



Snow Creatures Lesson Plan

90 min. of activity, *however* an approx. 45min-1hr break is needed during the middle of the lesson. That could be students going to lunch, a specials class, or a separate lesson could be taught during that break time.

Indoors & outdoors - this is a winter-specific activity

Materials:

Small disposable plastic water bottles (1 for every pair of students)

Jell-o mix

Various animal pelts

Thermometers

Various scraps of clothing (lost and found items work well, like hats, mittens, scarves, shirts, etc.)

Students will need a notebook or piece of paper and clipboard to record data

Prep:

Empty the plastic water bottles, and fill with prepared jell-o mix. Cap tightly.

Learn heat transfer & how it applies to seasons - 15 mins

Ask the class:

- When we are outside, we feel warm or cold. Why does this happen?
- What are some examples of weather that makes you feel warm? Cold?

There are three ways that heat is transferred from the environment into our body or zapped out of our body (making us feel warm or cold).

These are:

- Conduction (laying on a dark driveway heats you up, sitting on snow makes you colder)

- Example: have students sit on ground for a minute (it's cold!)...then sit on ground with backpack or something between them and the ground (less cold)
- Convection (warm air blowing on you from a hair dryer warms you up, cold breeze cools you down) –Does the wind warm us up or cool us down today?
- Radiation (you put your hands on a fire to warm them up, putting your hands near a block of ice cools them down) – can we feel the sun's radiation today?

Introduce Snow Creature Experiment - 45 min

- Ask the class: How do animals stay warm at this time of year?
 - Let students touch the pelts and make observations about how they are similar, different, and which of the three modes of heat transfer each pelt utilizes to keep the animal warm.
- Give each pair of students a "snow creature" (jell-o filled waterbottle) of their own.
- Tell students: We need to help our snow creature stay warm for about 45 min. outside. How can we prevent them from getting cold due to conduction, convection, and radiation?
- Have students take & record the initial temps of the snow creatures by removing the cap and taking the temp of the jell-o.
- Each pair gets to pick one insulating item to dress their creature in (from lost and found bin or clothing scraps)
- Then, head outside with snow creatures and student notebooks and have students find their snow creature a home! Encourage students to consider the effects of conduction, convection, and radiation when choosing. Have students record their location by sketching and describing it in a notebook.
- Predict what your snow creature's temperature will be after 45 mins in this spot.

******* BREAK TIME for 45min-1hr. This time could be while students go to lunch or a specials class. Alternatively, the instructor can teach a separate lesson during this time.*******

Retrieve Snow Creatures- 30 min

- Get students excited to find out how their snow creatures survived. Ask them to make and record a prediction of what their snow creature's temperature will be upon retrieval, and why. Again, encourage them to use conduction, convection, and radiation in their responses.
- Then, take the students outside and have them retrieve their snow creatures. If they forgot where it is located, have them refer to their previous field notes.

- Once back inside, have the students take and record their end result temps
- If there is time, have students record their temps on the board alongside a quick description of where it was located outside (such as “at the base of the playground slide”)
- As a class, analyze some of the patterns that presented themselves in the results and make a conclusion!
- Debrief the experiment as a class.
 - Ask: Did we learn anything from this experiment? How does this apply to animals living outdoors in Wyoming at this time of year? What about people when we go outside?



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