Biology Week 4 – Assignment #1

Teacher: Adair

Name: _____ Period: _____

Climate Change

1. On a separate sheet of paper use pages in the book 154-160 to take notes.
2. Read the following article on climate change. Summarize the article in 5 sentences on a separate sheet.

Nature is responding to climate change at record speed. The animal, plant and insect kingdoms aren't interested in public policy. They don't read political blogs. They adapt because they have to. They must change to survive. Animals, plants and even insects are now adapting quickly to shifts in temperatures, often by migrating to cooler climates, modifying their diets and altering breeding cycles.

This is happening at blinding speed in large, complex ecosystems. Throughout most of the 20th century, for example, tree range shift occurred at about 0.4 miles a year. Since 1990, however, climate changes have caused species range to move by an average of 12 miles a year. A 2009 U.S. Forest Service study, tracking 40 major tree species in 30 Eastern states, concluded that tree ranges had moved, on average, more than 60 miles north in less than a century.

More than 60 percent of the birds the National Wildlife Federation tracked in a recent study have expanded their range northward by an average of 35 miles in the last 40 years. Fourteen small mammal species in the Sierra Nevada Mountains were found to have extended the elevation at which they can survive by an average of 1,640 feet. This rapid adaptation is occurring around the world. British researchers recently analyzed more than 2,000 animal and plant species in Britain and found that many had already made significant adaptations to a changing environment.

The climate may now be changing so quickly that some species do not have time to adapt. With the Antarctic warming, for example, penguins now need to lay their eggs far earlier, according to research at Stony Brook University in New York. Yet of the three species studied – the Adelie, Chinstrap and Gentoo – only the Gentoo has been able to adapt quickly. As a result, that population has exploded, while the other two are dwindling.



When plants and animals move, adapt or die off, the planet's biodiversity diminishes. This is a big deal. The loss of biodiversity affects the environment as much as climate change and pollution do. Human health is directly linked to, and correlated with, a healthy, diverse ecosystem. For example, when coral reefs die, fish die. About 75 percent of the world's fish catch is used for human consumption. No fish, no food. We use the natural ecosystem for food, fresh water, medicines, clothing and much more. A report for the 2013 National Climate Assessment concluded that the extensive changes in these ecosystems will have important implications for future human activity, including what we eat and how we live.

Our tendency to downplay the less visible, but more fundamental, clues – like the changes occurring in the animal kingdom – is understandable. But misguided. Think of these as early warning signs of the potentially profound changes to come if we do not act soon. If global temperatures increase more than two to three degrees Fahrenheit above current levels, according to the U.N.'s Intergovernmental Panel on Climate Change, up to one-third of the species on Earth could be at risk of extinction.

That could include us. The natural world is acting on climate change. We need to start paying attention.

3. Answer the following questions about the article in complete sentences.
    a. How do animals, plants, and insects adapt to shifts in temperature?
    b. Give a specific of how climate change is affecting a species.
    c. Describe what is happening to biodiversity and why it is important.
    d. What would happen to species on earth if global temperatures increase more than two to three degrees?

Biology Week 4 – Assignment #2

Human Impacts on Earth

Humans are changing the ecosystems found on Earth in many negative ways. The following table includes real-life issues that humans are causing on Earth. It is your job to complete the table. If you need more space, write on a separate sheet of paper.

Issue	Describe why this is an issue and what negative effects it would have on the ecosystems.	What could be done to help solve the issue or prevent it from happening again?	What are some challenges to solving this issue?
Plastic accumulating in our oceans and on our beaches has become a global crisis. Billions of pounds of plastic can be found in about 40 percent of the world's ocean surfaces. At current rates plastic is expected to outweigh all the fish in the sea by 2050.			
In April 20, 2010, the oil drilling rig Deepwater Horizon, operating in the Gulf of Mexico, exploded and sank resulting in the largest spill of oil in the history of marine oil drilling operations. 4 million barrels of oil flowed from the damaged rig into the ocean.			
Deforestation is the permanent removal of trees by humans to make room for something besides forest. This can include clearing the land for agriculture, timber, or construction. About 3.9 million square miles of forest have been lost since the beginning of the 20th century.			
Air pollution is a mixture of solid particles and gases in the air. Car emissions, chemicals from factories, dust, pollen and mold spores may be suspended as particles. Some air pollutants are poisonous. Inhaling them can increase the chance you'll have health problems.			