Assignment 1 Answers

1. c
2. c
3. b or a
4. d
5. b
6. b
7. c
8. b
9. d

Short Answer - Key words

1. The answer should include a **question and hypothesis** dealing with the **role of environmental factors** in the **reduction of the population** and a **procedure to investigate** the hypothesis. For example, an **airborne pollutant** from a nearby **industrial plant** might be **poisoning the salamanders**. Students can design an experiment to test the effect of the emissions from the plant on the species in question.
2. Answer
   1. A First Nations person considers a wolf to be a **noble animal** that is **resourceful, courageous, cares for its young well**, and **cooperates** with the other members of its pack. It does not kill unnecessarily but helps keep other species vigorous and strong by **weeding out the weak and diseased**.
   2. A cattle rancher thinks of the wolf as a **threat to the herd**. The calves are particularly vulnerable to wolf packs.
3. All three pyramids resemble the typical pyramid with **larger bases and gradually decreasing steps toward the top.**
   1. **Numbers – actual numbers of populations**
   2. **Biomass – weight in Kg of dry matter**
   3. **Energy – that there can only be a certain number of trophic levels.**

All using the 10% rule

Assignment 2 Answers

Answer Key

MC

1. C
2. D
3. C
4. A
5. C
6. B
7. C
8. A
9. B
10. B

Short Answer

1. Carbon atoms from **dead plant material** may form **peat in bog** areas where there is only enough oxygen for a very **slow decomposition process**. **Layers of sediment** form on top of the peat and trap it between layers of rock. The **pressure on the layers of peat result in its conversion to fossil fuel in the form of coal**. **Organic carbon trapped on the floors of oceans may be converted to oil**.
2. Students should explain that **plowing under the remains of a harvested crop and not planting crops in a field the next year (allowing it to lie fallow) will permit nitrogen to build up**. The uncultivated plants that grow can also be plowed under to add their nitrogen to the soil. The second method involves **crop rotation**. In this method, plants with nitrogen-fixing bacteria contained in nodules on their roots (clover, soybeans, peas, alfalfa) are planted in place of the crop grown the year before. The extra nitrates that are not used by the plants enter the soil. The third method of increasing nitrates in the soil is to **add either natural or artificial fertilizer** with a high concentration of nitrogen.
3. The diagram should show the following labeled layers from top to bottom:
   1. **litter** – partially decomposed organic matter (leaves and grass);
   2. **topsoil** – small pieces of rock (minerals) and humus;
   3. **subsoil** – rock particles (stones) and minerals with a little bit of organic matter;
   4. **bedrock** – solid rock layer.
4. Despite great efforts, scientists were largely **unable to control** the chestnut blight and the Dutch elm disease that have **virtually wiped out these trees**. A similar, uncontrolled disease or pest, such as the beetle that carried Dutch elm disease, **could infect any of these four types of crops** and **wipe them out in a short period of time**. The world would suffer a **severe shortage of food**. The **Irish Potato Famine** was an example of what can happen when a **disease like potato blight** infects the crops in a specific area.