

**Greenhouse Effect Discussion Questions**

Name \_\_\_\_\_

Which kinds of photons are absorbed and re-emitted by atmospheric greenhouse gases?

Which kinds of photons are absorbed by the Earth?

Which kinds of photons are emitted by the Earth?

What effects do clouds have on the visible light photons coming from the Sun? Does this have the effect of cooling or warming the Earth? Explain.

What effects do clouds have on infrared photons coming from Earth? Does this have the effect of cooling or warming the Earth? Explain.

Compare the atmospheric simulations of the Ice Age, 1750, and today.

What is the equilibrium temperature of each time period? (You may use whatever units of temperature you'd like)

Ice Age	1750	Today

What are the concentrations of the three persistent greenhouse gases (carbon dioxide, methane, and nitrous oxide) for each time period?

Ice Age	1750	Today

What is the relationship between the equilibrium temperature and the greenhouse gas concentrations?

Simulate the Earth if its atmosphere were completely stripped. What equilibrium temperature would we have?

Here's a specious argument: "According to the simulation, the average temperature of the Earth with the maximum concentration of greenhouse gases is only 10 degrees Fahrenheit warmer than it is today. That's nothing to worry about." Explain one thing wrong with this statement.