**Here are some sample cards for different characters they can be. They can be animals, plants, or places. Ask the students to look over these and then think: How does climate change impact the way this land/creature/plant/ space will be able to function in the world.**

**Ocean #1**

* Most rain that falls on land originally evaporated from the tropical ocean.
* The ocean dominates the Earth's carbon cycle. Half the primary productivity on Earth takes place in the sunlit layers of the ocean and the ocean absorbs roughly half of all carbon dioxide added to the atmosphere.
* The ocean has had, and will continue to have, a significant influence on climate change by absorbing, storing, and moving heat, carbon and water.
* Changes in the ocean's circulation have produced large, abrupt changes in climate during the last 50,000 years.

**Ocean #2**

* The ocean affects every human life. It supplies freshwater (most rain comes from the ocean) and nearly all Earth's oxygen. It moderates the Earth's climate, influences our weather, and affects human health.
* From the ocean we get foods, medicines, and mineral and energy resources. In addition, it provides jobs, supports our nation's economy, serves as a highway for transportation of goods and people, and plays a role in national security.
* The ocean is a source of inspiration, recreation, rejuvenation and discovery. It is also an important element in the heritage of many cultures.

**Ocean #3**

* Much of the world's population lives in coastal areas.
* Humans affect the ocean in a variety of ways. Laws, regulations and resource management affect what is taken out
and put into the ocean. Human development and activity leads to pollution (point source, non-point source, and noise pollution) and physical modifications (changes to beaches, shores and rivers). In addition, humans have removed most of the large vertebrates from the ocean.
* Coastal regions are susceptible to natural hazards (tsunamis, hurricanes, cyclones, sea level change, and storm surges).

**Ocean #4**

* The ocean is an integral part of the water cycle and is connected to all of the earth's water reservoirs via evaporation and precipitation processes.
* The ocean is connected to major lakes, watersheds and waterways because all major watersheds on Earth drain to the ocean. Rivers and streams transport nutrients, salts, sediments and pollutants from watersheds to estuaries and to the ocean.
* Although the ocean is large, it is finite and resources are limited.

**Coral Reefs** [Info from <http://kids.nceas.ucsb.edu/biomes/coralreef.html>]

* Coral reef ecosystems remove and recycle carbon dioxide, which is a gas that contributes to global warming.
* Reefs protect land from harsh weather by absorbing the impact from strong waves and storms.
* Reefs provide food, for example, lobster and conch.
* Coral reefs are a big source of biodiversity. Without the reef, many of these plants and animals would die.

Coral reefs are being destroyed at an alarming rate. It is estimated that we have already lost 10% of the worlds reefs, and scientists say that in the next 50 years many of the coral reefs on Earth will be gone. This destruction is often connected with human activity: pollution, sewage, erosion, irresponsible fishing, poor tourism practices, and global warming.

**Parrot Fish:** [<https://seaworld.org/Animal-Info/Animal-Bytes/Bony-Fish/Parrotfish>]

Schools of parrotfish graze over a reef much like a herd of cattle over a grassy field. Large amounts of calcareous materials are consumed and excreted by schools of parrotfish. In just one year, one parrotfish may convert a ton of coral into sand.

Other types of fishes, crustaceans, and occasionally moray eels prey upon parrotfish. Humans may impact them indirectly through destruction of the reefs where they dwell, but none are considered endangered or threatened

**Blue Tang**  [[https://www.nature.org/newsfeatures/specialfeatures/animals/fish/blue-tang.xml]](https://www.nature.org/newsfeatures/specialfeatures/animals/fish/blue-tang.xml%5D)

The blue tang feeds on algae, using its sharp teeth to rip it from rocks and coral. This diet is important not only for the fish, but also for the health of reefs as it prevents the algae from overgrowing and suffocating the coral. On reefs, the blue tang rests in narrow holes and crevices, protected from predators such as tuna, bar jacks and tiger groupers.

**Sea Turtle** [[http://www.seeturtles.org/global-warming/]](http://www.seeturtles.org/global-warming/%5D)

Sea level rise from the melting of polar ice is already contributing to the loss of beach and sea turtle nesting habitat. Weather extremes, also linked to climate change, mean more frequent and severe storms which alter nesting beaches, cause beach erosion, and inundate, or flood sea turtle nests.

Hotter sand from increasing temperatures results in decreased hatching rates or complete nest failure. Increased sand temperatures also affect hatchlings by altering natural sex ratios, with hotter temperatures producing more female hatchlings.

Sea turtles use ocean currents to travel and find prey. Warming ocean temperatures influence migratory species by altering currents and impacting the distribution and abundance of prey species. This can result in southerly species being found in more northerly regions, well outside of their normal range. Warmer water temperatures also affect coral reefs through coral bleaching which are vital to the survival of species like the hawksbill.

**Islands** [[**http://blogs.ei.columbia.edu/2011/12/15/a-changing-climate-for-small-island-states/**](http://blogs.ei.columbia.edu/2011/12/15/a-changing-climate-for-small-island-states/)]

Many small island countries are no higher than only a few meters above sea level, and are extremely vulnerable sea level rise. In addition, these states will suffer from a range of other impacts of climate change, including changes in precipitation patterns; groundwater salinization; higher sea surface temperatures; and ocean acidification. As these physical impacts of climate change interact with social and economic vulnerabilities, climate change poses a significant threat to the islands’ physical, social, and economic well-being.