



THE HUMAN FACTOR

Did you know the Earth's population has **doubled** in the past 50 years?

- Between 1960 and 2000, the human population increased from roughly 3 billion to 6 billion.

HOW did this happen? <type here>

Many of the adjustments humans have made have altered the balance of the ecosystem. These adjustments are referred to as the ___ .

HUMAN IMPACTS

QUIZ 7B

NOTES

REVIEW

POPULATION – a group of individuals of the same species existing together in the same place at the same time

POPULATION GROWTH – considering birth rates and immigration to death rates and emigration to determine changes in population over time

EXPONENTIAL GROWTH – a growth pattern where the population doubles at regular intervals

CARRYING CAPACITY – the maximum size of a population that a particular environment can support

OVERPOPULATION – when a population grows to a point where the environment can no longer support the species

VOCABULARY

EUTROPHICATION – a process when extra fertilizers from farming runoff into nearby waterways which results in increase algae growth; when this excess alga dies, it uses oxygen to decay and that means less oxygen for the aquatic life

FARMING - A human activity that increased population and changes the environment. One example of farming making an environmental change is **EUTROPHICATION**.

Other concerns with farming ... Fill-in-the-Blanks

- It can ___ habitats of many species
- It uses large amounts of ___ water
- It contributes to ___ erosion and desert formation
- It introduces ___ into the environment – pesticides, herbicides, fertilizers.

FOSSIL FUELS - People use fossil fuels (coal, oil, natural gas) every day for various uses.

Concerns with Fossil fuel Use creates pollutants that harm the environment. ... *Fill-in-the-Blanks*

- ___ created by the burning of fossil fuels damages plants and causes people to have respiratory problems.
- ___ happens when pollutants carried in precipitation, cause changes the pH of the rainwater –harms fish, trees, soil, microorganisms and even manmade objects.
- ___ is created from burning fossil fuels. CO₂ gets trapped in the atmosphere increasing the temperature, like in a greenhouse. The ___ is important for keeping Earth warm, but an increase in this effect could cause problems like ___ .

DEFORESTATION– cutting down trees to the elimination of forests

Impacts of Deforestation ... Fill-in-the-Blanks

- Forest loss is causing many species to lose their ___ and food sources, resulting in many becoming extinct or endangered.
- Deforestation contributes to global warming by reducing the plant life that takes in ___ .
- Loss of forests also creates ___ . The roots of plants hold soil in place to prevent erosion and absorb rainwater, preventing flooding.

BUILDING DAMS - People build large dams to control flooding, to improve water supplies, and to produce electricity. The ecological effects of these dams occur both upstream and downstream.

Impacts from Dams ... Fill-in-the-Blanks

- UPSTREAM:** Land upstream of the dam becomes ___ as artificial lakes or reservoirs form.
- DOWNSTREAM:** Because the dam is controlling the ___ of water, the downstream areas do not flood which redistributes sediment increasing the fertility of the land around the river.



WETLAND DESTRUCTION –

Fill-in-the-Blanks

A **wetland** is land that, at least some of the time, is covered by shallow __, has wetland __ life and has waterlogged __.

Wetlands are important ecosystems ... *Fill-in-the-Blanks*

- They are a __ habitat for many plant and animal species.
- They help prevent __.
- They __ excess nutrients, sediment, and even pollution from the water in them.

What happens when a wetland is removed?

When rain does not __ into the ground or is not captured in wetlands, it __ __ directly into lakes and rivers. The runoff __ pollutants, organic material, and excess nutrients with it.

CER: SILENT SPRING

READ: “A Fable for Tomorrow” BELOW CER Prompt

COMPLETE the **SILENT SPRING** Nearpod

(link provided in class)

before starting this CER Write!

CER PROMPT:

Based upon “A Fable for Tomorrow,” why did Rachel Carson name her book *Silent Spring*?

CLAIM – the answer to the Question in one sentence.

EVIDENCE – the clues from the text which support the Claim

- 1.
- 2.
- 3.

REASONING – your thoughts showing how the Evidence supports the Claim

Excerpt from *Silent Spring* By Rachel Carson, 1962

“A Fable for Tomorrow”

There was once a town in the heart of America where all life seemed to live in harmony with its surroundings. The town lay in the midst of a checkerboard of prosperous farms, with fields of grain and hillsides of orchards where, in spring, white clouds of bloom drifted above the green fields. In autumn, oak and maple and birch set up a blaze of color that flamed and flickered across a backdrop of pines. Then foxes barked in the hills and deer silently crossed the fields, half hidden in the mists of the fall mornings.

Along the roads, laurel, viburnum and alder, great ferns and wildflowers delighted the traveler's eye through much of the year. Even in winter the roadsides were places of beauty, where countless birds came to feed on the berries and on the seed heads of the dried weeds rising above the snow. The countryside was, in fact, famous for the abundance and variety of its bird life, and when the flood of migrants was pouring through in spring and fall people traveled from great distances to observe them. Others came to fish the streams, fish flowed clear and cold out of the hills and contained shady pools where trout lay. So it had been from the days many years ago when the first settlers raised their houses, sank their wells, and built their barns.

Then a strange blight crept over the area and everything began to change. Some evil spell had settled on the community: mysterious maladies swept the flocks of chickens; the cattle and sheep sickened and died. Everywhere was a shadow of

death. The farmers spoke of much illness among their families. In the town the doctors had become more and more puzzled by new kinds of sickness appearing among their patients. There had been several sudden and unexplained deaths, not only among adults but even among children, who would be stricken suddenly while at play and die within a few hours.

There was a strange stillness. The birds, for example—where had they gone? Many people spoke of them, puzzled and disturbed. The feeding stations in the backyards were deserted. The few birds seen anywhere were moribund; they trembled violently and could not fly. It was spring without voices. On the mornings that had once throbbed with the dawn chorus of robins, catbirds, doves, jays, wrens, and scores of other bird voices there was now no sound; only silence lay over the fields and woods and marsh.

On the farms the hens brooded, but no chicks hatched. The farmers complained that they were unable to raise any pigs—the litters were small and the young survived only a few days. The apple trees were coming into bloom but no bees droned among the blossoms, so there was no pollination and there would be no fruit.

The roadsides, once so attractive, were now lined with browned and withered vegetation as though swept by fire. These, too, were silent, deserted by all living things. Even the streams were now lifeless. Anglers no longer visited them, for all the fish had died.

In the gutters under the eaves and between the shingles of the roofs, a white granular powder still showed a few patches; some weeks before it had fallen like snow upon the roofs and the lawns, the fields and streams.

No witchcraft, no enemy action had silenced the birth of new life in this stricken world. The people had done it themselves.

This town does not actually exist, but it might easily have a thousand counterparts in America or elsewhere in the world. I know of no community that has experienced all the misfortunes I describe. Yet every one of these disasters has actually happened somewhere, and many real communities have already suffered a substantial number of them. A grim specter has crept upon us almost unnoticed, and this imagined tragedy may easily become a stark reality we all shall know.