**Aspen Snowmass Ski and Snowboard School Place-based Curriculum**

**Developed by: Nicholas Schaffer**

**5/4/2019**

**Unit 1: Ecological Dimension of Place**

**Unit Overview**

This unit is designed for an informal educational setting, specifically for ski and snowboard schools. Some of the lessons are framed to be applied to any outdoor learning environment, but most of the lessons are specific for Snowmass, CO. I selected my community partners by identifying local community non-profits that specialize in outdoor education(Roaring Fork Conservancy, and ACES).The prior knowledge necessary to implement this unit include knowledge of ecosystem function, plant and animal identification skills; as well as ski fundamentals, teaching skills and athletic ability.

The real world purpose of this unit is to instill respect and responsibility in the places that the students visit. To connect them to the land and the communities in their place. To bring about awareness of change in the landscape, either natural or human induced and how the change affects the ecosystem. The unit design follows the understanding by design template to reverse engineer the development process of unit design. By starting with what you want the student to take away from the lesson, i.e. enduring understanding and the essential questions. The design process continues by working into the desired outcomes and finishing with authentic assessment in the form of lesson plans. The unit content addresses basic identification skills of local plants, animals and landscape features. It introduces ecosystem function and makeup, also outdoor skills like responsible outdoor behavior through leave no trace practices. The lessons include ski skill practice and assessment of athletic ability and motivations.

The standards include material from outdoor educational resources, state and national standards from PSIA/AASI, Common Core, NGSS. Colorado Essential Skills and Na Hopena A’o(Hawai’i) frameworks were also used. All the standards in stage one are considered introduced(important but might not be touched or assessed). Stage 3 includes standards that are broken down into levels of involvement within each lesson as either practiced (must have formative feedback) and Mastered (authentic performance assessment).

**Stage 1 – Desired Results**

**Age: 3-17**

**Skill level: 1-9**

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| **Enduring Understanding (s)**  Students will understand that:   * Understand how changes in landscape features effects the life forms and resource cycling that exist within a place   Entry/Check-in points:   * + Cultural practices should minimally disturb existing landscape features and not exceed the ecological limits of a place.   + Knowing the plants and animals of a place brings awareness to the existing ecological community   + There are nutrient cycles that differ in each ecosystem due to its inhabitants   + Place names can give us insight into the ecology and geology of a place | **Essential Question(s):**   * Why do different landscape features affect the life and resources of a place?   Entry/Check-in points:   * + Why should we know the ecological limits and the effects of landscape disturbance of a place?   + Why are there certain animals and plants living in places?   + How do you know what the nutrient cycles are in certain places (sources, sinks, primary producers, consumers?)   + Why are there different nutrient cycles in ecosystems?   + Why should we be conscious of the ecology of different environments?   + How do plants and animals make us more familiar with places we are unfamiliar with?   + How do place names give context to the local flora and fauna of a place? |

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| **Student objectives/Critical skills (outcomes):**  Students will be able to:   * Identify different ecosystems throughout the mountain environment. * Explain the different parts that create a functioning ecosystem * Be able to use observational skills to identify different animal tracks on the mountain * Explain how geological features such as aspect (direction of solar exposure), slope and elevation have an effect on climate (temperature, precipitation, days of frost) * Understand why different places on the mountain have different forest types * Name the different forest types and animal populations that inhabit these spaces * Explain why it is important to question place names by asking what they mean, who named them and why? |

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| **Established Goal(s)/Content Standard(s):**   * Aspen Ski Company Mission Statement   ***Live Passionately***  ***Awaken the Spirit and Honor Place and Elevate Community***  Next Generation Science Standards(NGSS) : **[K-LS1-1 From Molecules to Organisms: Structures and Processes](https://www.nextgenscience.org/pe/k-ls1-1-molecules-organisms-structures-and-processes)** Use observations to describe patterns of what plants and animals (including humans) need to survive. **[2-LS4-1 Biological Evolution: Unity and Diversity](https://www.nextgenscience.org/pe/2-ls4-1-biological-evolution-unity-and-diversity)** Make observations of plants and animals to compare the diversity of life in different habitats.  Colorado Essential Skills Framework(Novice)  **Personal Skills**   * Perseverance/Resilience-Resist distractions, maintain attention, and continue the task at hand through frustration or challenges   **Professional Skills**   * Self-Advocacy-Appropriately express a range of emotions to communicate personal ideas/needs * Leadership-Model positive behaviors for others   **Civic/Interpersonal Skills**   * Collaboration/Teamwork-Recognize how personal actions have had a positive or negative impact on others with feedback as needed * Character-Demonstrate an understanding of cause and effect related to personal decisions   **Entrepreneurial Skills**   * Inquiry/Analysis-Recognize and describe cause-and-effect relationships and patterns in everyday experiences * Creativity/Innovation-Demonstrate curiosity, imagination and eagerness to learn more   Common Core Standards   * [CCSS.ELA-LITERACY.W.K.2](http://www.corestandards.org/ELA-Literacy/W/K/2/)   Use a combination of drawing, dictating, and writing to compose informative/explanatory texts in which they name what they are writing about and supply some information about the topic.   * [CCSS.ELA-LITERACY.RI.K.1](http://www.corestandards.org/ELA-Literacy/RI/K/1/)   With prompting and support, ask and answer questions about key details in a text.   * [CCSS.ELA-LITERACY.RI.K.2](http://www.corestandards.org/ELA-Literacy/RI/K/2/)   With prompting and support, identify the main topic and retell key details of a text.   * [CCSS.MATH.CONTENT.K.MD.A.1](http://www.corestandards.org/Math/Content/K/MD/A/1/)   Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.   * [CCSS.MATH.CONTENT.K.MD.A.2](http://www.corestandards.org/Math/Content/K/MD/A/2/)   Directly compare two objects with a measurable attribute in common, to see which object has "more of"/"less of" the attribute, and describe the difference. *For example, directly compare the heights of two children and describe one child as taller/shorter*.  Professional Ski Instructors of America (PSIA)  **Skiing Fundamentals**   * Pressure-Fore and Aft- Control the relationship of the Center of Mass to the base of support to direct pressure along the length of the ski. * Pressure-Foot to Foot-Control pressure from ski to ski and direct pressure toward the outside ski. * Edging- Control edge angles through a combination of inclination and angulation. * Rotary-Control the skis rotation (turning, pivoting, steering) with leg rotation, separate from the upper body. * Magnitude-Regulate the magnitude of pressure created through ski/snow interaction.   American Association of Snowboard Instructors (AASI)  **Riding Funamentals**   * Pressure-Control the relationship of the Center of Mass to the base of support to direct pressure along the length of the board.   + Control the relationship of the Center of Mass to the base of support to direct pressure across the width of the board.   + Regulate the magnitude of pressure created through board/surface interaction * Tilt-Control the boards tilt through a combination of angulation and inclination * Pivot-Control the boards pivot through flexion/extension and rotation of the body * Twist-Control torsional flex of the board using flexion/extension of the lower body   **PSIA/AASI Technical Standards and Student Assessments**   * **CAP Model**- Cognitive, Affective, Physical * **Piaget’s Stages of Development**   + Sensory motor(0-6yrs)   + Pre-operational (3-6yrs)   + Concrete-operational (6-10yrs)   + Formal-operational (11^yrs) * **Maslow’s Hierarchy of Needs**   + Physical Needs   + Safety and Security   + Belonging   + Self-esteem   + Self Actualization * **Gardner's Multiple Intelligence**   + Lingustic(word smart)   + Spacial(visual)   + Music(auditory)   + Math(numbers and logic)   + Intrapersonal(self smart)   + Interpersonal(social)   + Kinesthetic(body smart)   + Nature(environmental) * **Learning Styles(VAK)**-thinkers, watchers, doers, feelers   + Visual   + Auditory   + Kinesthetic * **Kohlberg's Moral Development**   + Pre-conventional     - **Stage 1:**obedience and punishment     - **Stage 2:**individualism and exchange   (1-6yrs- good is good, bad is bad)  (7-11yrs- clever as a fox)  Concrete-conventional   * + - **Stage 3:**good interpersonal relationships     - **Stage 4:**maintaining the social order   (11-18yrs- all in favor say “aye”)  Post-conventional   * + - **Stage 5:**social contract and individual rights     - **Stage 6:**universal principles   (listen to your conscience)  **Na Hopena A’o(Hawai’i Department of Educational Framework):**   * + Strengthened Sense of Belonging: I stand firm in my space with a strong foundation of relationships. A sense of Belonging is demonstrated through an understanding of lineage and place and a connection to past, present, and future. I am able to interact respectfully for the betterment of self and others.     - a. Know who I am and where I am from     - b. Know about the place I live and go to school     - d. Care about my relationships with others     - e. Am open to new ideas and different ways of doing things     - f. Communicate with clarity and confidence     - g. Understand how actions affect others     - h. Actively participate in school and communities   + Strengthened Sense of Responsibility: I willingly carry my responsibility for self, family, community and the larger society. A sense of Responsibility is demonstrated by a commitment and concern for others. I am mindful of the values, needs and welfare of others.     - a. Come to school regularly, on-time and ready to learn     - b. See self and others as active participants in the learning process     - c. Question ideas and listens generously     - d. Ask for help and feedback when appropriate     - f. Set goals and complete tasks fully     - g. Reflect on the quality and relevancy of the learning     - h. Honor and make family, school and communities proud   + Strengthened Sense of Total Well-being: I learn about and practice a healthy lifestyle. A sense of Total Well-being is demonstrated by making choices that improve the mind, body, heart and spirit. I am able to meet the demands of school and life while contributing to the wellbeing of family, ‘āina, community and world.     - a. Feel safe physically and emotionally     - b. Develop self-discipline to make good choices     - c. Manage stress and frustration levels appropriately     - d. Have goals and plans that support healthy habits, fitness and behaviors     - e. Utilize the resources available for wellness in everything and everywhere     - f. Have enough energy to get things done daily     - g. Engage in positive, social interactions and has supportive relationships     - h. Promote wellness in others   + Strengthened Sense of Excellence: I believe I can succeed in school and life and am inspired to care about the quality of my work. A sense of Excellence is demonstrated by a love of learning and the pursuit of skills, knowledge and behaviors to reach my potential. I am able to take intellectual risks and strive beyond what is expected.     - a. Define success in a meaningful way     - b. Know and apply unique gifts and abilities to a purpose     - c. Prioritize and manage time and energy well     - d. Take initiative without being asked     - e. Explore many areas of interests and initiate new ideas     - f. Utilize creativity and imagination to problem-solve and innovate     - g. See failure as an opportunity to learn well     - h. Assess and make improvements to produce quality work   + Strengthened Sense of Aloha: I show care and respect for myself, families, and communities. A sense of Aloha is demonstrated through empathy and appreciation for the symbiotic relationship between all. I am able to build trust and lead for the good of the whole.     - a. Give generously of time and knowledge     - b. Appreciate the gifts and abilities of others     - c. Make others feel comfortable and welcome     - d. Communicate effectively to diverse audiences     - f. Give joyfully without expectation of reward     - h. Spread happiness   **Leave No Trace-For Kids**   * **Know before you go**- Be prepared! Bring clothes to protect you from heat, cold, or rain. Use Maps to show you where you’ll be going and so you won’t get lost. Learn about the areas you visit. Read books and talk to people before you go. The more you know the more fun you’ll have. * **Choose the right path**- Stay on the main trail to protect nature and keep from wondering of by yourself. Steer clear of flowers and small trees. Once hurt, they may not grow back! Use existing camp areas- camp at least 100 big steps from roads, trails and water. * **Trash your trash**-Pack it in, Pack it out. Put litter, even crumbs, in trash cans or carry it home. Use bathrooms or outhouses when available. If you have to “go” act like a cat and bury your poop in a small hole 6-8 inches deep and 100 big steps from water. Place your toilet paper in a plastic bag in a garbage can back home. Keep water clean. Keep soap, food, and poop out of lakes and streams. * **Leave what you find**-Leave plants, rocks, and historical items as you find them so the next person can enjoy them. Treat living plants with respect. Hacking or peeling plants can kill them. Good campsites are found, not made. Avoid digging trenches or building structors in your campsite. * **Respect wildlife**-Observe animals from a distance and never approach feed or follow them. Human food is unhealthy for all animals and feeding them starts bad habits. Protect wildlife and your food by storing your meals and your trash. Control pets at all times, or leave them at home. * **Be kind to other visitors**-Make sure the fun you have in the outdoors does not bother anyone else. Remember that other visitors are there to enjoy the outdoors. Listen to nature. Avoid making loud noises or yelling. You will see more animals if you are quiet. |

**Stage 2 – Assessment Evidence**

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| **Performance Task(s):**   * Identify different plants and animals that live on the mountain. * Demonstrate respect for these plants and animals by picking up trash and not purposely harming them. * Recall place names and ski runs and the meaning/story behind the names. * Identify different landscape features on the mountain. * Explain how different landscape features affect the plants and animals that live on the mountain | **Authentic Assessment(s):**   * Explain to other students in the group what the different ecosystems are on the mountain. * Show where different landscape features and points of ecological interest (POEI) are and why * Show on the Kids Mountain Guide map where highlighted experiences occurred using emoji stickers, drawings, labels. * Be able to name some of the local animals and plants and some facts about them * Show others places that were special to them and names/stories they have created around the plants and animals that exist in that area |

**Authentic Audience(s): Instructors, Ski Patrol, Parents, other visitors and employees**

**Stage 3 – Learning Plan**

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| **Lessons/Activities**  **#1 Animal Ambulation**  **Let your students explore their inner animals!**  **Timing: Early in the day**  **Duration: 5-10 minutes**  **Age: Pre-K-5th Grade**  **Skill Level: NE-9**  **Terrain: Flat terrain**  **Materials: Animal pocket identification guide**  **How to do it:**  **Play-**Start your day with this one to really warm the kids up and get them excited about winter wildlife. Tell them they are going to be learning about forest creatures, so you want them to move like animals!  **Drill-**You can start it off by leading them in a single file line. Yell out “Bear” and then walk on all fours while grunting like a bear (the kids then follow suit). After a while call on the kids to suggest local animals and let them demonstrate how their animal walks (everybody then follows this). The more animal acting you do initially, the more they will get into it.  **Adventure-**Be clear initially that you are looking for them to pick animals that they believe live in this environment. You can also play around with the speed and direction of movements by calling out “slow motion, rewind, pause, fast forward”.  **Summary-**After each student gets a turn to demonstrate (and everyone is warmed up from hopping like rabbits and grunting like bears) circle the group back up and have a quick discussion.  **Entry points and assessment questions:**  Did you name all the major animals in this area or are there more?  What animals are you most likely to see today?  How will you know if animals are nearby?  Are their different places on the mountain you are more likely to these animals? Why?  **CAP student assessment**  **Cognitive-**Check for understanding, follow directions, verbal-linguistic abilities  **Affective-** Awaken kids emotions, identity, self esteem, humor **Physical-** Get kids familiar with new body movements in the snow environment, overall fitness level, motor control(balance and coordination)  **Curriculum Connection:**  *Awaken the spirit*  Next Generation Science Standards(NGSS)  **[2-LS4-1 Biological Evolution: Unity and Diversity](https://www.nextgenscience.org/pe/2-ls4-1-biological-evolution-unity-and-diversity)**  Make observations of plants and animals to compare the diversity of life in different habitats.  PSIA/AASI Fundamentals  **PSIA**   * Pressure-Fore and Aft-Control the relationship of the Center of Mass to the base of support to direct pressure along the length of the skis. * Pressure-Foot to Foot-Control pressure from ski to ski and direct pressure toward the outside ski.   **AASI**   * Pressure-Control the relationship of the Center of Mass to the base of support to direct pressure along the length of the board.   + Control the relationship of the Center of Mass to the base of support to direct pressure across the width of the board.   + Regulate the magnitude of pressure created through board/surface interaction   Colorado Essential Skills Framework(Novice)  **Personal Skills**   * Perseverance/Resilience-Resist distractions, maintain attention, and continue the task at hand through frustration or challenges   **Entrepreneurial Skills**   * Creativity/Innovation-Demonstrate curiosity, imagination and eagerness to learn more   Na Hopena A’o   * Strengthened Sense of **Belonging**:   + b. Know about the place I live and go to school   + d. Care about my relationships with others   + e. Am open to new ideas and different ways of doing things   + h. Actively participate in school and communities   Leave No Trace-Kids   * Know before you go * Trash your trash * Respect wildlife   **#2 Adaptation Run**  **Explore animal adaptation while bounding through soft powder!**  **Timing: Early in the day**  **Duration: 10-20 minutes**  **Age: 3rd -5th Grade**  **Skill Level: NE-9**  **Terrain:All mountain**  **Materials: Animal pocket identification guide**    **How to do it:**  **Play-**This is a good activity for rowdy groups on days when you have a lot of fresh snow around. Have them take off their skis in a safe place if they are already skiing on mountain. Let them play in the powder and discover how to move in this environment.  **Drill-**Tell them you want see how long it takes them to get to a given point and back (pick a landmark like a big tree (about 50 yards away). Make sure to time them while they run, leap, roll, crawl, let them decide.  **Summary-**While kids are catching their breath, you can facilitate a quick discussion about the adaptation of large feet in the winter. This is a good time to discuss different animal feet and use an animal tracks pocket guide to give visuals of tracks and animals.  **Adventure-**Ask the group if anyone thinks they can get a better time now that they have adapted to the environment? Give the volunteers the option to use their skis, time them and have the rest of the group cheer them on.  **Entry points and assessment questions:**  Why are we using skis or snowboards?  What are the helpful features of skis or snowboards that help us move through the snow?  What is an adaptation?  In order for animals to survive in this environment what type of adaptations do they need?  Where are some places on the mountain that might be easier for animals and harder for humans to experience? Why?  Which animal is most successful in these different areas?  Humans have the luxury of using tools like skis and snowboards but most animals require feet that are adapted for snow or else migrate to lower areas. Pick a really feisty kid and have him/her run to the tree and back without ski boots on (make sure to time them and conditions and locations are appropriate to keep activity safe). Talk about the difference with the students. If kids are using poles, this would be a good time to talk about the function of the baskets and why or why not we use poles.  **CAP student assessment**  **Cognitive-** Specific concepts and understanding, and following directions  **Affective-** Observe kids non-verbal communication, recognize emotions, internal beliefs and values **Physical-** Observe kids physical fitness, body development, coordination and avoid overexertion  **Curriculum Connection:**  *Elevate Community*  Next Generation Science Standards(NGSS) :  **3-LS4-3 -** Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all. [**K-LS1-1**](https://www.nextgenscience.org/pe/k-ls1-1-molecules-organisms-structures-and-processes) - Use observations to describe patterns of what plants and animals (including humans) need to survive. 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Know about the place I live and go to school   + d. Care about my relationships with others   + e. Am open to new ideas and different ways of doing things   + h. Actively participate in school and communities * Strengthened Sense of **Responsibility**:   + b. See self and others as active participants in the learning process   + c. Question ideas and listens generously   + f. Set goals and complete tasks fully   + g. Reflect on the quality and relevancy of the learning   Leave No Trace-Kids   * Know before you go * Trash your trash * Respect wildlife * Choose the right path   **#3 Deers Ears**  **Challenge your students to use their senses to make deeper observations about the natural world!**  **Timing: Whenever an outdoor “teachable moment” presents itself**  **Duration: 5-10 minutes**  **Age: 3rd -6th Grade**  **Skill Level: NE-9**  **Terrain: All mountain**  **Materials: Animal pocket identification guide**  **How to do it:**  **Play-**Imagine you are skiing or snowboarding with a group of students when you hear a faint bird call in the distance. With all the excited chatting and the sliding on snow noises, not a single student heard it! Tell the students to stop and hold their hands up in the air.  **Drill-**Tell them that you are going to teach them to hear almost as well as a deer does. Have them put their hands behind their ears so that they can really hear the difference with their new Deer’s Ears. Tell the group you want them to listen quietly to the natural environment and count the number of different sounds they hear.  **Adventure-**After you frame this listening activity you will be able to quickly return to Deer’s Ears later in the day if needed. By focusing on the process of using their senses we can not only teach students’ about the environment, we also show them how to enjoy and experience nature.  **Summary-**This can lead to a great discussion about the importance of being quiet in the outdoors and respecting the tranquility of the winter landscape.  **Ask the students these follow-up questions:**  Why do some animals have small ears and some larger?  What animal have the best or worst hearing? Why?  Where are some places on the mountain that it might make it easier to hear without your deer ears?  Where are some places it might be harder to hear?  What animals would live better in each of these different places?  **CAP student assessment**  **Cognitive-**Specific concepts and understandingof different sounds in the area  **Affective-** Observe non-verbal communication, identity and self esteem  **Physical-** Sensory development ( with regard to visual, auditory, and kinesthetic awareness)  **Curriculum Connection:**  *Honor Place, Elevate Community, Awaken the Spirit*  Next Generation Science Standards(NGSS) :  **[2-LS4-1 Biological Evolution: Unity and Diversity](https://www.nextgenscience.org/pe/2-ls4-1-biological-evolution-unity-and-diversity)**  Make observations of plants and animals to compare the diversity of life in different habitats.  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Know about the place I live and go to school   + e. Am open to new ideas and different ways of doing things   + h. Actively participate in school and communities * Strengthened Sense of **Responsibility**:   + b. See self and others as active participants in the learning process   + c. Question ideas and listens generously   + g. Reflect on the quality and relevancy of the learning * Strengthened Sense of **Excellence**:   + b. Know and apply unique gifts and abilities to a purpose   + e. Explore many areas of interests and initiate new ideas   + f. Utilize creativity and imagination to problem-solve and innovate   + h. Assess and make improvements to produce quality work   **Leave No Trace-Kids**   * Leave what you find * Respect wildlife * Be kind to other visitors   **#4 Plant Duplication**  **Explore plant adaptations by challenging students’ observation skills!**  **Timing: Anytime plant material is available**  **Duration: 15 minutes**  **Age: Pre-K-5th Grade**  **Skill Level: NE-9**  **Terrain: All mountain**  **Materials: Buff, 8 local plant items, Plant pocket identification guide**  **How to do it:**  **Prepare-**This is a classic activity but sometimes the real challenge in winter is finding enough plant items in all the snow. Try looking in tree wells and picking out your items ahead of time. Collect 8 different plant times (cones, twigs, needles, leaves, moss, etc) and make sure the kids don’t see them.  **Play-**Consider an introduction that challenges the students’ powers of observation. Have the kids look around and name one or two things that they see other then their fellow classmates.  **Drill-** Cover the items with a hat or buff. With the hidden items laid before them explain to the students that in a moment you will remove the buff and 8 plant items will be revealed. The students will get 8 seconds to take in as much information as possible. After the 8 seconds are up put the buff back over the plant items.  **Adventure-** The challenge is for the students to go find each item in the surrounding environment. Give the students 5 minutes or so to do this.  **Summary-** When they are finished, gather the group and dramatically remove each item one at a time from under the cloth. As they come out check with each student to see if they found the item. Share a cool fact about each plant part. This is a great time to talk about plant parts and how native foliage adapts to the winter environment.If any of the items were not found in the area, challenge the kids by asking questions to begin the inquiry process. Let them come up with some questions as to where these items might be found.  Remember to address Leave No Trace principles for the lesson:  **Leave No Trace-Kids**   * Leave what you find * Respect wildlife * Be kind to other visitors   **Entry points and assessment questions:**  What was your favorite plant part and why?  Have you seen these plants where you live?  Where on the mountain are you more likely to see these different items?  Which one of these places might have more or less of the item? Why?  **CAP student assessment**  **Cognitive-** Challenges memory, follow directions,logic, mathematical and visual abilities  **Affective-** social interactions(play, rules, and competition)  **Physical-** Challenges motor skills(fine and major), overall fitness level  **Curriculum Connection:**  *Honor Place*  Next Generation Science Standards(NGSS) :  **[2-LS4-1 Biological Evolution: Unity and Diversity](https://www.nextgenscience.org/pe/2-ls4-1-biological-evolution-unity-and-diversity)**  Make observations of plants and animals to compare the diversity of life in different habitats.  Common Core Standards   * [CCSS.MATH.CONTENT.K.MD.A.1](http://www.corestandards.org/Math/Content/K/MD/A/1/)   Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.  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Am open to new ideas and different ways of doing things   + h. Actively participate in school and communities * Strengthened Sense of **Responsibility**:   + b. See self and others as active participants in the learning process   + c. Question ideas and listens generously   + g. Reflect on the quality and relevancy of the learning * Strengthened Sense of **Excellence**:   + b. Know and apply unique gifts and abilities to a purpose   + e. Explore many areas of interests and initiate new ideas   + f. Utilize creativity and imagination to problem-solve and innovate   + h. Assess and make improvements to produce quality work   **Leave No Trace-Kids**   * Leave what you find * Respect wildlife * Be kind to other visitors   **#5 Snow Homes**  **Challenge the students to apply their knowledge of the winter landscape!**  **Timing: Later in the day (after students have explored the winter landscape)**  **Duration: 30-45 minutes**  **Age: 3 rd -6 th Grade**  **Skill Level: NE-9**  **Terrain: Indoors with easy access to the outdoors**  **Materials: Empty film canisters, digital thermometer, warm water bottle/bladder, Plant and Animal pocket identification guide**  **How to do it:**  **Prepare-** To do Snow Homes you need 1 film canister for every 2 kids, a digital thermometer and enough hot water in your own personal water bottle/bladder to fill up all of the canisters.  **Play-** After taking a short break inside, head outside tell the kids you are about give them an “animal” to take care of (the canister filled up with hot water but don’t tell them). Their job is to make a home for their animal, a home that will keep them warm in the winter. Real animals must do this too, and they have to make good choices about what part of the winter environment is good for home making. Talk a bit about wind chill, heat from sunlight, and the insulating properties of snow.  **Drill-** Tell the kids that they must build a small home for their animal (the film canister filled with hot water) using natural materials. Their home must be warm enough that the temperature of the animal does not significantly drop over the 10-15 minutes they will be in their home. Make sure to test the original temp of the hot water bottle for comparison. Once the homes are built, the kids can place the animals inside. Start a timer immediately. Play a quick game or go back inside while you wait.  **Summary-** When you get back take the temperature of the water and compare how each animal/home fared. Depending on how harsh the instructor is feeling, he or she can set a hard-cap (i.e. 45 degrees) below which the animal “freezes”.For a lighter approach to concluding the game, just facilitate a discussion about which animal/canister was warmest and why.  **Entry points and assessment questions:**  Where is the warmest place in this habitat or the snowpack? Coldest?  What animals are well adapted to access the warm areas?  What animals are not? How does this affect survival?  How long could you survive in this habitat?  How would you change the landscape to make it more inhabitable?  How would these changes affect the animals and plants that live in the area?  **CAP student assessment**  **Cognitive-** Challenges creativity, following directions, specific concepts and understanding  **Affective-** Teamwork and sportsmanship, Interpersonal skills  **Physical-** fine motor skills, sensory development(touch, auditory, kinesthetic)  **Curriculum Connection:**  *Elevate Community, Awaken the Spirit*  Next Generation Science Standards(NGSS) :  **[K-LS1-1 From Molecules to Organisms: Structures and Processes](https://www.nextgenscience.org/pe/k-ls1-1-molecules-organisms-structures-and-processes)**  Use observations to describe patterns of what plants and animals (including humans) need to survive. **[2-LS4-1 Biological Evolution: Unity and Diversity](https://www.nextgenscience.org/pe/2-ls4-1-biological-evolution-unity-and-diversity)** Make observations of plants and animals to compare the diversity of life in different habitats.  **3-LS4-3- [Biological Evolution: Unity and Diversity](https://www.nextgenscience.org/pe/2-ls4-1-biological-evolution-unity-and-diversity)**  Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all.  Colorado Essential Skills Framework(Novice)  **Civic/Interpersonal Skills**   * Character-Demonstrate an understanding of cause and effect related to personal decisions   **Entrepreneurial Skills**   * Creativity/Innovation-Demonstrate curiosity, imagination and eagerness to learn more   Na Hopena A’o   * Strengthened Sense of **Belonging**:   + b. Know about the place I live and go to school   + e. Am open to new ideas and different ways of doing things   + h. Actively participate in school and communities * Strengthened Sense of **Responsibility**:   + b. See self and others as active participants in the learning process   + c. Question ideas and listens generously   + g. Reflect on the quality and relevancy of the learning * Strengthened Sense of **Excellence**:   + e. Explore many areas of interests and initiate new ideas   + f. Utilize creativity and imagination to problem-solve and innovate   + h. Assess and make improvements to produce quality work * Strengthened Sense of **Aloha:**   + a. Give generously of time and knowledge   + b. Appreciate the gifts and abilities of others   + c. Make others feel comfortable and welcome   + d. Communicate effectively to diverse audiences   **Leave No Trace-Kids**   * Know before you go * Trash your trash * Leave what you find * Respect wildlife * Be kind to other visitors   **#6 Needles to Poles**  **Challenge your kids plant identification skills!**  **Timing: Anytime**  **Duration: 10 minutes to all day**  **Age: Pre-K-5th Grade**  **Skill Level: 4-9**  **Terrain: Alpine Springs Chairlift**  **Materials: None**  **How to do it:**  **Play-** Before getting on the Alpine Springs chairlift, challenge the whole group(if large group not all students will be riding with you on the chair because it allows for 4 people) to identify as many different plants as possible while riding the chairlift. Also challenge them to study the map and identify the different runs that are accessible from this lift and agree on one for our next run. Once you get on the chair lift, see how many different plants the students riding with you can identify and study the map.  **Drill-**. With the students on the chair with you go through the names of the runs accessible from this lift to find any commonalities in the names and highlight the lodgepole run when your able to see it from the chair. **Start by asking** the group to look specifically at the pine trees and explain some characteristics of pine trees (needles, cones). Then direct their attention to the different colors of the pine needles. Ask them what are the different colors they see, try to tease out the color yellow. Then direct attention to the length of the needles. Lodgepole pines have larger needles and yellow tips. Once off the chair ask the kids on the chairs which run they decided on and start off on that trail. Find a safe place to stop. Revisit (**Start by asking)**, this identification process with the rest of the group to get them caught up with the kids you were with on the chair.  **Adventure-** Once the kids start to identify the lodge pole pine trees, challenge them to see how many they can count on different lifts and runs but they need to see the entire tree for it to count. This game can have many different spins, let the kids decide.Then ask them inquiry questions to tease of their knowledge and motives. For example: why should we know this type of tree? Is it good for building? If so how many trees would it take to build a cabin? If build how would that change the area? Is it good habitat? If so, for what animals?  **Summary-** Explain some the reasons why the lodgepole might like this area of the mountain so much(slope, elevation, sun exposure, etc). Share other facts about trees, ecosystems etc. Throughout the day revisit the game on other chairlifts and runs to challenge the kids to compare lodgepole pine counts around the mountain and what could be done with these numbers.  **Entry points and assessment questions:**  Why do the lodgepole pines grow in this area?  What other trees grow in the area?  Where could we find the most or the least lodgepole pines?  Why should we know the ecological limits and the effects of landscape disturbance of a place?  How do plants and animals make us more familiar with places we are unfamiliar with?  **CAP student assessment**  **Cognitive-**Check for understanding, follow directions, verbal-linguistic abilities  **Affective-** Awaken kids emotions, motivations and self esteem **Physical-** Sensory development(visual and auditory)  **Curriculum Connection:**  Next Generation Science Standards(NGSS) :  **[2-LS4-1 Biological Evolution: Unity and Diversity](https://www.nextgenscience.org/pe/2-ls4-1-biological-evolution-unity-and-diversity)**  Make observations of plants and animals to compare the diversity of life in different habitats.  Colorado Essential Skills Framework(Novice)  **Personal Skills**   * Perseverance/Resilience-Resist distractions, maintain attention, and continue the task at hand through frustration or challenges   **Entrepreneurial Skills**   * Creativity/Innovation-Demonstrate curiosity, imagination and eagerness to learn more   Na Hopena A’o   * Strengthened Sense of **Belonging**:   + b. Know about the place I live and go to school * Strengthened Sense of **Responsibility**:   + c. Question ideas and listens generously   + d. Ask for help and feedback when appropriate   + f. Set goals and complete tasks fully   **#7 Place Name Game**  **Challenge the students to find connections between place names and their environment!**  **Timing: Later in the day (after students have explored the winter landscape)**  **Duration: 30-45 minutes**  **Age: pre-k to 12th Grade**  **Skill level: 3-9**  **Terrain: Indoors**  **Materials: Kids or adult trail maps, at least 4 different color highlighter pens, 1 ink pen, Plant and Animal pocket guides, emoji stickers**  **How to do it:**  **Play-** During one of the inside breaks of the day sit down at a table and give each student a map of the mountain. Let them explore the map and find points of interest.  **Drill-** Give everyone a colored highlighter and tell them to right their name on the front of the map. Tell the group to open the map and find where we are on the map and highlight the name. Then ask the group to highlight the name of the place where we started the day. Once completed, ask the group to retrace their tracks on the mountain by either starting from where they are now or where we started the day by highlighting every trail, chairlift and/or gondola that they’ve been on that day. Allow 5 min for this and encourage group help.  **Adventure-** Then, tell everyone to pass the pens to the right to receive a new color highlighter. With this new color, highlight all the trails, chairlifts and gondolas that they would like to go on during this trip, day and/or program.  **Drill-** Then with a pen/pencil ask the group to circle any animal or plant name that they highlighted or not yet highlighted. If available use emoji stickers to have kids place on map where they felt those emotions that match how they felt while they were skiing in that area.  **Summary-** If there are any place names that are circled and highlighted, ask the child/group if they saw any evidence of this animal or if they remembered seeing those plants. This would be a good time to give some facts about those plants and animals so that the group can have a better understanding of what to look for the next time they are on those trails. If instructor has a plant or animal pocket guides this would be a great time to pass them around and discuss cool facts, stories, or clues to be looking for next time we’re out on the snow.  **Entry points and assessment questions:**  Which trails do you want to do next?  What will you be looking for on the next ski run?  How do place names help you explore local flora and fauna of a place?  Why did you place those emoji where you did?  Why should we be conscious of the plants and animals of different environment?  How do plants and animals make us more familiar with places we are unfamiliar with?  **CAP student assessment**  **Cognitive-** Following directions, specific concepts and understanding  **Affective-** Internal beliefs, values, emotions(intrapersonal skills)  **Physical-** fine motor skills, sensory development(touch, auditory, kinesthetic)  **Curriculum Connection:**  *Elevate Community, Awaken the Spirit, Honor Place*  Next Generation Science Standards(NGSS) : **[2-LS4-1 Biological Evolution: Unity and Diversity](https://www.nextgenscience.org/pe/2-ls4-1-biological-evolution-unity-and-diversity)** Make observations of plants and animals to compare the diversity of life in different habitats.  Common Core Standards   * [CCSS.ELA-LITERACY.W.K.2](http://www.corestandards.org/ELA-Literacy/W/K/2/)   Use a combination of drawing, dictating, and writing to compose informative/explanatory texts in which they name what they are writing about and supply some information about the topic.   * [CCSS.ELA-LITERACY.RI.K.2](http://www.corestandards.org/ELA-Literacy/RI/K/2/)   With prompting and support, identify the main topic and retell key details of a text.  Colorado Essential Skills Framework(Novice)  **Personal Skills**   * Perseverance/Resilience-Resist distractions, maintain attention, and continue the task at hand through frustration or challenges   **Professional Skills**   * Self-Advocacy-Appropriately express a range of emotions to communicate personal ideas/needs   **Civic/Interpersonal Skills**   * Character-Demonstrate an understanding of cause and effect related to personal decisions   **Entrepreneurial Skills**   * Inquiry/Analysis-Recognize and describe cause-and-effect relationships and patterns in everyday experiences   Na Hopena A’o   * Strengthened Sense of **Belonging**:   + a. Know who I am and where I am from   + b. Know about the place I live and go to school * Strengthened Sense of **Responsibility**:   + c. Question ideas and listens generously   + d. Ask for help and feedback when appropriate   + f. Set goals and complete tasks fully   + g. Reflect on the quality and relevancy of the learning * Strengthened Sense of **Total Well-being**:   + a. Feel safe physically and emotionally   + c. Manage stress and frustration levels appropriately * Strengthened Sense of **Excellence**:   + a. Define success in a meaningful way   + e. Explore many areas of interests and initiate new ideas   + f. Utilize creativity and imagination to problem-solve and innovate   + g. See failure as an opportunity to learn well   + h. Assess and make improvements to produce quality work * Strengthened Sense of **Aloha:**   + a. Give generously of time and knowledge   + c. Make others feel comfortable and welcome   + d. Communicate effectively to diverse audiences   + h. Spread happiness   **Leave No Trace-Kids**   * Know before you go * Choose the right path * Respect wildlife * Be kind to other visitors |