

## Climate Change Reading-Based Discussion Questions

### 1. What is climate change and why is it important? How is climate change related to humans?

#### a. Suggested topics to discuss:

- Climate change is the changing in weather conditions prevailing in an area in general or over a long period.
- Climate change is a significant change in the climate of Earth. It can happen naturally or in response to human activities, including the burning of fossil fuels and clearing out forests.
- It is important to know about climate change so we (humans) can prepare for the changing conditions we will find ourselves and other species in in the future. Not all species are generalists and can adapt to shifting climate patterns – or even weather patterns. The more we know about the climate and the pattern in which it is changing the more we can prepare for the future of our planet.
- Climate change is negatively effecting species all around the globe, driving some to extinction.
- The more we understand about the human causes of climate change, the more effectively we can work to slow down the process and protect vulnerable species and people.

### 2. How are our day-to-day activities related to climate change? How will it affect humans' lives if the planet continues to warm? How will it affect other wildlife?

#### a. Suggested topics to discuss:

- The burning of fossil fuels (i.e. driving cars) releases large amounts of CO<sub>2</sub> (Carbon Dioxide) into the atmosphere which gets trapped and warms our planet. Overconsumption of electricity, including heating and cooling, are also big contributors to the release of CO<sub>2</sub>. Cutting down trees in order to build cities or expand agriculture also releases CO<sub>2</sub>.
- If we don't make significant changes and our planet continues to warm at the rate it is warming now, we will see more people displaced from their homes as more extreme weather events are dangerous for both coastal and inland communities, but especially islands.
- Climate change can harm peoples' health because of the increased spread of infectious diseases.
- With warmer temperatures and more pests, farms will produce less food. Some crops might even be less nutritious. Our diets will have to change in order to incorporate foods that can better tolerate drought (no more wheat and corn!).
- A warming climate affects plants and their budding time. Insects and other pollinators (including birds) rely on plants for energy sources, so if they flower or fruit at a different time and the animals who rely on them can't get to them in time, it could create a cascade event of threatened species.

- Warming temperatures can also mean more acidic oceans, as the water absorbs a big percentage of the CO<sub>2</sub> released into the atmosphere. Acidic oceans can lead to more marine deaths.
  - Warming can push certain species out of their homes to look for their preferred temperatures. As a result, old ecosystems are falling apart, and new ones are forming. Some species will be winners. Others will be losers.
- 3. What are some ways that we can each contribute to the slowing of warming the earth's atmosphere on a personal day-to-day level? What about on a large-scale level, such as a community or country?**
- a. Suggested topics to discuss:
- No idling. We can each be mindful of turning off our cars when we aren't in them, or when we are waiting outside a building, for instance.
  - We can take public transit, or use different forms of transportation more often, such as walking, biking, and carpooling.
  - Talk to your friends and family! The more people are informed, the more change can be made.
  - Switch to renewable energy. Solar, hydropower, and wind power are renewable forms of energy that release much less CO<sub>2</sub> than their fossil fuel counterparts. Every home that switches to renewable energy is one step closer to slowing the earth's warming.
  - Unplug rarely used devices and don't leave fully charged devices plugged into your home's outlets.
  - Take shorter showers, using less heat and less water. Open windows instead of using air conditioning. Weatherize your home.
  - On a large scale, we can talk to communities and local officials to make sustainable energy changes, such as implementing a carbon credit, creating more efficient public transit, banning the hunting of primary predators, and urging renewable energy on larger scales.
- 4. Why do you think cities are outpacing countries on clean energy?**
- a. Suggested topics to discuss:
- Cities contain more people than rural areas, thus representing more of the world's energy demands. More people in a condensed area may mean there is a higher NEED for clean energy (to reduce pollution, for example, to protect human health).
  - More people may also mean there are more activists behind clean energy for their area. When people live close together it is easier to communicate about issues and share ideas.
- 5. What are some other ways we can conserve or use plants that store carbon dioxide to reduce it being released into the atmosphere?**
- a. Suggested topics to discuss:
- Stop deforestation: tell local officials that you care about the forests and that the trees and plants inside them help reduce greenhouse gas emissions.
  - Volunteer to plant trees – lots of them!

- Plant your own trees or garden with plants that are efficient at absorbing CO<sub>2</sub>.
    - Yellow Poplar, Silver Maple, Oak, Horse Chestnut, Red Mulberry, London Plane, American Sweetgum, Dogwood, Blue Spruce, Pines.
    - Rubber fig, The Lady Palm, Philodendron, Peace Lily, English Ivy, Chinese Evergreens.
- 6. Of the citizen science projects listed in “Photographing wildflowers and other ways you can help fight climate change”, what would be your favorite to get involved in? What would you do for the project and how is it related to climate change?**
- a. Suggested topics to discuss:
- MeadoWatch: is looking at how climate is affecting wildflowers on Mount Rainier. Citizen Scientists collect data about flowers budding, flowering, fruiting, and producing seed. Volunteers also collect photos from Mount Rainier National Park.
  - Great Backyard Bird Count: is a bird observation study, where volunteers will count birds in 15-minute sprints anywhere from their backyard to the mountains. Finding out where birds are at certain times of the year can tell us something about the climate they prefer and how they are affected by the changing climate overall.
  - Weather Rescue: volunteers would digitize handwritten, paper records. This can be done all online. Having records of historical weather data can help determine baseline temperatures and the current rate at which the globe is warming.
  - Water Monitoring in Minnesota: volunteers would be assigned a lake or stream to take water clarity measurements twice a month during the summer. These data help to see if the water clarity has been changing as the climate changes and how that would affect the health of the water and organisms that live in it.
  - Redmap: volunteers would report “uncommon” marine species they’ve seen in Australian waters. This helps us understand where marine species are moving in response to climate change. This also serves as an outreach opportunity, where scientists can use information from other people to reach more diverse audiences.
- 7. In “The Seasons Aren’t What They Used to Be,” the author talked about how he remembers spring as a child and how different it is compared to today. Can you think of how seasons have changed in your own lifetime? How? Do the changing seasons affect anything else around you?**
- a. Suggested topics to discuss:
- I remember the holiday season always being really snowy – almost always snow on the ground and winter storms nearly every other day. The past few years, it’s been lucky if my family or I experience a “white Christmas.”
  - I’ve experienced more extreme heat and rain storms in the past three years than I can ever remember. Summers are extremely hot, sprinkled with intense rain storms. This is hard for me to get used to, and I can only imagine what species are having a hard time adapting to the alternate weather.

- Last year I planted a garden when I thought the last freeze had past. Two weeks after I planted, a cold snap came through and killed all my plants. It's hard to know when to be sure I can plant my garden in time for it to produce in the fall with this weird weather.
- Overall, spring comes much earlier in the year now than when I was younger. I remember going sledding at my local park in March but now I get lucky if it snows enough that I can make a snowball in March.

**Do you know of or can you think of any particular species or ecosystems in Utah that may be particularly vulnerable to climate change? How might changes in ecosystems affect local ways of life? How might they affect recreation and the value that recreation has for our local economy?**