

Shoshone Ice Caves



The Shoshone Ice Caves were formed 24,000 years ago when underground volcanic eruptions from Black Butte created a lava tube. The cave eventually froze the subterranean water because it easily trapped cold air. Even on a hot summer day with temperatures in the 90s, the ice caves will remain in the low 30s. The largest of the caves extends over 1000 feet into the earth. The cave works because of an expansion compression of the airflow, making it work on the same principle that used in modern refrigeration. This topic could be used to explore energy transfer or geologic processes.

Possible topics for discussion:

- Why does the inside of the cave stay so cold?
- Why would a lava tube instead of a solid rock?
- What would happen if the air flow changed direction or stopped?
- How does heat transfer from one place to another?

Additional Resources:

- [Shoshone Ice Caves History](#)

Performance Standards:

Kindergarten	2 nd Grade	4 th Grade	Middle School	High School
K-PS-2.1. Make observations to determine the effect of sunlight on Earth's surface.	2-ESS-2.3. Obtain information to identify where water is found on Earth and that it can be solid, liquid or gas.	4-ESS-2.2. Analyze and interpret data from maps to describe patterns of Earth's features.	MS-PS-3.4. Plan an investigation to determine the relationships among the energy transferred, the type of matter, the mass, and the change in the average kinetic energy of the particles as measured by the temperature of the sample. MS-ESS-2.2. Construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying time and spatial scales.	HS-PSP-2.4. Plan and conduct an investigation to provide evidence that the transfer of thermal energy when two components of different temperatures are combined within a closed system results in a more uniform energy distribution among the components in the system (second law of thermodynamics). HS-ESS-2.2. Analyze geoscience data to make the claim that one change to Earth's surface can create feedback that cause changes to other Earth systems.



The Idaho Science Coaches are a group of Science specialists funded by the Idaho State Department of Education who provide research-based science professional development for educators in Idaho. The inclusion of resources on this page does **NOT** constitute an endorsement or recommendation of any specific online material, program, or by any person or group who has contributed. These resources are provided solely to support implementation of the Idaho State Content Standards in Science and improve student learning.

