Name: ______________________________
Date: ______________________________
Chaperone: _________________________
Group ID: __________________________

- Wildwood Recreation Site is nestled in the forested foothills of the Cascade Mountains along the waters of Wild and Scenic Salmon River. Located along the Mount Hood Scenic Byway near the town of Welches, Wildwood Recreation Site is 40 miles east of Portland.

- Wildwood Recreation Site is a special place to develop a deeper connection with natural stream and wetland ecosystems along accessible interpretive trails and boardwalks and explore pristine Salmon-Huckleberry Wilderness.
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Safety and Respect
Please remember to follow the rules we use in the classroom. We are representatives of our school and must behave appropriately, even though we will be in a forest environment. Here are some things to keep in mind:

1) **Respect yourself**
   - Be safe and walk, don’t run
   - Follow directions

2) **Respect others**
   - Listen to your adult chaperones
   - Be aware of others and give them space

3) **Respect the environment (nature)**
   - Look, listen, and touch gently, but do not harm any live plants or animals
   - Please remember not to pick flowers or leaves off of live plants or throw any objects
   - **PLEASE STAY ON THE TRAILS**
   - Do not litter.

4) **Respect the Center**
   - Show care for the shelter
**Directions and Schedule**

- Each group will visit 3 stations to collect data.
  - You will spend 45 minutes at each station and then rotate. See the schedule below to see which station your group starts at.
- You will collect data at your first Station Appointment then we will meet at the East Pioneer Shelter for lunch at noon.
- After lunch groups will collect data at their 2\textsuperscript{nd} and 3\textsuperscript{rd} Station appointment. See the schedule below to see appointments.
- After you have visited all 3 stations you will have 45 minutes for a recreational activity of your choice.
- We will start boarding the bus to head back at 2:30pm sharp!

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:45-11:00</td>
<td>Arrive and Introduction to the Wildwood Recreation Site</td>
</tr>
<tr>
<td>11:15-12:00</td>
<td><strong>Station Appointment #1</strong></td>
</tr>
<tr>
<td></td>
<td>Group A Water Quality Station</td>
</tr>
<tr>
<td></td>
<td>Group B Vegetation Station</td>
</tr>
<tr>
<td></td>
<td>Group C Soil Station</td>
</tr>
<tr>
<td>12:00-12:30</td>
<td>Lunch at East Pioneer Shelter</td>
</tr>
<tr>
<td>12:30-1:15</td>
<td><strong>Station Appointment #2</strong></td>
</tr>
<tr>
<td></td>
<td>Group A Soil Station</td>
</tr>
<tr>
<td></td>
<td>Group B Water Quality Station</td>
</tr>
<tr>
<td></td>
<td>Group C Vegetation Station</td>
</tr>
<tr>
<td>1:15-2:00</td>
<td><strong>Station Appointment #3</strong></td>
</tr>
<tr>
<td></td>
<td>Group A Vegetation Station</td>
</tr>
<tr>
<td></td>
<td>Group B Soil Station</td>
</tr>
<tr>
<td></td>
<td>Group C Water Quality Station</td>
</tr>
<tr>
<td>2:00-2:30</td>
<td><strong>Recreational Activity</strong>: Cascade Streamwatch Trail, Wetland Boardwalk Trail or Shelter Sport</td>
</tr>
<tr>
<td>2:30</td>
<td>Board Bus and Head Back!</td>
</tr>
</tbody>
</table>
Map of Recreation Site
Water Quality Station: Refresher & Methods

- At this station you will grab samples from the Salmon River here in the Cascade Mountains Eco region. Then you will collect water quality data.

- Your group will measure water temperature, pH, turbidity, and conductivity using the Vernier and Hach kits we used during the Fall term. If you have time you can also measure the phosphate concentration.
  - **Temperature**: Measure of how hot or cold water is.
  - **pH**: Measure of acidity. Pure water is neutral, with a pH close to 7.0; less than 7 is acidic, greater than 7 is basic.
  - **Turbidity**: A measure of how clear the water is; affects how far light can penetrate water.
  - **Conductivity**: Measure of the # of ions
  - **Phosphate**: Nutrient for algae/plant growth.

- You must take 3 samples. Think about where you want to collect these.
  - Keep in mind you might want to try to randomly select your sites and have them spread out across a large area.
# Water Quality Station Results

<table>
<thead>
<tr>
<th></th>
<th>Sample 1</th>
<th>Sample 2</th>
<th>Sample 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature (°C)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Turbidity (NTU)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conductivity (microsiemens)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phosphate (mg/L)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Describe the water appearance (muddy, clear, brown...):

______________________________________________________

Based on the data you collected how would you rank the water quality of the Salmon River:

Excellent    Good    Okay    Poor    Very poor

Explain the rationale for your ranking:

______________________________________________________

______________________________________________________

Which river do you think has better water quality, Johnson Creek or the Salmon River?

______________________________________________________
Soil Station Refresher & Methods

- At this station you will collect data on soil here in the Cascade Mountains Ecoregion.
- With the help of your station leader you will use an auger and shovel to collect soil samples.
- You will determine the soil texture and color using the Magic Fingers technique and Munsell Color System demonstrated in Winter GK-12 days.

Soil Texture: the amount of sand, silt, and clay in a soil sample.
Soil Profile: arrangement of horizons from the surface down.
Soil horizons: distinct layers of soil that form naturally from weathering soil over time.

A typical soil has the five horizons (layers) that are labeled with letters O, A, B, C and R:

- **O** – Surface horizon made of fresh decaying plant residue
- **A** – Topsoil contains humus, roots and organisms, lacks structure or is granular
- **B** – Subsoil, clays accumulate, structure forms, some roots, and leached materials
- **C** – Parent material that the soil was made from. This could be weathered bedrock but is not considered a soil (yet)
- **R** – Bedrock, the underlying solid rock

Munsell Color System: system of charts with standard soil color and names.

- The system uses three components to describe soil color:
  - Hue (a specific spectral color...red yellow green)
  - Value (lightness and darkness)
  - Chroma (color intensity)
- Example: A brown soil may be noted as hue value/chroma (10YR 5/3).
<table>
<thead>
<tr>
<th>Horizon</th>
<th>Soil Texture</th>
<th>Color ID</th>
<th>Color Name</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>
Vegetation Station Refresher & Methods

- At this station you will collect data on vegetation here in the Cascade Mountains Ecoregion.
- You will determine the % cover of herbs, shrubs, and trees to gain some insight about plant type diversity and dominance in this Ecoregion.

**Herb:** Small plants with soft fleshy stem. Ex: grass or cabbage.

**Shrub:** Bushy medium-sized plants with woody stems. Ex: Rose or Coriander.

**Tree:** Tall and large plants with a single central main woody stem Ex: Willow or Pine.

- Procedure
  1. Lay out transect tape
  2. Chose random number from Vegetation Number Table and walk that number of steps.
  3. Flip coin to place quadrat left or right of transect tape and use the Random # sheet to determine where on the transect tape to place the quadrat.
  4. Estimate the % of the quadrat that is occupied by each of the different plant types (Herb, Shrub, Tree or Bare Ground) as a percentage of the total quadrat area. Your percentage estimates for all plant types in each quadrat should add up to 100%.
  5. Repeat for at least five different locations.
Vegetation Station Results

<table>
<thead>
<tr>
<th>Plant Type</th>
<th>Quadrat 1 (% cover)</th>
<th>Quadrat 2 (% cover)</th>
<th>Quadrat 3 (% cover)</th>
<th>Quadrat 4 (% cover)</th>
<th>Quadrat 5 (% cover)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Herb</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shrub</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tree</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bare Ground</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Coverage Sum *(should add up to 100%)*

What plant type was most dominant? __________________________

Sketch one plant for each plant type and with the help of your station leader try to identify it.

<table>
<thead>
<tr>
<th>Plant Type</th>
<th>Sketch</th>
<th>ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>Herb</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shrub</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tree</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Cascade Streamwatch Trail
This 0.75-mile trail will acquaint you with some of the plants, animals, and fish that live in the Salmon River watershed. Learn about salmon and watersheds from the signs and models along the trail that parallels the Salmon River. Be sure not to miss the fish viewing window that allows you to see the underwater action of a mountain stream.

The Cascade Streamwatch Trail

Cascading water and migrating salmon have long symbolized the bounty of the Pacific Northwest and inspired its people. Immerse yourself in the magical world of wild fish and tune into the water's call. Listen as it lures you along a trail of exciting exhibits.

1 Trailhead (Information Kiosk) — Enter a world of fish, water, and forest. Oregon artist Norris Peterson's life-size stainless steel Chinook salmon splashes through a cluster of boulders — an important part of Cascade aquatic habitats. Follow the sound of rushing water as the trail leads to a river overlook. Watch for the Cascade Streamwatch signs to help guide the way.

2 River Overlook — Gaze up toward Boulder Ridge and down at the Salmon River. At its lowest flow during the summer months, the Salmon River runs at 100 cubic feet per second (cfs). This would fill an Olympic-sized pool in five minutes! Imagine the river's power during periodic peak floods when flows can reach up to 10,000 cfs.

3 Watershed Watch — A short spur trail along a terrace just above the river leads to a 3D-scale model of the 500-square-mile Salmon and Sandy River watersheds. Trace the way water flows down Mt. Hood and past where you now stand, then view this Cascade peak for yourself through the trees by way of a short trail to the river.

4 Hidden World of Small Streams — Follow the trail to a side channel of the Salmon River. This side channel is important habitat, providing shelter and food for young salmon and steelhead. Adult coho salmon also prefer small streams like this for spawning and may occasionally be observed in October and November. Steelhead may be observed from February through May. Coho salmon are one of several fish species that are anadromous (spending much of their lives feeding in the ocean and migrating to freshwater to spawn).

5 Forest Gifts — Watch leaves drift lazily into the water. Insect larvae eat the leaves and fish eat the insects. Watch for story poles along the trail that narrate the role of salmon in the Pacific Northwest's life and culture.

6 Underwater Viewing Window — Look for fingerling and juvenile salmon and trout swimming, feeding and resting in the shelter of logs and roots. Find crayfish, sculpin, insects, larvae, and snails thriving in the rocks of the stream bottoms. In the late fall you may catch a glimpse of an adult coho salmon.

7 Big Fish of the River — During the late summer/early fall, you may see spawning spring Chinook salmon in this bend of the river. Look for:
  - spring Chinook salmon — late August to late September
  - coho salmon — October through November
  - winter steelhead — mid February to mid May

Imagine being a salmon and returning to your place of birth by using your sense of smell. A salmon's sense of smell is a million times better than that of a human.

8 Stream Keeper Stories — Prior to 1992, this side channel flowing from the Salmon River into Wildwood was blocked off to prevent flooding. As part of the Cascade Streamwatch Project, the channel was opened up, providing critical habitat for thousands of young salmon and steelhead. Other projects placed log jams in the Salmon River to provide more shelter for fish.

Cascade Streamwatch Trail Reflection
Some interesting things that I saw or heard on the walk were:
Wetland Boardwalk Trail
Cross the Salmon River Bridge and discover the hidden world of a Cascade Mountain wetland along a boardwalk suspended over ponds and marshes. Experience the sights, sounds and smells of a wetland up close (See pages 12 and 13)/

Wetland Boardwalk Reflection
Some interesting things that I saw or heard on the walk were:
Extra Space for Field Trip Notes