

Complete this worksheet as you watch the video.

1. In what state is the North Cascades National Park located? _____
2. What is the difference between climate and weather? _____
3. What is one main cause for climate change? _____
4. How do we know that the climate is changing? _____
5. How will climate change affect the water on Earth? _____
6. What are the goals of the national park? _____
7. Are global warming and climate change the same thing? Why or why not? _____

8. How does climate change affect the whole world? _____

9. What do we call a perennial mass of ice that flows over the land? _____
10. How can we tell how well a glacier is doing? _____

11. How do glaciers move? How fast? _____
12. What percentage of the world's fresh water supply is stored in glaciers? _____%
13. What organisms can be found in glaciers? _____
14. What do we call the scratches or gouges cut into earth and rock by glacier movement? _____
15. What do we call the soil and rock debris that defines a glacier's path? _____
16. How do scientists monitor glaciers? _____

17. What do scientist calculate when they subtract summer melt from spring accumulation? _____
18. What percentage of our glacier's have we lost in the last century? _____%
19. What do we call tiny aquatic animals that many fish consume for food? _____
20. Which side of the mountains get more rain? _____
21. What is the number and variety of plant and animal species within a region? _____
22. How does climate change affect niches? _____

23. What effect does climate change have on pikas and marmets? _____

24. Give an example of how the loss of glaciers has a negative impact on living things. _____

25. What type of species are going to have the hardest time adapting as the climate changes? _____

26. How is energy related to climate change? List 2 ways. _____

27. What are some examples of "dirty" or nonrenewable energy sources? _____

28. What are some examples of clean or renewable energy sources? _____

29. What do we call the power generated by moving water? _____

30. What are choices we make that use resources at a renewable rate? _____

31. Complete these statements about living a sustainable life:

- Take only what you _____, not what you want, and _____ with others.
- Don't _____ the earth, and _____ it, if you do.
- Leave the world a _____ place than you found it.

★ Think About It

1. In what state is the North Cascades National Park located? *Washington*
2. What is the difference between climate and weather? *Weather is temporary, while climate change refers to long term changes to earth's climate.*
3. What are some causes for climate change? *Build up of greenhouse gases*
4. How do we know that the climate is changing? *Tree rings, corals, lake and ocean sediments, sea levels, and the size of glaciers*
5. How will climate change affect the water on Earth? *Higher water temperatures, less snow in the winter*
6. What are the goals of the national park? *To preserve and protect our natural resources*
7. Are global warming and climate change the same thing? Why or why not? *No, global warming is an important part of climate change, but other factors are also involved, such as the amount of snow and the strength of storms.*
8. How does climate change affect the whole world? *It is warming the whole world, increasing ocean levels, and moving the ranges of tree species.*

Break 1 Questions

- *What creates greenhouse gases, such as CO₂? Buring of fossil fuels*
 - *What affect will the moving of range of tree species have on animals and plants? As the types of plants in an area changes, the types of animals that can survive there will change as well. Those that can adapt or find new habitats will survive, those who cannot will die.*
9. What do we call a perennial mass of ice that flows over the land? *Glacier*
 10. How can we tell how well a glacier is doing? *By monitoring the amount of growing and shrinking it does from season to season; if more of the glacier melts during the summer than is gained during the winter, the glacier will shrink.*
 11. How do glaciers move? How fast? *They move by sliding on a thin bed of water at a top speed of 6-7" per day.*
 12. What percentage of the world's fresh water supply is stored in glaciers? *70%*
 13. What organisms can be found in glaciers? *Ice worms and watermelon algae*
 14. What do we call the scratches or gouges cut into earth and rock by glacier movement? *Glacial striations*
 15. What do we call the soil and rock debris that defines a glacier's path? *Glacial moraine*
 16. How do scientists monitor glaciers? *Measure the amount of accumulated snow (depth) in April; use plastic stakes to measure the amount of the glacier that has melted away*
 17. What do scientist calculate when they subtract summer melt from spring accumulation? *Glacier Balance*
 18. What percentage of our glacier's have we lost in the last century? *50%*

Break 2 Questions

- *How do scientists measure the size of past glaciers? Use a map of the moraines along with its age as determined by tree rings, lichens, or finding volcanic ash*
- *How much water have we lost? One billion gallons*
- *Are glaciers the same size all around the world? No, it depends on the location with larger ones at higher latitudes*
- *Can glaciers reform? Over geologic time they have, but in recent time they have been shrinking*
- *How does melting glaciers affect people downstream? They will have less and less drinking water or water for agriculture and habitats.*

19. What do we call tiny aquatic animals that many fish consume for food? *Zooplankton*
20. Which side of the mountains get more rain? *West side gets 4 times more rain than the east side.*
21. What is the number and variety of plant and animal species within a region? *Biodiversity*
22. How does climate change affect niches? *They will move or shift causing animals to lose their homes*
23. What effect does climate change have on pikas and marmots? *The grasses they need to survive will not grow as well as the area becomes overgrown with trees causing them to live in smaller spaces*
24. Give an example of how the loss of glaciers has a negative impact on living things. *Loss of habitat for ice worms, loss of food for rosy finches that feed on ice worms, trout need colder glacial melt water, higher costs for electricity*
25. What type of species are going to have the hardest time adapting as the climate changes? *Specialist species (such as bull trout who like cold water)*

Break 3 Questions

- *What might impact of the redbase shiners be on the environment? They might continue to increase and compete with native species for food*
 - *How does the amount of rainfall on the west and east sides of the mountains affect its habitats? The west side has different types of habitats and plants than those found on the east side.*
 - *How will plant life be affected by climate change? It is shifting forests and plant life towards cooler areas near the poles or towards the equator where its wetter*
26. How is energy related to climate change? *How the energy is produced and how much we use has an effect on climate change*
 27. What are some examples of "dirty" or nonrenewable energy sources? *Coal, oil, and gasoline*
 28. What are some examples of clean or renewable energy sources? *Wind, water, and solar energy*
 29. What do we call the power generated by moving water? *Hydroelectric*

Break 4 Questions

- *How does climate change affect our ability to generate electricity? Less water will decrease river levels and currents*
 - *What percentage of Seattle's energy is produced by the hydroelectric dams? Up to 15% How will this change in the next few decades? It will decrease as water levels decrease*
30. What are choices we make that use resources at a renewable rate? *Sustainable*
 31. Complete these statements about living a sustainable life:
 - *Take only what you **need**, not what you want, and **share** with others.*
 - *Don't **harm** the earth, and **fix** it, if you do.*
 - *Leave the world a **better** place than you found it.*

Break 5 Questions

- *What are some sustainable choices you can make? Eat local, use composting, reduce vehicle use (ride a bicycle, ride a bus, or carpool), find ways to use less energy in our homes and schools*
- *What is the most important lesson we can learn from this video? We are all stewards of the Earth*