Down By the Banks

A Science Trail for 3rd - 5th Grade

Designed by Emily Bauman and Robin Harmon
“If there is magic on the planet, it is contained in the water.”

-Loren Eisley

Ponds are a magical place! Each pond has its own ecosystem, or a complex set of relationships among living things. Ponds are not just made of water they are home to over 1000 species of animals. About ¾ of the Earth is covered in water and only 1% is fresh water! That means if you had 100 skittles only one would represent the freshwater on Earth!!! A freshwater pond is a body of still water that contains no salt like in the ocean. The sunlight supports the growth of rooted plants from shore to shore. Some pond plants grow entirely underwater or have parts that extend above the surface. Other plants can grow along the pond edge. If left alone, ponds will eventually fill in with dirt and debris until they become solid land. It often takes hundreds of years for a pond to be transformed from a body of clear water into soil.

Let’s get started exploring the pond at Koinonia!
Let's Begin—Stop 1

Our first stop will be behind the Nature Center. Take a look around. What do you see? Take out a pencil and list three observations at each “Freeze” point about the pond.

Observation 1: Far away from the pond

1. ________________________________________________
2. ________________________________________________
3. ________________________________________________

Observation 2: Half way to the pond

1. ________________________________________________
2. ________________________________________________
3. ________________________________________________

Observation 3: At the water’s edge

1. ________________________________________________
2. ________________________________________________
3. ________________________________________________
A Little Bit Closer Now-Stop 2
Use your jar to collect a sample of water from the pond while on the dock. Pour into microscope and draw a picture of what you see. After you draw your first picture trade microscopes with a partner and draw what you see.
The End is in Sight - Stop 3
Collect some pond plants, living creatures and microorganisms from the surrounding of the pond. Bring these items back to the food chain blanket that is set up and work as a team to place objects in the proper location. If you need something to complete the food chain, grab stuffed items from the “extras box.” After playing the game a few times, grab a pencil and complete the food chain below with your own ideas.
Map
Take Home Fun

Find all of the words in the word search:
Words can be backwards/diagonal or straight across.

<table>
<thead>
<tr>
<th>POND</th>
<th>FRESH WATER</th>
<th>MICROORGANISM</th>
</tr>
</thead>
<tbody>
<tr>
<td>FROG</td>
<td>WATER</td>
<td>FISH</td>
</tr>
<tr>
<td>CATTAILS</td>
<td>INSECTS</td>
<td>LILLY PAD</td>
</tr>
<tr>
<td>SUN</td>
<td>FOOD CHAIN</td>
<td>MICROSCOPE</td>
</tr>
</tbody>
</table>

D R F T S N I I S M F A E
I E L I L Y P A D O R P R
O T C D I S M W O F O T R
S A D N A R A D Y C G C D
C W U T T L C I S D C S A
D H T I T H E O N R S C F
M S I N A G R O O R C I M
O E Y I C C P A H R S N I
E R N C I C C E P H S S C
Y F C M E T S Y S O C E S
A Y C T O M O O S N O C S
O F C N E T E A T I U T A
M C L F I A H C I M M S I
Emily Bauman & Robin Harmon

Standards used in science trail: 3.1.3, 4.4.1, 4.4.2

Materials Used:
- Paper, pencils, field packets
- Kid friendly microscopes, clear plastic jars to collect insects and water samples, nets
- Bed sheet with food chain diagram
- Stuffed animals, plastic insects, field guides

Introduction: After reading *Crawdad Creek*, give students a sneak peek into teachers’ bag to show them microscopes, the food chain diagram and plastic jars. This will peak interest and get children excited about upcoming activities.

Stop #1: Before leaving the area where book was read, have students “freeze” and write down three observations about their surroundings. What do they see, hear, and smell? Repeat this process half way to the pond and again at the pond’s edge. Discuss observations at the end of the stops.

Objective: After observing pond area, students will record observations in field journals, listing at least three observations at each stop.
Assessment: Check field journal to see a total of nine observations

Stop #2: Take students to the dock and have them collect water samples in the plastic jars and place samples in microscopes. Have student draw what they see in their microscope and then trade microscopes with a partner. They will draw what they see.
**Objective:** By using a microscope, students will investigate pond water by drawing two examples of what they see.

**Assessment:** Have students use field guide to identify what they saw

Stop #3: On the area by the pond, spread out the food chain diagram. Have students take five minutes to collect plants, insects and any other items to place onto food chain. If an item cannot be captured that student was looking for, stuffed or plastic animals may be used.

**Objective:** After collecting samples from pond surrounding, students will place objects in appropriate box four out of five times accurately.

**Assessment:** Check for correct placement of at least four items