

Di: _____

Systems Basics Review Activity

Name: **KEY**

Per: _____

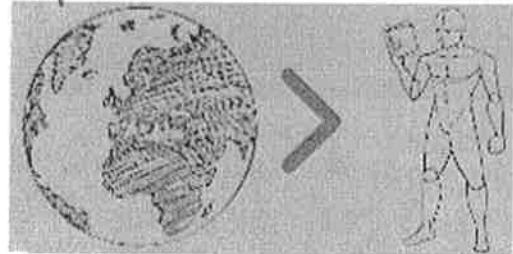
Environmental Value Systems

Label the continuum line below with the words "Ecocentric, Anthropocentric, and Technocentric". Under each term list several characteristics that define each.



Ecocentric

- nature centered
- biorights
- self restraint
- "preservation"



Anthro

- manage resources through legislation
- humans are above nature & have a right to use resources
- "conservation"

Techno

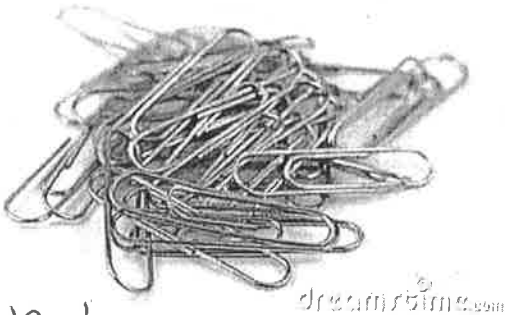
- technology & innovation will solve all our env. problems
- "consumption"

Ecocentric

Identify the value system that this artist is trying to convey.

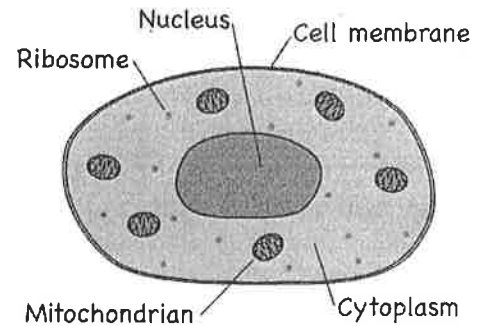
systems

Identify if the following objects are systems or not and then explain why you think this being specific in your answer.



Not

- no box for boundary
- no feedback
- no resource flow



Yes

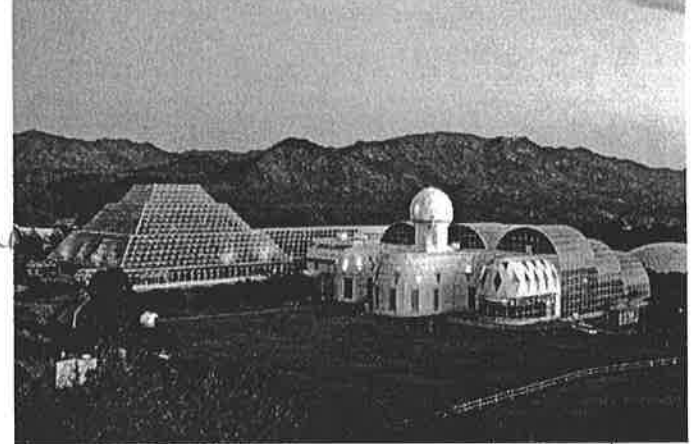
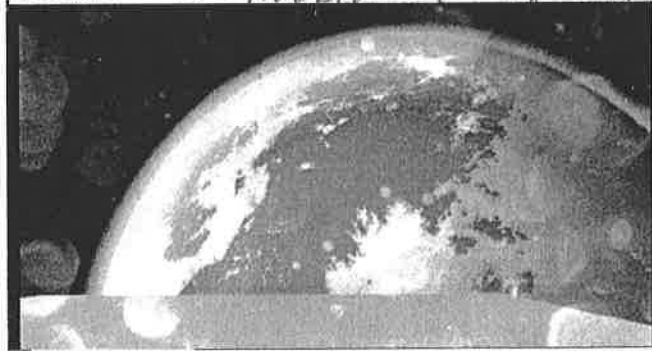
- Cell membrane - boundary
- resource flow - cell transport
- Components -> organelles
- feedback - life

Identify whether the following are open, closed, or isolated systems and explain why.



open b/c water is leaving + entering the system
 Energy is both entering + leaving as solar + heat

closed because solar energy can come in but carbon, water, etc. is trapped b/c of atm.



closed - matter is trapped + recycled in sphere
 energy (sun) can come in + heat can leave

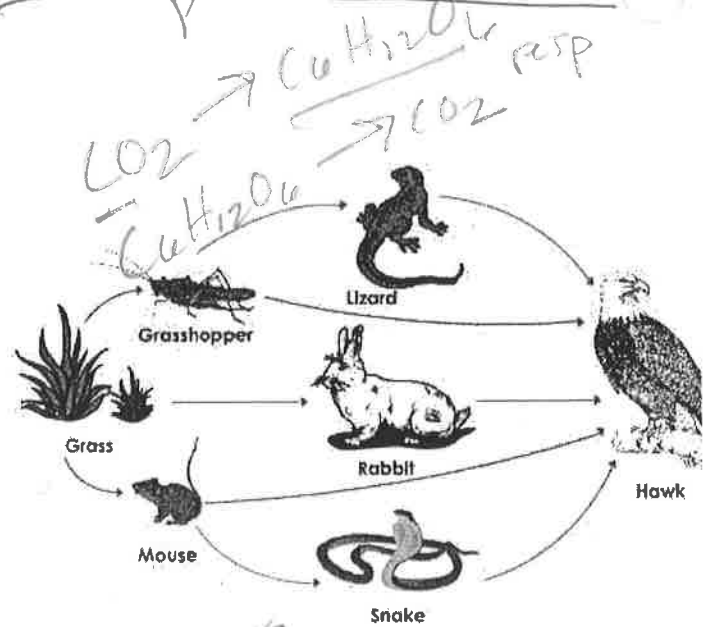
Storage Flow Diagrams

matter + energy

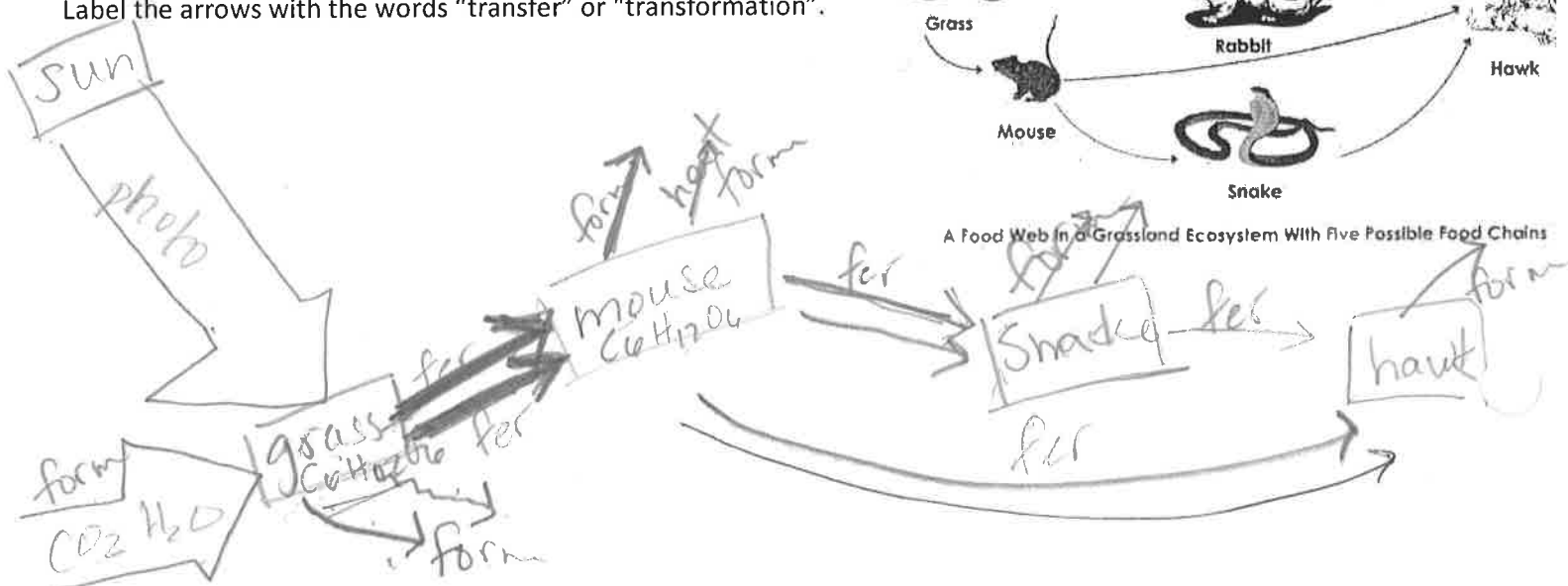
Using the food web below make a storage flow diagram. Make sure you include:

Arrows for inputs and outputs that show magnitude of both energy AND matter flowing.

Label the arrows with the words "transfer" or "transformation".



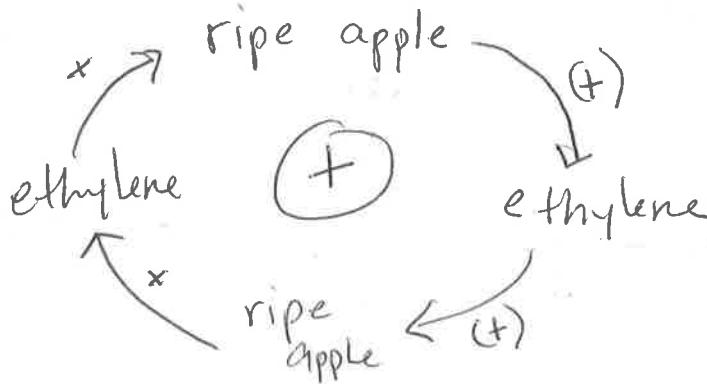
A Food Web in a Grassland Ecosystem With Five Possible Food Chains



Feedback loops

Read the scenarios below and draw the feedback loop for each

There is a surprising effect in nature where a tree or bush will suddenly ripen all of its fruit or vegetables, without any visible signal. This is our first example of a positive biological feedback loop. If we look at an apple tree, with many apples, seemingly overnight they all go from unripe to ripe to overripe. This will begin with the first apple to ripen. Once ripe, it gives off a gas known as ethylene (C_2H_4) through its skin. When exposed to this gas, the apples near to it also ripen. Once ripe, they too produce ethylene, which continues to ripen the rest of the tree in an effect much like a wave. This feedback loop is often used in fruit production, with apples being exposed to manufactured ethylene gas to make them ripen faster.



Temperature regulation in humans occurs constantly. Normal human body temperature is approximately $98.6^{\circ}F$. When body temperature rises above this, two mechanisms kick in: the body begins to sweat, and vasodilation occurs to allow more of the blood surface area to be exposed to the cooler external environment.

As the sweat cools, it causes evaporative cooling. Normal temperature is regained. Should these cooling mechanisms continue, the body will become cold. The mechanisms which then kick in are the formation of goose bumps, and vasoconstriction. Goosebumps in other mammals raise the hair or fur, allowing more heat to be retained. In humans, they tighten the surrounding skin, reducing (slightly) the surface area from which to lose heat. Vasoconstriction ensures that only a small surface area of the veins is exposed to the cooler outside temperature, retaining heat. Normal temperature is regained.

