



# *Earth Camp*

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## *Scavenger Hunt*



Blunn Creek Preserve

### Scavenger Hunt

#### **Concept**

Introduction to the geography, flora and fauna, physical science, natural history, surface water, and groundwater of a watershed.

#### **Objective** - Students will:

- 1) locate the boundaries of a watershed;
- 2) predict the flow of water in a watershed by identifying downhill pathways;
- 3) use a map and compass to identify direction, locate points of interest, and define land use;
- 4) discover fossils;
- 5) locate and identify animal signs;
- 7) use a thermometer to measure temperature, and;
- 8) use senses to observe and evaluate water quality.

**Time** 2.5 hours, 0.85 miles

**Materials** Earth Camp Teacher Assistant will provide materials

- Wax pencil
- "Blunn Creek Scavenger Hunt" student game sheet
- "Blunn Creek Nature Preserve" trail map
- "Ammonite" interpretive page
- "Blunn Creek Land Use" map
- "Creek Observations Data Sheet"
- Compasses
- Thermometers

REMINDER: BEFORE LOADING THE BUS, HAVE STUDENTS USE THE RESTROOM. THERE ARE NO FACILITIES AT THE PRESERVE.

## LESSON: Blunn Creek Preserve

### Introduction

**(At the entrance with the entire group.)**

1. Ask students to define a watershed. (Land area that drains to a creek, river, or lake.) Ask students if they are standing on a watershed. (Yes)
2. Ask students to identify Blunn Creek's watershed boundaries. (The tops of the hills.) Point out the gutters along the street that rain drains through. The low point is where a stormdrain and Blunn Creek are located.
3. Describe rainwater runoff from the natural area in the preserve. (Plants act as a filter for pollution, so runoff from a natural area will be cleaner as it enters the creek. Also, chemicals are not applied in a natural area.) Compare to runoff from a street or lawn. (The street and lawn could have chemical pollutants, such as oil or fertilizer, that could runoff and pollute the creek.) Tell students they have choices they will learn about at Earth Camp that will help keep rainwater runoff unpolluted.
4. Stormdrains - Discuss how water drains from the streets in the neighborhoods in Walnut Creek Watershed, into the stormdrain, and enters the creek. Some people think the stormdrains go to a treatment plant where the trash and pollution are cleaned from the water, but actually the water goes straight into the creek, along with any trash or pollutants the water picked up as it traveled across the lawns, driveways, and streets.
5. Tell students they will begin with an investigation of the natural watershed at Blunn Creek Preserve to discover plants, animal signs, fossils, rocks, volcanoes, and springs. The things students will find at Blunn Creek Watershed are found in most of the watersheds in Austin, including your school's watershed.
6. Discuss the rules of a preserve: 1) STAY ON THE TRAIL 2) WALK, DON'T RUN 3) BE QUIET SO YOU CAN OBSERVE NATURE, 4) DO NOT LITTER, and 5) DO NOT DISTURB THE PLANTS OR ANIMALS. Preserves are designed to protect plants and animals and are not meant to be used as parks for play, picnicking or swimming.

### Procedure

**1. Introduce the Scavenger Hunt** - The students will lead, but the group must stay together with an adult leader. All students have to see the item found. Tell students you will stop at each item and have a discussion or a lesson.

**2. Form Groups** - Ideally the class will be divided into two groups, each with a trained adult leader with a backpack of materials. Within these two groups students work in partners with their materials.

### **3. Teach students how to use the map and compass.**

- Ask students to identify the symbols on the trail map. Circle the symbols that represent something they are to find on the scavenger hunt.
- Ask students to find their location on the map. Use the compass rose to identify N, S, E, W on the map. Identify the trail and cardinal direction you will be hiking.
- Demonstrate how to determine direction using a compass:  
A compass is a scientific instrument that uses magnetism to determine direction. The arrow in the middle of the compass is a magnet. It is attracted to the north and south pole. The red tip of the arrow will always point north. The silver tip of the arrow will always point south. The letter N or S will not match the arrow until the compass is rotated to the correct position.
- Give each student a compass. Ask them to position the compass to locate the directions.

### **4. Start the Scavenger Hunt**

Manage behavior, give hints, help with directions, take a vote when there is disagreement, etc. Stop at the noted locations and do the mini-lessons.

## **SCAVENGER HUNT**

### **Mini-Lessons**

(Found in order beginning at the West Creek Trail entrance.)

#### **Algae**

Algae is a slimy plant found in the water. It is necessary for a healthy creek because some fish eat algae and it provides shelter to some animals. Too much algae in the creek could be caused by fertilizer runoff or a sewage leak. Too much algae can cause some of the animals to die.

#### **Animal Scat and Tracks**

Many animals live close to the creek because it is their drinking water source. They are dependent on clean water in the creek for survival.

#### **Bird Song**

There are three things a bird needs to be attracted to this park. What are they? (seeds for food, trees for nests, water in the creek)

#### **Blunn Creek**

- Stop at the creek and complete the "Creek Observations Data Sheet." Needed equipment is in the backpack provided.
- Students will take the temperature of the creek using celcius/fahrenheit thermometers. Show students where to record their answers on the "Creek Observations Data Sheet." Compare the temperature of springs in Austin (68 degrees) to the temperature of the creek. Explain: "The ground acts like a blanket, keeping groundwater a constant temperature (around 20 degrees Celsius, or 68 degrees Fahrenheit). Surface water temperature changes with air temperature - in summer it is warmer than groundwater, and in winter it is generally colder than groundwater."
- Students complete the rest of the observations with their partner.

## **Erosion**

When a creek floods, the power of the water can wash away the streambank, leaving roots exposed and adding sediment to the creek. Too much impervious cover in a watershed (streets, parking lots, buildings) can increase flooding and streambank erosion.

## **Fossil of an Ammonite**

Tell students to look at the “Ammonite” interpretive page . Help students locate the fossil. (The large ammonite fossil is located in the limestone exposed in the overflow creek channel. Sometimes it has to be dug out because dirt has settled in the fossil. There are smaller ammonites in the creek bed, along with other kinds of shell fossils.)

## **Fossil of a Seashell**

Fossils of seashells indicate a sea used to be here millions of years ago. The sea was shallow and tropical. What was left of the ancient sea bottom formed limestone. (NOTE: FOSSILS SHOULD BE LEFT ON THE GROUND AFTER THE LESSON.)

## **Fox Trail**

Small fox trails are located throughout the preserve, particularly along the West Creek Trail. Ask students: “Where are the fox trails leading?” (The creek.) “Why do the foxes go to the creek so often that a trail has been worn?” (To get a drink of water.)

## **Limestone**

A shallow, tropical sea used to be here millions of years ago. What was left of the ancient sea bottom formed limestone. The creek bottoms in Austin are limestone.

## **Majestic Oak**

The age a tree is estimated from the width of the trunk. Look on your trail map to find out the estimated age of the Majestic Oak. This Oak would have been a seedling at the time of Columbus.

## **Seed**

Seeds provide food for animals and continue a plant's life cycle.

## **Sign of a Flood**

Clumps of leaves lodged in trees or pushed up noticeably along the bank of the creek have been left by floodwaters. Creeks in Austin rise dramatically during heavy rainfall and subside within a few hours or days, depending on the size of the creek.

## **Signs of a Humans**

Did the sign left by the human impact the watershed for the better or worse or leave it unchanged? Do you have a choice about how you impact the watershed?

## **Something Edible**

A natural watershed provides natural sources of food. Native Americans and the early pioneers depended on these natural food sources for survival. The food we eat still comes from the watershed, but from a farm or ranch where the food has been cultivated.

## **Something Prickly - Prickly Pear Cactus**

Identify the prickly pear. Discuss its abundance in our watershed and benefits as a food source. Cut one and let the students try it.

## **Sounds of the Highway**

Although you are surrounded by woods, this park is located in the city. Pollution upstream can flow into the park downstream, and noises from the city can disturb the peace of humans and some types of wildlife in the park.

## **Spring**

- Discuss the flow of water: 1) rains at the top of the Blunn Creek Watershed around Travis High School; 2) water travels underground; 3) resurfaces again at this spring; 4) flows into the surface water of Blunn Creek.
- Students will take the temperature of the spring using celsius/fahrenheit thermometers. Tell students to record their answers on the "Creek Observations Data Sheet."

## **Stormdrain**

- WAIT UNTIL TRAFFIC HAS PASSED. Allow students to bend down and look through the stormdrain on St. Edward's Drive. Students can see the water drains directly from the street into the creek. Direct the students to the bridge to look into the creek.
- Discuss how water drains from the streets, into the stormdrain and enters the creek.

Some people think the stormdrains go to a treatment plant where the trash and pollution are cleaned from the water, but actually the water goes straight into the creek, along with any trash or pollutants the water picked up as it traveled across the watershed.

## **Volcanic Ash**

Austin had many volcanoes on the bottom of the sea that existed here millions of years ago. The ash spewed from these volcanoes formed volcanic tuff. You can see this rock scattered throughout many watersheds in Austin. It is generally greenish gray, and breaks easily like clay.

## **Watershed at the East Scenic Overlook**

- Ask students to locate the boundaries of the watershed from this vantage point.
- Have students reference the "Blunn Creek Land Use Map." Ask students to:
  - "Locate where you are on the map."
  - "Use the map to identify land use north, south, east, and west of our location."
  - "Describe the kinds of pollution that could come from the different land uses."
  - "Identify all the parks, preserves, and undeveloped land in the watershed."
- Explain the benefits of preserved areas surrounding a creek: "Natural areas next to the creek are vegetative buffers which provide filtration of rainwater runoff before it enters the creek. Scientists consider water quality "good" in the preserve area but only "fair" closer to town in the more developed area. In general, Blunn has better water quality than most urban creeks because of its parks and preserves."

## **Wildflowers**

- Encourage students to observe the variety of plants on the preserved watershed. Discuss how a native yard improves water quality because it doesn't require fertilizer, pesticide, or extra water. Plants also act as a filter for pollution. Encourage students to learn the types of plants native to Austin by using the wildflower identification brochure.
- If it is late winter or early spring and the flowers are not blooming, look for bluebonnet sprouts. Tell students the leaves of a bluebonnet form a five pointed star on each stem, just like the five pointed star of Texas. The bluebonnet is the state flower of Texas.

