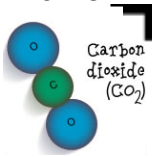
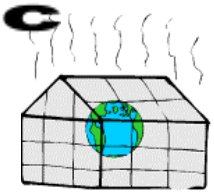
Name _____ Period ____ Date _____



Trends in Atmospheric Carbon Dioxide 2.0



Introduction

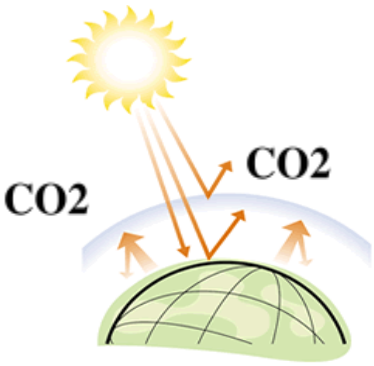
Although carbon dioxide makes up only about 0.03 percent of the total volume of gases in Earth's atmosphere, its impact on our climate is significant. Scientists have gathered evidence that Earth was warmer in the past when carbon dioxide levels were higher. Thus, any increase in carbon dioxide levels today would be expected to result in a gradual increase in temperatures throughout the world.

Not all carbon dioxide is the result of human activities. Carbon dioxide can be produced naturally. The respiration of animals and the decay of dead plants and animals are two sources. However, neither of these sources is significant when compared with the amount of carbon dioxide released by the burning of fossil fuels (coal, oil, and natural gas).

Atmospheric carbon dioxide concentrations have been measured for many years. The longest continuous record comes from air samples taken on Mauna Loa, an inactive volcano and the highest peak in Hawaii.

Materials Needed

- Colored Pencils (2)
- Ruler
- Calculator



Procedures

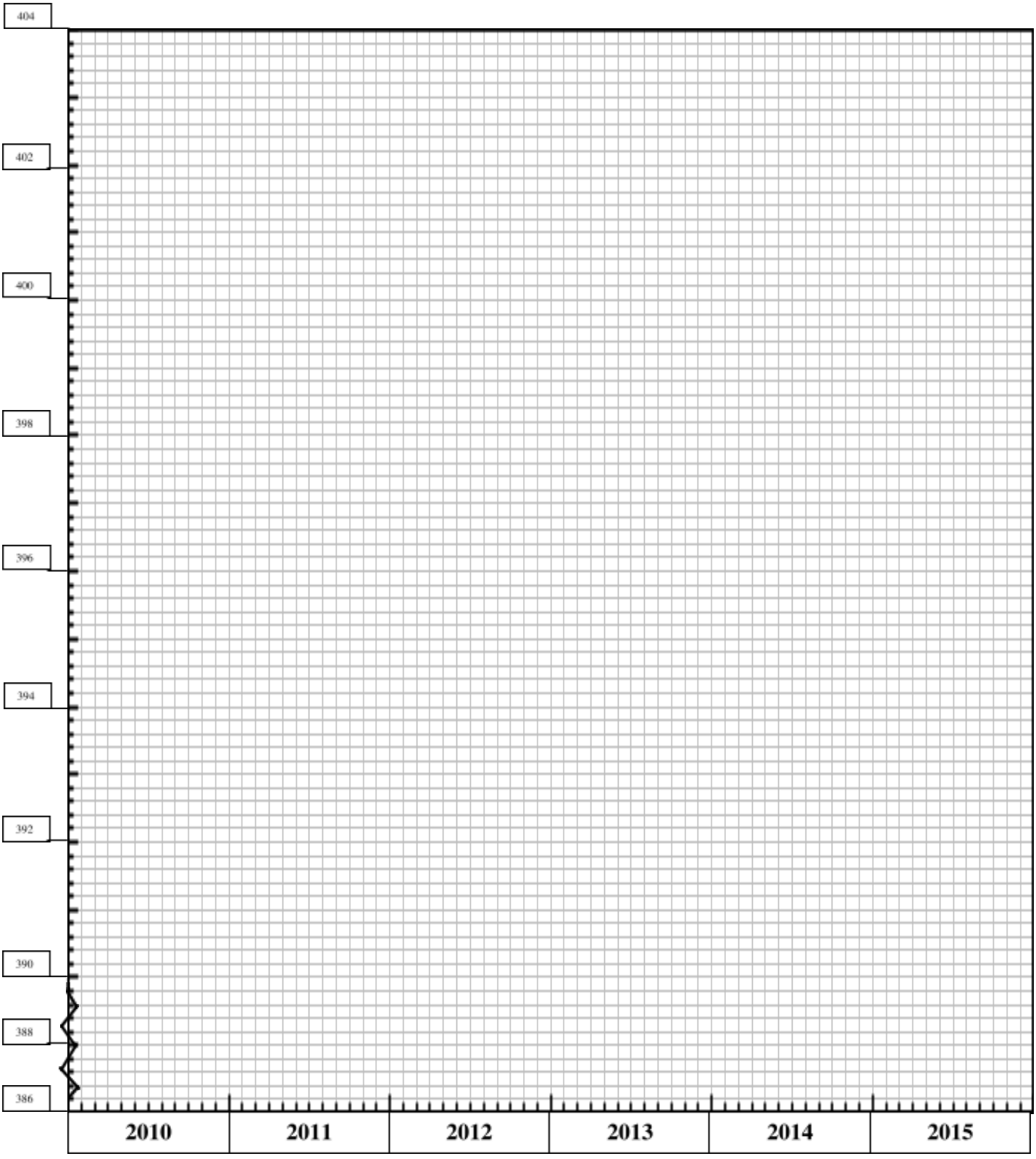
1. Choose a colored pencil and plot the data in the Atmospheric Carbon Dioxide From 2010-2021 data table on the graph. Compare the points by drawing straight lines between adjacent points with your ruler.

2. Use a calculator to complete the data table by calculating the Annual Average for each of the years from 2010 to 2021. You compute the Annual Average by adding up the concentrations for each year and dividing by 12.

3. Use a second colored pencil and ruler to plot the Annual Average on the graph for each of the five years. Place your ruler horizontally across the graph at the appropriate concentration, and then draw a line at that value across the grid boxes that represent the appropriate year.

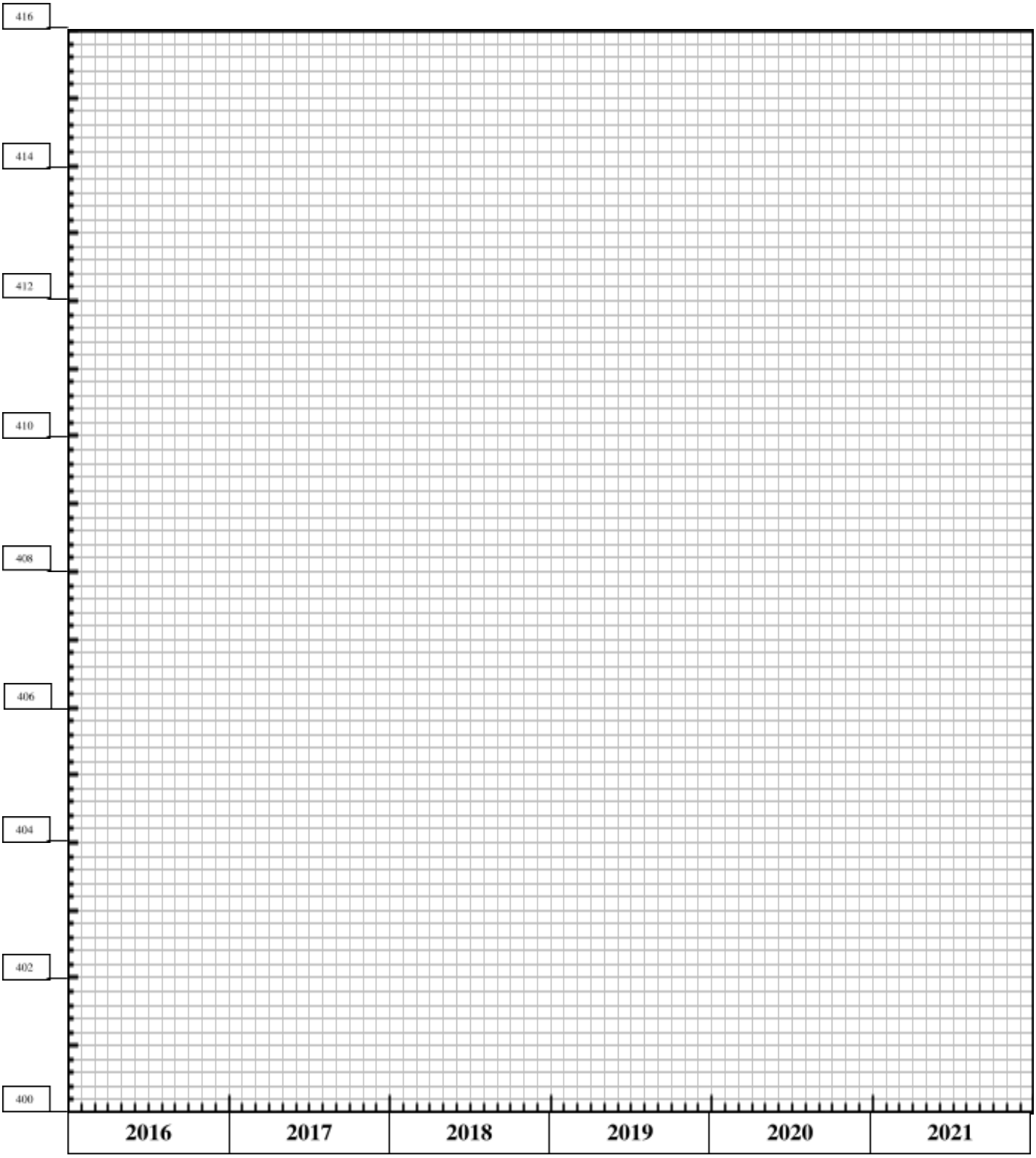
Atmospheric Carbon Dioxide From 2010-2015						
Month	**Atmospheric Carbon Dioxide Concentration (ppm)**					
	2010	**2011**	**2012**	**2013**	**2014**	**2015**
Jan	388.68	391.55	393.36	395.80	398.41	399.18
Feb	389.21	391.98	393.81	396.33	398.79	400.28
March	389.62	392.27	394.12	396.73	399.02	401.54
April	389.90	392.41	394.29	396.99	399.09	403.28
May	389.69	392.02	393.94	396.76	398.62	403.96
June	388.68	390.83	392.78	395.72	397.33	402.80
July	387.17	389.18	391.20	394.18	395.64	401.31
August	386.15	388.10	391.22	393.12	394.47	398.93
September	386.64	388.54	390.76	393.58	395.02	397.63
October	388.28	390.15	392.48	395.18	396.68	398.29
November	389.78	391.64	394.07	396.65	398.18	400.16
December	390.75	392.61	395.12	397.58	399.17	401.85
Annual Average						

ATMOSPHERIC CO_2 AT MONA LOA FROM 2010 TO 2015



Atmospheric Carbon Dioxide From 2016-2021						
Month	**Atmospheric Carbon Dioxide Concentration (ppm)**					
	2016	**2017**	**2018**	**2019**	**2020**	**2021**
Jan	402.61	405.32	407.53	409.92	412.43	414.76
Feb	403.25	405.91	408.23	410.32	412.95	415.24
March	403.84	406.32	408.77	410.89	413.44	415.54
April	404.36	406.60	409.07	411.33	413.86	415.85
May	404.40	406.65	408.98	411.34	413.81	416.06
June	403.62	405.86	408.10	410.53	412.88	415.24
July	402.10	404.11	406.48	408.88	411.17	413.49
August	400.78	402.57	405.11	407.65	409.73	412.13
September	400.95	402.66	405.18	407.92	410.00	412.28
October	402.40	404.16	406.65	409.44	411.66	412.28
November	403.76	405.70	408.12	410.87	413.25	413.86
December	404.67	406.75	409.19	411.76	414.14	415.68
Annual Average						

ATMOSPHERIC CO_2 AT MONA LOA FROM 2016 TO 2021



Analysis and Conclusions

1. During which month or months does the minimum value for atmospheric CO_2 concentration occur?

   _____

2. During which month or months does the maximum value for atmospheric CO_2 concentration occur?

   _____

3. Based on your knowledge of the relationship between photosynthesis and CO_2, explain why CO_2 concentrations decline during the summer and increase during the winter months.

   _____
   _____
   _____

4. Give a possible explanation as to why CO_2 concentrations appear to increase during some winter months (Hint: Fossil Fuels).

   _____
   _____
   _____

5. Name two ways that the increase in atmospheric CO_2 concentrations could be slowed down.

   _____
   _____
   _____