



# Food and You



[www.earthday.net](http://www.earthday.net)

[www.rprogress.org](http://www.rprogress.org)

**Grade Level:** Elementary (K-2 and 3-5)

**Subject Correlation:** Math

**Objective:** To help students understand how the food they eat can create waste and how humans (in this case, the students) generate waste.

1. Students will be able to describe the different components and environmental resources that go into making their favorite foods.
2. Students will be able to compare the resources going into different foods and analyze which foods are more sustainable, or environmentally friendly.

**Future Use:** Students will make an effort to eat three meals a week that use fewer resources.

**Length:** 30-40 minutes (15-25 minutes for K-2)

**Homework Assignment:** The next school day try to bring a lunch with less packaging that you have to throw away (i.e. use Tupperware, bring whole fruit, less packaging, etc.)

## Kindergarten – 2<sup>nd</sup> Grade Lesson

**Teacher Preparation:** Bring to class pictures of animals, oceans, and farmlands to visually demonstrate where food comes from (see the Picture File to find appropriate photos). Also bring in oranges, cups, hand juicer, a pile of orange candies, paper towels or napkins and an orange juice carton. Lastly, have two Earth cut outs and two footprint cut outs of different sizes (see Picture Folder).

### Outline (with times)

#### 5 minutes

- Introduction: Talk about the students' favorite foods. Make a list of these foods on a chart.

#### 5 minutes

- Discuss where these foods come from (have pictures available to demonstrate) and how these foods potentially are made. (For example: milk and dairy products come from cows, meat from animals, fruits from trees/vines, candy from sugars)

#### 10-15 minutes

- Have a table set up in the front of the room with oranges, cups, and a hand juicer. Also have a pile of orange candy set aside (where the students cannot see, they will be used later) with a jar of sugar and some plastic wrap (optional).

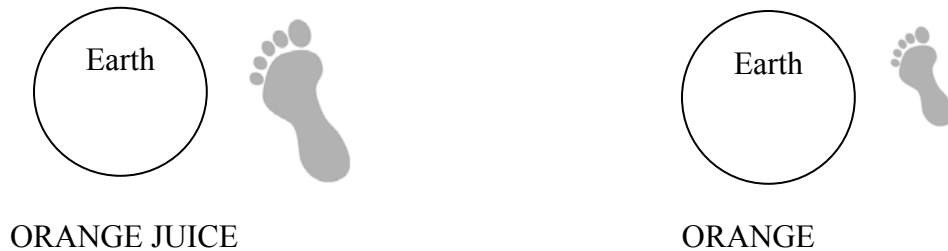
- Ask the students if they like oranges or orange juice better. Take a vote and write it on the board.

- Then ask the students which one they think takes longer to make, and again take a vote.
- Once you have tallied up the votes, pass out orange slices and paper towels or napkins to each student telling them not to eat them yet.
- When all students have a slice, tell them to squeeze it into their mouths even though it might be a bit messy. When the students have settled down again, tell them it is time to make some juice, and have them line up next to you at the front about 5 students at a time (perhaps by seating arrangements).
- Each student will get a turn to juice an orange to make some orange juice for the class (give them a half an orange to manually juice). If you feel that this will take too much time, choose only a few students to come forward and demonstrate.
- Once all students have had a turn, hold up the juice to show how much the class made, which will probably be very little. Then pour it into cups for the class to drink and each student will probably only get a sip (do this step only if you feel like you still have their attention).
- Ask the students if they think it took a lot of time and work to make the juice. Then ask if it took more work to make the juice than to eat the orange slice. Take a vote. Hopefully they will understand that it took a lot more work and time to make the orange juice.
- Ask if students make juice themselves when they want it. Most likely they will say that their parents buy it at the store. Hold up a carton of juice from the store. Ask if they think that it still takes a lot of work to make the juice that is in the carton. It takes a lot of work by people AND machines.
- Now that you have exaggerated the process, you can close here by saying that it is best to use each whole orange because it takes less work, and it is also good to drink fresh-squeezed orange juice like we made. But store-bought orange juice takes a lot of work to make, and you are left with garbage afterward (the carton).
- If the students ask about the orange rinds tell them they disappear in about 2-5 weeks. It takes the carton 5 years to disappear. (This would be a good place to introduce the concept of “biodegradable” – students can put something into a glass aquarium filled with dirt and note how it breaks down over time)
- Ask the students if they were to throw the rinds and cartons onto the playground instead of in the garbage, which would they rather have: something that disappears after a few weeks? or something that will be there until they are 10?
- If you still have their attention, you can hold up a piece of orange candy (or just a picture if you don't want to bring in candy) and ask them to vote if it is harder to make orange juice, or orange candy.

- Show the jar of sugar, the orange juice, plastic, and a picture of a factory. Make sure they know that it is more difficult to make the orange candy than the orange juice.

5 minutes

- To piece everything together, have two Earth cut outs (labeled with orange and store-bought orange juice or orange and orange candy, depending if you talked about candy or not), and two Footprint cut outs, one large and one small (see Picture File). Tell them that the big Footprint will cover the food that took the most work and made the most garbage, and the small Footprint will cover the food that took the least amount of work. Have the students match the correct Footprints to the foods (big Footprint with orange juice, small with orange or big Footprint with orange candy, and small with orange juice).



5 minutes

- In closing, ask the students how they think they can make the footprint smaller with what they eat (maybe make a list of good foods to bring in lunches).

**Art Project:**

- Have the students look in their lunches to see if they have anything that may negatively impact the environment. Make a class collage out of the clean wrappers in their lunches, and ask the students if they think the collage could be even smaller the next day.
- Students may prepare two collages, one labeled harmless, biodegradable materials and the other with harmful non biodegradable materials, each demonstrating the appropriate materials from student's lunch. Display the two collages in a place easily visible to the rest of the school. Together as a class, students can write an explanation of why using the biodegradable materials is better for the environment. This activity may best be suited for 2nd grade and up.

**\*Send a notice home to parents explaining what the class is trying to accomplish, and some suggestions on how to reduce garbage in lunches.**

### 3<sup>rd</sup> Grade – 5<sup>th</sup> Grade

**Teacher Preparation:** Bring to class pictures of animals, oceans, and farmlands to visually demonstrate where food comes from. The Exercise will also require three different sized Footprint cut outs for each group. (See Picture File for photos.)

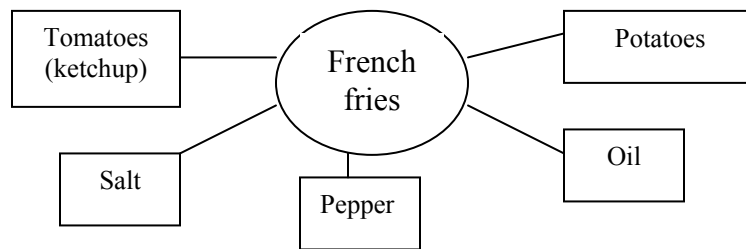
#### Outline (with times)

10 – 15 minutes

**Introduction:** Talk about the students’ favorite foods. Make a list of these foods on a chart.

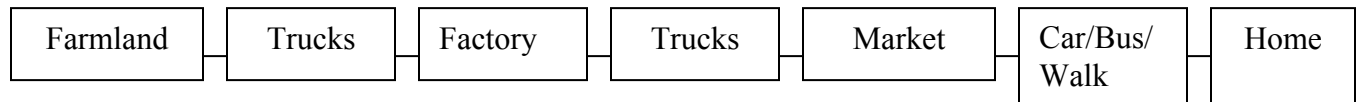
As a class, brainstorm all the components going into one food.

#### **FIGURE A: Resources**



Discuss where these foods come from (have pictures available from the Picture File to show the class) and what is required to produce them (i.e.: productive farm land, farmers, fertilizer, farm machines, trucks, gasoline, market area, restaurant, frozen food section of supermarket.... Younger students do not have to create an exhaustive list, so long as they understand that more resources go into a meal than they take for granted).

#### **FIGURE B: Supply Chain**



10 minutes

Divide class into 2 or 3 groups. Assign each group two or three foods to do this exercise on their own (including diagrams like A and B above). Try to make sure each group of students has a food that requires many and few resources.

For example:

- orange/orange juice/ orange candy
  - milk/cheese/ packaged snacks
  - water/fresh squeezed juice/ soda
- (Use foods served in school cafeteria.)

5 minutes

Tape the students' work on a wall for all to see. To piece everything together, have three different sized Footprint cut outs for each group (see Picture File). Tell them that the big Footprint will cover items that make the largest impact on the Earth and the smallest Footprint will cover items that make the smallest impact on the Earth. Have the students match the correct Footprints to the foods.

5 minutes

In closing, ask the students how they think they can make their Footprint smaller with what they do and eat. Students could suggest eating a few meals a week that cause less waste.

**Art Project:**

-Have the students look in their lunches to see if they have anything that may negatively impact the environment. Make a class collage out of the clean wrappers in their lunches, and ask the students if they think the collage could be even smaller the next day.

-Students may prepare two collages from lunch wrappers, one labeled harmless, biodegradable materials and the other with harmful non-biodegradable materials, each demonstrating the appropriate waste from the student's lunch. Display the two collages in a place easily visible to the rest of the school. Together as a class, students can write an explanation of why using the biodegradable materials is better for the environment.

**\*Send a notice home to parents explaining what the class is trying to do, and some suggestions on how to reduce garbage in lunches.**