

Melting Glaciers and Permafrost	Grade 8 – Earth Systems
Handout – Observation Sheet	

**Glacier Melt – Observations**

Container with Ice and Water		
Time Elapsed	Level of Thaw (1 to 10 – 10 being completed thawed)	Other Observations if Applicable
0 Minutes		
10 Minutes		
20 Minutes		
30 Minutes		
40 Minutes		

Container with Only Ice		
Time Elapsed	Level of Thaw (1 to 10 – 10 being completed thawed)	Other Observations if Applicable
0 Minutes		
10 Minutes		
20 Minutes		
30 Minutes		
40 Minutes		

**State your prediction.**

**Was your prediction accurate? If so, explain why.**

**Albedo Effect – Observations**

Ice on Dark Cloth		
Time Elapsed	Level of Thaw (1 to 10 – 10 being completed thawed)	Other Observations if Applicable
0 Minutes		
10 Minutes		
20 Minutes		
30 Minutes		
40 Minutes		

Ice on Light Cloth		
Time Elapsed	Level of Thaw (1 to 10 – 10 being completed thawed)	Other Observations if Applicable
0 Minutes		
10 Minutes		
20 Minutes		
30 Minutes		
40 Minutes		

**State your prediction.**

**Was your prediction accurate? If so, explain why.**

**What happens when permafrost thaws? – Observations**

Time Elapsed	State of Structure (Stable, shifted, fallen over, etc.)	Level of Thaw (1 to 10 – 10 being completed thawed)	Other Observations
0 Minutes			
1 Hour			
2 Hours			
3 Hours			
4 Hours			
Overnight			

**State your prediction.**

**Was your prediction accurate? If so, explain why.**

**Questions**

1. Using the particle theory of matter, why do you think the ice cube placed in the water melted faster or slower than the ice cube placed in the container without any water?

**-The ice cube placed in the water melts faster because the molecules in water are more tightly packed than the molecules in the air.**

**-This allows for more contact with the ice and a greater rate of heat transfer which causes the ice cube to melt faster.**

2. Melting sea ice does not raise water levels but melting glaciers from nearby land does, why do you think that is?

**-This is because sea ice is already in the water.**

**-The volume of water that they displace as ice is approximately the same volume of water they add to the ocean once they have melted resulting in no changes in sea level.**

3. As we've learned, melting permafrost can affect infrastructure such as roadways and buildings as well as release greenhouse gases into the atmosphere. What other consequences can you think of that may be a result of melting permafrost?

**-Subsidence can increase the chances of landslides.**

**-It is possible for ancient bacteria and viruses that are found in ice and soil to be liberated in the surrounding environment and make humans and animals very sick.**

**-It can turn tundra into muddy landscapes which causes flora and fauna to disappear**