

Energy Web



KEEP - Wisconsin's K-12 Energy Education Program
College of Natural Resources
University of Wisconsin - Stevens Point

Energy Web

Introduction to Energy Connections Outdoors

Estimated Time: 20 minutes

Age: 4th-Adult

PARTICIPANTS SHOULD GAIN AN UNDERSTANDING OF:

- Natural and human-made components of their outdoor environment
- Connections between these components
- Energy connections and/or transformations between different components

SUPPLIES

- Chart paper, dry erase board, or similar
- Markers
- Student informal note-taking materials
- Access to outdoors

ADVANCE SET-UP

- Have materials available
- Determine outdoor boundaries for student exploration

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INTRODUCTION (5 min)

- If needed, review kinds of observations that can be made in our environment: what we see/hear/feel on our skin/smell. (Taste will not be used in this activity unless the teacher gives prior permission.)
- Students will be going outside to **notice** as many observations about the outdoor environment as they can in five minutes.
- Things they may write down could include both natural and human-made components such as:
 - Sun warming face
 - Leaves on the ground
 - Sidewalk
 - Trees
 - Wind on skin
 - Birds singing
 - Traffic
 - Puddles
- Give students boundaries for how far they can wander to make their observations, as well as a time to return to a designated location.
- Depending on age, students can use regular writing materials or their phones to record observations.
- Go over guidelines on students working in partners or small groups.
- If needed, set a minimum number of observations or challenge them to determine a high number to work towards.

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ACTIVITY (10 min)

- Allow students to wander and make observations for 5 minutes.
- When students have returned, use the chart paper, whiteboard, or other large writing surface to have students share their observations and write them down around the edge of the writing surface. Options include:
 - Verbally sharing and the teacher takes notes
 - Students take turns adding their observations to the outside edge of the board
 - Add to a digital shared document
- Due to the number of observations, you may want to limit it to “your three favorite” or “your five most unique” components.
- Model noticing connections between components and drawing a line between them. Examples include:
 - The wind blows the leaves across the ground.
 - The sun is making the sidewalk warm.
 - The birds are singing in the trees.
 - The traffic is splashing through the puddles.
- Next, look for how energy is required in the connections that were identified. For example:
 - The wind blows the leaves across the ground - kinetic, sound
 - The sun is making the sidewalk warm - radiant, thermal
 - The birds are singing in the trees - sound, potential
 - The traffic is splashing through the puddles - kinetic

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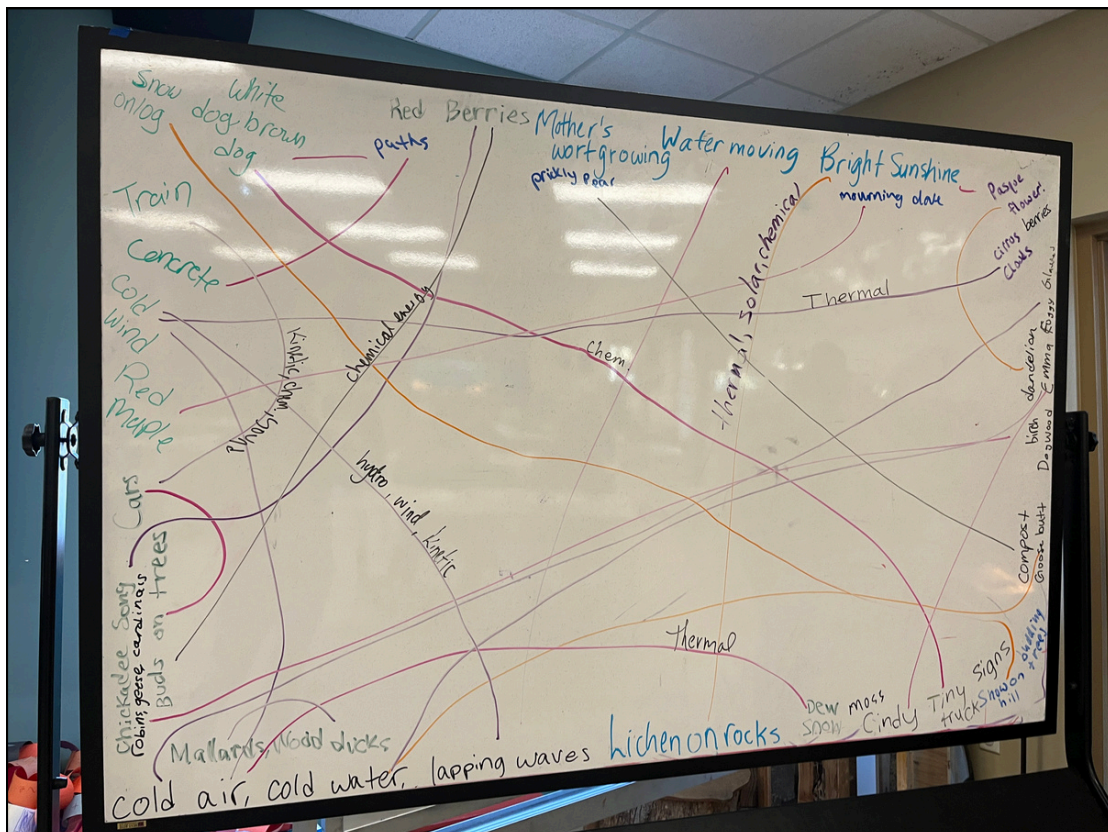
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ACTIVITY CONTINUED

- You may also want to include words for processes that are taking place in the connections made, such as:
 - Photosynthesis
 - Evaporation
 - Decomposition
 - Combustion (vehicle emissions)
 - Erosion
- If students do not have a lot of background knowledge of energy, this board can be used throughout a unit to record forms of energy learned and examples in real life.



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DISCUSSION (5 min)

- This activity is a good introduction for a unit on energy or for exploring energy outdoors.
- Encourage students to add to the energy web that they have created as they notice more connections outdoors.

WRAP-UP AND EXTENSIONS

- Use as a pre-post assessment to show growth over a unit of study
- Connect this lesson to [Energy Use in an Ecosystem](#)
- Check out the KEEP Kit [Discovering Energy in Nature](#)
- Repeat at a different time of year to compare different natural processes or use as a phenology activity.