

# Island Survival

## CONTENT AREAS

### ▪ Math

estimating, adding

### ▪ Science

natural resources,  
adaptations, solid waste

### ▪ Health

nutrition

## OBJECTIVES

*Students will...*

- develop a working definition of source reduction by employing their own source reduction strategies
- recognize source reduction as an effective means of controlling solid waste
- make decisions based on wants versus needs

## MATERIALS

### For groups of three students

- Island Survival Sheet and Item List
- calculator (optional)

## TIME

Three periods  
45 minutes each

**S**ource reduction can be defined as a *collection of activities and actions that lead to a reduction in the quantity and/or toxicity of solid waste*. Simply said, it is a process of using less material and energy. In this simulation, students will make lifestyle choices while considering the effects of these choices on the amount of waste generated. By making careful choices, students will be practicing source reduction strategies that can carry over into real life.

This activity works well as an introduction to source reduction. Through participation in the simulation, students will develop their own working definition of source reduction before actually being introduced to the concept.



## PROCEDURE

1. Have students form groups of three. In case not all groups have three, have students create an “imaginary” partner.

*Read the following scenario to the class:*

You will be traveling to the island of Etsawon (backward spelling of no waste). You will spend two weeks on this uninhabited island with two friends. The island is mostly wooded with a small sandy beach on the south side. There is no food, but fresh water and wood are plentiful. The temperature at this time of year is mild, but occasionally you may experience some cool nights. Rain is always a possibility. There are no man-made shelters, except for an out-house. There are no disposal options, such as landfills, recycling plants or incinerators for your waste. You must bring back all your waste.

You will be taken to the island by boat. Your group will be allowed to bring a maximum of 90 lbs. of supplies. A smaller boat will take you home on the return trip. Your group will be able to return with only 45 pounds of supplies and waste materials. You must leave the island as you found it. Do not leave any of your supplies, belongings or trash behind—and not buried in a hole, either.

Your group must work together to prioritize your personal needs, desires, essentials, etc. Together, compose a list of what each individual will bring for himself or herself and the group. Remember—you must stay within the group weight limit. Good luck!

*Teacher’s Note: Remind students that they need to plan for 42 breakfasts, lunches and dinners. You may need to check lists to make sure they bring enough food.*

2. Students brainstorm a list of items they might need for the trip and then prioritize the list. Students must have items in each of the following categories:

- Food (minimum three meals per day)
- Shelter
- Clothing (minimum five pounds per person)
- Health
- Recreation and entertainment
- Grooming

In addition, each group must have a first aid kit and a portable light source.

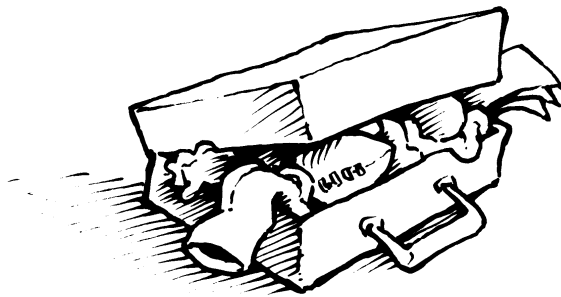
3. Distribute one copy of the Island Survival Sheet and the Item List to each group. The latter is a list of items students may take to the island. Each item is followed by two measurements: the weight of the item and the weight of waste it generates. Each group is responsible for their calculations. They must be prepared to present their lists and calculations, and to defend their choices.
4. After students make their decisions, have each group answer the following questions together. Then, as a class, discuss how the various groups answered these questions.

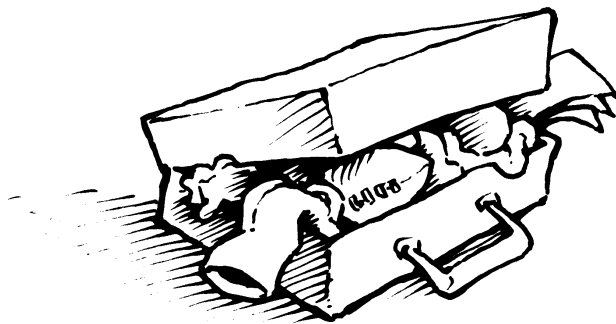
### Questions

After the presentations, lead students in a discussion that addresses the following:

- a. Discuss how your decisions were made. (As a group, as individuals, etc.)
- b. Relate these decisions to those made in real life (with family and friends).

- c. Why don't we make the same choices in our everyday lives? (We don't seem to have the same restrictions – or do we?)
- d. How did you decide what type of product is best in terms of the least amount of waste generated? (Weight? Number of uses? Types of uses?)
- e. Is it always better to use less? Are there times when it makes sense to use more? (Does using less always translate to more efficiency?)
- f. What about products shared by the group as opposed to individual products?
- g. How frequently did your group employ sharing strategies?
- h. How might group strategies apply to real life?
- i. What individual sacrifices had to be made for the good of the group?
- j. What was your best weight-saving strategy?
- k. Did any items have a dual function?
5. Introduce source reduction and ask the class to attempt to make a working definition. Define source reduction for the class :
- Source reduction is the collection of activities and actions that lead to a reduction in the quantity and/or toxicity of solid waste. Simply said, it is a process of using less material.
6. Discuss how source reduction strategies were used in the simulation in place of other disposal options. Draw inferences from what students did on the island to real life applications. Talk about source reduction strategies that could be used in real life such as bulk purchasing for a group, sharing magazine subscriptions, reusing containers, buying concentrates or larger sizes, using rechargeable batteries, using both sides of the paper, pooling cars, etc. Discuss the importance of source reduction as the most effective way to cut down on waste.
7. Ask the class where the name Etsawon came from.
8. Have the class think about the island as a metaphor for the Earth. What does this say about the way we need to live our everyday lives? (This is a great essay topic!)





#### EXTENSIONS

1. Contact NASA and obtain information on how source reduction is used on the Space Shuttle. How are necessary items packaged to minimize waste? What types of choices must be made for the benefit of the crew as opposed to the individual? For NASA information, please contact:

*NASA  
Educational Affairs Division  
Washington, DC 20546*

For information on NASA's Spacelink, an electronic information service that allows individuals to leave messages for NASA scientists, contact:

*Spacelink Administrator  
NASA Marshall Space Flight Center  
Mail Code CA20  
MSFC, AL 35812*

2. National parks and some state parks have a carry in/carry out policy. How does this affect what you pack for a picnic or for a camping trip?
3. Do you have food cooperatives or bulk buying programs in your community? How does this method of consumer buying cut down on waste?

# Island Survival Sheet

You will be traveling to the island of Etsawon. You will spend two weeks on this uninhabited island with two other friends. The island is mostly wooded with a small sandy beach on the south side. There is no food, but fresh water and wood are plentiful. The temperature at this time of year is mild, but occasionally you may experience some cool nights. Rain is always a possibility. There are no manmade shelters, except for an out-house. There are no disposal options such as landfills, recycling plants or incinerators for your waste. You must bring back all your waste.

You will be taken to the island by boat. Your group will be allowed to bring a maximum of 90 lbs of supplies. A smaller boat will take you home on the return trip. Your group will be able to return with only 45 pounds of supplies and waste materials. You must leave the island as you found it. Do not leave any of your supplies, belongings or trash behind.

Your group must work together to prioritize your personal needs, desires, essentials, etc. Each person must bring along at least five

pounds of clothing. You must also have enough food to ensure three meals a day for two weeks (14 breakfasts, 14 lunches and 14 dinners for each person, or 42 breakfasts, 42 lunches and 42 dinners for your group). You must also bring one first aid manual and kit and a portable light source for the group.

Together, compose a list of what each individual will bring for himself or herself and the group. Remember – you must stay within the group weight limit. Good luck!

## Item List

Note: Some of the items listed are followed by two weights. The first is the total weight of container and contents. The second is the empty container.

### FOOD

peanut butter in a glass jar (28.2 oz., 10.2 oz.)  
peanut butter in a plastic jar (19.7 oz., 1.7 oz.)  
bottled juice – 1 gallon (7 lb. 8 oz.)  
8 oz juice boxes – (8 oz., .6 oz.)  
popcorn, unpopped (16.4 oz., .4 oz.)  
popcorn, popped (16 oz., .4 oz.)  
soft drinks in 16 oz cans (18 oz., 2 oz.)  
powdered drink concentrate (16 oz., 3 oz.), makes 64 oz.



5 lbs fresh oranges (4 lbs., 1 lb.)  
5 lbs fresh apples (4.5 lbs., 8 oz.)  
dried apples (8 oz., .4 oz.)  
5 lbs fresh grapes (4.8 lbs., .3 oz.)  
raisins (8 oz., 1 oz.)  
10 lbs fresh potatoes (10 lbs., 4 oz.)  
instant potatoes  
canned vegetables (16 oz., 3 oz.)  
canned fruit (16 oz., 3 oz.)  
freeze dried vegetables (8 oz., .4 oz.)  
bread (16 oz., .5 oz.)  
cereal (16 oz., 3 oz.)  
crackers (10.5 oz., 1.5 oz.)  
Ramen noodles (3 oz., .5 oz.)  
individual servings of cereal (3 oz., .5 oz.)  
dried milk (16 oz., 2 oz.)  
fresh milk (3 lbs., 3 oz.)  
dried soup mix (14 oz., 1 oz.)  
canned soup (10.5 oz., 3 oz.)  
macaroni and cheese in a box (10 oz., 1.5 oz.)  
package of macaroni (16 oz., 1 oz.)  
cheese (1 lb., .5 oz.)  
canned spaghetti (16 oz., 3 oz.)  
dried spaghetti (16 oz., .5 oz.)  
spaghetti sauce in a jar (1 lb., 5 oz.)  
dozen eggs (1 lb.)

canned tuna (8 oz., 2 oz.)  
squeeze bottle of jelly (12 oz., 1 oz.)  
jar of jelly (12 oz., 7 oz.)  
pretzels (16 oz., .3 oz.)  
baked beans in a can (16 oz., 2 oz.)  
frankfurters (1 lb., 1 oz.)  
candy in a bag (8 oz., .5 oz.)  
candy in a box (16 oz., 3 oz.)  
gum (1 oz., .5 oz.)  
lollipops (16 oz., .5 oz.)

#### CLOTHING

underwear (3 oz.)  
T-shirts (5 oz.)  
flannel shirts (10 oz.)  
sweaters (14 oz.)  
sweatshirt (1 lb.)  
jeans (1 lb.)  
shorts (10 oz.)  
socks (3 oz.)  
jacket (2 lbs.)  
raincoat (3 lbs.)  
sneakers (2 lbs.)  
hiking boots (3 lbs.)  
rain boots (2 lbs.)  
swimsuit (10 oz.)  
hat (6 oz.)

#### SHELTER

tent (3 lbs.) - sleeps 3  
sleeping bag (2 lbs.)

mosquito netting (8 oz.)  
blanket (2 lbs.)  
pillow (12 oz.)  
plastic tarp (1.5 lbs.)  
inflatable mattress (2 lbs.)  
rope (6 oz.)

#### HEALTH

first aid kit (10 oz.)  
first aid manual (4 oz.)  
diarrhea medication (8 oz.)  
vitamins (4 oz.)

#### GROOMING

toilet paper (4 oz./roll)  
brush (5 oz.)  
sunscreen (10 oz.)  
shampoo (tube concentrate) (8 oz.)  
shampoo- plastic bottle (14 oz.)  
bar soap (4 oz.)  
liquid soap (6 oz.)  
pump toothpaste (5 oz.)  
can of deodorant (7 oz.)  
roll-on deodorant (3 oz.)  
razor (1 oz.)

#### RECREATION / ENTERTAINMENT

cards (4 oz.)  
football (10 oz.)  
Frisbee (3 oz.)  
cassette tapes (2 oz.)  
CDs (2 oz.)  
boom box (4 lbs.- 4 batteries)  
hardback books (14 oz.)

paperbacks (5 oz.)  
Gameboy (6 oz.)  
batteries (4 oz. each)

#### OTHER

paper towels (6 oz./roll)  
dishes (3 oz. each)  
pans (1.5 lbs.)  
small gas stove (3 lbs.)  
matches (1 oz.)  
propane gas cartridge (1 lb., 5 oz.)  
charcoal (4 lbs., burnable bag)  
flashlight (8 oz. + 2 batteries)  
metal forks and spoons (2 oz each)  
compass (4 oz.)  
candles (2 oz.)  
knife (4 oz.)  
fishing pole (1 lb.)  
fishing tackle (6 oz.)  
bucket (1 lb.)  
plastic garbage bags (1 oz.)  
shovels (4 lbs.)  
folding cot (8 lbs.)  
flares (3 oz. each)  
cooler (2 lbs.)  
short-wave radio (2 lbs.)  
camera (1 lb.)  
film (4 oz.)  
lighter (3 oz.)  
flint (1 oz.)  
island map (2 oz.)  
field guide (3 oz.)  
notebook (10 oz.)  
pen (2 oz.)

