Climate Change Effects Stations

As you complete the various stations, keep track of the effects that climate change and excess greenhouse gases have on our planet. Label the various places on the map at the end as well.

Station 1: Alpine Glaciers

Using your iPad's, research 5 specific examples of alpine glaciers (aka mountains with melting alpine glaciers):

Unfortunately, the pictures below are becoming all too common:

What is a moulin?

Watch the video of the melting moulins. What is happening?

http://www.telegraph.co.uk/news/earth/environment/climatechange/4734859/Scientists-capture-dramatic-footage-of-Arctic-glaciers-melting-in-hours.html

Station 2: Ocean Acidification

Why is ocean acidification occurring?

So, it's not a result of a changing climate, but excess CO2 in our atmosphere

What effect does an increase in ocean acidity have on calcium carbonate shells?

Place the shells in the cup of vinegar and record your observations:

Station 3: Thermal Expansion

Most of the rise in sea level **SO FAR** is due to thermal expansion. What is thermal expansion?

Watch the video of a thermal expansion experiment on your iPad at this website: https://www.youtube.com/watch?v=IHhvaUdWfDI . What happened? How does this apply to our oceans (it will be explained toward the end of the video)?

Station 4: Coral Bleaching

Coral is a ***sessile ANIMAL*** that has a symbiotic relationship with an algae called zooxanthellae. The algae gives the coral reef its color. When water temperatures become too warm, the coral expel the zooxanthellae, and the coral turns white. This process is called CORAL BLEACHING. Use the internet to look up 6-8 facts about coral bleaching:

Examine the picture below to see pictures of coral bleaching:

What happens to the rest of the food chain in these images? Why?

Station 5: Early arrival of spring

Watch this video http://www.techtimes.com/articles/190659/20161229/climate-change-causing-birds-to-migrate-early.htm and overview what you learned:

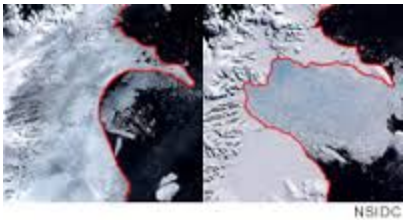
Briefly read over this article http://www.ucsusa.org/global_warming/science_and_impacts/impacts/early-warning-signs-of-global-10.html#.Vp6p3lMrJsM and write about 3 animals/groups of animals affected by the arrival of an early spring:

ORGANISM	EFFECTS OF EARLY SPRING

Station 6: Antarctica

Antarctica is a **continent** because it is ice on land!!! If it ALL melts, sea level would rise by 200 feet. Research some effects of climate change on Antarctica:

What is the Larsen B ice shelf, and what happened to it?



Station 7: Arctic

The Arctic is NOT a continent because it is floating ice!!!! Research some effects of climate change on the Arctic by watching this TED Talk:
http://ed.ted.com/lessons/why-the-arctic-is-climate-change-s-canary-in-the-coal-mine-william-chapman

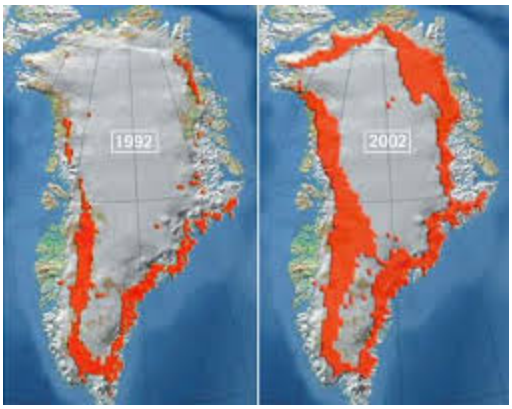
Station 8: Polar Bears...the poster child of climate change!

Using this website, record how cliame change is affecting polar bears:
http://www.polarbearsinternational.org/about-polar-bears/climate-change

Why do YOU think that polar bears have become an iconic symbol of climate change? What happens if people care about polar bears?

Station 9: Greenland

Greenland is also ice on land!!! If it ALL melts, sea level would rise by 20 feet. Research some effects of climate change on Greenland:



Station 10: Tuvalu...some of the world's first climate change refugees????

Have you ever heard of Tuvalu??? Do some research on this island nation. A good place to start is the CIA World Factbook:
https://www.cia.gov/library/publications/the-world-factbook/geos/tv.html

Where is Tuvalu?	
What is the population of Tuvalu?	
How high is the highest point on Tuvalu (meters above sea level)?	
What is the total land area?	
What is the climate?	
What are Tuvalu's natural resources?	
Have residents been forced to leave the island? Why?	

Where are the refugees going?	

Part of the problem is that the there is saltwater intrusion. What is this? And what is the problem with it?

Station 11: Methane bubbles from permafrost...a positive feedback loop

Why is there methane trapped in permafrost?

Watch this video and explain what is happening
https://www.youtube.com/watch?v=NVpQnpWS2wU

Station 12: Arnold Schwarzenegger…??????

The very last thing I want you to do is read The Terminator's (a Republican- see its NOT a political issue) post about climate change and respond below:
https://www.facebook.com/notes/arnold-schwarzenegger/i-dont-give-a-if-we-agree-about-climate-change/10153855713574658/