Too Many Blankets: The Greenhouse Effect & Global Carbon Emission

https://www.youtube.com/watch?v=Hi3ERes0h84

1. In the video, it's mentioned that without the natural greenhouse effect planet Earth would be an icy wasteland. Why would that be true?

The greenhouse effect traps heat energy close to the planet by absorbing and releasing the heat radiated from the surface back down instead of allowing it to escape into space. Without the greenhouse effect all of the heat energy radiated from the earth's surface would escape into space.

2. If the greenhouse effect is a part of Earth's natural systems, why are we so concerned about its affect on the global climate now?

The magnitude of the greenhouse effect has been increased because of human activity changing the amount of greenhouse gases that are in the atmosphere. This is sometimes compared to putting too many clothes on during a warm day, or too many blankets on a bed on a hot night.

3. The video mentioned that since the late 1800s the amount of methane gas (CH_4) that we release into the atmosphere has more than doubled. Cow and pig farms are a major source of this greenhouse gas as are some of the crops needed to feed them. What could a possible solution to this issue be?

-If we consumed less cow and pig products we could reduce the amount of cow and pig farms and decrease methane emissions that way.

-We could harvest the methane gas and burn it as a fuel source (This would result in CO_2 emissions instead, which is still a greenhouse gas)

NASA's "A Year in the Life of Earth's CO_2"

https://www.youtube.com/watch?v=x1SgmFa0r04

4. The red and purple areas of the model show incredibly high concentrations of CO_2.
   a) Where on the globe do these areas appear to be?

-Western Europe	-Eastern North America		
-Western North America	-China	-India	-Japan

   b) What are the characteristics of the locations where CO_2 concentrations are highest?

-High Population Size (Japan, China, India)
-A lot of resources being used (because of wealth or because of large populations)
-Northern Hemisphere

5. If we look at the northern hemisphere, we can see that CO_2 levels are much higher in the winter than in the summer. What could some reasons for this be?

During the summer, plants and phytoplankton use photosynthesis to remove carbon dioxide from the air and produce glucose to feed on. These autotrophs decrease CO_2 concentration significantly while they are active.

In the winter trees go dormant and annual plants die, this decreases the photosynthetic activity and allows more carbon dioxide to build up in the atmosphere