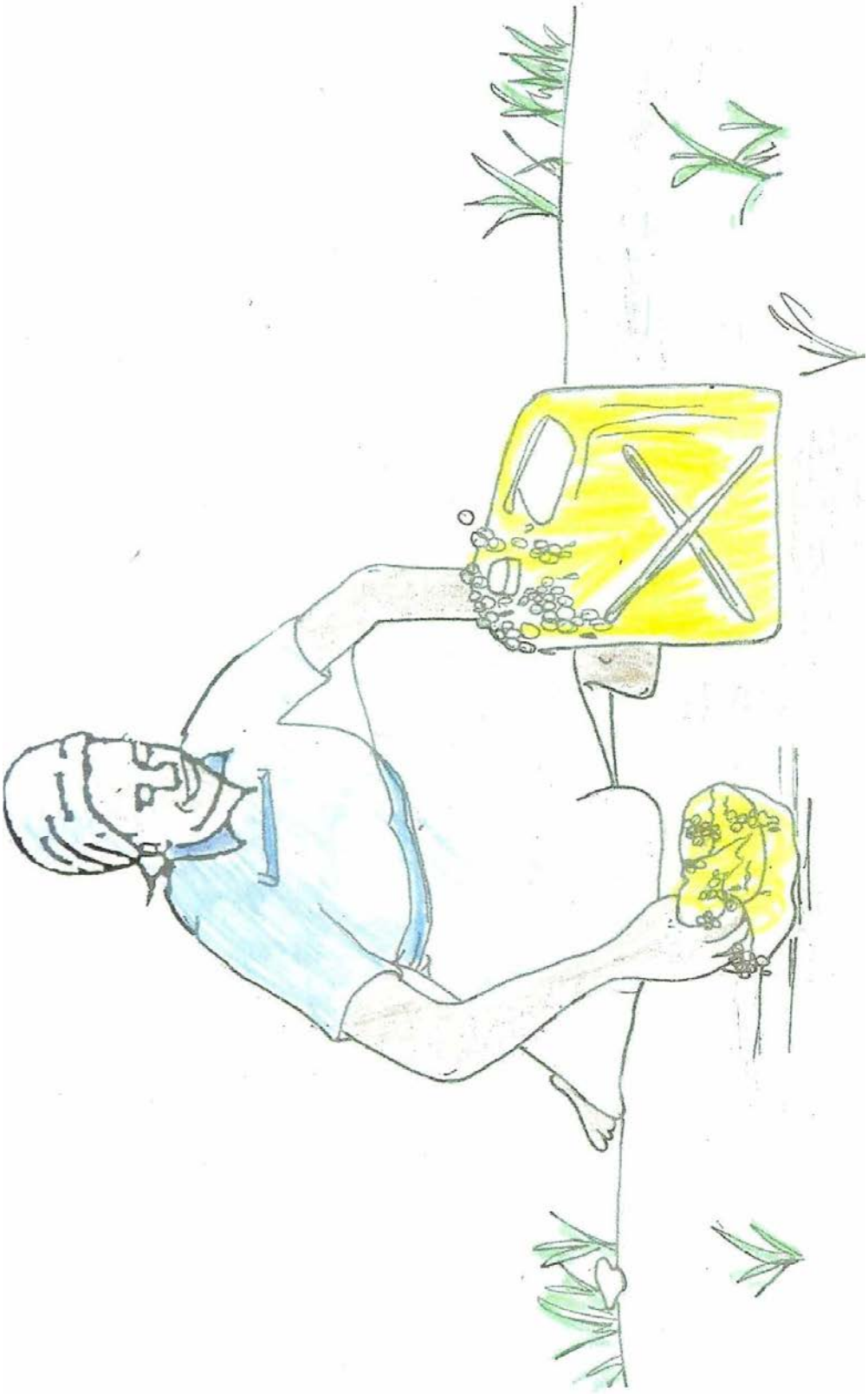


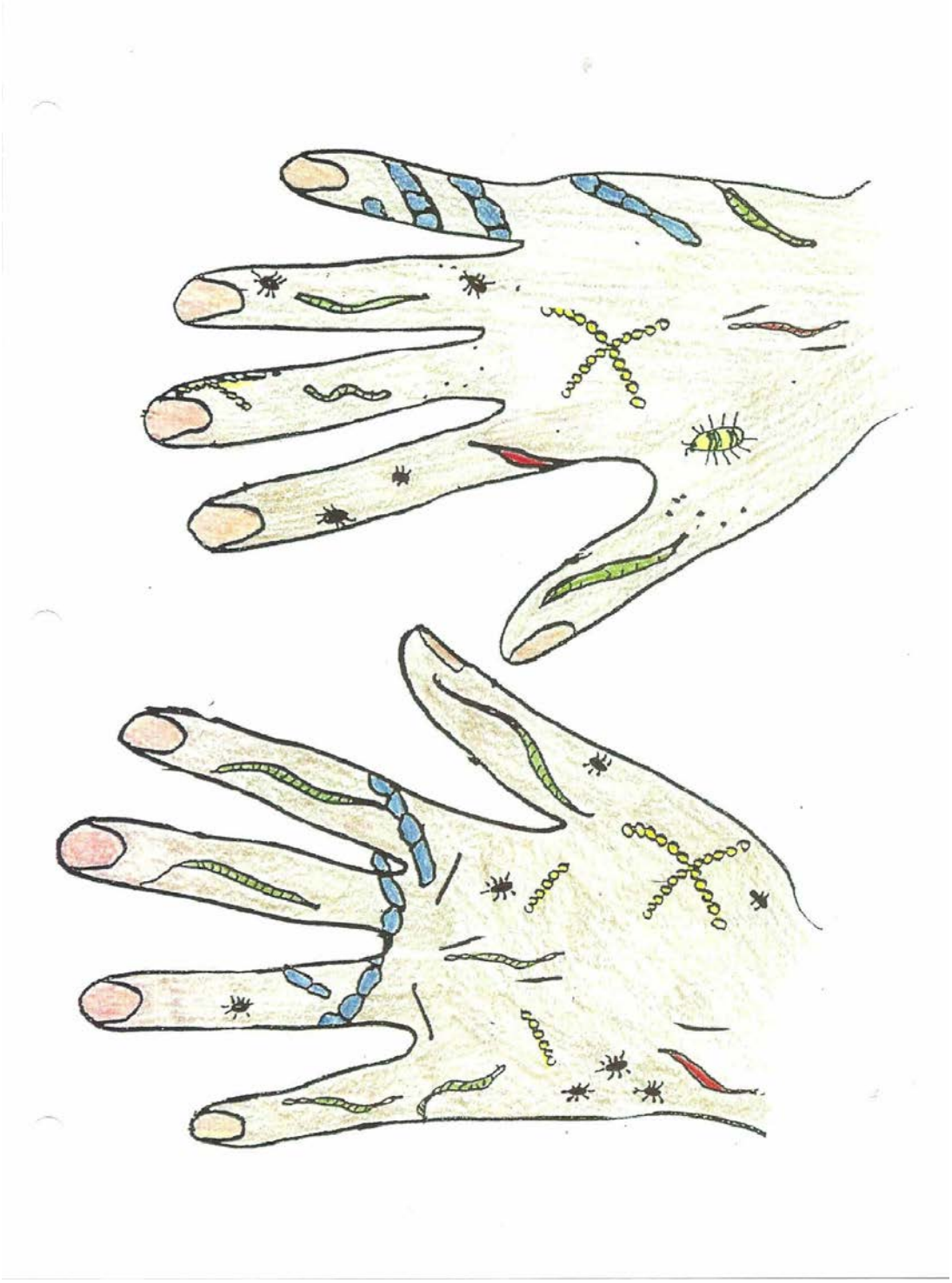


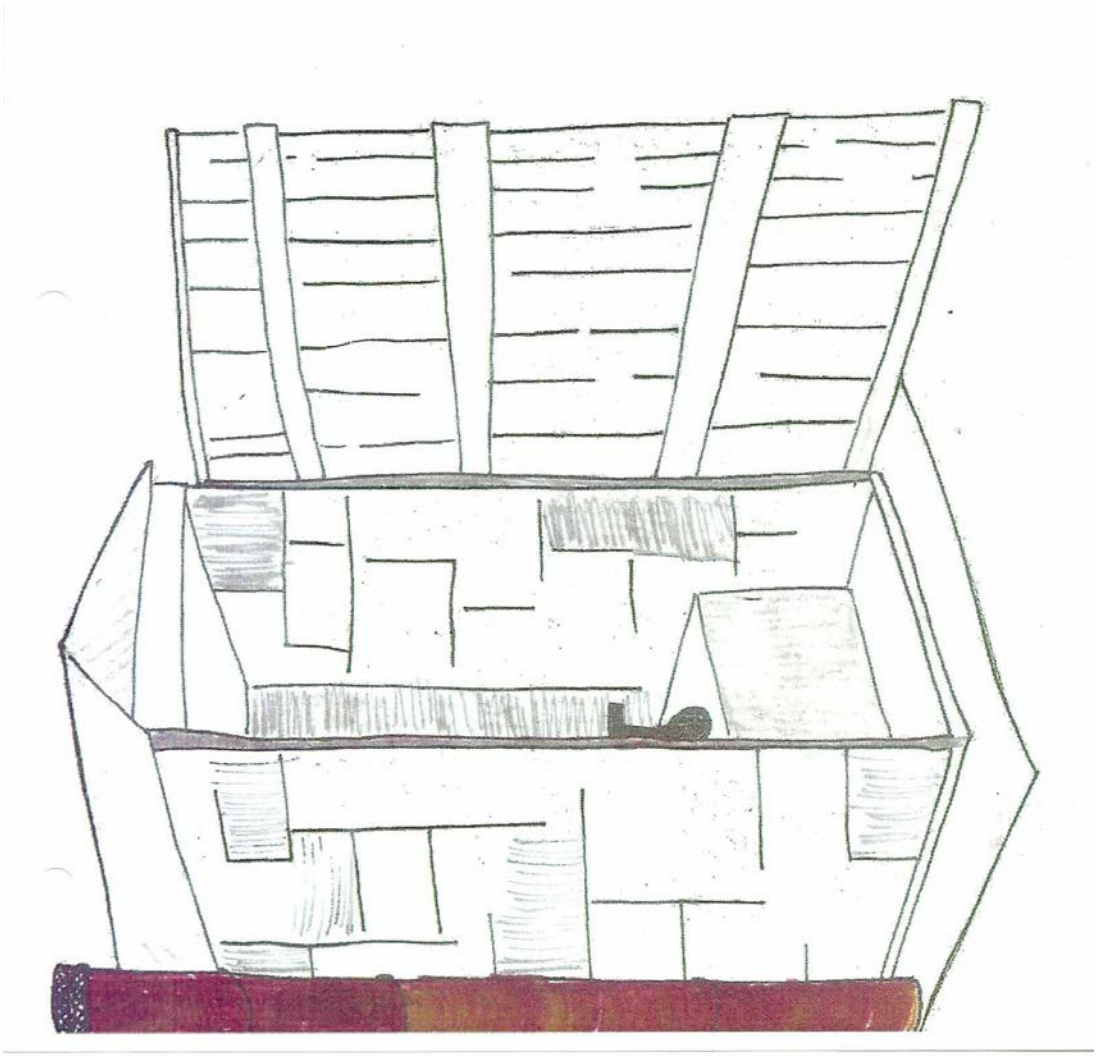


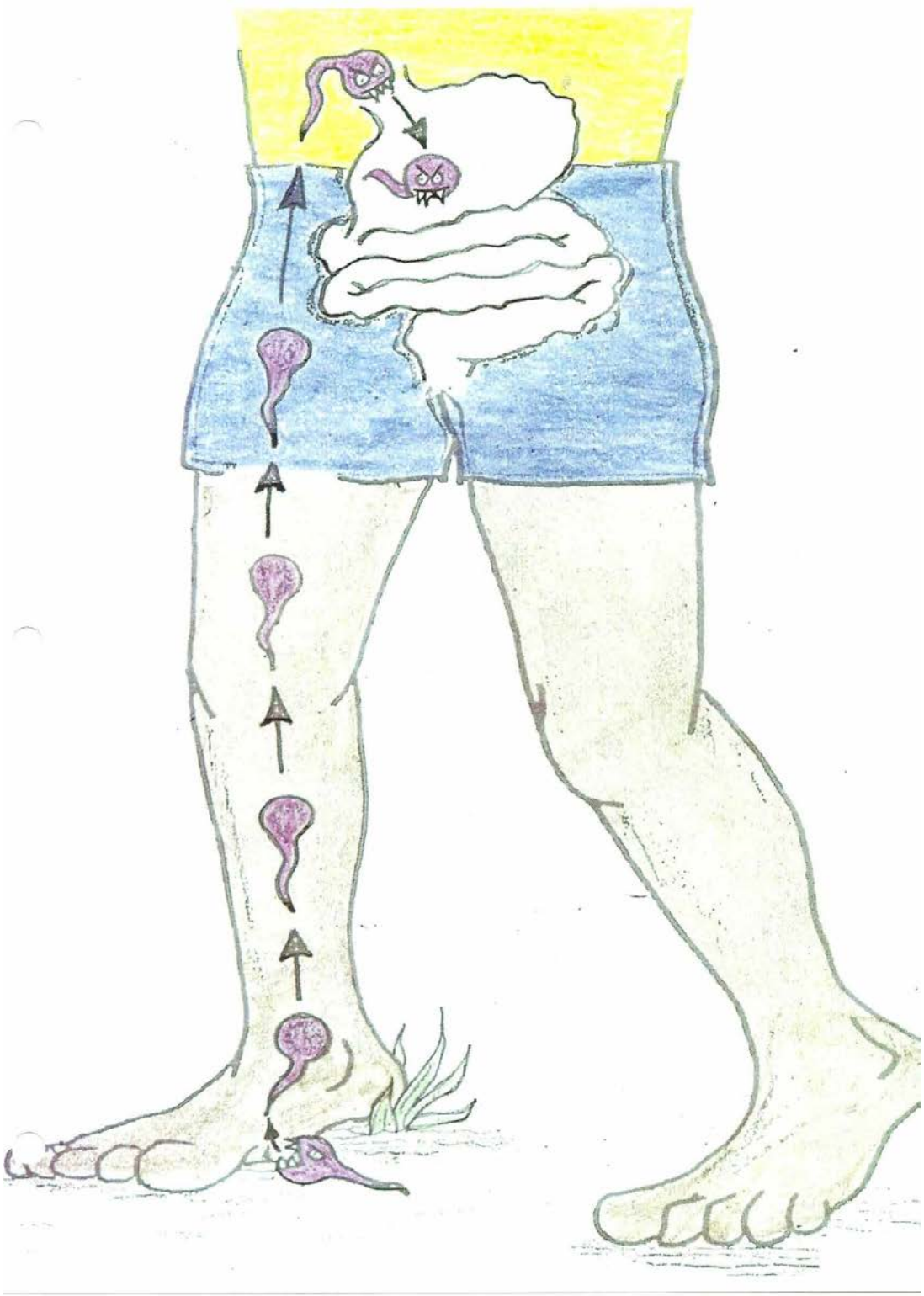


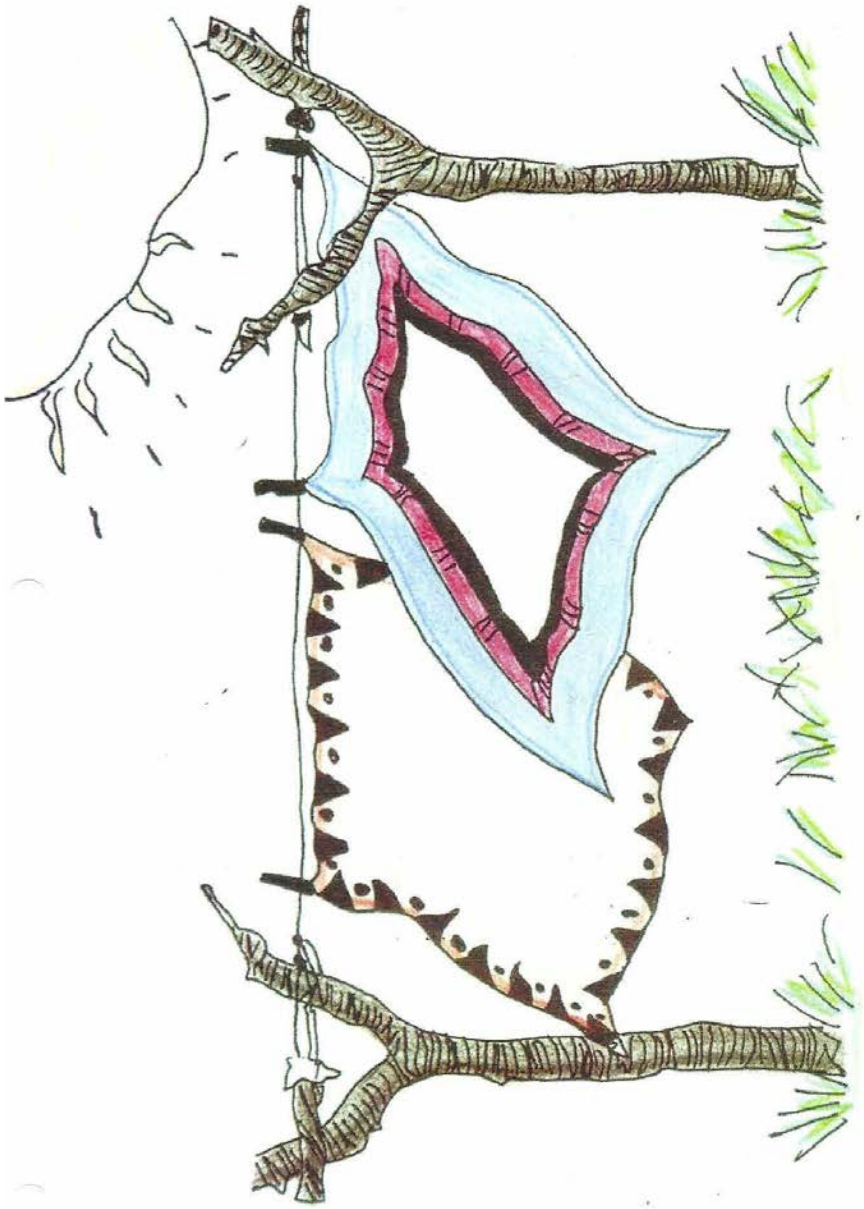


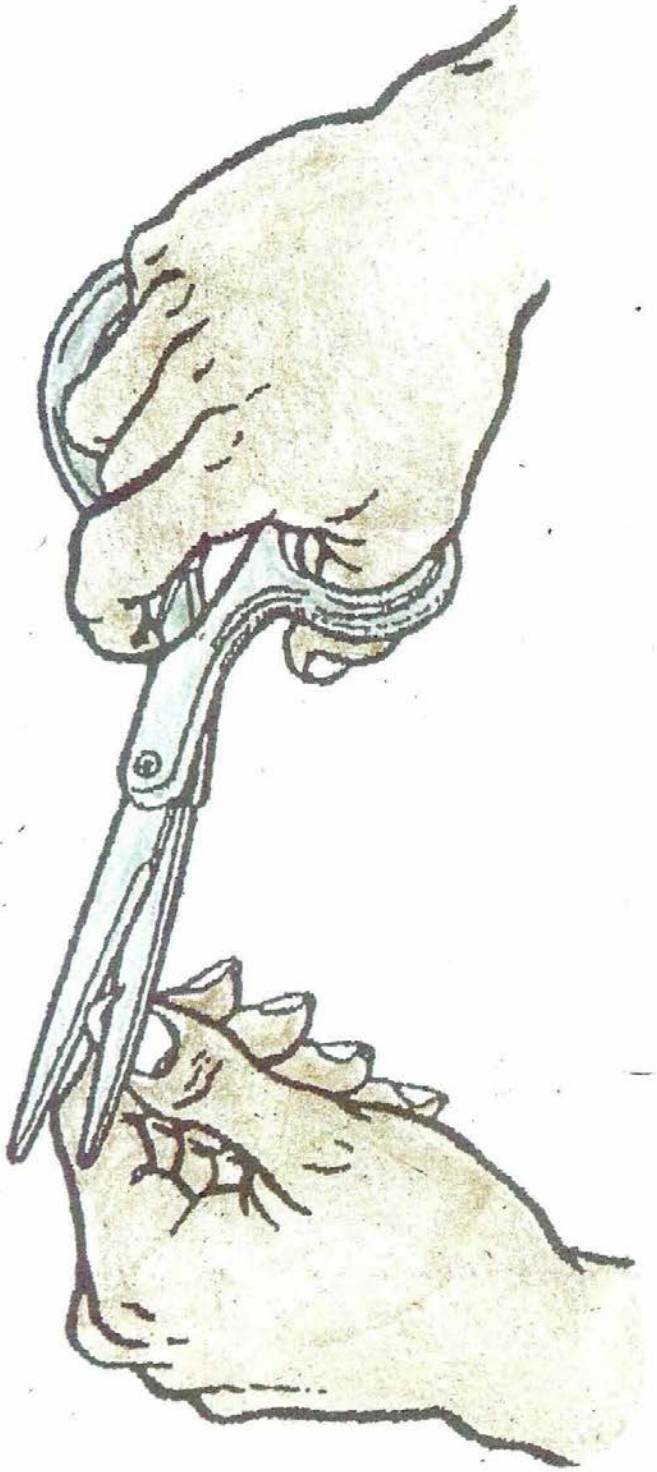


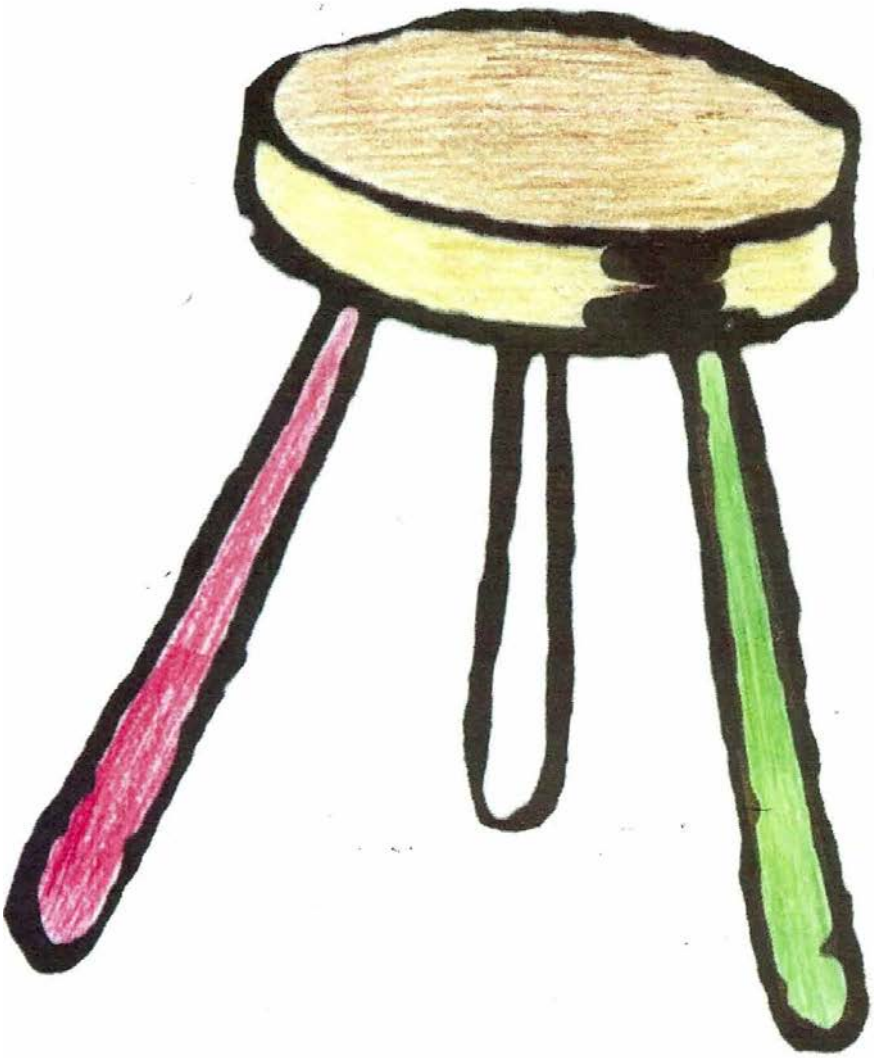


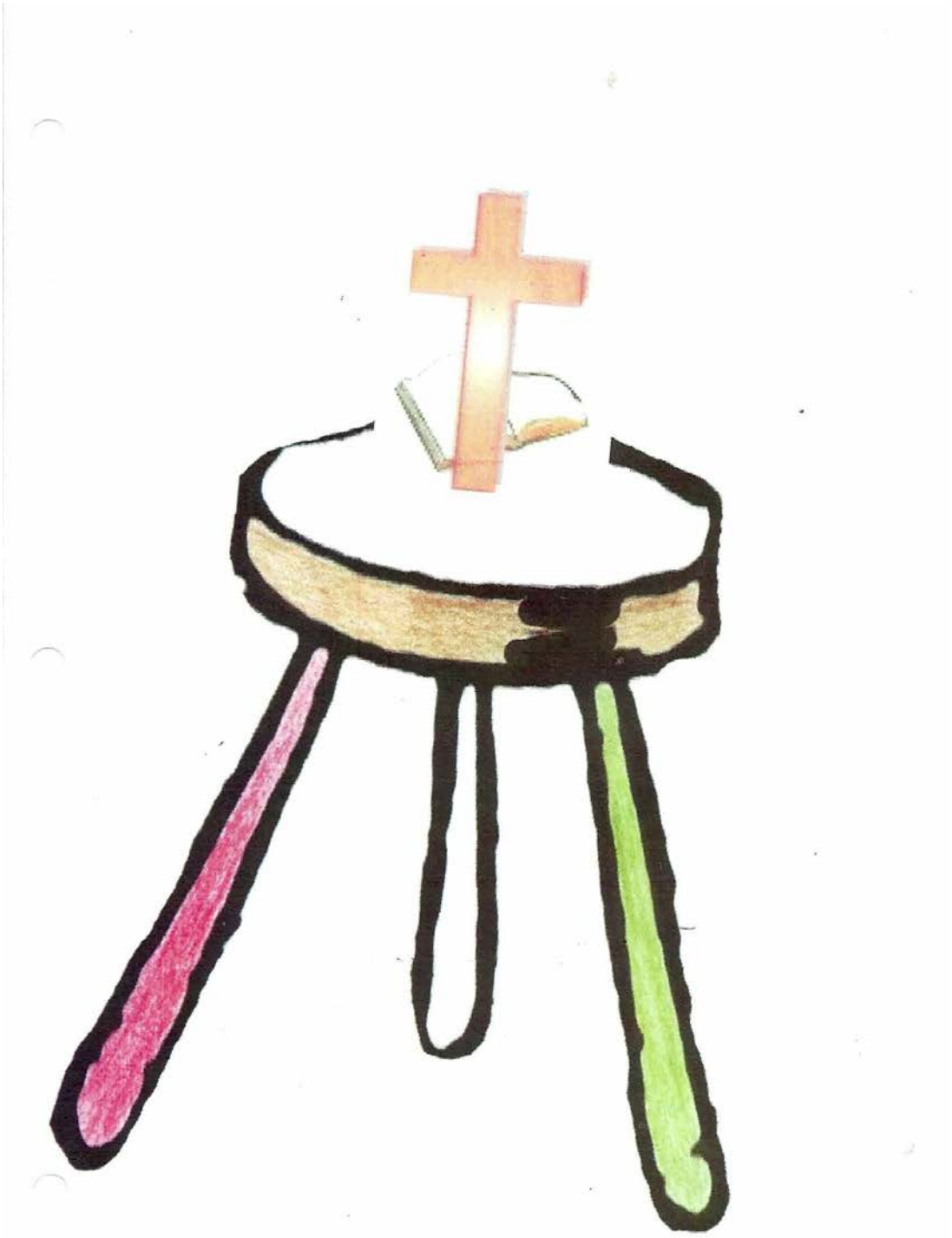












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20. Solar Water Disinfection (SODIS)

Message:	***Materials:***
The sun can disinfect small quantities of water. The most favorable regions for SODIS are near the equator (between 35 degrees north and south). *This method has been proven to kill bacteria, viruses, and parasites.*	*1. Clean 3 liter, or smaller, clear plastic bottle* • *Use PolyEthylene Terephtalate (PET) not PolyVinylChloride (PVC) – bottles are typically marked.* *2. Clean water in a pitcher* *3. Option: If black paint is readily available in the local area, paint half of the bottle or bring a black piece of clothing.*

Method

1. "In this lesson, we will learn how sunshine can be used to make water safe to drink. Bright sunshine will kill germs in small quantities of water. This method is called Solar Water Disinfection (SODIS) of water. It is a great way to get clean water to make ORS for sick people. To use the sun to clean water, start with a clear plastic bottle that holds less than 3 liters. Take off the label (be careful not to scratch the bottle) and wash the bottle with soap and water. Clear glass bottles will also work but plastic bottles are best."

2. Ask for a volunteer to help you with the lesson. Ask the volunteer, **"Please pour the pitcher of water into the bottle until it is ¾ full. Put the cap on the bottle and**

shake it vigorously for 20 seconds (shaking adds oxygen to the water; oxygen helps kill germs). Fill up the bottle and put the cap back on again."

3. Instruct the class, **"Place the filled water bottle on its side (horizontally) on a corrugated metal sheet or roof (a reflective service increases the speed and effectiveness of killing germs but other services are acceptable). Expose the bottle to bright sunlight from morning to evening (at least six hours). The water is now ready to drink."**

Option

• "If you have black paint, paint half of the bottle black on the outside (place the bottle horizontal with the black paint on the bottom). Or, place the bottle on a dark piece of cloth. Dark colors attract UV rays and increase the speed and effectiveness of killing the germs."

Condition of the bottle:

• "Old, scratched plastic bottles should be replaced (they limit the sun's impact). Replace the bottles with new ones after 12 months of daily use."

Condition of the water:

• "This method works best with clear water, without too much mud or sediment.

• To test whether the water is clear enough, fill a bottle with water. Place the bottle on top of a newspaper. Unscrew the cap and look through the bottom. If you can read the headlines, the water is clear enough to use.

• If you cannot read the headlines, the water must first be filtered through a clean cloth. A clean cloth is one that has been washed and left to dry in the sun (bright sunlight also kills the germs on clothing)."

Weather:

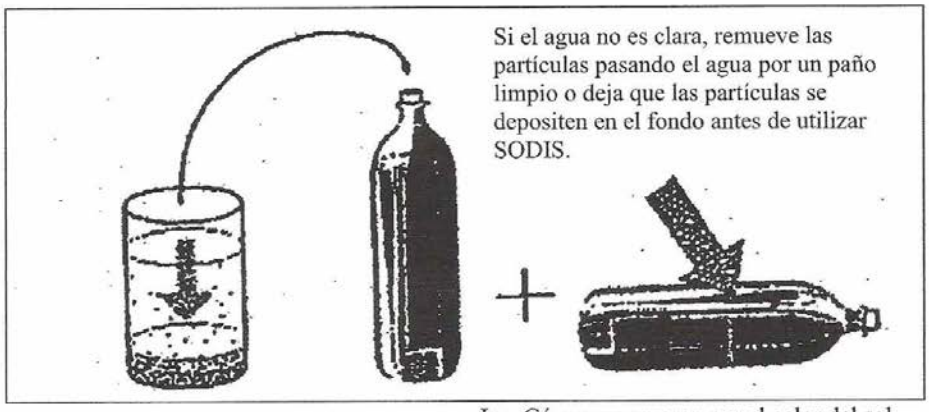
• "If the weather is cloudy, or the water is murky, leave the bottle out in the sun for two full days.

• In continuous rain, SODIS will not work. When SODIS will not work, consider collecting rainwater to drink."

Storage:

• "If the bottle is kept unopened after the water is treated and the bottle is stored in a cool dark place, then the water will remain germ free. The dead bacteria cannot multiply again. Algae may grow, but algae are not a health threat.

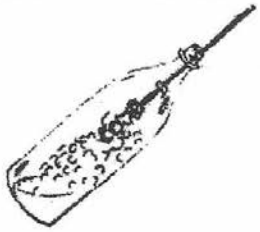
El Proceso SODIS:



Si el agua no es clara, remueve las partículas pasando el agua por un paño limpio o deja que las partículas se depositen en el fondo antes de utilizar SODIS.

Los Gérmenes mueren por el calor del sol.

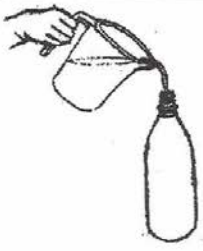
1. Lava bien la botella la primera vez que la usas.



2. Llena ¾ de la botella con agua.

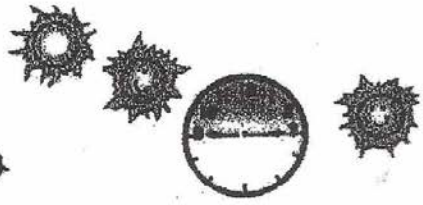
3. Sacude la botella por 20 segundos.

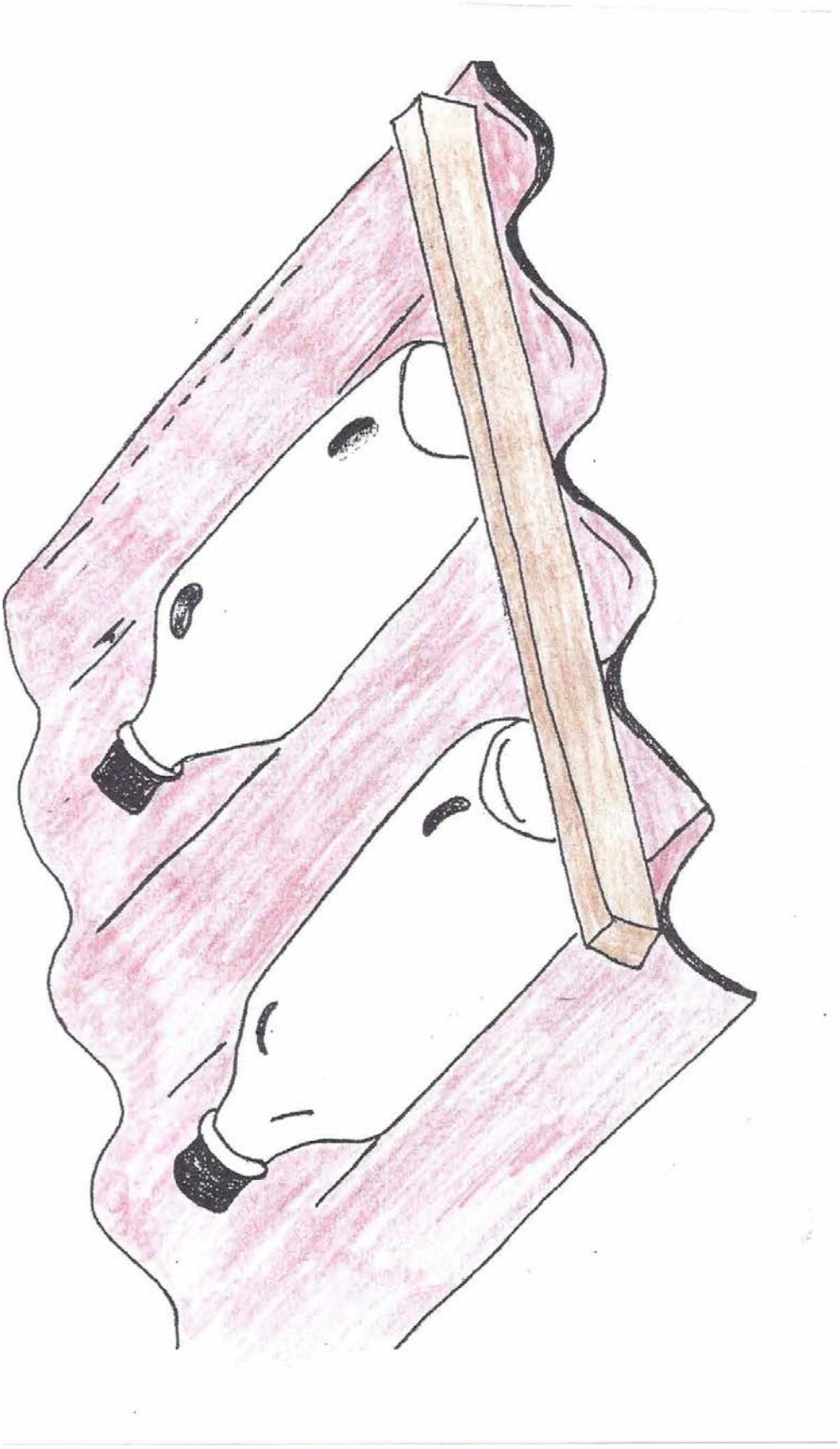
4. Llena la botella hasta el tope y coloca la tapa.



5. Coloca las botellas en una chapa corrugada o techo.

6. Déjalo en el sol por 6 horas a 1 día. Si está nublado déjalo por 2 días.





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Jesus Asleep in the Storm

Bible Lesson

Mathew 8: 23-27 <> Mark 4: 35-41

Message:	***Materials:***
1. Take a break between lessons to energize the group as they learn a new way to teach a Bible story: Matthew 8:23-27	*1. Optional: Squirt guns for rain or cups of water (& use fingers to sprinkle rain)* *2. Optional: Kazoos for wind or use voices to imitate the wind*

Method:

Arrange chairs or bench to simulate a boat in the center of the circle. Ask students who the most spiritual person is in the class. Ask the recommended student to come to the front and play Jesus as the class acts out a Bible verse. Ask "Jesus" to pick three disciples. Test them out to see if they know how to row.

Divide the rest of the students into 3 groups:

1. The rain (squirt water guns)
2. Wind (kazoo)
3. Thunder (stamp feet & clap hands

Add to the fun by assigning leaders for each group and have the groups do practice round.

Skit:

"Jesus got into a boat. His disciples followed him. *(Have "Jesus and His Disciples" step into the boat.)*

The disciples began rowing across the lake *(disciples row)* **and Jesus fell asleep** *(Jesus lays his head down).*

A storm came and tossed the boat around.

The rain stormed down *(squirt guns).*

The wind howled *(kazoos play).*

The thunder roared *(stomp feet, clap hands).*

The disciples rowed harder and harder *(Disciples' row harder & harder).*

The disciples cried out Lord, save us! We are going to drown! *(Encourage disciples to call out)*

but Jesus continued to sleep.

The rain stormed down harder *(squirt guns).*

The wind howled stronger *(kazoos play).*

The thunder roared louder *(stomp feet, clap hands).*

The disciples cried out *Lord, save us! We are going to drown!* *(Encourage disciples to call out)* **and finally woke Jesus.**

Jesus said, "*Why are you afraid? Where is your faith*"?

Jesus stood up and told the winds and waves to stop. *(Encourage Jesus to say it)*

Immediately it was calm.

The disciples dropped to their knees and worshiped Him, saying what kind of man is this that even the wind and waves obey Him!

Jesus said, **"Where is your faith? Trust in the LORD with all your heart and do not lean on your own understanding. Do you know that you can trust God even when your life is filled with storms?"**

SONG

While singing, touch both hands to the head, then the shoulders, then the knees, and then the toes, in time with the words.

Speed up with each repetition

Head, Shoulders, Knees, and Toes

Head, Shoulders, Knees and Toes,

Knees and Toes

Head, Shoulders, Knees and Toes,

Knees and Toes

And Eyes and Ears and Mouth and Nose

Head, Shoulders, Knees and Toes

Option: On the second verse, leave out the word "Head", but still do the actions. On the third verse, leave out the word "Shoulders", and so on. Finish with all the words back in, but singing as fast as possible!

Closing Ceremony

Message:	***Materials:***
1. Reinforce the lessons. *2. Facilitate behavior change.* *3. Honor and reward participants.* *4. Show respect to local leaders.*	*1. Community Maps* *2. Large sheets of paper, tape, & marker* *3. Certificates & page protectors* *Options:* *• Kazoos* *• Printer (for commemorative gift photos for each participant; printer may need to be battery operated)*

Method:

1. Group Commitment to Change: Community Mapping Exercise

• If time is short, stay in a large group and ask for a few volunteers from each Community Mapping group to share:

> • **"After attending this class, what would like to add or change in your community to make it a healthier place to live?"**

If time allows, participants from each community mapping team should meet to discuss the question and start planning. Ask each group to give a short, summary report to the larger group. Praise them for their answers if it applies to better hygiene behavior and encourage them to work together to make these changes.

2. Individual Commitment to Change: Healthier Homes

Ask each individual, **"After attending this class, what are you most committed to changing in your own home to make you and your family healthier?"** Write each student's name and their commitment on the chalk board or the paper taped on a wall.

3. Certificate Presentations

• Stand with the local leader(s)/person(s) in authority and present a certificate to each student.
• Option: Take a picture, print it out, and give it to each student (if you plan to print photos, you may want to present the certificates first so that someone can print them out while you are doing the other closing activities).

4. Local Leader's Closing Comments

Invite the person(s) in authority to say a few closing comments.

5. Closing Song

Option: Kazoo "When the Saints Go Marching In"
"We have a type of music in America called Jazz. We thought you might enjoy learning a new tune, a song called When the Saints Go Marching In. It is a song about being ready when the trumpet of judgment day sounds, ready to be numbered among those going home with God.
We know that you are ready to join us. The song calls all of us Christians *Saints* as we march into heaven to spend an eternity of sunny days together with God." Use kazoos and march around the room.

6. Closing Prayer

Form a circle and hold hands to close in prayer.

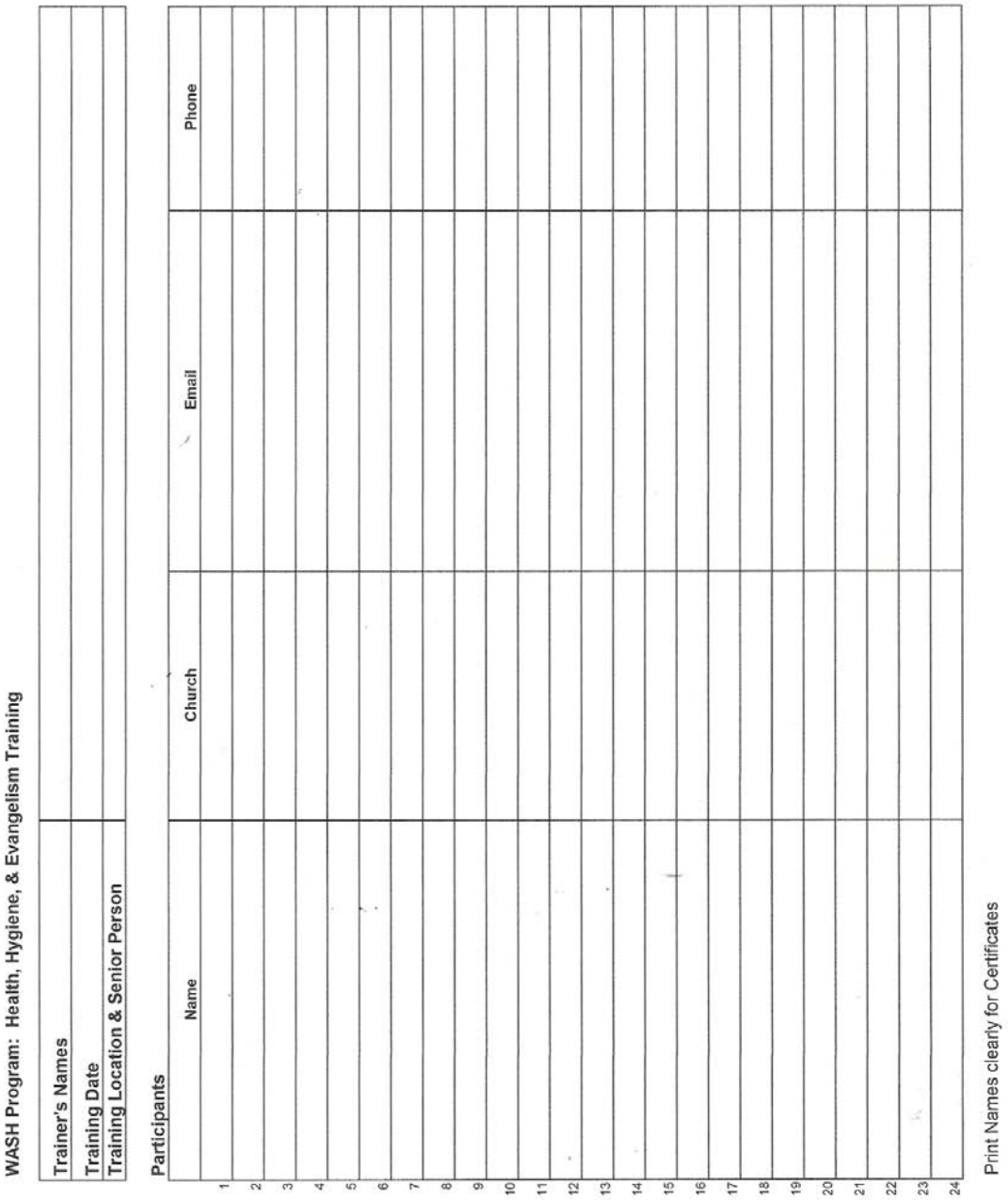
• Invite the local leader to pray.

• You say a prayer, **"Dear Lord, We are your children, brothers and sisters, from around the world. Thank you for bringing us together to share this precious time. You brought each of us here for a reason. Please help us continue our relationship and to love and support each other. Please use each of us to serve you by helping our communities, by helping others who thirst for your word and by helping your people who thirst for clean water."**

AMEN

TRAINERS REGISTRATION FORM

WASH Program: Health, Hygiene, & Evangelism Training



WASH Program: Health, Hygiene, & Evangelism Training

Trainer's Names	
Training Date	
Training Location & Senior Person	

Participants

	Name	Church	Email	Phone
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2				
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4				
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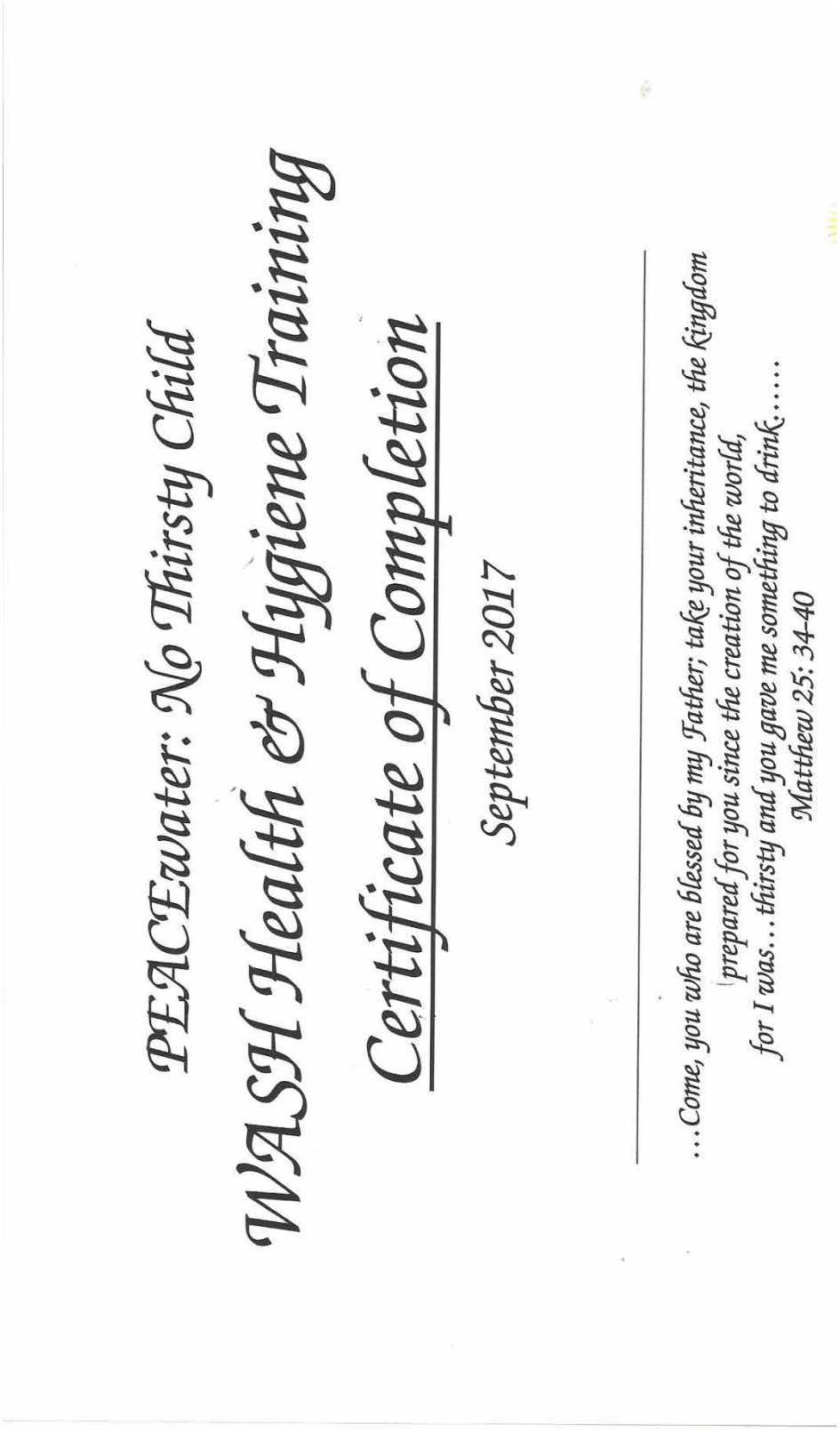
Print Names clearly for Certificates

Certificate of Completion

WASH Health & Hygiene Training



PEACEwater: No Thirsty Child

WASH Health & Hygiene Training

Certificate of Completion

September 2017

…Come, you who are blessed by my Father; take your inheritance, the kingdom prepared for you since the creation of the world,
for I was… thirsty and you gave me something to drink……
Matthew 25: 34-40

1 Day Agenda

	Teacher	Start	End
Introductions • Individual: Please share about your family & work, a gift/talent that God has given you, & your favorite food. • Group: Please give us some insight into health problems in your community. Are any of them caused by water issues?		9:00	9:30
3. Hand Washing: A. How to Wash Hands		9:30	10:50
4. Germs		9:50	10:00
6. Disease Transmission		10:00	10:10
7. Disease Blocking		10:10	10:20
5. Tippy Tap		10:25	10:45
Break		10:45	11:00
8. Diarrhea		11:00	11:10
10. Sin & Salvation			
9. ORS: Oral Re-hydration Solution		11:10	11:30
18. SODIS: Solar Water Disinfection		11:30	11:40
3. Hand Washing: B. When to Wash Hands		11:40	11:50
C. Craft: dirty Hand/Clean Hand		11:50	12:30
Lunch		12:30	1:15
11. Worms and Parasites		1:15	1:45
14. Clean Teeth		1:45	2:00
15. Growing Strong Bodies Story & Lesson		2:00	2:30
16. Growing Strong in the Lord			
C. Growing Strong Bodies: Craft		2:30	3:00
Closing Discussion As a result of these lessons, • What changes will you make in your home? • What changes will you make in your community? Please share this information with others.		3:00	4:00

2 Day Agenda

Day One	Teacher	Start	End
• Introductions		9:00	9:40
2. Unhealthy Community		9:40	9:50
2. Healthy Community		9:50	10:00
3. Hand Washing: A. How to Wash Hands		10:00	10:30
Break		10:30	11:00
4. Germs		11:00	11:15
6. Disease Transmission		11:15	11:30
7. Disease Blocking		11:30	12:00
5. Tippy Tap		12:00	1:00
Lunch		1:00	1:45
8. Diarrhea		1:45	2:15
• Energizer: Jesus Asleep in the Boat		2:15	2:30
3. C. Craft: Dirty Hand/Clean Hand		2:30	3:00
• Closing Discussion & Prayer		3:00	3:15
1. Community Mapping		3:15	4:00
Day Two			
• Opening Discussion & Prayer		9:00	9:15
9. ORS: Oral Re-hydration Solution		9:15	9:45
18. SODIS: Solar Water Disinfection		9:45	10:00
• Energizer Song		10:00	10:10
10. Sin & Salvation		10:10	10:20
11. Worms and Parasites: Skit		10:20	10:35
11. Worms and Parasites: Lesson		10:35	10:50
Break		10:50	11:15
3. Hand Washing: B. When to Wash Hands		11:15	11:30
13. Keeping Water Clean: Well Pump or Sawyer Filter		11:30	11:45
14. Clean Teeth		11:45	12:00
15. Growing Strong Bodies Story & Lesson		12:00	12:30
C. Nutrition Food Plate		12:30	1:00
Lunch		1:00	1:30
16. Growing Strong in the Lord		1:30	1:45
12. Latrines or 17. Review		1:45	2:30
Community Mapping: community changes		2:30	3:00
individual commitment to changes		3:00	3:15
Certificates distributed to students. Teaching supplies presented to Leader. Closing speeches & prayers		3:15	4:00

In developing countries, US trainers should anticipate paying for snacks and lunch.

3 Day Agenda

Day One	Teacher	Start	End
• Introductions		9:00	9:40
2. Unhealthy Community		9:40	9:50
2. Healthy Community		9:50	10:00
3. Hand Washing: A. How to Wash Hands		10:00	10:30
Break		10:30	11:00
4. Germs		11:00	11:15
6. Disease Transmission		11:15	11:30
7. Disease Blocking		11:30	12:00
5. Tippy Tap		12:00	1:00
Lunch		1:00	1:45
8. Diarrhea		1:45	2:15
• Energizer: Jesus Asleep in the Boat		2:15	2:30
3. C. Craft: Dirty Hand/Clean Hand		2:30	3:00
• Closing Discussion & Prayer		3:00	3:15
1. Community Mapping		3:15	4:00
Day Two			
• Opening Discussion & Prayer		9:00	9:15
9. ORS: Oral Re-hydration Solution		9:15	9:45
18. SODIS: Solar Water Disinfection		9:45	10:00
• Energizer Song		10:00	10:10
10. Sin & Salvation		10:10	10:20
11. Worms and Parasites: Skit		10:20	10:35
11. Worms and Parasites: Lesson		10:35	10:50
Break		10:50	11:15
3. Hand Washing: B. When to Wash Hands		11:15	11:30
13. Keeping Water Clean: Well Pump or Sawyer Filter		11:30	11:45
14. Clean Teeth		11:45	12:00
15. Growing Strong Bodies Story & Lesson		12:00	12:30
C. Nutrition Food Plate		12:30	1:00
Lunch		1:00	1:30
16. Growing Strong in the Lord		1:30	1:45
12. Latrines		1:45	2:30
17. Review		2:30	3:00
Closing Discussion & Prayer		3:00	3:30

3 Day Agenda

Day Three			
Opening Discussion & Prayer		9:00	9:15
Form Groups, Practice Lessons		9:15	10:00
Practice Teach Lessons		10:00	11:00
Break		11:00	11:30
Practice Teach Lessons		11:30	12:45
Lunch		12:45	1:30
Community Mapping: community changes		1:30	2:15
individual commitment to changes		2:15	2:45
Certificates distributed to students. Teaching supplies presented to Leader. Closing speeches & prayers.		2:45	3:30

In developing countries, US trainers should anticipate paying for snacks and lunch.

Agenda: 2 Hour Modules

	Minutes	Teacher
Module One		
3. Hand Washing: A. How to Wash Hands	30	
4. Germs	15	
5. Tippy Tap	40	
3. Hand Washing: 3B. When to Wash Hands 3C. Craft: Dirty Hand/Clean Hand	 15 20	
Module Two		
6. Disease Transmission	15	
7. Disease Blocking	30	
11. Worms and Parasites: • Skit • Lesson	 15 15	
12. Latrines A. Routine Use or B. Infrequent Use	45	
Module Three		
13. Keeping Water Clean: A. Well Pump or B. Sawyer	20	
8. Diarrhea	20	
9. ORS: Oral Re-hydration Solution* or 6B. Craft: Fly Catcher	30	
• Energizer Jesus Asleep in the Boat	10	
10. Sin and Salvation	10	
18. SODIS: Solar Water Disinfection	30	
Module Four		
14. Clean Teeth	20	
15. Growing Strong Bodies A and B 15C. Craft: Nutrition Food Plate	30 30	
• Energizer Song	5	
16. Growing Strong in the Lord	10	
17. Good/Bad Hygiene Review	25	
Module 5: Optional Extras		
• Agendas: 1, 2, 3 day options		
• Introduction & Closing		
1. Community Mapping		
2. Unhealthy/Healthy Communities		
• Teaching Tips: SHOWD		

*Lesson 9 ORS is not recommended for Children.
Teach ORS only when participants take home an ORS measuring spoon.

WASH Program: Health, Hygiene, & Evangelism Training

MODULE ONE

LESSON		SUPPLIES (for 24 participants)	Quantity US	Quantity In Country
3.A Hand Washing: How		Wash Basins	3	
3.A Hand Washing: How		Pitcher	1	
3.A Hand Washing: How		Glitter	1	
3.A Hand Washing: How		Soap bar (for Handwashing lesson)	1	
3.A Hand Washing: How		Hand towel (white)	1	
3.A Hand Washing: How		Water (fill pitcher, tippy tap, & 1 basin)		x
3.A Hand Washing: How		Tippy Tap (make a demo before you begin training)		1
4. Germs		Magnifying Glass	1	
5. Tippy Tap		Plastic Jugs with handle (for making Tippy Taps)		24
5. Tippy Tap		Hole Punchers (nails on corks - 12/bag)	2	
5. Tippy Tap		Twine (plastic coated in 2 or 4 colors; cut string before class starts)	1	
5. Tippy Tap		Scissors (for cutting Tippy Tap strings)	2	
5. Tippy Tap		Tea Candles	12	
5. Tippy Tap		Paper Plates (use under candles to protect furniture from wax drippings)	12	
5. Tippy Tap		Matches	10	
5. Tippy Tap		Nylon Footies (or old socks/pieces of tshirt)	24	
5. Tippy Tap		Soap bars (for making Tippy Taps)		24
5. Tippy Tap		Plastic Cups (or water bottles cut in half)	24	
5. Tippy Tap		Wooden Sticks @12" long for Foot Pedal (or string for Hand Pull)		24

items that In Country Coordinator should purchase for the class

things you should prepare before the class starts

WASH Program: Health, Hygiene, & Evangelism Training

MODULE TWO

LESSON		SUPPLIES	Quantity US	Quantity In Country
6. Disease Transmission		Plastic Food (plus, use some real food from in country, too)	5	x
6. Disease Transmission		Water (in the pitcher from Handwashing lesson in Module One)		x
6. Disease Transmission		Play Dough	1	
6. Disease Transmission		Plastic Fly	1	
6. Disease Transmission		Glitter (from Handwashing lesson in Module One)	1	
7. Disease Blocking		Manual pictures only		
11. Worms and Parasites		Healthy Puppet	1	
11. Worms and Parasites		Sick Puppet	1	
11. Worms and Parasites		Puppet Curtain	1	
Enegerizer: Jesus in the Boat		Squirt Guns (sets of 8)	8	
Energizer: Jesus in the Boat		Bottle to fill squirt guns	1	
12. Latrines		Large Sheets of Paper	2	
12. Latrines		Sharpie	1	
12. Latrines		Tape	1	

items that In Country Coordinator should purchase for the class
things you should find or prepare before the class starts
Latrine materials are in the Trainer Bag (same as Community Mapping)

WASH Program: Health, Hygiene, & Evangelism Training

MODULE THREE

LESSON		SUPPLIES (for 24 participants)	Quantity US	Quantity In Country
8. Diarrhea		Wash Basin (from Handwashing lesson in Module One)	1	
8. Diarrhea		Pitcher (from Handwashing Lesson in Module One)	1	
8. Diarrhea		Clear plastic wide mouth bottles (with hole in bottom & lines marking 2/3 and 1/2 full)	1	
8. Diarrhea		Water (in pitcher and ORS cup)		x
8. Diarrhea		Coke or coffee (pour into cup so students can't see the contents)		1
8. Diarrhea		Cup (for Coke or Coffee)	1	
8. Diarrhea		Cup (marked ORS)	1	
9. ORS		Small 88 ml dixie cups (let the students keep them)	24	
9. ORS		ORS spoons	24	
9. ORS		Takealong plastic containers or baggies	2	
9. ORS		Salt 1/4 cup	1	
9. ORS		Sugar 1/2 cup	1	
9. ORS		16 oz plastic cups (for student helpers to use to mix ORS)	2	
9. ORS		Bottled Water (500 ml) or clean water from a Sawyer filter or deep Well		2
10. Sin & Salvation		Clear plastic wide mouth bottle (without a hole in bottom & lines marking 2/3 and 1/2 full)	1	
10. Sin & Salvation		Pitcher (from Handwashing lesson in Module One)	1	
10. Sin & Salvation		Water (in pitcher)		
10. Sin & Salvation		Coke or coffee (pour into cup so students can't see the contents)		1
10. Sin & Salvation		Cup (for Coke or Coffee; same as Diarrhea lesson)	2	
10. Sin & Salvation		Wash Basin (from Handwashing lesson in Module One)	1	
13.A. Keeping Water Clean: Pump		Pitcher (from Handwashing lesson in Module One)	1	
13.A. Keeping Water Clean: Pump		Ladle	1	
13.A. Keeping Water Clean: Pump		Plastic cup (use one from the ORS Lesson)	1	
13.A. Keeping Water Clean: Pump		Hand towels (one colored clean one plus dirty towel from Handwashing lesson in Module One	2	
13.B. Keeping Water Clean: Filter		Sawyer two bucket system		1
13.B. Keeping Water Clean: Filter		Backwash syringe		1
13.B. Keeping Water Clean: Filter		Angel wings and halo	1	
13.B. Keeping Water Clean: Filter		Cup (from ORS Lesson)	1	
18. SODIS		SODIS bottle (1.5 liter)	1	

items that In Country Coordinator should purchase for the class
things you should find or prepare before the class starts

WASH Program: Health, Hygiene, & Evangelism Training

MODULE FOUR

LESSON	SUPPLIES (for 24 participants)	Quantity	
		US	In Country
14. Clean Teeth	Large Teeth	1	
14. Clean Teeth	Large Toothbrush	1	
14. Clean Teeth	Play dough	1	
14. Clean Teeth	Glitter (from Handwashing Lesson in Module One)	1	
15.A Growing Strong Bodies	Stool with 3 legs	1	
15.A Growing Strong Bodies	Felt Squares (red, green, white)	3	
15.A Growing Strong Bodies	Laminated Printed food set	1	
16. Strong in the Lord	Stool with 3 legs (used earlier for Strong Bodies)	1	
17. Good Bad Hygiene Review	Manual pictures and sorting labels only		

WASH Program: Health, Hygiene, & Evangelism Training

5. TRAINER OPTIONAL EXTRA SUPPLIES

LESSON		SUPPLIES (for 24 participants)	QUANTITY US	QUANTITY In Country
Registration		Name Badges (2 day) - pins or	30	
Registration		Name Badges (1 day) - sticky	30	
Registration		Sharpie (thick)	1	
Registration		Class Sign-in Sheet	1	
Registration		Pens	2	
Introduction		Globe (mark your journey with the Sharpie)	1	
Introduction, Closing, Energizer		Gift Kazoos	30	
1. Community Mapping		Large Sheets of Paper	5	
1. Community Mapping		Crayola Markers (packs with a variety of colors)	5	
1. Community Mapping		Tape (masking	1	
2. Unhealthy/Healthy Communities		Manual pictures only		
5. Tippy Tap		Gift soap (extra supply for each student)		24
9. ORS		Gift 500 ml water bottle (measuring device to make ORS)		24
11. Worms and Parasites		Gift Nail Kits	24	
14. Clean Teeth		Gift Toothbrushes	24	
12. Latrines		Gift Pens	24	
12. Latrines		Gift Notebooks		24
18. Sodis		Gift 1.5 Liter water bottle (to use at home making clean water)		24
Graduation		Certificates	30	
Graduation		Sharpie (blue - for writing student's name on the Certificate)	1	
Graduation		Page Protectors for the Certificates	24	
Graduation		Epson battery operated portable photo printer	1	

Not included (suggestions for team to purchase)

WASH Program: Health, Hygiene, & Evangelism Training

6. CRAFTS

LESSON	SUPPLIES (for 24 participants)	Quantity	
		US	In Country
3C Hand Washing Craft	Sample Dirty Hand/Clean Hand	1	
3C Hand Washing Craft	Paper Plates	24	
3C Hand Washing Craft	Crayons (Box with brown, black, light blue, pink, green & purple)	1	
3C Hand Washing Craft	Glitter Glue	5	
3C Hand Washing Craft	Sissor (to open glitter glue)	1	
6B Fly Catcher Craft	Bottle (empty, preferably 2 liter, plastic)		24
6B Fly Catcher Craft	Hole Punchers (use nails on corks in Module One supply bag))	24	
6B Fly Catcher Craft	Sissors (use sissors in Module One supply bag; cut bottles before class)	2	
6B Fly Catcher Craft	Fruit		24
15C Nutrition Food Plate Craft	Sample Nutrition Food Plate	1	
15C Nutrition Food Plate Craft	Paper Plates	24	
15C Nutrition Food Plate Craft	Crayons (box of red & green)	1	
15C Nutrition Food Plate Craft	Glue (one for every other participant)	12	
15C Nutrition Food Plate Craft	Food pictures (1 per student from each of the 3 food groups)	72	

Hints for Working with Translators

1. Give the translator copies of the lessons in advance. Spend some time with your translator letting them get used to your accent. Let the translator know how you generally plan on teaching the class and the main purpose of each lesson.

2. Speak in short phrases. Use simple words. Pause frequently to allow translation.

3. Don't spend a lot of time clarifying what you said with the translator. Address the class, saying it again using different words (don't have one on one conversations with the translator or you will lose your audience). Speak to the class as if they can understand English, speaking as loudly and as varied as you would when training English speakers.

4. Keep eye contact with the audience, not with the translator, both when you are speaking and when the translator is speaking.

5. Remember to begin your wait time for responses after the interpreter has finished, not when you are finished speaking.

6. You select students to talk and participate, not the translator.

7. From time to time, you may want to ask the interpreter to repeat back to you what he/she said to the group, especially if the translator seems a little longer winded then you think he/she should have been.

8. Be sure to move around the room. Change your position to add interest when you are speaking. The translator should follow you. The translator should also mirror your pace, volume, and enthusiasm.

9. If there is a participant who speaks English, check with them discreetly about the quality of the translation. If no one speaks English, then ask the translator to help you check with the senior person at the first break to see how the class is going and ask if they are having any problems understanding. Ask if any of the words, like poop, are offensive.

10. Check with the translator at break to see if they are experiencing any challenges. Ask if they are enjoying the class and what he/she thinks of the participants.

11. Listen to the translator's tone to assess whether there are any problems with patience or arrogance. Find some way to check if the translator is treating the participants with respect and courtesy. The spirit of the class is empowerment and confidence building; be careful that translators do not undermine the spirit of the class.

TECHNOLOGY

WATER TESTING

INSTRUCTION MANUAL

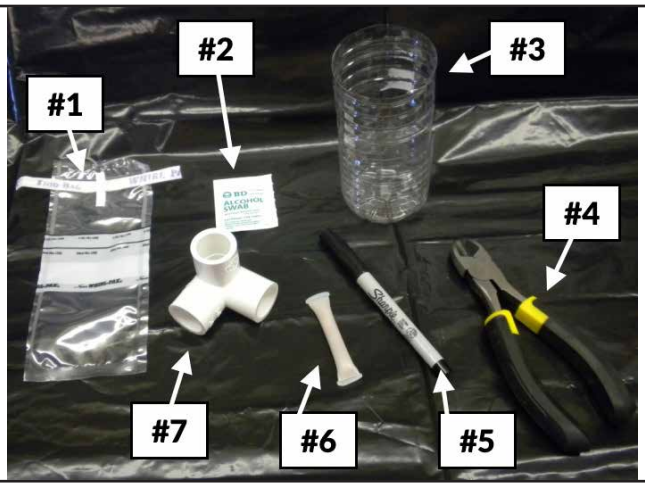
PREPARED BY

SADDLEBACK CHURCH'S PEACE PLAN

CLEAN WATER INITIATIVE

P·E·A·C·E

Coliform Test Kit



Kit Includes:

Clockwise: #1-Whirl-Pak Bags; #2-Alcohol Swabs; #3-Whirl Pak bag - holder water bottle cut in half (not supplied); #4- Cutting Tool ***(See note "A" next page)***; #5-Sharpe Fine Point; #6-Hach Growth Medium Pillows; #7-Hach Pillow Holder.

Step # 1

Step # 1:

Label "Whirl-Pak" bag with sample site, water source type, location and Date.

PROCESS NOTE:

Work quickly to minimize sample to airborne contamination.

Step # 2-a

Step # 2-a:

Disinfect cutting tool blade(s) with alcohol swab.

Step # 2-b

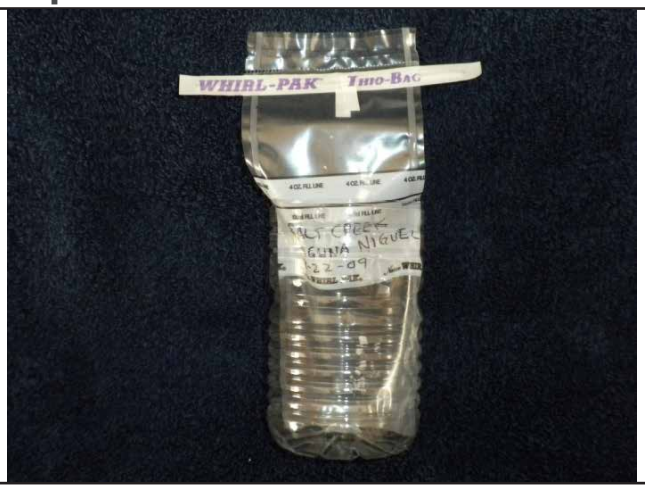
Step # 2-b:

Use Sharpie pen to elevate "Sterile" cutting tool blade(s) in the air to prevent contamination.

WARNING:

Do not touch disinfected "Blades" to anything.

"…but whoever drinks the water I give him will never thirst. Indeed, the water I give him will become in him a spring of water welling up to eternal life." John 4:14

Step # 3-a	Step # 3-b
	
Step # 3-a: Disinfect "Hach Growth Medium Pillow" at the top of Pillow.	***Step # 3-b:*** Set aside in "Pillow Holder." **WARNING:** **Do not touch disinfected "Pillow" to anything.**
Step # 4-a	**Step # 4-b**
	
Step # 4-a: Tear off top of "Whirl-Pak" bag.	***Step # 4-b:*** Set "Whirl-Pak" bag in holder. **WARNING:** **Do not touch "Whirl-Pak" bag to anything.**

"…but whoever drinks the water I give him will never thirst. Indeed, the water I give him will become in him a spring of water welling up to eternal life." John 4:14

Step # 5-a	Step # 5-b
	
Step # 5-a: Cut off top of "Growth Medium Pillow" *(after disinfection)* with disinfected cutting tool.	***Step # 5-b:*** Place opened "Growth Medium Pillow" bag in Pillow holder.
Step # 6	**Step # 7**
	
Step # 6: Open "Whirl-Pak" bag by pulling wire tabs and tug bottom of bag to fully open. **WARNING:** **Do not touch opening with fingers.**	***Step # 7:*** Pour "Growth Medium" into open bag. **WARNING:** **Do not touch bag with "Growth Medium Pillow".**

"…but whoever drinks the water I give him will never thirst. Indeed, the water I give him will become in him a spring of water welling up to eternal life." John 4:14

Step # 8-a	Step # 8-b	Step # 8-c
		
Step # 8-a: Pour water sample into bag.	***Step # 3-b:*** Fill to 100ml line.	***Step # 8-c:*** Pull wire tabs to close bag.

Step # 9-a	Step # 9-b
	

Step # 9-a & b:

Hold bag by wire tabs and whirl bag bottom over top, for 3 revolutions to seal bag.
Leave air space for mixing.

"…but whoever drinks the water I give him will never thirst. Indeed, the water I give him will become in him a spring of water welling up to eternal life." John 4:14

Step # 10-a	Step # 10-b
	
Step # 10-a: Fold "Wire Tabs" to opposite face to seal bag.	***Step # 10-b:*** Make sure "Wire Tabs" are flat.

Step # 11-a	Step # 11-b	Step # 12
		
Step # 11-a & b: Gently rock bag until contents are mixed.		***Step # 12:*** Place bag in sample holder and incubate at 77-95 degrees "F" (25 to 35 degress "C") for 48 hours.

"…but whoever drinks the water I give him will never thirst. Indeed, the water I give him will become in him a spring of water welling up to eternal life." John 4:14

Step # 13-a	Step # 13-b
Read Results in 48 hours.	
	
Step # 13-a: Positive = **Black**	***Step # 13-b:*** Negative - **Amber**

CONCLUSIONS:

"POSITIVE BLACK" results indicate Fecal contamination. Water is NOT safe to drink without purification.

"NEGATIVE AMBER" results DO NOT mean water is safe to drink.

Carrying Suggestions for Multi Test Samples

Foldable Cardboard 6-Pack Carrier

	
Use a Foldable Cardboard 6-pack bottle holder for carrying multiple test samples.	Foldable Cardboard 6-pack bottle holder in collapsed position for travel luggage.

"…but whoever drinks the water I give him will never thirst. Indeed, the water I give him will become in him a spring of water welling up to eternal life." John 4:14

For Mission Teams from the US
Pelican1060 Micro Case - Air Tight Multi Sample Carrier
Field Tested in Mexico

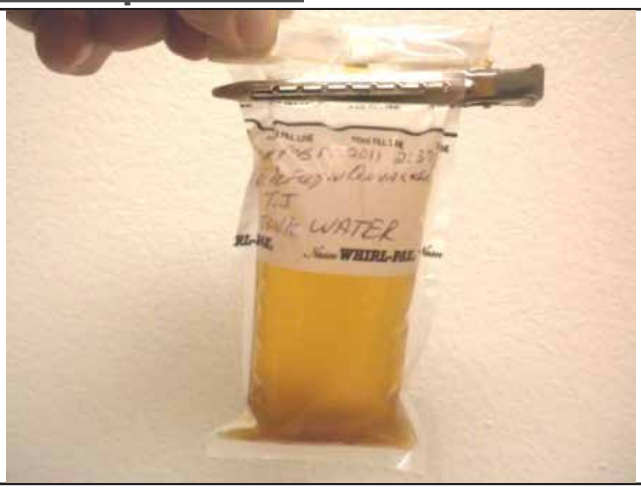
Air tight Multi Carring Case capable of carring up to seven samples; six comfortably.

Two Pelican cases can carry up to 14 samples. Airtight eliminates the oder and stablizes incubation tempeture.

Single samples held in place by home made moveable baffels. Prevents samples from tipping.

Pelican Air Tight Multi Sample Carrier

When in the open position, use the inside of the lid a as work station.



Prior to whirling, use a womans Duck Bill hair clip, sliding down to remove most of the air; whirl, seal, then remove clip.
Results; little to no leakage.

"…but whoever drinks the water I give him will never thirst. Indeed, the water I give him will become in him a spring of water welling up to eternal life." John 4:14

Both Pelican cases easily carried in a day pack.

Even if the case accidentally falls over landing upside down, no leaks or odor were detected.

NOTE "A"

Alternate Cutting Tools: From left to right: #1 Cutting Shears; #2 Razor Knife; #3 Scissors.

"…but whoever drinks the water I give him will never thirst. Indeed, the water I give him will become in him a spring of water welling up to eternal life." John 4:14

Water Filters

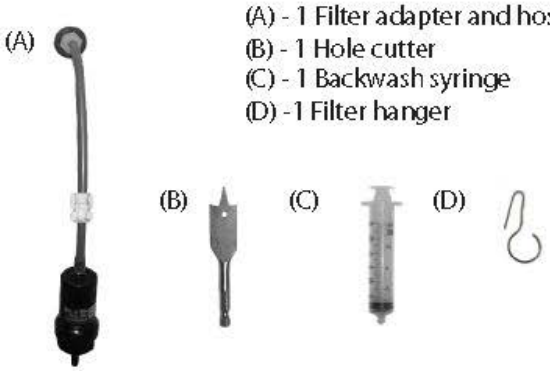
Sawyer® Water Filter

SAWYER®

PointONE Filter™ Instructions - SP180
visit www.pointonefilter.com to watch assembly video

Step 1- Verify Assembly Kit Contents

(A) - 1 Filter adapter and hose
(B) - 1 Hole cutter
(C) - 1 Backwash syringe
(D) -1 Filter hanger



Translation:

Step 2- Find a "clean" bucket

Do not use a bucket/pail that previously stored poisonous chemicals. If possible bucket should be food grade i.e. should have had a food product in it before.

Translation:

Step 3- Drill a hole in the bucket

POWER DRILL NOT REQUIRED. THIS CAN BE DONE BY HAND. Drill a 22 mm (13/16") hole in the side of the pail by twisting the hole cutter (B) about 38 mm (1.5") from the bottom of the bucket. This height will prevent sediment from entering the filter.

Translation:

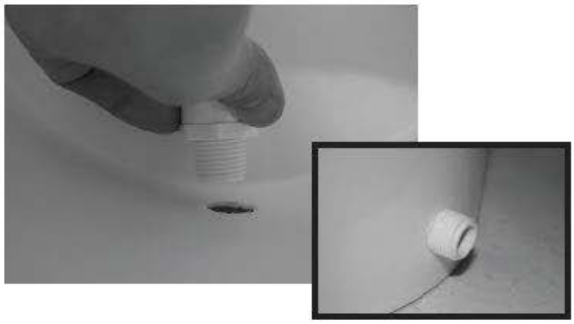
Step 4- Prepare the adapter

Unscrew the male adapter from the female adapter then remove the o-ring from the male adapter.

Translation:

PointONE Filter™ Instructions Continued...

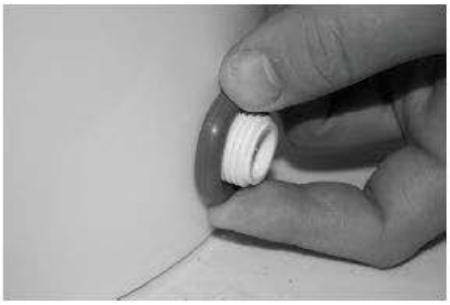
Step 5- Install male adapter



Place the male adapter through the hole inside the bucket so the threads are protruding to the outside of the bucket.

Translation:

Step 6- Reattach the female adapter



Place the o-ring onto the male threads on the outside of the bucket and screw the female adapter back onto the male threads.

Translation:

Step 7- Filtering water

Add water to the bucket and lower the filter head below the bottom of the bucket to start the flow. The greater the distance between the filter and the top of the water line, the faster the water will flow. ALWAYS FILTER WATER INTO A CLEAN RECEPTACLE.

Translation:

Step 8- Stopping the flow

Raise filter above pail to stop filter water flow. When not in use, place filter into filter hanger and hang on side of bucket.

Translation:

SAWYER® Filter Cleaning Instructions-SP180

Step 1 - Reserve clean water

Reserve 1 liter (1 quart) of clean water.

Translation:

Step 2 - Determine if your filter needs cleaning

When water flow stops or slows down the filter needs to be backwashed.

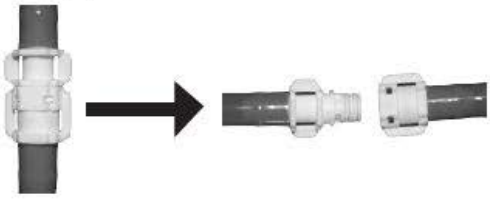
Translation:

Step 3 - Fill the backwash device

Fill the backwash syringe (C) with filtered water.

Translation:

Step 4 - Empty bucket and remove filter from hose



Empty all water from the bucket and rinse out sediment, then remove the filter from the hose at the quick disconnect.

Translation:

Step 5 - Backwashing with contaminated water

Caution: Do no backwash filter with contaminated water. If you must backwash with dirty water run a liter (quart) through the filter before drinking. Do no: drink the first liter. Dispose of it properly.

Translation:

Step 6 - Backwash with syringe

With the filter disconnected from the bucket, place the end of the syringe into the black opening and squeeze, forcing clean water back through the filter. Repeat several times until water comes out clear through the filter.
Make sure all discharge water is disposed of properly.

Translation:

This filter removes **7 log** (99.99999%) of all bacteria and **6 log** (99.9999%) of all Protozoa:
Bacteria:
I.E.: Cholera, Botulism (Clostridum botulinum), Typhoid (Salmonella typhi), Amoebic Dysentery, E. Coli, Coliform Bacteria, Streptococcus, Salmonella
Protozoan (Cyst):
I.E.: Giardia, Cryptosporidium, Cyclospora

Sawyer Products, Inc. P.O. Box 188, Safety Harbor, FL, 34695 www.pointonefilters.com 800-356-7811

PEACE

WATER

NEW LIFE PURIFIER/ CHLORINATOR MANUALS

P·E·A·C·E

AOM

Assembly, Operation, and Maintenance

Chlorination Instruction Manual
2 Tank - 3 Way Valve System
(and Optional 1 Tank System)

McGuire Water Purifier

Prepared by Saddleback Church's PEACE Plan

Clean Water Initiative

Contacts

Purifier Parts and Support:

Customer service; New Life International

http://waterfortheworld.org/ (812) 752-7474

NOTE: See trouble shooting tips at the end of this manual.

Section 1: Assembly
2 Tank System with 3 Way Valve

Screw the tubes into the HUB. Tube with the cap goes nearest HUB. All PVC threaded parts needs to have a layer of Teflon tape on the threads.

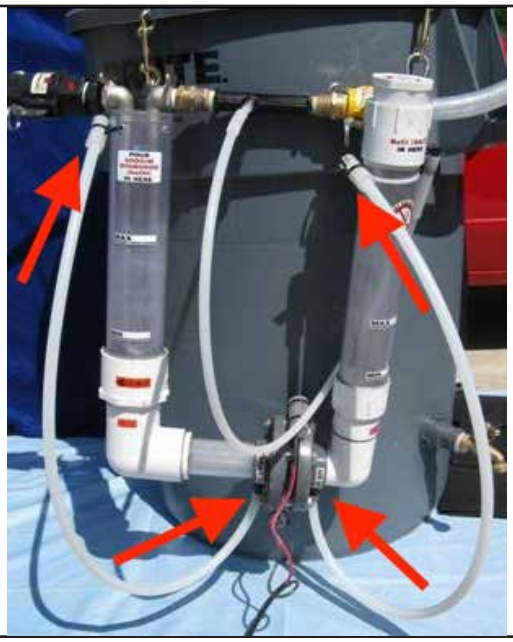
Hang the purifier; side closest to the HUB must be lower than the other side.

Insert the HEAT EXCHANGER VENTURI assembly into the left tube.

Connect hose, from *"Pump / 3 way valve"* assembly into the LEFT side of HEAT EXCHANGER VENTURI assembly.

Connect tank return hose into the RIGHT side of HEAT EXCHANGER VENTURI assembly and the other end into tank.

Connect one end of smaller diameter hose to short hose extension at the center of the venturi assembly and the other end to the hose extension at the top of the right tube; on the right side.

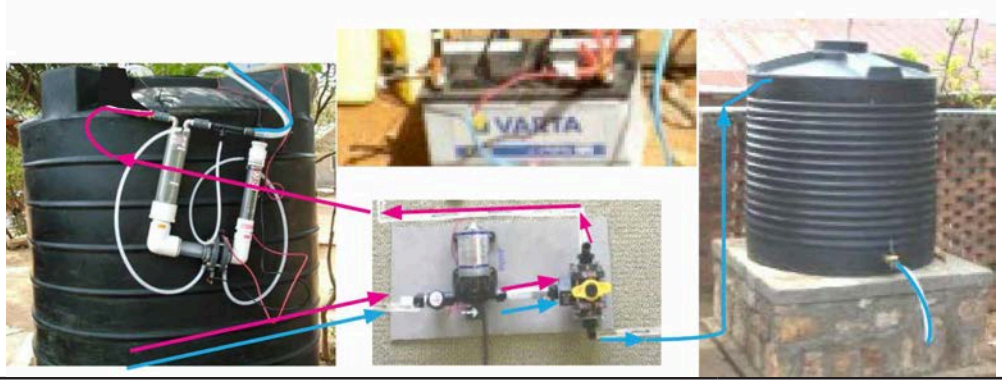


Attach LARGE diameter drain hoses to "Left" & "RIGHT" side of HUB. Insert other ends into hose holder at top of left and right tube.
The Purifier is ready for services.

Place *"Pump/3 Way Valve"* assembly between the two tanks.

(See following "flow schematics" for correct hose connections)

TREATMENT TANK	PUMP/3 WAY VALVE, BATTERY PLACED BETWEEN TANKS	DISTRIBUTION TANK



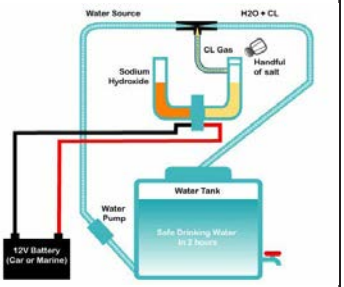
Red indicates water being Chlorinated. Blue indicates Chlorinated water. After proper chlorination levels are reached in the Treatment tank, turn the 3 way valve 90 degrees to transfer chlorinated water to distribution tank.

Optional: 1 Tank Assembly With "In Tank Submersible Pump"

1 tank systems use an "In-Tank Submersible Pump". (The "2 Tank Pump/3 Way Valve" assembly is not used). **Both systems are simular in setup, operation and maintainence.**

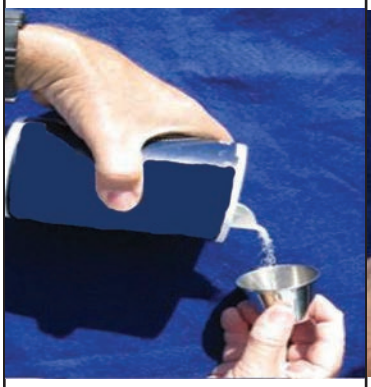
The In-Tank pump must always be submerged in water. Anchor the pump or hose to prevent the pump from rising above the water. NEVER run it unless it is in water. Assemble the pump and attach the hose to the hose bib with hose clamp.

Once the pump is in the water, be sure to turn the pump over at least once in order to release any air bubbles in the pump. NOTE: DO NOT attach the wires to the battery until you are ready to operate the purifier!



Install *"Submersible Pump"* into bottom of the tank, making sure it's submerged in water and connect pump hose into the *LEFT* side of the HEAT EXCHANGER VENTURI.

Section 2: Start Up
1 & 2 Tank Systems

		
Fill the cup with table salt. (NaCl)	Fill the ***"SALT MIXING"*** container with 500 Milliliters (or about 17 oz US) of water.	

				
Add Salt to ***"SALT MIXING"*** container.	Put cover on the ***"SALT MIXING"*** container and shake until all salt is completely dissolved.	Remove cap on right side tube and pour in mixture to MAX level.	Replace cap be sure to tighten well.	

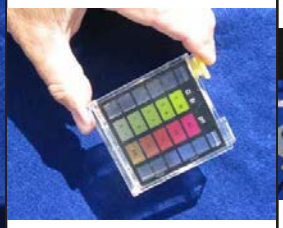
Add water to the MAX level on left tube. (NaOH)	Measure out approximately a level tablespoon of salt.	Add salt to left tube.

Check the battery **everyday**; if the meter is in the green, go to the next step. If the meter is not in the green, charge the battery and then proceed. See Section 3, page 9 on Battery for instructions on the charging of the battery.

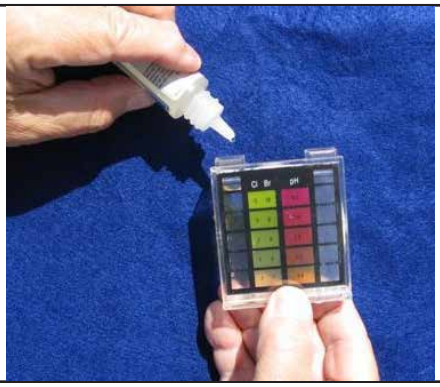
			
Connect red wire from the pump to the (+) Positive terminal of the battery.	Connect black wire from the pump to the (-) Negative terminal of the battery. Pump should go on.	Check the right tube for bubbles. If no bubbles, check that all hoses are connected properly for a good seal and the cap is screwed in tight. Do not connect the purifier Hub wires to the battery until you confirm you have good rolling bubbles being produced in the CL tube.	

			
Attach the red wire from the hub to the (+) Positive terminal of the battery.	Attach the black wire from the hub to the (-) Negative terminal of the battery.	Look for bubbles moving from the hub toward the left tube.	

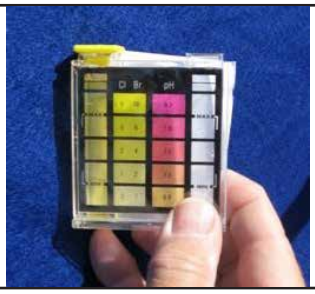





<u>Rinse Procedure</u>: Open *<u>Test Kit</u>*, add clean water into tube next to yellow scale; install cap and rotate several times making sure there is bubble movement; empty the rinse water.	Get sample of water from the tank filling to line at top of tube.




Put five drops of reagent into the water sample.	Put on cover and shake.


Compare test water to yellow scale. **NOT ENOUGH**	Compare test water to yellow scale. **GOOD**	Compare test water to yellow scale. **TOO MUCH**

Important: ***See next page for proper Chlorination instructions.***

INSTRUCTIONS FOR PROPER CHLORINATION LEVEL.

Put a white paper or cloth behind the tester to see the "Test" water sample *yellow* color better, then compare the "Test" water sample color with the test kit color. Test every 1 to 2 minutes, if the treatment is for a small amount of water. If the sample is for 500 liters, then samples can be 3 to 5 minutes apart. With experience, you will be able to get the timing right.

When the sample matches the 5 PPM level on the tester, **disconnect the power to the hub.**
If you have too much, drain out some of the water and add more untreated water and retest.

The submersible pump should be running for an hour after the 5 PPM has been attained. Re-test if the water is less than 2 PPM. Always check for debris in the treatment water. If the chlorine was used up too soon, re-connect the hub and make some more chlorine up to the 5 PPM level. Then re-test. Disconnect the hub at 5 PPM, run submersible for 1 hour and then disconnect.

Section 3: Battery Maintenance (continued)

A. BATTERY MAINTENANCE

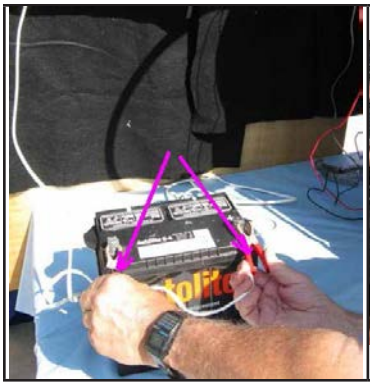
Note: Each location will have either a battery charger that gets power from the grid (240 V) or solar power if no power is available

If the battery tester shows the needle in the red, the battery needs to be charged.

Electronic Battery Charger. This charger will work with voltage from 100 to 240.

Connect the *Battery Charger* leads to the battery as follows: **Red** lead to (+) positive terminal; **Black** lead to (-) negative terminal. Battery charger is electronic and can be left connected to the battery for extended periods of time it will not overcharge the battery.

Plug in the charger to the line voltage. The charger will automatically turn on and start charging the battery. It works with voltage from 100 to 240. Turn off the charger to recheck the charge. When the battery has been charged, disconnect the wires to the battery.



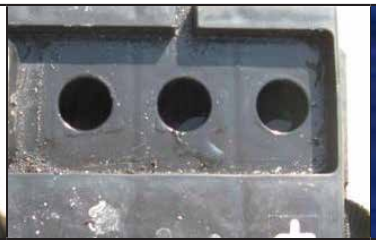
Connect solar panel wire clips to the battery terminals; **Red** lead to (+) positive terminal; **Black** lead to (-) negative terminal.	Connect the other end to the solar panel.	Solar Panel must face the sun. Do not hang 90 degrees to the ground.

WARNING: Never let the battery leads from the solar panel touch each other when connected to the panel. It will damage the panel.

The solar panel should be connected to the battery at all times when there is daylight and the battery is not in use for the purifier.

Every 2 weeks check the Battery (Electrolyte Water). The battery will be damaged if it is operated with low electrolyte. **Use only rain water to add to the battery. Do not use water from the purifier. If the rain water has any debris (leaves or sticks), strain it through a cloth before adding it to the battery.**

Do not charge a battery if the plates are exposed. Add enough water to the battery to cover the plates, then charge and add the rest of water after charging.


Battery Plates Exposed	Water level about 3 mm from the bottom of the fill hole.	Use clear rain water ONLY with no debris. (leaves or sticks) **Never add acid to a battery. There could be an explosion.**

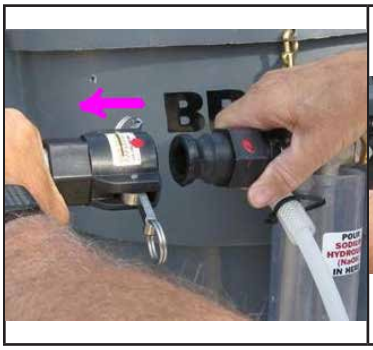
Section 4: Disassembly & Maintenance

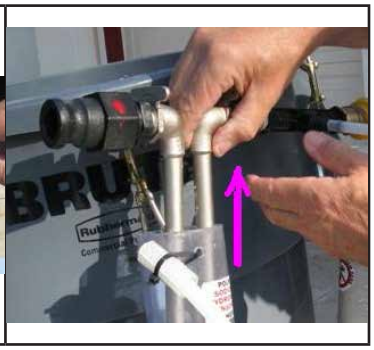
B. DISASSEMBLY MAINTENANCE

IMPORTANT NOTE: If the purifier is not fenced in and locked when not in use, the purifier and battery must be taken apart and stored. The left tube (hydroxide solution) may be reused and the right tube (chlorinated solution) made from salt can be reused.

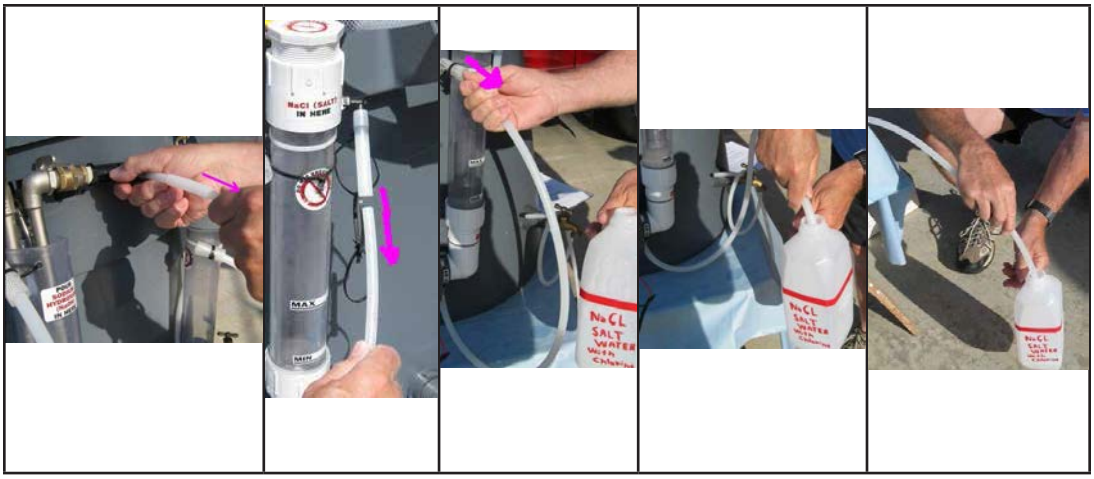
Great care must be taken to label the containers so the liquids do not get mixed up.

These liquids are poison and if consumed can cause death.

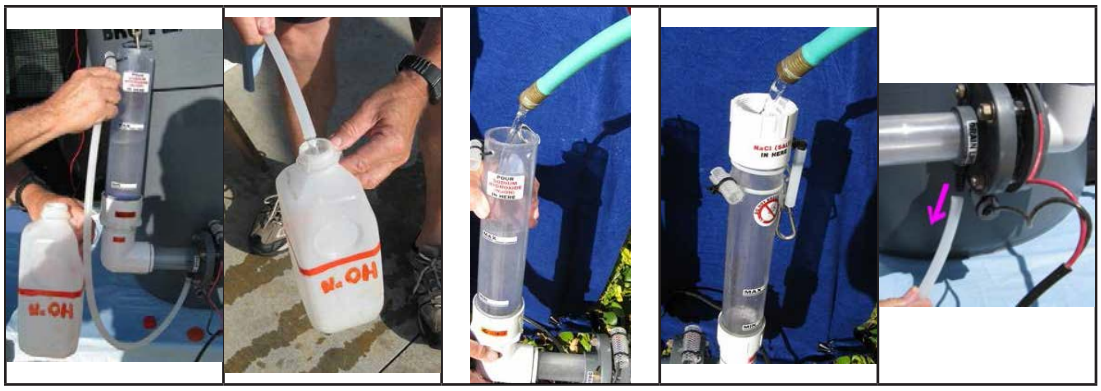




Undo the quick disconnects on both ends of the HEAT EXCHANGER VENTURI assembly.	Remove the HEAT EXCHANGER VENTURI assembly.



Remove the smaller diameter tube from the hose extension at the center of the venturi assembly and the other end from top of right tube. Rinse and store hose.	Remove the drain hose from the right tube (**Cl gas side)** hose holder, DO NOT LOWER THE HOSE, keep it at the same level as the hose holder; bring properly labeled plastic container up to the same level as drain tube *(Make sure that the end that the liquid will come out is above the level in the tube so that it doesn't spill on your hands.)* Insert the tube into the properly labeled container **(Cl disinfectant)** and begin lowering both drain hose and bottle until liquid is completely drained from the right tube. Re-install cap on the plastic container and store in cool secure location out of the reach of everyone, especially children. You can re-use the (Cl side) liquid next time and/or to sanitize water carrying containers, such as "Jerry Cans."



Use the above right tube draining procedure for the left tube. (Na side)	Rinse out both tubes several times with clean water.	Remove the drain hoses from both sides of the hub.

The above procedure for draining and rinsing MUST be done once a week for all purifiers, including the Purifiers that are in a fenced and locked space.

Once a week, the left tube solution (hydroxide) needs to be diluted. About ¾ of the liquid needs to be properly discarded. The left tube solution (hydroxide) can be dumped into a pit latrine to improve the sanitation.

WARNING: Be careful not to splash solution in your eyes or hands (if accidently splashed - flush area thoroughly with water).

Add clean water that **has not been treated** to the solution to have enough for the next run.

Section 5: Filter Maintenance

C. Filter Maintenance

Unscrew the filter housing, pull out the filter, unscrew ends to loosen the discs, brush off debris; re-assemble.

Section 6: In-Country Solutions

		
Bulkhead hole drilled oversize? Gasket will not seal? *Use a local scrap piece of tire "inner-tube".*	**Need an in-line filter?** *Use a "Mosquito Net".*	**Need a stand to hang the Purifier?** *Make one out of wood using regular wire to hang the Purifier.*

TROUBLE SHOOTING TIPS

Hello Future Trainers,

Clean Water Initiative is a ministry of Saddleback Church in Lake Forest California. It's totally run by committed volunteers.

We are not sure of your water situation, but we'll offer our experiences with regards to taste and smell.

First, teaching hygiene in this village or church is a must. This is the first step to a healthy community. Having clean water is only part of the solution – knowing how to keep the water clean and basic hygiene is critical to the community. We teach these classes at Saddleback Church, Lake Forest, and it's an all day interactive SKILLS class. Participants will earn a Health and Hygiene Certificate and have master materials to instruct future teachers – we work on the principal of training the trainers (TOT).

Chlorine levels issues -

The McGuire purifier can generate Chlorinated water at very high rate ***(55 gallons per minute)*** once it gets going - so you have to monitor ***(test)*** the Chlorination production closely- maybe every 1-2 minutes. Once you go beyond the recommended 5ppm the batch is known as "hot" and will stay that way, in a closed tank, for days or weeks. This happens often with new installations and gets resolved once experience is gained.

Recommendations –

Solution #1 - Open the treatment and distribution tank lids and retest at the end of the day; if no change in Chlorination level, go on to Solution #2

Solution #2 - Dump 50% of the highly concentrated Chlorinated tank and refill it with untreated water and retest at the end of an hour. If the Chlorination level is still way off the chart - *(over-chlorinated)* – I suggest dumping all of it and starting over. *(Many times with a highly over- chlorinated tank you are better off dumping this water and starting all over – rather than trying to save the batch)* – see Solution #3 -

Solution #3 - Dumping 50% of the highly chlorinated tank and refilling the treatment tank balance with untreated water; then retest the chlorine level after an hour – if the chlorination level came down significantly *(from a very reddish brownish*

to very yellow) you could continue dumping the high chlorinated tank; try dumping another 1/3 of it and retesting after an hour.
Note: You want the treatment tank test at 5ppm and sit for one hour to kill all the parasites (worms) – the viruses and bacteria are killed in seconds so it takes longer to expose the hard to kill parasites.

Taste – Color Issues –
Most developing countries do not have access to chlorinated water especially in small communities – hence no exposure to the taste of chlorine. This is a cultural / tradition problem that I can't begin to cover in an email. If the water they are currently drinking is from a river, creek, stream, shallow well or lake it will taste much different than safe chlorinated water. This is an educational issue and that's were Hygiene training is critical. You and I recognize the importance of chlorination but transferring this importance to a developing culture is sometimes a challenge. I've seen that keeping statics of diarrhea caused diseases helps them make this connection.
I didn't understand the question of "yellow" color? The water shouldn't have any difference in color, if anything it should be clearer due to the oxidation of the organics in the water. *(Oxidation from the chlorine)*

Testing –
Again, not sure of the local issue, comprehensive water testing for all contaminate is very costly and usually only necessary maybe once.
Chlorinated water is safe. EPA recommends levels of under 4ppm. We take the water to 5ppm and let it sit for 2 hours – it should be down to 2-3ppm by distribution time.

Note: Residual chlorination in the water is beneficial because it continues to disinfect dirty containers from - air borne, hand borne, and animal contamination. Most containers are so dirty the excess chlorination is used immediately to neutralize the pathogens in the dirty container. Suggestion – use the super "hot" batch of water to clean dirty containers and disinfect items around the village. Once water containers are disinfected, seal them continually.

We suggest passing on this information from New Life's web site to your folks in-country - *http://waterfortheworld.org/*

RAINWATER

HARVESTING MANUAL

P·E·A·C·E

Introduction

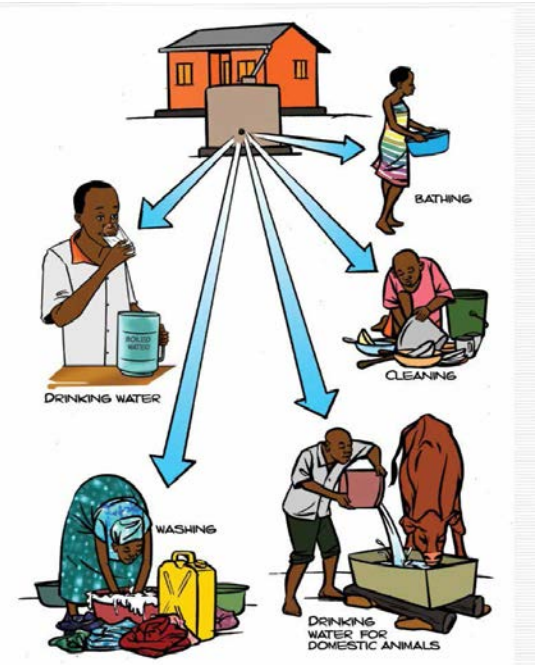
Clean Water (CW) and the PEACE Plan

Planting churches that promote reconciliation
Equipping servant leaders
Assisting the poor
Caring for the sick ***(Clean Water)***
Educating the next generation

Clean water is necessary for a life free from disease and instrumental for children's bodies to grow healthy and therefore is included in "**Caring**" for the Sick. But water is also necessary for daily life in "**Assisting**" the poor to grow food, feed and water livestock and carry on daily life activities. Clean water doesn't guarantee a disease free life without good health and hygiene habits. That is why our Clean Water program also includes a training program called *WASH* (Water, Sanitation and Hygiene). So Clean Water is also under "**Educating** the next generation". Clean Water is an integral part of PEACE on many levels.

What is Rainwater Harvesting?

People have been harvesting rainwater for thousands of years and examples of **(RWH)** systems have been found as early as 4500 BC. The technology can be as simple or as complex as required. Rainwater Harvesting **(RWH)** is the collection and storage of rainwater for later use. There are many ways to collect rainwater but this manual will deal with Harvesting Rainwater from Rooftops.



The rainwater collected can be used for domestic purposes including:

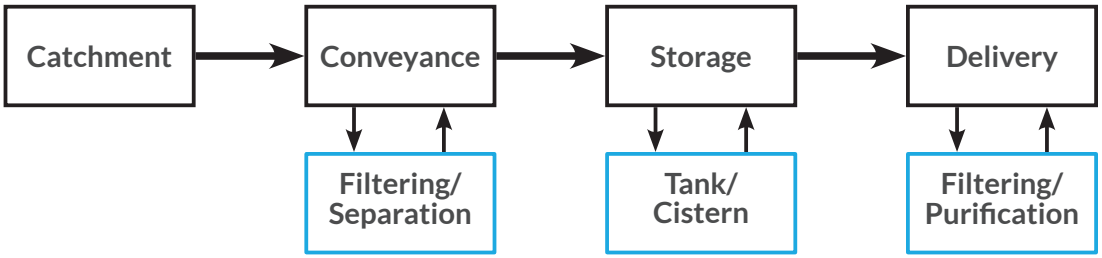
- Drinking
- Washing
- Cooking
- Bathing
- Farming
  - o Livestock watering
  - o Small scale irrigation

Rain Water Harvesting (RWH) has three clear impacts:

- Preserves water during times when it is plentiful for use when it is scarce, or when normal supply is interrupted;
- Provides a more convenient source of water closer to a community or individual households. This is especially important to women and children who spend several hours each day walking many miles to fetch water.
    - o Children who miss several hours of school or even stop attending school can because of fetching water, can now spend more time in school.
    - o Women can spend more time on family childcare and helping with farming tasks.
- Provides higher quality water than is available from unimproved sources.
    - o Water may still not meet drinking water standards without treatment and without proper maintenance and sanitization of the RWH system.

Planning the Installation

Components of a Rooftop RWH System



- **Rooftop Catchment** area
  - o Usually of galvanized iron-sheet
- **Conveyance System**
  - o Gutters, pipes and connectors
    - ° PVC or galvanized iron
  - o First flush system
  - o Inlet filter
- **Storage**:
  - o Tank
    - ° Above ground
      - – Plastic (polyethylene)
      - – Tank foundation for plastic tanks
      - – Overflow
    - ° Underground (Cistern)
      - – Cement lined
- **Delivery**
  - o Distribution outlet valve
  - o Purification by recipient (Filter, boiling, chlorination, SODIS)

Site Assessment and Advanced Planning

There are several factors to identify when evaluating a site for the installation of a RWH system. It is not a project that can easily be completed on a first visit short term mission trip. The concept is relatively simple, but many details need to be

considered such as availability of materials and labor. Once suppliers are identified, future installations can be done and once the local people are trained, they will be able to carry out installations themselves.

*Use the **Site Evaluation Form** in the Appendix to gather the information that you will need to begin your planning.*

- **Ownership**
  - o Determination of long term responsibility for the RWH system.
    - ° Is the church and/or the government willing to accept responsibility for the system.
    - ° One of the first tasks of a ministry team will be to connect with the church where the RWH system is to be installed.
      - – The church will select a church member to organize and lead a **Water Committee** composed of church members.
      - – As Chairman of the Water Committee he will be responsible for:
        - o Assisting the Ministry Team as they plan and help install the RWH system.
        - o Securing volunteers and other skilled labor to help install the system.
        - o Managing the operation of the system after it is completed.
- **Climate and Hydrology**
    - ° What is the annual rainfall
      - – Wet months vs. dry months
  - o Are there other sources of water
- **What will the water be used for?**
  - o Domestic
  - o Farming
- **Cost**
  - o Type and capacity of tank (affordability). The tank will be 70 to 80% of the total cost of the project.
  - o Can the church afford it or do they need financial assistance
- **Available resources**
  - o Material
    - ° Gutters, pipes and fittings
    - ° Plastic Tanks
    - ° Concrete and rock for tank foundation

- Lumber for fascia, and mounting rafters
- Fasteners (screws, nails, galvanized metal strapping, etc.)

o Skilled labor – Does the local population have the necessary skilled labor (e.g. Masons, carpenters)?

o Are hand and power tools available?

o Delivery of large tanks and other materials need adequate road access for truck delivery.

o Is there safe and secure storage for construction materials and tools and equipment?

- **Safety Considerations**

o When looking at a potential site to install a RWH system, construction safety should be a top priority.

o Installation of gutters will require the use of ladders or scaffolding. The height of the building and the stability of the ground will dictate the use of ladders or scaffolding.

o Ladders should be of good quality.

- A ladder maintenance and inspection program should be established and workers trained in the safe use of ladders.

o Workers should be trained in the proper hand and power tool safety

- **Layout of RWH Installation**

o Make a line drawing from an aerial point of view that shows the outline of the building, the dimensions of the roof area and the location of the tank.

- Use a compass or circle template and indicate on your drawing the side of the building where the work will happen.
- Position the tank on the line drawing at least 5ft (1.5m) from the building to allow adequate access for future maintenance.

° Also position the tank about 10ft (3m) from the gutter outlet to allow for the installation of a first flush system.

° Take as many pictures and measurements as possible of the roof structure to determine where and how the gutter will be attached.

° Indicate what the mounting surface may be, i.e. metal beams, logs or fascia board, etc.

Design and Selection of Material

Tank Selection and Sizing

Tank size selection is dependent Water yields are calculated by taking the square footage of the roof, which is length of eave times the distance from the roof edge to the peak of the roof, and multiplying that by the inches of rainfall annually. **One thousand square feet of roof yield 624 gallons per one inch of rain.** The low end average for where we were working is 40" inches per year, so a two thousand square foot roof with 40 inches of rain per year would **yield 49,920 gallons per year on a average rainfall year**, so the yields usually will overwhelm the storage capacity and plans for the overflow discharge should be taken into consideration when deciding the location of the tank foundation. The managers of the locations should be encouraged to use as much water as possible from the tanks during the rainy season whether it was used for crop irrigation or storage in containers, and be educated on the yield per day rationed out over their expected dry season. For example, assuming a 5000 liter tank was full at the start of a three month dry season the amount of water available per day would be about fourteen gallons. The formula is 1,320.86 gallons divided by 90 to equal 14.67 gallons per day for 90 days. Or viewed another way; 60 people per day could have one quart of drinking water per day for 90 days during the dry season.

Ordering Parts and Material

The following is a basic list of material and equipment needed for an installation. You will need to determine what is available in country and what needs to be brought by the ministry team.

- Tank (size to be determined)
- Rain gutters, pipe and fittings to install gutters
- Foundation materials
  - Portland cement
  - Sand & stone
- Lumber for support headers and fascia
- Ball valves
- Fasteners, (screws, nails, galvanized hanging strap)
- Tools
  - Hand tools
  - Power tools (drills, saws)
- Ladders

Construction

Tank Foundation

After the site has been selected and the materials ordered the first step in construction is to plan and build the foundation for the tank. The construction of a concrete and stone foundation for a tank must be finished and allowed to cure for about one week before the tank can be put into operation and receive rainwater. Placing the tank on a raised foundation allows the ever-present 5 gallon plastic jerrycan or other container to be easily filled by gravity.

The Rwandans use cut rock as filler in the foundation and then the spaces are filled with concrete. A round foundation instead of a square foundation saves concrete costs.

A valve lockbox with an interior valve was added to prevent loss of water if the outer valve was stolen.

Building and Roof Preparations

The quality of construction may require you to trim the beams or modify the building to make it possible to attach the gutters properly. Don't expect to see nicely cut and sized rafter beams. You will encounter branches or small logs instead of evenly cut lumber.

- **Safety Tips**

  o Try to get the locals to do as much of the work as possible so they get experience working with tools and so they feel a greater sense of ownership over what will be their rainwater system.

  o Beware that they will likely not be wearing safety glasses and may have never handled a power tool before. You must always be on guard to prevent an injury and have first aid items available.

  o Always have extra volunteers on hand to help secure a ladder while somebody is on a ladder. The ladders we used had been modified to allow access to a large overhanging roof eave and because of that they were somewhat unstable and wanted to flip.

  o Designate one person to gather up all sharp metal scraps as the local children will collect anything left on the ground.

Creating a straight line for mounting the gutter

You will need to install a straight horizontal fascia board to attach the gutters to where none exists. Use one piece of wood to create the mounting surface and a second piece of wood to create a vertical surface, and then a horizontal fascia board. Most buildings have rafters set far apart. In many cases there is ten to fifteen feet between each beam end and this forces a continuous fascia to be installed for the gutter to have proper support.

- The first step is to mount the "distance beams" on each end of the roof.

- The first boards are called the "distance" beams as they create the distance of the gutter from the wall and determine where the roof edge is in the context of where the gutter sits. These have the facing edge cut vertically and the back edge cut to the angle of the wall with the goal of having the new wood look like it is part of the structure of the building.

- Then a string is placed between the end beams and pulled very tight so that the remaining distance beams have a straight line to butt up to.

- After the distance beams are installed, the next step is to install the "vertical runners". The vertical runners may be 2" x 4" x 10" to allow for the recommended 1/8" per foot minimum slope for the gutters.

This picture shows the distance beam and vertical runner attached and ready for the fascia.

- The next step is to attach the fascia board to the vertical runner board which is fastened to the distance beam.
    - o Beware the heavy weight of the fascia wood . Cut a notch into a length of drain pipe or long piece of wood and have someone support the weight of the fascia from the ground.

o As these initial alignment steps are critical it is suggested to have a mechanically inclined person on your team perform this step. The distance beams must be both soundly attached and vertically aligned.

o Each length of fascia had a “joiner” board pre-placed on the backside so that the following section could be quickly lined up and the mounting facilitated. It is shown below as the small block directly above and to the left of the tank, on the back-side of the fascia.

o Locals can be utilized to add re-enforcing screws after the initial alignment is finished.

o Plumbers tape or wire is used as re-enforcing strap to add extra strength to the fascia board.

o Often the wood will be wet and crooked, and very heavy. If the wood is hard you may need to pre-drill the wood before driving a nail or screw into it.

Hanging the Gutters

 Stop end outlet	 Gutter support bracket	 Gutter down pipe clips	 PVC gutter
 Gutter fittings Clamp	 Gutter Joint Bracket (Connector)	 Gutter Short Stop End	 Gutter Running Outlet

These are typical PVC rain gutters and fittings.

Brackets

- The next step is the attachment of the gutter brackets to the fascia board.
  - o The tank location will determine where the gutter outlet will inserted into the gutter.
  - o The slope of the gutter should be at least 1/8" to 1/4" per foot.
- Use a spirit level and a chalk line to mark the slope line on the fascia board.
- Install the brackets referenced to the slope line.
- Typically the support brackets have three screws. The spacing formula is lineal length of gutters multiplied by twelve to produce inches, divided by however many brackets you have (but minus two because you don't count the first and last in this calculation) equals the spacing between brackets for any given length.
  - o Refer to the gutter manufacturer's guidelines for minimum spacing. Usually no more than 24".
- When you have installed all of the brackets, double check the slope of the brackets.

Gutters

- Each length of gutter is placed in turn into the gutter brackets with the end piece having a cap, then a connector is used to join sections of gutters leading to the gutter outlet which is usually near the center of the building.

- If a gutter seam lands on a bracket, remove the gutter bracket and position it away from the seam
- No glue should be applied until all the gutter is hung and the initial water test is complete as once it is glued there are no more adjustments possible.
- To test the gutters we used a 5 gallon bucket and manually dumped it in near an end cap. If properly installed the water will flow quickly out and in a few minutes the seams can be sealed. A water test is not mandatory but serves well to inspire confidence and demonstrates how the gutters work. Make sure all edges of the teeth of the gutter couplers are glued

Rainwater Tank Connection

- Once all the gutter sections are placed in the brackets, it is time to prepare the rain collection tank.
  - o Place the tank on the foundation pad and assemble (dry-fit only) the sections of drain pipe leading from the gutter outlet to the top of the tank.
  - o After the pipe, or downspout from the gutter is assembled (without glue) and routed to the tank, marks are made where in inlet, overflow and bulkhead fittings are to be installed.
- Use the correct size hole saw to drill the three holes in the tank.
- Once the holes are drilled, place the tank on it's side and have a volunteer climb inside to install the bulkhead fittings and gaskets. Clean the inside of the tank of any plastic cutting debris left from drilling the holes.
- Place the tank back on the foundation pad and double check that the drain pipes fit into the tank.

First Flush Connection

Dust, bird and animal droppings, leaves and other debris will accumulate on a roof in between rain storms. The next rain will wash all these contaminants off the roof and into the rain gutter. This contaminated water should be diverted away from the collection tank using a First Flush System.

- A simple but effective system consists of a vertical pipe installed into a tee in the horizontal pipe between the gutter outlet and the tank inlet.
- The bottom of the vertical pipe has a removable plug or valve. The first flush from a rain storm is collected in this down pipe, keeping the contaminated water from entering the tank,
- Before the next rain the plug or valve is opened to allow the system to empty and preparing it for the next rain storm.

Note the support rod for the horizontal pipe

Rainwater Harvesting Site Evaluation

Location:_____ Denomination:_____

Contact:_____ People Served:_____

ROOF TYPE (Circle one) Metal Clay Tile Wood/Thatch

STRUCTURE Rural Wood Beams Metal Studs Cut Lumber

WATER COMMITTEE OR COMMUNITY CONTRIBUTION:_____

_____

Additional Details (indicate Y or N)

Electrical Power Available____ Secure Storage_____

Provisions Local (food/water) _____

Special Tools or Ladder Requirements_____

_____

MATERIALS LIST: 2”x6” (distance beams)___ 2”x4” (vertical runners)_____

1”x6” (Fascia)_____

Gutter_____ Brackets_____ Couplers_____ Pipe__ Elbows_____

Strainers_____ Endcaps_____

Outlets_____ Bulkhead Fittings____ Ball Valves___ Pipe Clamps__

Hose Barbs___ Other:_____

PROCESS_____