What is biodiversity and how do we measure it? Biodiversity refers to the variety of life on Earth at all levels of organization. There are estimated to be more than 11,000 tree species in the Amazon rainforest. Almost 8,000 species live on Australia's Great Barrier Reef. No one knows how many species of bacteria there are on Earth, but scientists estimate it is at least 10 million. In short, there are a lot of other things sharing this planet with us, and none of those jerks pay rent.

Measuring biodiversity is tough. We don't even know how many species there are on Earth because some of them are undiscovered. That's right, ladies and gentlemen, species just waiting to be discovered and named by the next biologist who comes their way. Scientists have described fewer than 2 million species, and of those, insects dominate the species scene. All those creepy crawlers that no one likes to think about represent the most biodiversity.

What is biodiversity?

Biodiversity can be broken down into three different types of diversity:
- Organismal diversity, which is divided into species, genera, families, orders, phyla and domains or kingdoms
- Ecological diversity, which is broken into populations, communities, habitats, ecosystems, and biomes
- Genetic diversity, which includes genes, chromosomes, individuals and populations

One way of measuring biodiversity is using species richness, which is the number of species in a given area. Areas with high species richness and lots of endemic species (species that live nowhere else) are called biodiversity hotspots. Biologists have identified at least thirty biodiversity hotspots.

Describe one way to measure biodiversity. Go onto the back if needed.
Why should we care about biodiversity loss? Does it matter? The answer is yes. We should care, it does matter, and here’s one reason why: We get a lot of benefits from all the life around us. We have food, clean air, and clean water because of the other non-human organisms that share our planet.

Ecosystem services are functions that ecosystems perform that are useful to humans. The air we breathe is kept supplied by oxygen because of photosynthesis. Plants, algae and bacteria are photosynthetic, and without them we would not be alive. We also owe clean drinking water to forests, aquatic plants, invertebrates and microorganisms that absorb rainfall and purify water. Mangroves, seagrasses and coral reefs are nursery grounds for commercial fish. These coastal ecosystems also protect coastlines from damage during storms and tsunamis.

Describe two reasons we should care about biodiversity?

Many of our medicines are derived from plants, including:
- The anti-cancer drug Taxol, first isolated from the Pacific yew tree
- The chemical Vinblastine, used to fight childhood leukemia, found in the Madagascar periwinkle
- The pain medicine Aspirin was developed from the salicylic acid in willow bark; salicylic acid is also good at fighting acne. Thank you, willow trees!

Conservation biologists classify species according to their abundance. These categories are:

Extinct, Endangered, Threatened, Common

A species is extinct when no members of the species are left living anywhere on Earth. Sometimes people distinguish between extinct and extinct in the wild, which means some individuals are still alive in zoos or captivity somewhere but there are none left in the wild. Before a species goes extinct, it is usually classified as endangered, which means not many are left in the wild and the species is likely to go extinct soon if conservationists do not protect it. If a species is threatened, it is still relatively common but is facing threats such as habitat destruction or poaching. More about those later. Common species are not in any immediate threat of extinction.

Write to explain: What would happen if there was another mass extinction (massive loss of biodiversity)? Use and explain AT LEAST 3 pieces of evidence from the article! Use loose leaf if you need more room!