Thaw Circles

Walking in forests in early spring, you may notice a strange phenomenon. Around the base of tree trunks are "thaw circles." Often these are perfectly circular! The reason for these circles is heat - as the spring sun warms the forest, the dark tree trunks absorb more heat than the highly reflective snow around them. As this heat radiates out, it uniformly melts the nearby snow in a ring around the tree. Some small plants seem to use this phenomenon to get a jump on the spring growing season and grow close to tree trunks. Scientists are currently testing this hypothesis and estimate that these plants may get as much of a 20% increase in their growing season by sprouting in these thaw circles. This could lead to a class investigation about thermodynamics, or into how this heat transfer affects the ecology of the forest system.

Additional Resources:

- Atlas Obscura The Strange Magic of Forest Thaw Circles
- Ecological Society of America Thaw circles around tree trunks provide spring ephemeral plants with a big head start on the growing season

Performance Standards:

Kindergarten	5th Grade	Middle School	High School
K-PS-2.1. Make observations to determine the effect of sunlight on Earth's surface.	5-LS-2.3. 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.	MS-LS-2.5. Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations. MS-PS-3.5. Construct, use, and present arguments to support the claim that when the kinetic energy of an object changes, energy is transferred to or from the object.	HS-LS-2.5. Evaluate the claims, evidence, and reasoning that changing the conditions of a static ecosystem may result in a new ecosystem. HS-PSP-2.2. Develop and use models to illustrate that energy at the macroscopic scale can be accounted for as a combination of energy associated with the motions of particles (objects) and energy associated with the relative positions of particles (objects).