MORE THAN MEETS THE EYE

Grade Level: 5th (prep for Eco-Week)
Setting: Bobcat Ridge Natural Area
Theme: By looking at the evidence around us we can often figure out what natural processes have taken place.
Description: Students will learn basic hiking techniques such as Leave No Trace Ethics and trail etiquette while reviewing what they know about ecology.
Recommended Time: 4-5 hours

Materials:
Nat Note: Materials will vary from MN to MN depending on what you want to cover. A list of optional materials might include:

- Personal hiking gear—hat, sunscreen, backpack, lunch, sturdy hiking shoes and lots of water.
- Eco-connection spinners (set of 2) If you wish to do this activity.
- Wildlife camera photos/Bird pictures (will be in background binder)
- Pictures of hummingbirds, Alberts squirrel (dependent on Ponderosa Pine)
- Photos of tipi and tipi rings
- One or two pair of binoculars
- Baggies, tissue and rubber gloves
- First aid kit

Background:
These students will be going to Eco-week or have just returned. They will be learning about montane ecosystems when they go to Pingree Park or Estes. Our goal is to get them out hiking and give them some practice in Leave-No-Trace ethics and trail etiquette. Depending on your group and their base knowledge, outdoor experience and attitude, each hike you lead may be very different. Spend some time getting to know your students through questioning—either on the trail or before you head out.

Format:
This lesson plan is not written up as a traditional NAD lesson plan. Everyone will be going different directions and hitting on different things. The goal of this lesson plan is to give you ideas to use depending on the route you take. You will be staying with your group for the entire day, stopping for snacks and lunch whenever you feel your students need it. Encourage your students to use the bathroom at the parking lot and by the cabin but if a student does need a “bio-break” on the trail, send them away from the group with a buddy and give them tissue and a baggie if they need it. Try not to embarrass anyone. Finishing this hike on time will be critical so please pay attention to the time.
A binder of background information will be available for MNs to check out. There are four copies of the binder available.

We will be breaking the students up into four groups. Two groups will go toward the cabin and two groups will go toward the Eden Valley Spur. Of the two groups heading the same direction, one group will need to hang back and let the first group getting going to provide some space on the trail. The group that delays their start can spend time in the shelter going over the expectations of the day, answering questions or looking at some of the photos of local wildlife.

**Introduction:**

1. Introduce yourself as a Master Naturalist with the Fort Collins Natural Areas Department. Ask students if they have ever been to Bobcat Ridge before. Remind them that natural areas are free to visit and that they are welcome to come back and enjoy this beautiful place with their families.
2. Ask students if they have been to Eco-Week and if not, when are they going? Talk to them about what they are excited to do and what their fears are. Ask them if they have experience hiking. If not, what would they like to know about hiking in the wilderness? Do they have any questions about nature? Who lives here? When are they seen? What do they do at night?
3. Ask students if they know what a detective does. Explain that while they are out on the trail they can use some of the same skills that a detective might use to answer some questions that they have about nature.

**Body:**

Below are some topics that you may want to cover on your hike. The background binder should provide you with much of the information you need. Feel free to add any additional information that you have.

As you hike, make sure that students are looking for evidence of nature mysteries. Some examples might be:
~I see burn marks on the lower part of this tree but the top part still looks alive. Is it alive or dead? How would a tree survive a fire?
~I see scat—how can I tell who left it here?
~I see a pool of water—what could that tell me about this area?

Remember, your job as an MN is not to give them the answers but to facilitate learning. If students find something interesting, help them come up with more detailed questions.

**Leave No Trace/trail etiquette:**

This is a topic that you can revisit throughout the hike.

- Stay on the trail—Let students know that while Bobcat Ridge regulations do allow for them to go “off trail”, it is safer and better for the habitat if they stay on the trail as much as possible.
- In muddy areas walk through, not around.
• Pack it in, pack it out.
• Keep voices low to avoid disturbing wildlife.
• If you see something interesting, raise your hand rather than shouting.
• Spend time sitting and watching.
• It can be helpful to have students agree on some of their own group rules such as a hand signal if they want to show the group something. Have the group establish a “quiet” signal so that they know when you need to share something important with them.
• Make sure everyone in the group feels safe to let you know their needs. You may have a mixture of physical abilities. Students should feel comfortable letting you know when they need to rest.
• Leave what you find—don’t collect or pick anything. If you want to remember it, take a picture or draw it.

Geology
Don’t feel like you have to spend any time on rock ID—unless that is your specialty. You can just talk about rock colors, size, crystal shape, etc. You can look at rock layers and uplifts--compare to the surrounding landscape.

Bobcat Burn
The Bobcat Ridge Fire of 2,000 left the landscape charred but now we are starting to see some changes. Talk about burn marks on trees and how the bark protects the tree—notice the lower trunk is burned but the upper portion is green. The tree is scarred but still alive. In open areas you will see regrowth happening. How is this possible? With the clearing of trees and canopy, the ground now has greater sun penetration so seeds that have been dormant can now begin to sprout and revegetate.

Ponderosa Pine Community
Ponderosa Pines are the dominate tree along the Valley Loop trail. See background material.

Wildlife at Bobcat Ridge:
There are plenty of animals to talk about at Bobcat. You may want to take along some photos from the wildlife camera project. Photos can be viewed online at http://www.fcgov.com/naturalareas/wildlife-camera.php A sample of wildlife photos will be provided in the background binder.

Harvester Ants:
You will notice a lot of large ant hills along the trail. These belong to harvester ants. These ants, present in the millions help keep the prairie clean. They harvest seeds and plant matter. They are red in color because the sting is toxic. They are actually more potent than a cobra but although the sting hurts, there is not enough venom in the bite to kill a human. See background material for more information.

Water holes:
You will notice a couple of natural springs along this trail. Point out unusual plants growing here because of the water like ferns and algae. These areas are not always full but are wet most of the year. You can talk about the importance of these areas as water sources for wildlife.

**Tipi Rings:**
By taking a short detour down the Powerline Trail you can see the tipi rings and the related interpretive sign. The stone circles that you see are rocks left over from Native Americans who used them to hold the bottoms of the tipis down. Have the students look around--Why would someone have chose to put their home up here on the hill versus down in the valley? What advantages would they have up on a hill?

**Prairie Dog Towns:**
Prairie dogs serve an important role as a food source to many animals. See background information for details.

**Cabin:**
Ask students to imagine what it would be like to live 100 years ago. Imagine having to walk a mile or more to get to school, church or the store. See background information for more.

**Sandstone cliffs:**
Talk about the wildlife that depends on these landforms. Golden Eagles nest on these cliffs. Swallows and other birds also nest here. Bobcats and mountain lions can use the ledges and crevices for shelter and to hunt prey. How might humans benefit from living near these cliffs?

**Eco-Connection:**
If you choose to take a set of Eco-Connection spinners on your hike it might be a fun break. The way the activity works is that the students spin each spinner to come up with two elements of the ecosystem such as wind and grass. They need to look around and try to find a living example of these two elements interacting (“the wind is blowing through the grass). Feel free to get creative. If you are in a safe area, you can let the kids explore off-trail.

**Conclusion:**
Remind students that reading nature is all about find the “story behind the story”. You don’t need to be an expert to learn a lot while in the outdoors. Good questions can provoke ideas and eventually understanding. Remind students that if they still have questions they can go back to school and do research in the library or on the internet.

Invite students to return to Bobcat Ridge or other natural areas with their family and share what they learned today. Have fun at Eco-Week!