Our activity kits and presentation materials are divided into three main categories: Plant Growth and Development, Ecology and Environmental Science, and Discovering Wildlife. While a target grade range is suggested, many of these activities and presentations can be geared up or down to accommodate your individual needs.

Our “For Adult Educators” section lists topics for teachers and other community program organizers.

**PLANT GROWTH AND DEVELOPMENT**

**Berries**

Objective: To learn about the best fruit crops to grow in North Central Texas. If you only have a small space in your garden dedicated to fruit growing, blackberries should be your top choice. Learn about this and other berries that can be successfully grown with the right TLC.

Time: 60 minutes
Target Grade: 3-12

**Fruits**

Objective: To learn about the many fruit trees that grow well in our area. Peaches, plums, pomegranates and figs are some of the easiest fruits to grow.

Time: 60 minutes
Target Grade: 3-12

**Gas Gobblers**

Objective: To demonstrate the interdependence people and animals share with plants through the exchange of oxygen and carbon dioxide, explaining that plants breathe the carbon dioxide we exhale and breathe out the oxygen for us to use.

Time: 20-30 minutes
Target Grade: 3-5

**Grow Cards**

Objective: To recycle newspaper to create “plantable” greeting cards.

Time: 45 minutes
Target Grade: 3-5

**Know and Show Sombrero**

Objective: To analyze what plants need to grow and create a wearable work of art to demonstrate those needs.

Time: 60 minutes
Target Grade: 3-5

**Oxygen Factory**

Objective: To illustrate the process of photosynthesis by which plants make their own food within their leaves.

Time: 25 minutes
Target Grade: K-5
Paper Pots

Objective: To create recyclable pots and to propagate plants by seed. These pots can be made of newspaper or toilet paper/paper towel rolls and can be transplanted directly into the garden since the materials are biodegradable.

Time: 30-45 minutes
Target Grade: K-5

Paper Towel Gardening

Objective: To create seed mats and transplant templates to help organize and lay out the garden. This activity helps children learn about space requirements when planting a garden. It is also a great way to introduce or reinforce the math concept of fractions.

Time: 30 minutes
Target Grade: K-5

Plant Parts Rap

Objective: To learn the main parts of a plant and their roles. As the students “rap” about the plant parts, each part is attached to a poster for a visual aid.

Time: 15 minutes
Target Grade: K-5

Plant People

Objective: To learn what plants need to survive and thrive. Students will use grass seed and soil to create their own “Chia-like” plant person or creature to take home and nurture! Can be adapted to the season.

Time: 30 minutes
Target Grade: K-3

Vegetable Gardening

Objective: To introduce vegetable gardening, with specific emphasis on fall vegetable gardens, which can be the perfect fit for school gardens and outdoor learning centers. Learn about the various crops like potatoes, carrots, cabbage, lettuce and beans that can easily be incorporated into your fall garden and will be sure to impress young gardeners.

Time: 60 minutes
Target Grade: 3-7

Wildflower Gardening

Objective: To learn about the wildflower garden—an increasingly popular landscape alternative—which has the appeal of low maintenance by requiring little water and reduced mowing frequency once established.

Time: 60 minutes
Target Grade: 3-7
Aquatic Ecosystems & Benthos Education

Objective: To help students understand the importance of managing our water resources. Based on time of year and availability, the presenter typically brings both living and preserved aquatic specimens for students to examine. Methods for determining the pollution index for specific categories of benthic organisms are discussed and students are encouraged to participate in the activity. The EPA and local government authorities use such data to determine water quality for local streams and lakes. A game included in the kit helps children understand the anatomy of benthic organisms. Craft activities are used to promote a better understanding of benthic ecosystems.

Time: 60 minutes
Target Grade: 3-7

Bio-Blitz

Objective: To focus on finding and identifying as many species of plants, animals, microbes, fungi and other organisms as possible in a small designated area over a specific period of time. This is an outdoor activity.

Time: 60 minutes
Target Grade: 3-7

Biospheres

Objective: To teach students about the biosphere, the part of the Earth, including air, land, surface rocks, and water, within which life exists. The activity instructs participants about the global ecological system emphasizing the integration and relationship of all living beings.

Time: 60 minutes
Target Grade: 3-7

Composting

Objective: To teach students about recycling kitchen and yard waste, which materials can be composted, and how to get started. Composting can divert as much as 30% of household waste away from the garbage can and is the single most important supplement you can give your garden soil.

Time: 60 minutes
Target Grade: 3-7

Enviroscape

Objective: To utilize an interactive lesson makes use of a model town to show students how our daily habits impact the environment and disturb the natural balance of the urban water cycle. Students will gain knowledge of the combined effects that pollution from many small sources can have on our watershed and our lives. This demo requires a water source. The model will demonstrate how the four major components of runoff—bacteria, toxic substances, nutrients and soil—affect water quality and aquatic life.

Time: 60 minutes
Target Grade: 3-7
Freddie the Fish

Objective: To demonstrate to young students how different sources of pollution can affect clear streams and eventually make an unlivable habitat for wildlife. With this activity, each student will get a plastic fish (Freddie) and plastic container to use during the program. A small amount of water and a variety of “pollutants” will be added to Freddie’s environment to show how pollution affects wildlife.

Time: 15 minutes
Target Grade: PreK-2nd

Geology & Soil Science

Objective: To assist students in understanding the geology of the earth and how particular rocks, soil and minerals were formed. The presentation typically will include examples of a variety of rocks, minerals and soil and the role these may have in our daily lives. Crafts are included.

Time: 30-45 minutes
Target Grade: K-7

Habitats

Objective: To introduce students to a variety of natural environments in which plants and/or animals normally live and grow. Presentation can be tailored environment-specific, i.e. desert, grassland, wetlands, forest, polar regions, oceans and tundra.

Time: 60 minutes
Target Grade: 3-7

Honey Bees

Objective: To learn about the importance of bees and the plants and herbs you can plant to help create a bee-friendly yard. Did you know that bees pollinate one out of every three bites of American food and $15 billion worth of crops annually? However, honeybee colonies are disappearing in droves because of parasites, pesticides, poor nutrition and disease insects.

Time: 60 minutes
Target Grade: 3-7

Rainfall Simulator (Best Outdoors)

Objective: To teach students the importance of groundwater and its role in recharging aquifers, differences in water activity on different types of ground surfaces, the importance of grasses and grasslands in recharge zones, how water can become polluted, the basic principles of water erosion. The model demonstrates water movement through various types of landscape soils and impervious surfaces. This demo requires a water source and enough room for a little splashing.

Time: 30 minutes
Target Grade: 3-7

Recycling

Objective: To help students understand the importance of recycling and how to implement a recycling program at home or at school.

FYI: Did you know that in a lifetime the average American will throw away 600 times the amount of his or her adult weight in garbage? For example, a 150-pound adult will leave a trash legacy of 90,000 pounds. Unlike landfills (which simply stockpile trash) recycling removes waste completely, then turns it back to useful products.

Time: 30 minutes
Target Grade: 3-7
Stream Trailer (Outdoor Only Activity)

Objective: To help youth and landowners understand how stream channels form, how vegetation contributes to stream-bank stability, and how proper stewardship can help prevent erosion. This model demonstrates stream processes and best management practices to protect and restore our streams and rivers. This demo requires water and an electricity.

Time: 30-45 minutes
Target Grade: 3-7

The Food Chain Gang

Objective: To teach students about the interrelatedness within the food chain between animals and the environment through game play,

Time: 25 minutes
Target Grade: K-5

The Incredible Water Journey

Objective: To help students better understand the movement of water through the water cycle. This fun, interactive game consists of 9 round spinners, each representing a location where water can be found (clouds, oceans, glaciers, etc.). As the students spin to see where the water molecule will go next, they collect a corresponding colored bead to place on a string to remind them of their “incredible water journey”.

Time: 30 minutes
Target Grade: Any

Water Drops on a Penny

Objective: To demonstrate water tension. Using an eye dropper, the participants count how many drops of water they can get on the top of a penny. As the water mounds and actually hangs over the edge of the penny, the properties of water tension are at work. This is a great activity for fairs and other public events. It is also a great way to get attention for visitors to your exhibit booth. This is a simple activity that people of all ages can enjoy.

Time: 15 minutes
Target Grade: Any

Worm Composting

Objective: To teach students about vermiculture, or worm composting, the process of converting organic waste into nutrient-rich humus called vermicast or worm castings. This demonstration and hands on workshop will show you how to get started with your own worm composting project. The presenter will discuss different types of worm bins, and walk participants through worm bin construction and creation of starter kits.

Time: 60 minutes
Target Grade: 3-7
Amphibians/Turtles/Snakes
Objective: To encourage students to explore the outdoors by learning about wildlife. Associated with this kit are a variety of preserved amphibians, turtles and snakes for DISPLAY ONLY. Typically, a presenter will discuss the anatomy, physiology, behavior and habitat for a specific class of animals. Crafts are included.
Time: 45-60 minutes
Target Grade: K-7

Bats
Objective: To encourage students to learn about the critical role of bats in the ecosystem. The presenter will typically discuss the anatomy, physiology, behavior and habitat for bats. Craft for building a bat house is included.
Time: 45-60 minutes
Target Grade: K-7

Birds
Objective: To educate students on the important role of birds in our environment. A presentation typically focuses on anatomy, physiology, behavior and habitat for given species. Included in the presentation are representative, preserved specimens [DISPLAY ONLY] of owl, duck and hawk. Craft for making a bird feeder is included.
Time: 45-60 minutes
Target Grade: K-7

Butterflies & Insects
Objective: To assist students in learning about insects (butterflies are insects), to provide information about insects that are considered beneficial to humans and others that are not, and why both are important in an ecosystem. Since entomologists estimate that there are about 30 million species of insects in the world, this presentation will obviously focus on the general anatomy, physiology, behavior and habitat for only a select number of insect species. Preserved insects/butterflies are available for kids to observe. Craft activities are included.
Time: 45-60 minutes
Target Grade: K-7

Chew on This!
Objective: To learn the four types of insect mouth parts: chewing, piercing/sucking; siphoning and sponging and how they are specialized.
Time: 30 minutes
Target Grade: K-7
Mammals

Objective: To help students understand the role of wildlife in our communities. This kit is actually comprised of three (3) related kits: Animal Tracks, Animal Skins and Animal Scat. These kits may be discussed separately or together for a given presentation. Either separately or together, these kits provide an overview of the anatomy and physiology of a given class of mammals and helps participants better understand the behavior of a given animal as well as its typical habitat. Also included is an experiment to demonstrate the physiology of scat (feces), its composition, movement through the gut, and how wildlife researchers study scat to learn about the health and habits of local wildlife. Included as well are craft activities to help kids understand a given topic. The presentation usually includes animal skulls, skeletons, disarticulated bones, and preserved specimens.

Time: 45-60 minutes
Target Grade: K-7

Suck-a-Bug!

Objective: to make a simple aspirator and use it to collect and observe small insects.

Time: 60 minutes
Target Grade: K-7

The Great Cover Up

Objective: To allow students to experience the effectiveness of how insects use camouflage to blend in with their surroundings, either to allow them to sneak up on their prey, or to hide from a predator.

Time: 30 minutes
Target Grade: K-5

FOR ADULT EDUCATORS:

CREATING AN OUTDOOR LEARNING CENTER-SCHOOL GARDEN

Creating a school garden or outdoor learning center starts with an idea—a vision—and the willingness and ability to pull together a team to make it happen. If this is something you are contemplating, here are some things to consider before making your request:

1. HAVE YOU SECURED ADMINISTRATION SUPPORT AND APPROVAL?
Your school principal is key in having your project succeed. If he/she is behind the project, the likelihood of teacher involvement is almost a certainty. Your school principal will also be a go-between with the school district in making certain that the site is approved and a water source will be available. The school principal will also be instrumental in working with the school maintenance department.

2. DO YOU HAVE TEACHER BUY-IN?
It is crucial that you have the support of your teachers. While you may not be able to get everyone on board, a few committed to the idea will eventually bring in others as they share their ideas and demonstrate how they use the garden.

3. ARE THE STUDENTS INVOLVED?
The students should be involved with the project from its inception. The more ownership they have in the project, the more successful it will be.
4. **DO YOU HAVE A DEVELOPMENT TEAM COMMITTED TO THE PROJECT?**
You should have a committee of at least 4-5 people who are willing to take on certain aspects of the project. These can be parents, PTA, teachers, students.

5. **HAVE YOU SELECTED THE SITE?**
Your site selection will depend on what type of garden you want to develop. Sun/shade patterns will have to be observed and based on those observations, the type of garden you plant. For example, vegetable gardens require at least 6-8 hours of full sun.

6. **WHAT IS YOUR FUNDING SOURCE?**
You will need to put together a preliminary budget depending on what your initial goals are. Some funding sources to consider are: grants, donations of both labor and materials, PTA fundraisers, inclusion in the school budget.

7. **WHAT IS YOUR MAINTENANCE AND LONG-RANGE PLAN FOR SUSTAINABILITY?**
Have you considered what will happen to the garden during the summer months? Will you let it go fallow or will there be teams to maintain and harvest through the summer months when school is not in session.

8. **IMPLEMENTATION PLAN & PROMOTION**

9. **TIME-LINE/SCHEDULE**
Develop a time-line with realistic goals and stick to it.

**LEARN, GROW, EAT, GO!**
This is a 10-week, teacher-created curriculum project. Through a linear set of academically-rich, proven lessons, students will learn about plants, what they need, how plants provide for our needs and how a class can work together to provide for the garden. The week-by-week resources will support you and your students’ completion of the 10 weeks/2 lessons per week unit study. This interdisciplinary program combines academic achievement, gardening, nutrient-dense food experiences, physical activity, and school and family engagement. For additional information http://jmgkids.us/lgeg.

**STARTING A JUNIOR MASTER GARDENER (JMG) PROGRAM/CLUB**
The Junior Master Gardener curriculum engages children in novel, “hands-on” group and individual learning experiences that promote a love of gardening, develop an appreciation for the environment, and cultivate the mind. The success of the program relies upon the JMG Teachers/Leaders. A full library of resources is available to prepare teachers & leaders to successfully engage students in this novel program. For additional information go to http://jmgkids.us/what-is-jmg/get-started.

**STARTING A JUNIOR MASTER NATURALIST (JMN) PROGRAM/CLUB**
The JMN program uses many resources but one of the most important is the *Growing Up Wild project* initiated by the Council for Environmental Education. The *Growing Up Wild project* is based on extensive research that has demonstrated that children who connect to nature are more likely to:

- Handle challenges and problems more capably.
- Act responsibly toward the earth and each other.
- Be more physically active and aware of nutrition, and less likely to be obese.
- Choose science or a related field for careers.
- Become better-informed and environmentally aware adults.

*The Growing Up Wild project* includes a list of activities and guided learning instructions for getting children out into nature. For more information on the program, go to: www.councilforee.org.