

Things to know about climate change (Taken from the leader's guide, *Climate Justice: A Call to Hope and Action* by Anna Rhee):

1. Climate change refers to a long-term shift in weather conditions. It is measured by changes in a variety of climate indicators (e.g., temperature, precipitation, wind) including both changes in average and extreme conditions. Climate change can be the result of natural processes and/or human activity.
2. Over most of earth's history, natural processes have been responsible for periods of climate change. The earth's climate has changed throughout its history, long before human activity could have played a role. For example, the planet has swung between cold glacial periods or ice ages, and warm interglacial periods over the last few million years. Changes in the past can be explained by natural factors such as changes in the earth's orbit, in the sun's intensity, in the amount of explosive volcanic activity, by changes to the surface of the earth, and farther back in time, to the position of the continents. Of these, only changes in the sun's intensity and volcanic activity are relevant on century timescales.
3. According to 98 percent of scientists invested in climate change, human activity has now become the main cause of recent climate change. The strong global warming observed since the mid-twentieth century has been largely attributed to human influences on the climate. Global warming refers to the observed long-term rise in global average surface temperature and is one manifestation of climate change. The rate of global warming over the last half of the twentieth century was about twice that for the whole century. This human influence results primarily from burning fossil fuels such as coal, oil, and natural gas, which are involved in almost every aspect of the twenty-first century economy.
Burning

these fuels generates carbon dioxide, a greenhouse gas. Land use changes, such as deforestation and conversion of land to industrial agriculture, have also contributed carbon dioxide to the atmosphere. Methane is another greenhouse gas. Humans have contributed to methane in the atmosphere through landfills, extraction of natural gas, and the livestock industry.

4. Global warming is primarily attributed to the enhancement of the natural greenhouse gas effect. Greenhouse gases are so named because they reduce heat loss from earth to outer space. In this respect, they act in a way that is similar to a greenhouse, creating warmer conditions than if these gases were not present. Atmospheric concentrations of key greenhouse gases such as carbon dioxide, methane, nitrous oxide, and ozone have risen substantially as a result of human activity. This has enhanced or intensified the natural greenhouse effect.

5. Climate change is a warming trend, not just a warming cycle. Global temperature naturally varies up and down from year to year and decade to decade. Natural climate variability will continue to have an influence on the state of the climate over short time periods, but superimposed on these natural fluctuations is a long-term trend toward global warming. In order to detect climate change—a long-term trend—above the “noise” of natural climate variability, it is important to look at data records over an extended period of time. When the record of global average surface temperature over the past one hundred years or so is examined, a long-term global warming of about 0.8 degrees Celsius is observed.

6. Climate change affects communities all over the world. Climate change is projected to cause changes in average conditions and in extreme weather events. Increases in droughts, heavy rains, floods, and severe storms can be very disruptive for society and are among the potential impacts of most concern. Rising sea levels also affect

coastal areas, along which human communities are concentrated in many regions. Changes in temperature and precipitation will affect natural habitats and managed ones, with impacts on agriculture and food supplies of particular concern to a growing human population. There will be opportunities as well as risks associated with climate change, but in balance, impacts are expected to become increasingly negative as global average surface temperature becomes warmer. The impoverished are and will continue to be disproportionately affected.

7. In the United States, industries that contribute the most to climate change are often located physically in areas called “sacrifice zones.” Sacrifice zones bear disproportionate environmental and health burdens of our current economy and are often home to people of color. The people living in these zones benefit the least from these industries and often experience living standards that use very little energy. Surface pollutants from energy intensive industries, and those industries that produce the energy needed to fuel all of our homes, greatly affect the health of these communities. Asthma, cancer, reproductive issues, and developmental disorders are just a few of the health impacts. Around the world, it is also true that those who contribute the least to climate change—those whose food comes from the small fields that they farm or those who walk for water or those who are in impoverished flood zones—suffer disproportionately from the greenhouse gas-intensive industries that primarily profit others.

8. Individuals, organizations, and the international community can make a difference in dealing with climate change. We must act. Measures to reduce greenhouse gas emissions are essential to slowing the rate of climate change. Raising awareness of the issues surrounding climate change can make a significant difference.

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