



# Earth Camp Splash Tour



## Splash! Exhibit Tour

(adapted from the Splash! Volunteer Manual  
prepared by Sally King and Sherry Winnette)

### Introduction

Before entering the first cave chamber ask students, “**How many of you have seen signs that say, ‘Now Entering the Edwards Aquifer Environmentally Sensitive Recharge Zone?’** The recharge area is the place on the surface where the water drains into the aquifer through a cave, fracture, or sinkhole. Look up and you can see an opening on the surface that would recharge water into the aquifer.”

### Procedure

#### 1. Video

✿ Choose the link for “*A Passage in Time*.” View the film, then ask students, “**How were the passageways in the limestone formed?**” (Earthquakes caused the limestone to break forming faults. Weathering, mostly from water, formed the passageways.)

#### 2. Stratigraphy Cave

✿ Allow students to go through the “kid’s crawl” into the Stratigraphy Cave.  
✿ In the cave, help students identify and describe the types of rock that form the contributing, recharge, and confined zone. **“The contributing zone is formed by the Glenn Rose layer. It is a fairly hard limestone that water does not easily drain into. Rainwater that falls on the Glenn Rose tends to drain into creeks. The recharge zone is formed by the Edwards limestone, which is soft and full of holes. Rainwater and creeks in the recharge zone tend to drain into the aquifer. The confined zone is formed from Del Rio clay. Clay does not allow water to travel through it, so it acts like a lid on the aquifer.”**

#### 3. Aquifer Watershed Model

Allow students to press the light buttons to identify the contributing, recharge, and confined zone and Barton Springs location in relation to the zones on the topographic model. Point out that Barton Springs discharges at the lower end of the Barton Springs Fault line on the edge of the Recharge Zone.

#### 4. Aquariums

Tell students, **“Each zone of the aquifer has a variety of aquatic animals. Diversity of life and the survival of sensitive organisms like the Barton Springs Salamander implies good water quality. The Barton Springs Salamander is endangered because a small number have been found living in the Springs, and they do not have any other known habitat . The primary threat to the salamander and the diversity of life in Barton Creek and the Springs is the degradation of the water quality.”** Identify the flow of water and aquatic organisms in upper Barton Creek, Barton Springs, lower Barton Creek, Town Lake/Colorado River, and ending at Matagorda Bay in the Gulf of Mexico.

#### 5. Pollution Tubes

- **“These tubes represent Austin’s creeks and the different kinds of things that can cause pollution. Can you identify the creek that is still clean? (the first tube)**
- **What caused the second tube to become polluted? (oil) How does oil usually get into a creek. (People pour their used oil down a stormdrain)**
- **What type of pollution is happening in the third tube (algae bloom) What could be causing this algae bloom? (fertilizers washing off people’s lawns, down stormdrains, and into the creek, or animal waste) Fertilizers are identified in the water by testing for nitrates and phosphates. The first game in the Water Science Room measures nitrates and phosphates.**
- **What has happened in the fourth tube? (too much dirt has washed into the creek) Excessive dirt covers macroinvertebrate habitat and fish eggs, causing them to smother. Where would too much dirt come from? (construction, sand piles)**

#### 6. Water Science Room

● **“Scientists have many tests to measure the quality of water in the creeks and aquifer. Play each game long enough to be able to explain what you learned about water quality.**

● **Work in groups of three.”**

● Answers:

Spectrophotometer: Water quality at sites around Austin varies in urbanized and rural areas.

Aquifer Minisub: Farm animals, a pig in this case, is a source of bacterial contamination.

Bug Inspector: Small invertebrates are indicators of creek water quality.

Find Your School in the Watershed: Identify your school’s watershed.

Computer Games: Varies

Water Quality Pond: A water quality pond catches polluted runoff and cleans it before it enters a creek.

Pervious and Impervious Cover: Pervious cover allows more infiltration, prevents flooding, and provides base flow in creeks.