## Unit 2

### Lesson 2.1

|  |  |  |
| --- | --- | --- |
| **Term** | **Definition** | **Example Sentence** |
| **scale** | The relative magnitude or size of something, often in reference to the level at which an issue emerges or is addressed. | It's important to understand the impacts of climate change at different scales. |
| **indirect impacts** | Changes to the everyday systems we rely upon for our food, housing, and security as a result of climate change interacting with our human systems. | Other types of indirect impacts of climate change include increased heat- and cold-related illnesses, respiratory problems, and challenges to mental health. |
| **direct impacts** | Measurable changes in Earth’s natural systems directly caused by warming temperatures. | Another set of direct impacts is the increased likelihood—and often severity—of some naturally occurring events, such as floods, storms, and wildfires. |
| **methane** | A colorless greenhouse gas with about 28 times the warming power of CO₂. Occurs in nature through decomposition; also occurs as a result of human activities such as fertilizer production. | As polar ice disappears, it’s releasing huge amounts of the greenhouse gas methane, which has been underground for millennia. |
| **mitigation** | Actions taken to reduce or prevent the emissions of greenhouse gases. | Mitigation solutions include everything from renewable energy to electric cars and public transportation. |
| **climate model** | A simulation of Earth’s climate system used to re-create past climatic conditions and predict future conditions based on different factors including human action. | As technology advances, climate model predictions have become increasingly accurate. |

### Lesson 2.2

| **Term** | **Definition** | **Example Sentence** |
| --- | --- | --- |
| **biomes** | Distinct regions of the planet that are defined by a shared ecology and often have similar climates, soils, and geography. | At a 2˚ C increase, 13% of Earth’s land will shift to a new biome. |
| **climate model** | A simulation of Earth's climate system used to re-create past climatic conditions and predict future conditions based on a number factors including human action. | As technology advances, climate model predictions have become increasingly accurate. |
| **direct impacts** | Measurable changes in Earth’s natural systems caused directly by warming temperatures. | Why do you think it’s important that we measure and understand the direct impacts of climate change? |
| **sea-level rise** | The average increase in the water level of the Earth's oceans as a result of climate change. | Sea-level rise is a huge problem for humanity because coastal regions are often densely populated.. |
| **temperature anomaly** | A way of measuring the increase or decrease in temperature from a baseline average. | The trend is even more apparent when we overlay global temperature anomaly alongside sea-level rise. |

### Lesson 2.3

|  |  |  |
| --- | --- | --- |
| **Term** | **Definition** | **Example Sentence** |
| **indirect impacts** | Changes to the everyday systems we rely upon for our food, housing, and security that are the result of climate change interacting with our human systems. | It is important to understand indirect impacts because climate change effects are wide-reaching and will impact everyone, although not always equally. |
| **disease vectors** | Living organisms that spread infectious diseases between animals and/or humans. | Some areas will see more rainfall and standing water, resulting in a larger geographic range for disease vectors such as mosquitoes. |
| **infrastructure** | The physical assets and systems that enable our daily lives, including transportation, energy, buildings, and sanitation. | Extreme weather events like floods, hurricanes, and wildfires can damage or destroy infrastructure. |
| **migration** | The process of people leaving their homes temporarily or permanently. | Climate change is driving migration, as rising sea levels and extreme weather force people to relocate to safer areas. |
| **climate justice** | The idea that the challenges we're facing as our climate changes shouldn't affect any one community more than others, even though the physical impacts are different around the world. | Climate justice proposes that these communities should have the power to improve their situations—and they should be able to get the support they need to adapt. |

### Lesson 2.4

| **Term** | **Definition** | **Example Sentence** |
| --- | --- | --- |
| **climate change** | Changes in the measures of Earth’s climate over a long period of time, including weather, precipitation, and temperature patterns. | It’s important to learn the skill of claim testing early and to use it when evaluating evidence about climate change. |
| **global warming** | The rise in global temperatures due mainly to the emission of greenhouse gases. | Global warming will lead to sea-level rise, increased drought, and more tropical storms. |
| **weather** | Short-term atmospheric conditions. | Extreme weather will get worse in many places. |
| **climate** | The long-term weather patterns of a specific region. | As climates shift, areas will transition to different biomes. |
| **greenhouse gases** | Gases that trap heat in the Earth’s atmosphere, producing a warming effect. | Greenhouse gases, such as carbon dioxide, methane, and nitrous oxide, trap heat from the Sun inside Earth’s atmosphere. |
| **ozone layer** | A protective layer of Earth’s atmosphere that absorbs most of the Sun’s harmful ultraviolet (UV) radiation. | While the use of harmful chemicals depleted our ozone layer, it has recovered since then. |
| **carbon footprint** | The total amount of greenhouse gases generated by an individual, organization, product, or activity. | Carbon footprints are often used as a tool to focus on what individuals can do, but it is just as helpful to look at the carbon footprints of large companies and nations. |
| **carbon cycle** | The natural process by which carbon is exchanged among the atmosphere, oceans, soil, plants, and animals. | Human activities, particularly the burning of fossil fuels, are altering the Earth’s natural carbon cycle and driving climate change. |
| **sequestration** | The process of capturing and storing carbon dioxide from the atmosphere in a stable form. | Carbon sequestration helps reduce atmospheric carbon dioxide by capturing it and safely storing it. |
| **adaptation** | Responding to the current and future impacts of climate change to minimize harm. | Wetland restoration can also be a form of adaptation, as wetlands reduce the intensity and impact of storms and hurricanes that pass over them. |
| **mitigation** | Actions taken to reduce or prevent the emissions of greenhouse gases. | Mitigation solutions include everything from renewable energy to electric cars and public transportation. |
| **fossil fuels** | Energy sources formed from the remains of ancient plants and animals. | Since 1750, the burning of fossil fuels has added more and more carbon dioxide to the atmosphere, rapidly warming the planet and causing climate change. |
| **clean energy** | Energy sources that are naturally replenished and emit little to no greenhouse gases. | Many countries are investing in clean energy sources like wind and solar to reduce reliance on fossil fuels and lower emissions. |