**Human Impact Review Sheet**

***SC.912.L.17.20 Predict the impact of individuals on environmental systems, and examine how human lifestyles affect sustainability.***

A natural resource is any natural material that is used by humans. Examples of natural resources are water, petroleum, minerals, forests, and animals. Most resources are changed and made into products that make people’s lives more comfortable and convenient. The energy we get from resources, such as gasoline and wind, ultimately comes from the Sun’s energy.

Some natural resources can be renewed. A renewable resource is a natural resource that can be replaced at the same rate at which the resource is used. Although many resources are renewable, they still can be used up before they can be renewed. Trees, for example, are renewable. However, some forests are being cut down faster than new forests can grow to replace them.

Not all of Earth’s natural resources are renewable. A nonrenewable resource is a resource that forms at a rate that is much slower than the rate at which it is consumed. When these resources become scarce, humans will have to find other resources to replace them. Most of the energy we use comes from a group of natural resources called fossil fuels. A fossil fuel is a nonrenewable energy resource formed from the remains of plants and animals that lived long ago.

Examples of fossil fuels include petroleum, coal, and natural gas. Once fossil fuels are used up, new supplies won’t be available for thousands or even millions of years. Second, obtaining and using fossil fuels has environmental consequences, such as acid rain and global warming. To continue to have access to energy and to overcome pollution, we must find alternative sources of energy.

As the human population grows, the demand for Earth’s resources increases. The human population has grown tremendously due to advancements in technology. But a large population puts pressure on nonrenewable resources such as fossil fuels as wells as renewable resources such as water. Balancing the needs of our population with the resources of our environment will help to reduce our ecological footprint to sustainable levels.

Conservation methods can help protect and restore ecosystems. To protect Earth’s natural resources for future generations, we need to plan for sustainable development. Sustainable development is a practice in which natural resources are used and managed in a way that meets the current needs without hurting future generations.

In order to protect our resources we have created environmental policies that make use of science, ethics, economics and the political process to solve environmental problems. Policies are created to protect individual species and their habitats as well as setting aside public lands to protect and entire ecosystem.

1. Describe one similarity and one difference between renewable and nonrenewable resources.
2. How has technology influenced human population growth?
3. Explain how a renewable resource such as water could become a nonrenewable resource.
4. Explain how having bottled drinking products, and other bottled items is both a benefit and a detriment.
5. As the human population continues to increase and use more fossil fuels, why my acid rain become a bigger problem?
6. What important service do forests provide? How might their destruction have an effect on humans?
7. Why are environmental policies necessary for maintaining Earth’s resources?
8. Some people see the benefit of wind energy as a clean alternative to fossil fuels for energy production. Others believe it is dangerous for migratory birds. These opinions best illustrate that decisions about alternate energy sources:
9. will usually favor older methods of energy production over newer methods
10. must be made by weighing the risks and costs against the benefits
11. must be made by taking into account the present needs of the citizens without looking toward the future
12. should be the responsibility of each individual
13. New fuels are being produced by converting corn and grasses into compounds containing alcohols that can be broken down for energy in various engines. The purpose of this research is to
14. reduce the use of nonrenewable resources.
15. increase the rate of air pollution.
16. reduce the rate of homeostasis in organisms.
17. A cause a loss of biodiversity in the rain forests.
18. When the supplies of a product decrease, the price of the product tends to increase. How might the continuing increases in the price of fossil fuels affect research on the development of renewable resources, such as wind power and solar energy?
19. Research on the development of renewable resources would likely decline.
20. Research on the development of renewable resources would likely increase.
21. There would be less research on alternative energies and more on fossil fuels.
22. Increased fossil fuel prices would have little effect on research and development
23. Whaling was a very profitable profession until whale populations crashed. The global community came together to enact a ban on whaling. However, Japan and Norway have not agreed to stop whaling. Which of the following is the most likely consequence of their decision?
24. **The whale populations are bouncing back very successfully and are unaffected by Japan and Norway continuing to whale.**
25. **The whale populations are not rebounding as quickly as they might if all of the countries agreed not to hunt whales.**
26. **The whale populations have mutated into new kinds of organisms.**
27. **The whales are getting better at avoiding capture.**
28. Salt water is an abundant resource but unusable for irrigation and drinking. As demands on freshwater sources increase, the use of desalination processes to remove salt from ocean water is increasing. A concern of desalinating water is the large amounts of recovered salts that are returned to the ocean. Which of the following describes the most likely impact of desalination on the surrounding ocean environment?
29. Methane gas would pollute the ocean environment as shoreline organisms begin to die and decay.
30. Alteration in ocean salt levels would cause loss of species and unbalanced populations in marine food webs.
31. Nonrenewable resources in the ocean environment would become depleted and upset the ecosystem’s balance.
32. Increased levels of salts and minerals in the ocean would result in overpopulation of marine bivalves due to strengthened shells.
33. DDT and other pesticides used over 50 years ago are still affecting the environment today. Scientists have found these substances in recent glacier runoff. Glacier runoff occurs during the summer, when precipitation that has fallen on glaciers during the winter is released. Ice layers from existing glaciers have been analyzed. The results of this analysis show that the concentrations of DDT and other pesticides were highest about 10 years after the use of these substances was banned.

This information shows that

1. **DDT and other pesticides cause glacier runoff during the summer.**
2. **it takes humans over 50 years to analyze a glacier.**
3. **precipitation helps to break down pesticides.**
4. **the decision of one human generation may have an impact on future generations.**
5. A strip mining company wants to lease some land that is currently part of a national park. They promise to reclaim the land should any minerals be mined from the area, and they are willing to pay top dollar for the rights. As an ecologist, what factors would you raise with the local government?
6. **the threat to local biodiversity**
7. **management of the land after the company leaves**
8. **the new jobs that would be created**
9. **the increased traffic in the area**