Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Block: \_\_\_\_\_\_\_\_\_\_\_\_

**NASA Climate Web Search**

Got to: climate.nasa.gov

From the home page list the following current information:

Carbon Dioxide Levels: \_\_\_\_\_\_\_\_\_\_\_\_

Global Temperature Rise since 1880: \_\_\_\_\_\_\_\_\_\_\_

Artic Ice Minimum decrease per decade:\_\_\_\_\_\_\_\_\_\_\_\_\_

Sea Level Rise (mm per year): \_\_\_\_\_\_\_\_\_\_\_\_

Ice Sheet Decrease (Gigatonnes per year):\_\_\_\_\_\_\_\_\_\_\_\_

Scroll down to “What is Climate Change”.

Click on “Evidence”.

1. In the past 650,000 years there have been \_\_\_\_\_ cycles of glacial advance and retreat. Explain what these climate changes are attributed to.
2. Why is the current warming trend of particular significance?
3. List the 9 pieces of evidence for global climate change.
4. 4. 7.

2. 5. 8.

3. 6. 9.

1. Global Temperature Rise
2. How much has the planet’s average surface temperature risen since the late 19th century?

In degrees Celsius:

In degrees Fahrenheit:

When has most of this warming occurred?

Click on “More” .

* Watch the animation ‘Time Series 1884 to 2018”
* Which parts of the globe seem to be heating up the quickest? Why is this?

1. Warming Ocean
2. How much has the ocean warmed since 1969? \_\_\_\_\_\_\_\_\_\_

* Watch the video: “Oceans of Climate Change”. What happens to the balloon filled with water and why?

1. Shrinking Ice Sheets
2. How many tons of ice per year has Greenland lost between 1993 and 2016? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. How much has Antarctica lost during the same time period? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. Glacial Retreat
5. Name 6 places where glaciers are found.
6. Click on “more” and select the “Global Ice Viewer’. What percentage of the Earth’s surface is covered with ice?
7. Click on “Glaciers”. How many tons of ice have been lost since 1994? \_\_\_\_\_\_\_\_\_\_?

View the various before and after photos of glaciers.

1. Decreased Snow Cover
2. Click on “more”. Watch the “Earth Observatory:Snow Cover” animation. What overall trend do you see?
3. Sea Level Rise
4. How much has sea level risen in the last century? \_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. What has happened to the rate in the last two decades? \_\_\_\_\_\_\_\_\_\_\_\_\_\_
6. Declining Artic Sea Ice
7. September Artic sea ice is declining at what rate? \_\_\_\_\_\_\_\_\_\_\_
8. Extreme Events
9. The number of record high temperature events in the US has been \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, while the number of record low temperature events has been \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
10. Ocean Acidification
11. Since the beginning of the Industrial Revolution by how much has the acidity of surface ocean waters increased by? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
12. By how many tons is the amount of carbon dioxide that is absorbed by the upper layer of the ocean increasing by? \_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Click on “More” then click on “How does climate change affect coral reefs?”. List the 6 ways climate change dramatically affects Coral Reef Ecosystems and include how it effects each then what it can lead to.

1. Warming Ocean leads to thermal stress that can lead to coral bleaching and infectious disease.

2.

3.

4.

5.

6.

Go back to the main page and click on “Causes” of Climate Change.

Fill in the following about greenhouse gases:

1. This greenhouse gas is released through natural processes such as respiration and volcanic eruptions and through deforestation and burning fossil fuels?\_\_\_\_\_\_\_\_\_\_\_\_\_
2. A greenhouse gas produced by soil cultivation practices, fossil fuel combustion, nitric acid production, and biomass burning\_\_\_\_\_\_\_\_\_\_
3. Synthetic compounds that are now regulated due to their effects on the ozone layer\_\_\_\_\_\_\_\_\_.
4. Hydrocarbon that comes from decomposition of waste in landfills, agriculture (especially rice cultivation), ruminant digestion and manure management associated with domestic livestock \_\_\_\_\_\_\_\_\_\_\_\_.
5. How much has the atmospheric carbon dioxide levels raised in the last 150 years?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Give 3 reasons why global climate change cannot be attributed to changes in the sun’s energy:

1.

2.

3.

Go back to the home page and scroll down to “effects”.

List the 8 Possible Future Effects of Global Climate Change:

1. 5.

2. 6.

3. 7.

4. 8.

Describe the US Regional Effects for the Southwestern part of our country: