Environmental Stewardship and Energy Conservation Efforts at Wachusett Mountain

Background of Lesson…

For more than 50 years the Wachusett Mountain Ski Area has worked hard to balance the demands of operating a dynamic and growing ski industry with the unique environmental needs of the Wachusett mountain state forest. Many of these stewardship decisions are based on energy and resource conservation and align with the MA Curriculum Frameworks grades 5-12 earth science standards "earth and human impact." Teachers could create their own activities/lessons using the **"Examples at Wachusett"** list below or use the suggestions shown here.

Ideas for Student Activities are:

Students could choose 10 stewardship steps from the list below and

1. Make a timeline of progression (suggest using a free digital platform such as Canva)
2. Expand on the cause and effect of the change by constructing positive outcome statements. (FYI-Some examples state the benefit- teacher option to remove) Teachers could provide a simple graphic organizer with prompts such as
   As _____ happened, the ski area did this _____
   By (doing this) _____ the ski area (caused this to happen) _____
   By (doing this) _____ the ski area (avoided this from happening) _____
3. Choose 1 or 2 changes to research more about, ask ski area for an update, follow up to learn more about the actual impact of the change and report on findings.

Examples at Wachusett- *not in chronological order*

- ✔️ Implementation of recycling signage to ensure efficient waste management
- ✔️ Installed system to use waste heat from air compressors to supply base lodge with heating
- ✔️ Promoted use of public transportation by providing shuttle services to nearby Wachusett train station. This reduces traffic and fuel consumption.
- ✔️ Prevention of hiking on skiing trails to avoid erosion and disruption of meadow habitat

✔️ 5% donation from gross revenue to buy conservation land
✔️ Ski trail expansion halted or diverted, due to Old Growth forests
✔️ During spring and summer, the ski trails provide meadow habitats
✔️ Installed radiant heat system under outdoor patio and entrances which reduces use of salt and snowblower fuel consumption
✔️ Water bars on slopes to help divert snow melt for more efficient recycling of water
✔️ Protection of Old Growth forests with signage to stay on ski trails
✔️ Snowmaking water use is largely non consumptive, most ski areas expect approximately 85-90% of water to return to the watershed as snow melt in the spring
✔️ Advanced grooming technology system uses GPS technology to inform snowmaking teams where to make additional snow. This system also advises groomers where to efficiently push snow on the ski trails thus saving fuel.
✔️ Utilize an on site weather data system to inform and monitor when it is most efficient to make snow based on humidity, temperature, and snowmaking pond water levels.
✔️ Installed a non potable water system to flush toilets with snowmaking pond water, instead of drinking water
✔️ Landscaping vehicle changed from pick up truck to golf cart to use less fuel
✔️ Installed energy efficient LED lights on ski trails and in buildings.
✔️ Implementation of trail lighting control software to dim lights during maintenance and snowmaking to reduce energy consumption
✔️ Introduced a food waste program to transfer possible compost to a more efficient waste stream
✔️ Outfitted chair lifts with energy efficient belts to reduce energy usage
✔️ Joined the NSAA Climate Challenge sustainability and climate challenge
✔️ Engaged in advocacy through programs such as Protect our Winters and in discussions with state and federal government
✔️ Use of online resources to help educate our guests on conservation efforts
✔️ Continued upgrading of snow making equipment. Modern snow guns are significantly more efficient than older models.

Related Vocabulary

Radiant heat
Water bars
Old Growth Forest
Conservation
Efficiency