



# Ice Cream Glacier

Topic:	Dynamic Change
Method:	Participants use ice cream sundae ingredients to create their own glacier and mimic glacier movement and change.
Time Frame/Age:	20 minutes/3 - 17 years of age
Background:	This activity is designed to recreate the formation and movement of a glacier. Important words include: glacier, moraine, serac, and gravity.
Materials:	<ul style="list-style-type: none"><li>• Ice cream</li><li>• Toppings (Oreo crumbles, chocolate chips, etc.) for moraine</li><li>• Rubber glove or plastic bag</li><li>• Cookie sheet or transparent glass tray</li><li>• Spoon and bowls</li><li>• Whipped Cream to make seracs</li><li>• Other possibilities: Chocolate syrup, Root beer or other liquid ingredient</li></ul>
Procedure:	<ol style="list-style-type: none"><li>1. Place the tray flat on a table.</li><li>2. Ask students what is at the base of the glacier? Answer: Moraine. Put toppings on tray (this is the moraine or the earth).</li><li>3. Ask students how are glaciers formed? Answer: Snow. Begin to add ice cream to the tray. Add one scoop at a time until the "glacier" starts building up.</li><li>4. If you have a transparent tray, look at the "glacier" from below. Use the rubber glove (or plastic bag as a</li></ol>

glove) to press down on the ice cream to see how glaciers transport debris.

5. Glaciers are not flat pieces of ice, sections move at different speeds, so spires or seracs of ice form on top of the glacier. Spread whipped cream to form seracs on top of the ice cream.
6. There is meltwater with glaciers. It flows beneath the glacier, in the middle or as pools of water on top. Pour chocolate syrup to flow beneath the glacier and on top of the ice cream. This represents meltwater flowing out of a glacier.
7. When completed, mention to the students that this isn't really an accurate model of a glacier. Ask them: What is missing for this to be an accurate model of a glacier? Answer: It isn't moving. What factors make glaciers move? Answer: Slope, gravity, and weight.
8. How can I make our glacier move? Answer: Tilt the tray. Take one side of the tray and start lifting it up. When the ice cream glacier starts to move, then our model is complete.
9. Eat the glacier!!

Extension:

- What if the angle of the tray were greater or lesser?
- What if the glacier were in a different container (narrower, wider, bumpier, curvier, steeper, and less steep)? How would that change the movement of the glacier?
- How does adding liquid affect the glacier? What if the liquid fluctuated like tides?
- Put a couple of scoops of the "glacier" into a glass with rootbeer. Put the same amount into another glass and observe melt rates.