Name _____

Lesson 7: How do cars impact CO_2 in the atmosphere?

Do Now Prior Experiences:

What do we now understand from the previous lesson about the relationship between greenhouse gases, the Greenhouse Effect, and Earth's temperature?

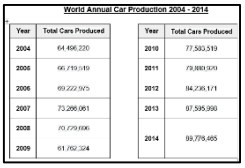
What the Greenhouse Effect (GHE) is and how greenhouse gases (GHG) affect Earth's temperature.

The Carbon Cycle; how carbon is stored and moved through "sinks" on Earth.

The burning of fossil fuels releases CO_2 into the atmosphere and enhances the GHE.

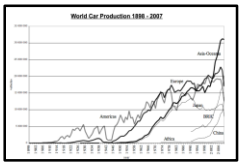
Explore: Use the Data Sheet for the following questions

1. Use the "World Annual Car Production" data table (Figure 7.1) on the Data Sheet to create a graph showing the recent rate of car production.
2. Be sure to include: Title, x-axis label, y-axis label, and units of measure
3. Compare your graph with the "World Car Production 1898-2007" graph (Figure 7.2).



World Annual Car Production 2004 - 2014

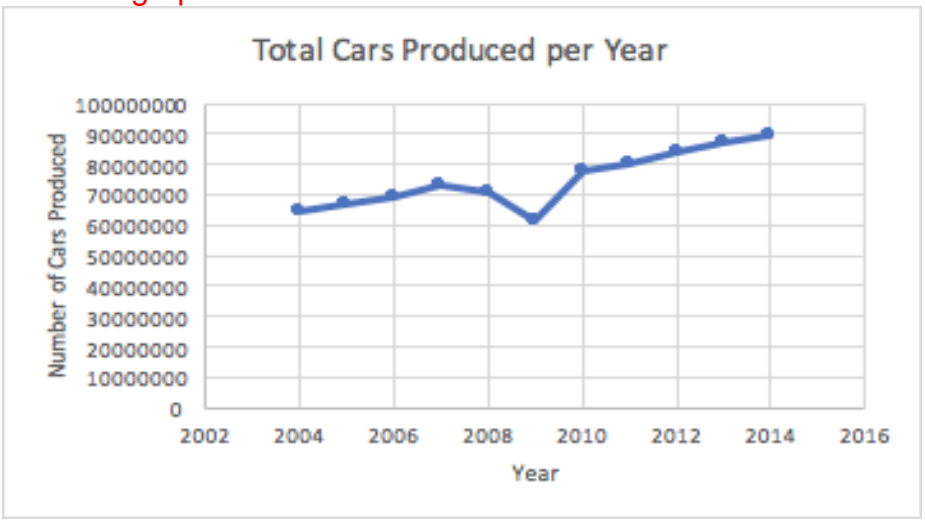
Year	Total Cars Produced	Year	Total Cars Produced
2004	64,496,220	2010	77,580,519
2005	66,719,519	2011	79,980,920
2006	69,222,975	2012	84,236,171
2007	73,266,061	2013	87,595,990
2008	70,729,606	2014	89,778,465
2009	61,762,324		



World Car Production 1898 - 2007

Title:

This is what students' graphs should look like:



Making Sense:

What patterns do you observe about car production?

The recent rate of car production is increasing.

In the early 1900s, America led car production. In the early 2000s, Europe and Asia produced the most cars. Overall, the trend of car production is increasing over time though there are periods of decreasing car production at times.

Connections:

Compare your graph with the "Greenhouse Gas Levels in the Atmosphere" graph (Figure 7.3). What patterns do you observe?

Around 1800 onwards, the amount of greenhouse gases in the atmosphere have increased very rapidly and are at much higher levels than they were in the past.

Before 1800, greenhouse gases fluctuated more steadily.

Do you see any patterns between the location of cars around the world (Figure 7.4), greenhouse gas emissions from transportation in the U.S. (Figure 7.5), and the location of the highest CO_2 emissions in the world (Figure 7.6)? Explain.

The USA, China, Brazil, India, and Japan have the most vehicles in the world and the rate is increasing. These countries also have the highest levels of CO_2 emissions in the world, too, with the USA and China releasing the greatest amount.

In the U.S., transportation is the second highest source of GHG emissions and personal vehicles (light duty and medium/heavy duty trucks) make up the highest percentage.

Next Steps:

What should we investigate in our next lesson?