**Faisal Eraiqat**

**Investigating the Greenhouse Effect**

**Purpose:**

* Investigate how atmospheric changes affect global temperature
* Examine how clouds contribute to the greenhouse effect.
* Predict how changing greenhouse gas levels affect global temperature.

You are a citizen concerned about the greenhouse effect and decide to do some research about the issue. You come across a great website that has a simulation on just this topic. Once you have run some simulations and made some observations you become more than concerned, you are downright outraged! The next step is to write a letter to the editor detailing your concern and using what you have learned as evidence in support of your position.

1. Go to <http://phet.colorado.edu/en/simulation/greenhouse>
2. Open up *The Greenhouse Effect* and explore all of its features.
3. Write down your observations of what happens during the three featured time periods: Today, 1750 and Ice Age.

Today: temperature around 16C, 388 CO2 ppm, more modern houses and buildings, satellites, more infrared is reflected rather than absorbed, more infrared produced.

1750: 15C, 280 CO2 ppm, more infrared is being absorbed, farm houses, rural

Ice Age: -1C, 180 CO2 ppm, less gasses, no development and no buildings

1. Change the number of clouds for each time period and write down your observations.

More clouds, more gasses and heat trapped within Earth, light keeps reflecting off the ground and clouds so temperature rises.

1. Scientists predict CO2 levels to increase to 490 – 1260 ppm by the end of the century. Run a simulation that will help you predict how this change will affect temperature. What do you find?

Significant increase temperature as more CO2 means more greenhouse gasses. More heat is trapped and continue to be reflected off the surface as well as atmosphere now, resulting in global warming. More infrared produced as well.

1. Write a letter to the editor detailing your findings (1 page).

Dear editor,

My name is Faisal Eraiqat and I have just used your brilliant simulator to simulate various scenarios. After deep observation, it is safe to say that our world is in serious danger and I am incredible concerned. As time goes on and technology grows, or emissions increase allowing for more greenhouse gasses to be released into the atmosphere. Slowly but surely, the world is going to reach a point where the whole surface will change, causing devastating effects on life. In the space of less than 200 years and after the bloom of technology, the Earth has seen significant temperature increases, with infrared and heat being trapped inside the Earth rather than being released. More clouds and barriers are forming limiting movements so all the energy is being reflected off every surface. 1750 has only had 280 ppm of CO2 while now it is 100 more. In the future, some predict that it will even double and maybe even much more. There is terrible news and needs to be addressed as soon as possible. This simulation should reach more people and even show the impact on the Earth from the greenhouse gasses and what it means to us. This is a serious matter and I hope it gets solved soon.

Regards,

Faisal Eraiqat