

Welcome to Red Wiggler Community Farm's 2014 Field Trip and Educational Programs Guide!

Located in northern Montgomery County, Red Wiggler Community Farm creates fertile ground to nourish a healthy and inclusive community. Red Wiggler employs adults with developmental disabilities to grow and harvest Certified Organic vegetables, herbs, and flowers. The Farm is also dedicated to educational and service learning programs for area youth and adults. Finally, we carry out all our activities in cooperation with nature and through the lens of environmental stewardship.

We have tailored our field trip programs to fit the Montgomery County and DC Public Schools curricula, and have designed age-appropriate programs to engage grades K through 12. In this guide, you will find descriptions of our field trip programs followed by the curriculum indicators that each program addresses. We have included Montgomery County, District of Columbia, and Maryland Environmental Literacy Standards indicators. We also try to provide teachers with pre-trip and/or post-trip lesson plans, to prepare students for their trip and to reinforce what was learned.

Red Wiggler is a working farm; particularly in the spring, summer, and fall, students will be able to observe all the hard work that goes into planting, harvesting, and caring for our vegetables and land.

Field Trip Basic Information:

All field trips to Red Wiggler will include:

- A description of Red Wiggler's mission to create a healthy and inclusive community, employing adults with developmental disabilities to produce food for a broad range of Montgomery County residents.
- A hands-on harvest and tasting of an in-season herb or vegetable, along with a discussion of the benefits of eating food near where it was grown, and of eating fresh, healthy foods in general.
- A discussion of the life cycle of a plant—from seed to harvestable vegetable and back to seed—and the basic elements it needs to grow.

Our field trips are approximately 90 minutes in duration and take place both inside our Program Building and outside in our 12 acres of fields and parkland. This means students should be adequately dressed and prepared for the weather. We welcome school groups to stay for lunch from 12pm-1pm with our Growers, staff and volunteers.

We also welcome high school or college students; while field trips for these students can focus on a specific topic as outlined below, they generally take a more holistic look at a working farm, and may involve hands-on participation in farmwork.

How to Schedule a Trip:

If you have any questions or to schedule your field trip, please e-mail molly@redwiggler.org and let us know the date or date range you would like to visit, your class size, grade level, and desired field trip topic.

What to Bring:

- Refillable water bottle
- Closed-toe shoes, long pants, hat to shade from sun
- If staying for lunch, students should bring their own lunch.

Hours of Operation: Red Wiggler Community Farm is open 9am-2pm, Monday through Friday.

Fees: We suggest a \$125 fee for groups of up to 25.

Group Size: Due to facility size and staff capacity, we have found that groups of 25 or fewer are ideal for visits to the farm. We are happy to split larger groups into multiple visits.

Facilities: We offer a state-of-the-art indoor classroom, which includes a Promethean Board to engage students. We have two indoor restrooms on-site and indoor and outdoor seating and lunch areas.

Field Trip Descriptions:**Life Cycles**

All living things have the same basic needs: air, sunlight, food, and water. Students will investigate the life stages of a plant or animal. Next, we'll go on a hunt for plants to study, identifying which parts of the plant turn basic natural elements into energy, growth, and health; how the plant will reproduce; and how it grew from a seed.

MCPS Indicators: 3.1.B.2, 3.K.E.1, 3.K.C.1, 3.2.C.1, 3.4.E.1, 3.5.E.1

DCPS Indicators: K.5.2, 1.4, 2.6, 2.7, 3.6, 4.7

MELS Standard: 4 (Topic A)

Farmer's Almanac

How do the seasons' different weather patterns impact a farmer's agenda? Students will discuss the importance of weather observation and prediction for farmers, and will identify the impact of major weather events on farming activities. Outside, using their own senses as well as readings from our on-site digital weather station, students will observe and record the weather characteristics for that particular day and will predict any incoming weather events. Students will be encouraged and assisted in keeping their own Farmer's Almanac, or weather journal.

MCPS Indicators: 2.K.E.2, 2.1.E.2, 2.4.E.2

DCPS Indicators: K.2.2, K.1.5, 2.3

MELS Standards: 2, 3, 6

Habitat and Adaptation

How have plants and animals adapted to live in their habitats? Students will discuss the importance of habitats for wildlife, what we can do to create beneficial habitat, and how animals (and plants) adapt to their changing

environment. We will also draw parallels between plant or animal adaptation and human adaptation. Outside, students will explore the many natural habitats that exist on our farm, and why we should protect these habitats.

MCPS Indicators: 3.K.F.1, 3.K.D.1, 3.1.A.1, 3.2.F.1, 3.5.A.1, 3.3.D.1

DCPS Indicators: 5.12.1 thru 8, 7.5, 7.8

MELS Standard: 4, 6

Conserving the Earth's Resources

Why is it important to protect the environment and conserve resources? Students will learn about the natural resources that fuel our world, why it is important to conserve these resources, and what role the farm plays in its protection. Students will discuss what they can do in their daily lives to make a difference. Students will then visit some sites around the farm where we are practicing environmental stewardship, including our compost pile, organic vegetable fields, and solar-powered residence.

MCPS Indicators: 3.K.D.1, 6.1.B.1, 6.2.A.1, 6.2.B.1, 3.1.D.1, 3.2.D.1, 3.2.C.1, 3.3.D.1, 6.5.B.1, 6.5.B.2, 7.3.B.5, 3.4.D.1

DCPS Indicators: 2.4, 6.6

MELS Standard: 5, 6 (Topic B), 7 (Topic B)

Insects

Insects play a huge role in supporting the lives of plants and animals, and this is especially true on an organic farm. Students will learn the difference between beneficial insects and pests, as well as native and invasive species. Outside, we will use magnifying glasses to explore which insects can be found at Red Wiggler, what they do, and how we may lure or deflect insects for the farm's benefit.

MCPS Indicators: 3.1.E.1

DCPS Indicators: 2.7, 4.7, 7.8

Compost

What is compost? How is it made? Why do we use it on the farm? Students will be able to understand how composting relates to the three Rs: Reduce, Reuse, and Recycle. Students will be taken to the compost pile for a hands-on lesson in compost production and its importance on an organic vegetable farm. To demonstrate this lesson, students will also compare the soil from a vegetable bed treated with compost with the soil from a non-composted spot in our fields.

MCPS Indicators: 2.2.A.1, 3.3.B.1, 3.3.E.1, 7.3.B.5, 3.4.E.1, 3.5.E.1

DCPS Indicators: 2.4, 2.7, 4.7, 6.6, 7.8

MELS Standard: 3 (Topic A)

Streams and Watersheds

You could not live in a world without water. Students will learn how our actions on the farm and at home impact watershed health, all the way to the Chesapeake Bay. Outside, students will visit the

stream on the farm so they can visualize what they just learned. They will also be able to determine the stream's health by looking at its invertebrates, pH, temperature, and sedimentation.

MCPS Indicators: 6.2.B.1, 2.5.E.1, 3.4.D.1

DCPS Indicators: 6.6

MELS Standard: 7, 8

Nutrition

A healthy diet consists of a balance of six major nutrients: carbohydrates, protein, fat, vitamins, minerals, and water. Students will learn the different food groups essential for a healthy diet using MyPlate Standards. We will also discuss the importance of eating in moderation by looking at the Dietary Guidelines for Americans. What the students learn about healthy eating will transfer outside, where they will choose an herb or a vegetable that is in season, harvest it, and prepare it as a snack.

MCPS Indicators: 6.K.A.1, 6.K.B.1, 6.K.E.1, 6.K.F.1, 6.1.A.1, 6.1.F.1, 6.2.D.1, 6.2.F.1, 6.2.F.2, 6.3.D.1, 6.3.F.2, 6.4.D.1, 6.4.F.1, 6.4.F.2

DCPS Indicators: 3.7

Solar energy

What role does the sun play in our daily lives? Students will discuss the sun's role in our lives and the lives of plants. We will take a trip to our solar-powered residence to discuss solar energy, comparing it to other energy sources. Here we will also discuss the difference between passive and active solar energy, identifying each at work on the solar house. To complete our discussion of renewable energy sources, we will visit our all-electric tractor, converted from diesel operation by friends of Red Wiggler.

MCPS Indicators: 3.K.E.1, 5.K.B.1, 6.2.A.1, 5.2.B.1, 3.5.E.1

DCPS Indicators: 1.4, 4.7, 7.8

Bees, pollinators, and our food

Pollinators play a crucial role in the development of our food system. Students will identify what pollination is, which insects pollinate, and what would happen to the food system if pollination were to cease. They will also discuss what threats exist to pollinators in our area and worldwide. To further their understanding of this process, students will take a trip to the hives on Red Wiggler's property to see the busy bees at work!

MCPS Indicators: 3.1.E.1, 6.2.B.1, 3.2.F.1, 3.2.D.1, 3.2.C.1, 7.3.B.5, 3.4.F.1, 6.5.B.1

DCPS Indicators: 2.7, 5.12.5, 7.8

MELS Standard: 4 (Topic B), 7 (Topic E)

Guide to Above Curriculum Standards:

MCPS:

Standards are ordered by grade level (i.e., the 'K' in 2.K.E.2.), and the topic they pertain to is listed in parentheses.

- 2.K.E.2. Investigate and gather information about changes in weather. (Farmer's Almanac)
- 3.K.E.1. Develop an awareness of the relationship of features of living things and their ability to satisfy basic needs that support their growth and survival. (Life Cycles, Solar Energy)
- 5.K.B.1. Describe that sunlight warms the land, air and water using observations and age appropriate tools. (Solar Energy)
- 2.1.E.2. Describe that some events in nature have repeating patterns. (Farmer's Almanac)
- 3.1.B.2. Provide evidence that all organisms are made of parts that help them carry out basic functions of life. (Life Cycles)
- 3.1.D.1. Explain how people modify, protect and adapt to their environment. (Conserving the Earth's Resources)
- 3.1.E.1. Describe some of the ways in which animals depend on plants and on each other. (Insects, Bees)
- 6.1.A.1. Demonstrate the relationship between food and the senses. (Nutrition)
- 6.1.B.1. Recognize that caring about the environment is an important human activity. (Conserving the Earth's Resources)
- 6.1.F.1. Recognize that foods are categorized in groups. (Nutrition)
- 2.2.A.1. Describe and compare properties of a variety of Earth materials. (Compost)
- 3.2.C.1. Explain that there are identifiable stages in the life cycle (growth, reproduction, and death) of plants and animals. (Life Cycles, Conserving the Earth's Resources, Bees)
- 3.2.D.1. Explain how people modify, protect and adapt to their environment. (Conserving the Earth's Resources, Bees)
- 3.2.F.1. Explain that organisms can grow and survive in many very different habitats. (Habitat and Adaptation, Bees)
- 5.2.B.1. Identify and describe ways which heat could be produced. (Solar Energy)
- 6.2.A.1. Recognize and explain how Earth's natural resources from the natural environment are used to meet human needs. (Conserving the Earth's Resources, Solar Energy)
- 6.2.B.1. Recognize and describe that the activities of individuals or groups of individuals can affect the environment. (Conserving the Earth's Resources, Streams and Watersheds, Bees)
- 6.2.D.1. Define nutrient. (Nutrition)
- 6.2.F.1. Demonstrate that foods are categorized into groups. (Nutrition)
- 6.2.F.2. Identify the Nutrition Facts label. (Nutrition)
- 3.3.B.1. Explore the world of minute living things to describe what they look like, how they live and they interact with their environment. (Compost)
- 3.3.E.1. Recognize that materials continue to exist even though they change from one form to another. (Compost)
- 7.3.B.5. Develop an understanding of the effects of technology on the environment. (Conserving the Earth's Resources, Compost, Bees)
- 2.4.E.2. Recognize and describe that each season has different weather conditions. (Farmer's Almanac)
- 3.4.D.1. Describe how people adapt to, modify and impact the natural environment. (Conserving the Earth's Resources, Streams and Watersheds)
- 3.4.E.1. Recognize food as the source of materials that all living things need to grow and survive. (Life Cycles, Compost)
- 3.4.F.1. Explain ways that individuals and groups of organisms interact with each other and their environment. (Bees)
- 6.4.D.1. Identify and define functions of nutrients. (Nutrition)
- 6.4.F.1. Summarize the Dietary Guidelines for Americans. (Nutrition)
- 6.4.F.2. Analyze the Nutrition Facts label. (Nutrition)
- 2.5.E.1. Recognize and describe that the amount of water on Earth continues to stay the same even though it may change from one form to another. (Streams and Watersheds)

3.5.A.1. Explain the idea that in any particular environment some kinds of plants and animals survive well, some not so well, and some cannot survive at all. (Habitat and Adaptation)

3.5.E.1. Recognize that some source of energy is needed for all organisms to grow and survive. (Life Cycles, Compost, Solar Energy)

6.5.B.1. Recognize and explain the decisions influencing the use of natural resources may have benefits, drawbacks, unexpected consequences and tradeoffs. (Conserving the Earth's Resources, Bees)

DCPS:

K.1.5. Use a thermometer to measure temperature. (Farmer's Almanac)

K.5.2. Describe that plants and animals are alike in some ways and different in others (e.g., appearance and behavior). (Life Cycles)

1.4. Broad Concept: Different types of plants and animals inhabit the Earth. (Life Cycles, Solar Energy)

2.3. Broad Concept: Weather can be observed, measured, and described. (Farmer's Almanac)

2.4. Broad Concept: The Earth's resources can be conserved. (Conserving the Earth's Resources, Compost)

2.6. Broad Concept: Plants and animals have structures that serve different functions in growth, survival, and reproduction. (Life Cycles)

2.7. Broad Concept: Living things depend on one another and their environment for survival. (Life Cycles, Insects, Compost, Bees)

3.6. Broad Concept: Plants and animals have predictable life cycles. (Life Cycles)

3.7. Broad Concept: Humans have a variety of mechanisms to stay healthy. (Nutrition)

5.12.1. Explain that in any particular environment, some kinds of plants and animals survive well, some do not survive as well, and some cannot survive at all. (Habitat and Adaptation)

5.12.3. Explain how organisms can cause changes in their environment to ensure survival, and these changes may affect the ecosystem (the living and nonliving components of the environment). (Habitat and Adaptation)

5.12.5. Explain how changes in an organism's habitat are sometimes beneficial and sometimes harmful, and how changes in the environment (drought, cold) have caused some plants and animals to die. (Habitat and Adaptation)

5.12.8. Describe well-defined plant behaviors, such as the way seedlings' stems grow toward light and their roots grow downward in response to gravity. (Habitat and Adaptation)

6.6. Broad Concept: Sources of materials differ in amounts, distribution, usefulness, and the time required for their formation. (Conserving the Earth's Resources, Compost, Streams and Watersheds)

7.5. Broad Concept: Every organism requires information in the form of a set of instructions that specifies its traits. Those traits may be modified by environmental influences. (Habitat and Adaptation)

7.8. Broad Concept: Organisms in ecosystems exchange energy and nutrients among themselves and with the physical environment. (Habitat and Adaptation, Insects, Compost, Solar Energy, Bees)

Maryland Environmental Literacy Standards:

Standard 2: The student will analyze and apply the properties of systems thinking and modeling to the study of Earth's systems. (Farmer's Almanac)

Standard 3: The student will analyze and explain the movement of matter and energy through interactions of earth's systems and the influence of this movement on weather patterns, climatic zones, and the distribution of life. (Farmer's Almanac)

3A: Demonstrate that matter cycles through and between living systems and the physical environment, constantly being recombined in different ways. (Compost)

Standard 4: The student will use physical, chemical, biological, and ecological concepts to analyze and explain the interdependence of humans and organisms in populations, communities and ecosystems. (Habitat and Adaptation)

4A: Explain how organisms are linked by the transfer and transformation of matter and energy at the ecosystem level. (Life Cycles)

4B: Analyze the growth or decline of populations and identify a variety of responsible factors. (Bees)

Standard 5: The student will use concepts from chemistry, physics, biology, and ecology to analyze and interpret both positive and negative impacts of human activities on earth's natural systems and resources. (Conserving the Earth's Resources)

Standard 6: The student will use concepts from science, social studies and health to analyze and interpret both positive and negative impacts of natural events and human activities on human health. (Farmer's Almanac, Habitat and Adaptation)

6B: Describe and explain that many changes in the environment designed by humans bring benefits to society as well as cause risks. (Conserving the Earth's Resources)

Standard 7: The student will analyze how the interactions of heredity, experience, learning and culture influence social decisions and social change. (Streams and Watersheds)

7B: Examine the influence of individual and group actions on the environment and explain how groups and individuals can work to promote and balance interests. (Conserving the Earth's Resources)

7E: Analyze and explain global economic and environmental connections. (Bees)

Standard 8: The student will make decisions that demonstrate understanding of natural communities and the ecological, economic, political, and social systems of human communities, and examine how their personal and collective actions affect the sustainability of these interrelated systems. (Streams and Watersheds)