SECTION 2.3: EFFECTS OF BIOACCUMULATION ON ECOSYSTEMS

1. **Why are amphibians useful for assessing ecosystem health?**
   Because they live in water and on land. Deformities in amphibians develop showing that there are toxins in their environment.

2. **Why are amphibian populations declining?**
   Because of prolonged drought, increased ultra violet radiation, pollution, parasites and disease.

3. **What is bioaccumulation?**
   The gradual buildup of synthetic and organic chemicals in living organisms, which cannot be eliminated.

4. **How does bioaccumulation impact keystone species?**
   Bioaccumulation affects keystone species by reducing their numbers and can cause the ecosystem to collapse.

5. **What is biomagnification?**
   The gradual buildup of chemicals in each tropic level.

6. **How are bioaccumulation and biomagnification different?**
   Bioaccumulation is the buildup of chemicals in each organism and biomagnification is the concentration of chemicals in each tropic level.

7. **What are PCBs and why were they banned?**
   They are chemicals containing chlorine used in plastics. They were banned because of concerns about the impact on the environment and humans.

8. **What impact do PCBs have on Orcas?**
   It decreases their life span by half and it makes them more susceptible to diseases. It decreases their ability to reproduce.

9. **What effect do PCBs pose on the population of Orcas?**
   It interferes with their reproductive systems, and therefore it reduces their population.

10. **What is a persistent organic pollutant (POP's)?**
    POP = Persistent Organic Pollutants. Carbon containing compounds that remain in the water and soil for many years.

11. **What are some examples of persistent organic pollutants?**
    DDT = Dichlorodiphenyl Trichloroethane.

12. **Why are persistent organic pollutants so problematic?**
    POP's bind strongly with soil. Can affect animals who eat the plants.

13. **What are heavy metals?**
    Metallic elements with a high density that are toxic to organisms at low concentrations.

14. **Describe where lead is found plus the effects it has on living organisms**.
    Lead is found naturally in all soils. Highly toxic, and when consumed can cause anemia, nerve damage and kidney failure.

15. **Describe where cadmium is found plus the effects it has on living organisms.**
    Cadmium is found in the Earth's crust. It is released through rock weathering, volcanos and forest fires. Cadmium is released from the soil into the plants roots and it is highly toxic and kills animals that eat it.

16. **Describe where mercury is found plus the effect it has on living organisms.**
    Mercury is found in volcanos, geothermal springs, rock weathering – 40% of it leaves through the atmosphere. It returns by rainfall, dust, sticks to soil particles. Transported by wind and water. It affects nerve cells and other vital organs in the body.

17. **How can chemical pollution be reduced?**
    Bioremediation – the use of living organisms, like micro-organisms or plants, to do the clean-up naturally. Trapping the contaminant in the soil.