

# ONBOARD ACTIVITY DESCRIPTIONS

## The Science Barge

*\*All activities below include a 1hr tour of the Science Barge.*



### Plant & Animal Interactions

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#### ‣ Garden Friend or Foe

30+/- minute activity (Grades 1-8)

Not all bugs are bad! And sometimes the cutest animals are the most destructive to our food systems. Students will play for points in 3 teams, trying to create the best organic garden to help their “crops” grow by selecting commonly found organisms from the game board. Students will quickly learn the difference between garden beneficial (ladybug, dragonfly, worm); and garden pests (vine weevil, cabbage moth caterpillar, rabbit).

#### ‣ Pollination/Nutrients/Seeds

30+ minute activity (Grades 1-8)

Rotate around the barge in groups and learn about the three stages of plant and animal interactions: Pollination (honey Bees & more), Nutrient Cycling (worms), and Seed Dispersal (animals & humans). Students will learn about the life cycle of the honeybee and their importance to our environment and food system. They will learn about the movement of nutrients and its impact at our worm compost station. And lastly, students will understand the movement and adaptation of seeds in our living greenhouse.

### Botany & Planting

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#### ‣ Plant Part Chart/Seedling

30+ minute activity (Grades 1-8)

Students will discover the plant anatomy on their plate. For instance, they will match carrots and onion to the root of a plant diagram. They will assemble a model plant and learn the function of each plant part. Finally, they will learn about leaves and their role as the energy factory of a plant through photosynthesis.

Students will then get the opportunity to become urban farmers by growing their own seasonal hydroponic plant (lettuce, basil, etc.) that they will care for at home or at school. Students will also learn about what plants need to survive, both hydroponically and in nature. Plants are potted in coco coir, a coconut derived material.

### Food & Nutrition

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#### ‣ Food Footprint / Hungry Planet

30+ minute activity (Grades 5-12)

Students will examine 2 different households from around the planet, using a map to find and describe the geographic location of each country depicted, including land and water resources, fisheries, and climate. Then students will make assumptions about how geographic location and resources intersect with their regular diet. Afterwards, students will be encouraged to consider their impact on the environment by discussing how food moves. Students will complete an activity that uses a map and rulers to calculate how many miles food moves around this country before it gets to our plate. Students will incorporate these lessons into their considerations of future food choices.

## Living River & YOU

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### ‣ Estuary Organism Study “Eel Mop” (ONLY AVAILABLE MARCH-JUNE)

45+ minute activity (Grades 5-12)

Students will explore the macro-invertebrates that are a vital part of the food chain and estuarine ecosystem using an “eel mop.” We’ll discuss how glass eels (the juvenile stage of the American Eel) are environmental indicators of our rivers. We may catch a few in our mop, if not we’re certain to find some macroinvertebrates (mud crabs, isopods, jellies, shrimp, etc.)

### ‣ The Problem with Pollution

30 minute activity (Grades 5-12)

Many know that littering is bad, but how long can trash stay in our marine ecosystems and in what ways can they endanger wildlife? We’ll also explore the effects of chemical pollution on fish olfactory senses and migratory success, and how oil spills & wastewater dumping can compromise thermoregulation of birds and mammals and smother fish gills. Using flavor extracts, acetone, and our own senses, students will play the role of a fish trying to find there way.

## The Science Behind Climate Change

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### ‣ Climate Change & YOU

2 hour activity (Grades 9-12)

In this 2 hour program students will learn how scientists track climactic changes in our planet. Students will see how carbon moves from source to “sinks” on our planet by playing a carbon cycle game. We will then learn about how tracking paleo-climate and real-time data helps us confirm changes by looking at ice cores, tree cores, and weather data. We will wrap up by learning about our role and how we can use the Science Barge as an example of how humans can use innovation to be resilient in times of change.

## Green Design

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### ‣ Biomimicry / Green Design Challenge

1 hour activity (Grades 9-12)

Students will learn how some of the greatest technological and design dilemmas have been solved by mimicking nature’s solutions – from self-cleaning paints to passive-cooling buildings. This is called Biomimicry! Students will be asked to recall some of the acts biomimicry from the Barge and from everyday life. Afterwards, students will be asked to work in teams where they must creatively come up with ways to design buildings that align with particular sustainable design parameters by also including biomimicry designs.

## LUNCH

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### ‣ Green Lunch Challenge

30 minute (all ages, but must be booked with an activity)

Our interactive lunch program offers students the opportunity to eat their meals on the Science Barge while receiving an additional education program around the topics listed above. Students will understand the importance of composting, recycling, and rejecting unnecessary goods, by using examples of our nutrient cycling worms and compost tumbler. Students will be asked to sort and arrange their waste with the guidance of our Science Barge crew. **Please note that we do NOT provide lunch.**

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