Eutrophication Tycoon

Name: _____ **Period:** _____ **Date:** _____

> Open **peebedu.com** and navigate to **Eutrophication Tycoon**. Work through the tutorial, then use **Advance Season** to run your farm one season at a time. The **Water Quality** panel and the **Quick Reference** nutrient cycles are the two displays you will need.

Free Response Questions

Question 1 — Conceptual Analysis

> **Simulation Task:** *Run several seasons applying heavy fertiliser each time, advancing the season after each application. Watch the Water Quality panel as the seasons pass, and read the Season Results describing what happens in the waterway.*

(A) (1 pt) **Describe** the process of eutrophication.

(B) (1 pt) **Explain** how fertiliser spread on a field comes to affect the organisms living in a neighbouring waterway.

(C) (1 pt) **Predict** the effect on the fish population of a lake that receives heavy fertiliser runoff for several seasons.

(D) (1 pt) **Justify** your prediction.

Question 2 — Analyze Model / Visual Representation

> **Simulation Task:** *Open the Quick Reference and read the phosphorus cycle steps. Then start a new game and choose a lower fertiliser setting with a sustainable practice from the Sustainable Solutions panel. Compare the Water Quality readings across seasons with those from your heavy-fertiliser run.*

(A) (1 pt) **Describe** the route by which phosphorus returns to the soil.

(B) (1 pt) **Explain** why phosphate applied to a field does not all stay in the soil where it was spread.

(C) (1 pt) **Represent** the movement of phosphorus by drawing a labeled diagram with arrows showing fertiliser reaching the soil, uptake by producers, and return to the soil.

Draw your diagram here.

(D) (1 pt) **Explain** how the decomposition of a large algal bloom lowers the amount of oxygen dissolved in the water.

8.2.B.7