

# MUD LAKE SCHOOL HIKE

## SET-UP AND INTRODUCTION

1. Plan your program so there is time for hiking. It's easy to spend too much time on the first two challenges (listed below) and students want to hike, which is why they are out of the classroom and in the mountains.
2. Make sure all kids have used the restrooms. Station one or two parents there with clear instructions to move the kids through quickly.
3. Ask the teacher what the classroom signal is for quiet/pay attention so you can use the same signal with the students.
4. Let parents and teachers know your expectations:
  - Keep students with the group for safety
  - Model good behavior and participate in the program
  - Stop when the VN stops and help students listen
  - Keep an eye on students and let VN/ teacher know if there are any problems
  - Monitor student behavior to prevent problems or injuries
5. Introduce VNs and parents

### **Set expectations for hike with students and parent volunteers**

1. What time we will be back at the picnic area
2. Behavior:
  - Stay behind the lead VN and in front of the parent at the end of the group.
  - Do not pick plants or damage anything.
  - You can pick up items such as cones and rocks to look at and then put them back where you found them.
  - Be quiet and listen when the VN gives the signal for quiet (practice with them).
  - Treat everyone with respect.
  - Look, think, learn and have fun!

**If possible, divide students into two groups with two naturalists for each group. The first two challenges can be done close to the picnic shelter area, but each group should hike in opposite directions around Mud Lake. Hike the Tungsten Trail in opposite directions if there is time, otherwise take the shorter perimeter trail around the lake. Keep track of time and adjust your stops so that you are back at the picnic area at the agreed-upon time.**

## THE PROGRAM

### **First Challenge: Why is Mud Lake here?**

- Find a nearby spot overlooking the lake. Where does the water in this lake come from? Drilled core samples from the lake bottom indicate the site is probably not a meteorite impact crater. The lack of evidence for meteorite impact and presence of mine workings strongly suggest that Mud Lake was created by miners.

### **Second Challenge: How many different kinds of trees can you find? Why is there such diversity in the trees of Mud Lake?**

- Choose a location near the picnic shelter where there are aspen, ponderosa pine, Douglas fir lodgepole, and limber pine.
- Introduce the concept of altitudinal life zones, which are distinguished by characteristic vegetation. Mud Lake is in the Montane or middle life zone, with two life zones below (foothills and plains) and two life zones above (subalpine and alpine).
  - Observation: From the eastern shore of Mud Lake, as you're standing in the montane, you can see the two highest life zones: the subalpine forest and treeless alpine tundra to the west.
- Mud Lake is located in an ecotone, or area where plants, trees, and animals from several life zones may be found.
  - Example: On the north shore of Mud Lake close to the shelter you can find ponderosa pine, which is most common in the foothills, right next to limber pine, which is most common in the subalpine life zone.
- Challenge students to look closely at the trees around them and notice the different needle structures.
  - Example: Are the needles in bundles of 2-5 needles? (pines) or separate? (firs). Are the needles long or short?

### **Third Challenge: How many signs of wildlife can you find as you hike around the lake? What other interesting or puzzling things can you find?**

- What signs of wildlife can you observe?
  - What is eaten — chewed leaves, tree bark, cones, branches
  - Scat — can you tell what the animal eats? (herbivore, carnivore, omnivore?)
  - Homes — bird nests, tree cavities, squirrel nests, burrows, matted grass where deer or elk bed, wasp nests, etc.
  - Hair on a tree where elk or moose have rubbed against it
  - Animal trails, small and large, vole runways
- What are animals doing when you visit Mud Lake? (emerging and having babies in the spring, storing food in the summer, migrating in the fall, staying active or hibernating in the winter)

## **POSSIBLE INTERPRETIVE STOPS ON THE HIKE — SELECT WHAT IS OF INTEREST TO YOU AND TO THE STUDENT “NATURE DETECTIVES”**

- Any bird or animal you are lucky enough to see
- Looking for signs of wildlife (see ideas above)
- East of the lake: fine soils form when lake overflows -- grasses grow better and can outcompete trees
- Aspen grove south of the lake: why does aspen grow here and not conifers?
- Lodgepole Pine: Tell the story of serotinous and non-serotinous cones on the lodgepole pine; lodgepole were used as poles for Native American teepees and lodges. How else might these trees be used by man? By animals? By plants?
- Spotted Coralroot orchid and mycorrhizae fungi: Discuss the fungal growth below ground and how fungi help many plants and trees increase uptake of minerals and water in return for the sugars produced by the plants and trees. Spotted Coralroot is parasitic because it benefits from the fungus but doesn't give anything back. The orchid has no chlorophyll so it can't photosynthesize and create sugars.
- Reeds in the water: What creatures prefer that shallow, mucky bottom? (crayfish and salamanders) Where are these animals now and what season would be best to see them?
- Prospect pit and mining — very brief if class is also visiting the Nederland Mining Museum
- Interesting rocks -- challenge students to find rocks of different colors, textures, and shapes. How and where were these rocks created? (igneous, metamorphic, sedimentary)
- Sounds: Ask students to sit quietly, close their eyes and listen for a couple of minutes. Ask them to share what they heard with the group. This activity is calming and can change the energy of the group, and it's also interesting what they can hear.

## **WRAP UP AT THE PICNIC AREA**

- What did you enjoy most about your visit to Mud Lake?
  - What did you learn that was new to you?
  - If you bring your family back for a picnic and hike, what is one thing you would like to tell them about this area?
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