Plant a Tree and Good Things Happen . . .
Teacher's Guide for Coloring Book Lessons

To be used with Trees That Feed Foundation's schoolbook
Suggested learnings by topic, page number

*To the FOOD We Eat p. 4-9

Information

- If photosynthesis stopped, so would all life on earth. All animals, including people, either eat plants or eat other animals that eat plants.
- Trees give us access to fresh healthy food.
- Foods that come from trees:

ackee	cloves	olives
allspice	cocoa	oranges
almonds	coconuts	pawpaw
apples	coffee	peaches
avocado	dates	pears
bananas	gingko nuts	persimmon
bay leaves	guava	pine nuts
beech nuts	jackfruit	pistachios
Brazil nuts	lemon	plums
breadfruit	limes	pomegranate
cashews	mango	soursop
cherries	maple syrup	starfruit
chestnuts	moringa	tamarind
cinnamon	naseberries	walnuts

Vocabulary

agroforest, fruit, photosynthesis, process, product

Questions and Activities

- Brainstorm things we eat that grow on trees.
- Can you identify foods by their smell and/or taste?
- Categorize these foods. (ie: Which are fruits? Which are nuts? Which do we eat raw?)

- Alphabetize your list.
- Which of these foods do you like the best? Why?

*To the AIR We Breathe p. 10-15

Information

- Trees are lungs of the earth.
- One large tree can supply a day's oxygen for 4 people!
- Photosynthesis: A tree takes in water through its roots. Carbon dioxide gas enters the leaves through tiny holes on the undersides of the leaves. Energy is absorbed from the sun on the top sides of the leaves. Glucose and oxygen are made in the leaves by photosynthesis. Glucose flows to all parts of the tree – to help the tree grow, repair worn-out parts, and supply energy. Oxygen gas escapes back into the air through holes on the undersides of the leaves.
- People breathe in oxygen (O_2) and breathe out carbon dioxide (CO_2).
- ***O_2*** is the scientific symbol for oxygen and ***CO_2*** is the symbol for carbon dioxide.
- People and animals need to breathe in air with oxygen to live.
- Pollutants make the air dirty and unhealthy to breathe.

Vocabulary

atmosphere, carbon dioxide, oxygen, leaf, mineral, photosynthesis, pollution, pollutant

Questions and Activities

- How do trees help us breathe?
- What does the expression, "Trees are the lungs of the earth" mean?
- Put your hand on your chest. Take a deep breath and then breathe out. Feel the air coming in and going out. How does air come into your body? How does it go out? How does your breathing change when you run or exercise?
- What organ of the body holds the air?
- What is bad or dirty air?
- If you breathed in bad or dirty air, what would happen to you?
- What causes bad air?
- What helps air to improve?
- What are some gases that make up the air in our atmosphere?

*To the ENVIRONMENT p. 16-21

Information

- Trees are nature's umbrella.
- Trees protect you from the rain and the sun.
- A tree can lower the temperature on the ground on a hot day. The tree blocks the sun's rays, and at the same time it breathes out a mixture of water and oxygen through its leaves. This takes heat away from the air.

- Trees keep our landscape clean and green.
- Leaves from trees act as filters to strain out the mud from water.
- If rivers are clean, the sea will stay clean.
- If the rivers are clean, we will have healthy reefs and more fish.
- Pollution is the contamination of water, soil, or air by harmful substances.
- Evaporation: process by which the sun heats water, changing it from liquid to vapor (gas). Water evaporates from the Earth and forms clouds.
- Transpiration: process by which moisture is carried through plants and then evaporates into the air through the plant's leaves.
- Precipitation: process by which water comes back to earth as rain, sleet, snow, or hail.
- Tree cover helps hold soil together, prevent flooding, prevent mudslides, protect crops.
- Growing roots push into the soil and anchor trees so they don't fall over. The spreading roots help loosen soil and allow water to penetrate the ground. They help stop soil from washing away in heavy rains or during floods. Roots of the tree underground can be as big as the tree and its branches above the ground!
- Tree roots help conserve soil by: 1. reducing soil erosion, 2. increasing organic matter in the soil, 3. improving soil structure, 4. helping nutrient cycling.
- The purpose of using trees for soil conservation is to assist in retaining fertile soil by regulating the flows of wind and water.
- Compost is organic material like leaves and food waste that has decomposed and is recycled as fertilizer to enrich the soil. Compost is useful for erosion control, land and stream reclamation, and as landfill cover in ecosystems. It is rich in nutrients, a soil conditioner, a fertilizer, and a natural pesticide for soil.
- Trees help to hold river and stream banks together.
- Tree roots add nutrients to soil and fertilize surrounding plants.
- Tree roots provide shelter and protection for fish and sea life.

Vocabulary

absorb, compost, deforestation, environment, erosion, glucose, nutrient, pollution, root

Questions and Activities

- Would you rather be in the hot sun for an hour or be in the cool shade?
- How much hotter is it in the full sun than in the shade?
- How do you measure the temperature?
- Why don't you stand under a tree when there is lightning?
- What things can make our water dirty?

- Activity 1: Take 2 containers and make a few small holes in the bottoms. Fill one with dirt. Fill one with crushed leaves and dirt on top. Slowly pour water over both and see which one has cleaner water floating out the bottom. How is this like what trees do for the water and air? How do trees benefit our rivers, ponds, and seas?
- Activity 2: You need a celery stalk with leaves at the top and a glass of water colored with food coloring. Cut 1.5 cm from the end of the celery stalk. Put the celery in the

water and let it sit for one day. Observe the colored water in the xylem tubes going up the stalks. Cut across the stalk for a better view. This demonstrates how water and minerals travel up the trunk of a tree to the branches and leaves.

*For the ANIMALS p. 22-25

Information

- Animals need trees for food, homes, and shelter.
- Birds, bats, bees, and all the animals that fly use trees for food and protective shelter. By planting and protecting trees, we are saving all the other plants and animals they shelter.
- Trees supply animals with the oxygen they need to live.
- Bees take nectar from the flowers and make it into honey.
- As bees and other pollinators move from flower to flower they pollinate the plants by transferring the pollen from one plant to another.
- Bats, beetles, butterflies, flies, moths, and wasps (as well as the bees and birds) are pollinators.
- Trees need pollinators so that other trees will grow to replace the ones that die.
- Birds and many other animals take seeds from the fruit they eat and spread them to other areas. Some of these seeds will grow into new trees.
- Birds and bats eat insects that are harmful to trees.
- Many animals eat fruit that fall down to the ground.
- Animals need shade from the hot sun.

Vocabulary

ecosystem, habitat, pollen, pollination

Questions and Activities

- Are all flying animals birds?
- Do all animals with wings fly?
- How do trees help animals in the air, on the ground and in the water?
- How do animals help trees? How do trees help animals?
- Activity: On your way home from school do an observation study. See how many animals are resting in the shade and how many are in the hot sun. Can you see any animals that live in a tree?

*For People and the JOBS They Do p. 26-33

Information

- How to plant a fruit tree: 1. Dig a hole. 2. Remove seedling from container, being careful of the roots. 3. Put the seedling in the hole and fill around the roots with the dirt you dug out for the hole. 4. Make a teepee of sticks around the tree 3-4 feet tall for

protection. (Can plant some red peas or kidney beans at the base of the teepee so the vines will grow up on the sticks to provide some shade for the baby tree.)
5. Water one gallon every 2 days. 6. Keep goats away!

- Jobs are created to plant, maintain and harvest trees.
- Jobs are created to transport, process and sell the fruits, nuts and other eatables that come from trees.
- Jobs are created from making and selling other products like fruit jams, juices, and flour.
- Jobs are created from preparing and serving foods - being a baker or a chef.

Vocabulary

agroforest, process, product, vendor

Questions and Activities

- What kinds of jobs depend on trees?
- Name juices made of fruit that are sold in stores.
- Name a cake that is made from a fruit.
- Brainstorm how many things can be made from coconuts.

*To our World p. 34-37

Questions and Activities

- Why should you care about trees?
- Why should we make it a priority to safeguard our forests and plant more trees?
- What kind of world do you want to live in?

EXTENSION ACTIVITY IDEAS

Students create posters to show the importance of trees in our world.

Students create personal collages.

Make a class cookbook.

Students collect leaves and identify the trees by their leaves.

Research trees that grow in other countries/climates.

Organize a composting project.

Brainstorm ways to encourage tree planting in your neighborhood.

Plant a tree!

Organize an Arbor Day presentation or activity for your school.

This coloring book is a gift to those who receive it. We hope that you will keep it for a life time of inspiration. Take time to color the pictures. Don't rush. Let the information take root and mature. Like a tree that grows slowly and gets stronger over time, the book will grow in meaning. The ideas in this book will take time to grow into action. Plant a tree and good things will happen! Plant an idea and good people will make a difference and change the world.

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