

# Can we count you in? bioBlitz

## calling all educators! Welcome to... BIODIVERSITY UNIVERSITY

On April 30 and May 1, 2010, the National Park Service and the National Geographic Society will co-sponsor a 24-hour BioBlitz at Biscayne National Park in South Florida in collaboration with many additional organizations. The Biscayne National Park BioBlitz is part scientific endeavor, part outdoor classroom, and part festival! During the BioBlitz, teams of scientists and naturalists, along with public volunteers, will comb areas within the Park's 173,000-acre boundary to observe and record as many plant and animal species as possible in 24 hours. Habitats include the mangrove shoreline, Biscayne Bay, the northernmost Florida Keys, and the coral reef. If new species are discovered living in the park, knowledge of these species and their locations will help the national park staff, volunteers, and community members do a better job of taking care of the park's natural resources.

### How can you get involved?

"Enroll" your students in Biodiversity University! By using these activities, you will help students learn about the BioBlitz and biodiversity. Some pages or page sections can be copied to use for student hand-outs to explore Biscayne National Park, your classroom, schoolyard, or backyard. For more information, check out the following websites:

Biscayne National Park: [www.nps.gov/bisc](http://www.nps.gov/bisc)  
National Geographic: <http://www.nationalgeographic.com/bioblitz>

## Identifying Species



Look at the fox and the wolf. They are both related to the domestic dog so they share some common traits. But some physical characteristics set them apart. Foxes have larger ears, thinner legs, smaller paws, and a fluffier tail. Foxes are also smaller (length, height, and weight) than wolves.

So who is the fox?

Scientists who study biodiversity do research to identify species found in a specific place. Sometimes this is a challenge. Can you think of any reasons why?

There are an estimated two million species on Earth. They include 40,000 spider, almost 5,000 frog and over 1,000 bird species. Millions more are undiscovered. That's a lot of species! You usually find several species in the same habitat.

Once you find something, how do you identify it?

**Answer:** you look for physical characteristics.

### Words to Know

biodiversity  
characteristics  
habitat  
species  
traits

### Try It!

Students select an area, identify the species living there, and complete a species inventory.

Ask students to select a familiar "habitat" such as a classroom, home, or playground. Explain that they will use observation and recording skills to complete a species inventory of this area.

Review with students the types of living organisms they might look for, including different species of plants, trees, grasses, mammals, reptiles, insects, or birds.

Ask them to think about other organisms that might be in the environment but are harder to spot and identify without tools such as microscopes (e.g. fungus, bacteria, or viruses).

Remind students that finding and identifying are often separate steps. Encourage students to use library or other resources to identify species they find.

Complete the activity by asking students to discuss how they identified species. Have them communicate the details that lead to their identification, such as "I saw a bug and counted eight legs, so I knew it was a spider."



## What is a BioBlitz?

A BioBlitz is a 24-hour event in which teams of scientists, students, and community members find and identify as many local species as possible. BioBlitz events help scientists learn if biodiversity (all the different kinds of living organisms) is increasing or decreasing within a given area.

Joshua, a 10-year-old from Washington, D.C., was a huge help to his BioBlitz team. "I found this leaf that looked like it was up in the air. I got closer and it was a butterfly. I swooped the net up behind it and caught it!"

Joshua's butterfly was identified and added to a tally card. The tally card helps keep track of the number of different species found. Healthy habitats support lots of different species.

"This is where the wild things are," said biologist Stuart Pimm. "There is an amazing variety of things you will see. Colorful, shiny, interesting... and bizarre!"

### Try It!

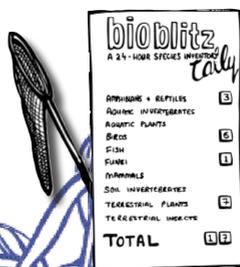
Students produce an announcement for a BioBlitz event

Have students write an announcement about an upcoming BioBlitz event to submit to a local or school newspaper.

Option: Some students might want to create a flyer or poster about the event, incorporating maps, drawings, photographs, and illustrations. Materials: Pens, crayons, paper, or poster board.

Start by asking "What should people know about this event?" Brainstorm or discuss with students information that would be helpful (or necessary) to include such as:

- General information about BioBlitz events - what they are, why they're important, who can participate, etc.
- Specific details about an upcoming event - date, time, location, and contact information, etc.



## Making Maps

This activity can be used on any trail or street, rural or urban. It can be used with a variety of age groups. As written, it works well with middle and high school students. It was inspired by the book "Mapmaking with Children" by David Sobel.

### Supplies Needed

Park map/brochures and specific trail maps - enough for 2 in each group.

Colored pencils

4-5 notecards per person with small clipboards for notes, data collection and sketching.

Mural paper or newsprint, markers, scissors, glue, etc. to make murals.

Digital cameras, digital thermometers or GPS units (optional).

List of things to find on trail (see example below).

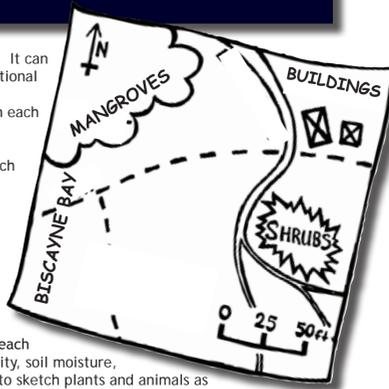
Procedure:

1. Identify the area you want your students to map. It can be a school yard, a local park, a spot at Biscayne National Park, or your neighborhood streets. Identify a list of objects, markers, or other details you want to see in each map to use as a guide for the students.

2. Break into groups of 3-4 students. Explain that each group will work together to make a map of the area they are going to explore. Distribute note cards, clipboards, colored pencils and other tools such as cameras, thermometers and GPS units. Give each group a list of things to include in their maps but encourage them to include as much information as they can. Depending on the age of the group, you can change the parameters of the map. For younger students, have them draw pictures or make rubbings. Older groups can record scientific data at each stop such as air, water, soil temperature, wind velocity, soil moisture, weather patterns, etc. Also encourage older groups to sketch plants and animals as well as collect measurements.

3. Back in the classroom, each group must make a larger map of the area on mural paper. They can glue the note cards on the mural or write their observations at critical points along the trail. It might help to provide a map of the area for reference. Encourage creativity and uniqueness with their maps. They can also add digital photos, writing excerpts, or GPS data to their maps.

4. Have each group share its mural/map, providing explanation of their observations. Compare and contrast the groups' work and encourage them to ask questions of each group.



## Classifying Information

Think about the following activities: baseball, basketball, soccer, and volleyball.

Of these, how many use a ball?  
Of these, how many use a net?  
Of these, how many are played on a court?  
Of these, how many use a hoop?

You can group many things based on characteristics. Notice how something with unique characteristics can be grouped into its own category. Now you're thinking like a scientist!

Three hundred years ago, a scientist named Carl Linnaeus invented a classification system. Using the system, scientists understand nature by organizing and naming species. So far, over 1.5 million animal species have been classified? How?

Scientists collect, study, and observe specimens. They record every detail and then compare their observations to existing records.

New species are classified according to their similarities and differences to known species. This is called relatedness. They are then given a unique scientific name.

There may be more than 50 million species not yet discovered. Think how exciting it would be if one of them was discovered, classified, and named by you!



### Words to Know

characteristics  
classification  
relatedness  
species  
specimen



Look closely. Which of these is not an insect?  
Hint: Insects have antennae, six legs, and three body parts.



## Go On An e-Adventure!

National Parks are great places to go for a field trip or to explore on your own, but not everyone lives close enough to get to a park. So what's the next-best thing? How about a virtual visit? Through distance learning opportunities, students can explore Biscayne and all National Parks!

Biscayne National Park offers an *Underwater Ecosystem Adventure* Electronic Field Trip where Ranger Maria guides you on an exploration of mangroves, seagrasses and coral reefs in this virtual underwater adventure. Discover the park's four primary ecosystems, how they are related, and why they are important to people. Students interact with the virtual plants, animals, and even people in these ecosystems through the computer to learn important facts and special characteristics. Teacher materials are available for this experience with downloads for accompanying lesson plans and curriculum.



This is just one of the great learning activities on Biscayne's website! To participate in the e-field trip experience, visit [www.nps.gov/bisc/forteachers/distancelearningopportunities.htm](http://www.nps.gov/bisc/forteachers/distancelearningopportunities.htm)

Preserve, Protect and Enjoy your National Parks from home or classroom by becoming a WebRanger! Help a baby sea turtle reach the sea... Be a spy during the Revolutionary War... Drive your sled dog team on a wilderness patrol... and MORE! While not designed as curriculum, many WebRangers activities illustrate principles useful in the classroom. Students will find Natural Science and American History addressed in new and exciting ways! Visit [www.nps.gov/webangers](http://www.nps.gov/webangers)



## Observing & Recording

Imagine you are exploring a place no one has visited before. Use your senses: What do you see? What do you hear? What do you smell?

Scientists use their senses to notice details. They make observations about a place and the organisms that live there. Then they record their observations so they can be studied and shared. How do they do this?

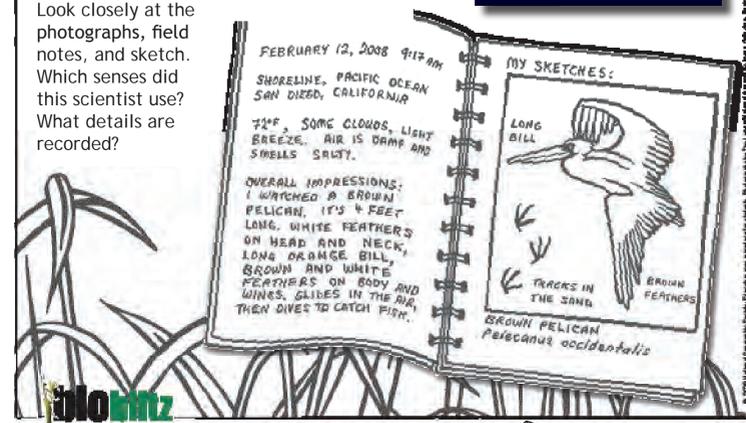
There are many ways to record observations. You can write in a field notebook, draw illustrations, make maps, take pictures, or make video or audio recordings.

Look closely at the photographs, field notes, and sketch. Which senses did this scientist use? What details are recorded?



### Words to Know

details  
observations  
organisms  
record



## Words to Know - Glossary

area	a geographic region	organisms	living things such as plants, animals, fungi, or bacteria
BioBlitz	an event in which people find and identify as many local species as possible	record	preserving observations with notes, drawings, photographs, and/or audio and video recording
biodiversity	all the different kinds of living organisms within a given area	relatedness	being connected by similarities
biological inventory	a catalog or list of all of the things found within a given area	scale	the relationship between distances on a map and the actual distances on Earth
characteristics	the physical features of an organism	species	a group of similar organisms within the same population that can reproduce with each other
classification	the categorization of organisms into groups based on physical and genetic characteristics	specimen	an individual organism that is a typical example of its classification
compass rose	a symbol on a map that shows the direction of north and other main directional points	succession	the progressive replacement of one natural community with another over time
direction	the way in which somebody or something goes, points, or faces	tally card	records the number of species found and identified during a BioBlitz
ecology	the study of the relationships between all living organisms and their environments	trait	a genetically determined (inherited) characteristic
habitat	the environment where an organism lives	vegetation	the plants, including trees, grasses, flowers, ferns, and shrubs of a given area
human influence	the effect that people have on an environment	observations	actions, things, or events noticed and recorded

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