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| Biology Cornell Notes: Ecology Date: | |
| Study Questions/ Vocabulary:  What are biotic and abiotic factors?  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  What are producers?  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  How do consumers obtain energy and nutrients? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  What is a niche?  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  What are three primary ways that organisms depend on each other?  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  How does matter move through the biosphere?  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  What is the importance of the main nutrient cycle?  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | 1. **What is ecology?**  * \_\_\_\_\_\_\_\_\_\_\_\_\_ - the scientific\_\_\_\_\_\_\_\_ of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ between \_\_\_\_\_\_\_\_\_\_\_\_\_and their\_\_\_\_\_\_\_\_\_\_\_\_\_\_, focusing on \_\_\_\_\_\_\_\_\_transfer * It is a science of\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.  1. **What do you mean by environment?**   The environment is made up of \_\_\_\_\_ factors:   * \_\_\_\_\_\_\_\_\_ factors- all \_\_\_\_\_\_\_\_\_\_\_ organisms inhabiting the Earth * \_\_\_\_\_\_\_\_\_\_ factors- \_\_\_\_\_\_\_\_\_\_\_\_ parts of the environment (i.e.\_\_\_\_\_\_\_\_\_\_\_\_\_\_, soil, \_\_\_\_\_\_\_\_\_, moisture, \_\_\_\_\_ currents)  1. **Habitat vs. Niche**  * \_\_\_\_\_\_\_\_\_- the \_\_\_\_\_\_\_\_ a species plays in a community: its total way of life (job) * \_\_\_\_\_\_\_\_\_\_\_\_- the \_\_\_\_\_\_\_\_\_ in which an organism \_\_\_\_\_\_\_\_\_\_ out its life (address) * A \_\_\_\_\_\_\_\_\_\_is determined by the \_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_of an organism, or a\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_. * \_\_\_\_\_\_\_\_\_\_\_\_\_ factor- any biotic or abiotic factor that \_\_\_\_\_\_\_\_\_ the \_\_\_\_\_\_\_\_\_\_\_\_of organisms in a specific environment. * Examples of limiting factors-\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_   \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_   1. **Feeding Relationships**  * There are \_\_\_ main types of feeding relationships.   1. \_\_\_\_\_\_\_\_\_\_\_\_- \_\_\_\_\_\_\_\_\_\_\_\_\_\_  2. \_\_\_\_\_\_\_\_\_\_\_\_- \_\_\_\_\_\_\_\_\_\_\_\_\_\_  3. \_\_\_\_\_\_\_\_\_\_\_\_- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_   * \_\_\_\_\_\_\_\_\_\_\_- all \_\_\_\_\_\_\_\_\_\_ (plants), they trap \_\_\_\_\_\_\_\_\_\_ from the \_\_\_\_\_\_ * \_\_\_\_\_\_\_\_\_\_ of the food chain * \_\_\_\_\_\_\_\_\_\_\_\_\_- all\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_: they \_\_\_\_\_\_\_\_ food containing the sun’s energy * Herbivore – Carnivores – Omnivore - Decomposers  1. **Symbiotic Relationships**  * **\_\_\_\_\_\_\_\_\_\_\_\_\_\_**- \_\_\_\_\_ species living \_\_\_\_\_\_\_\_\_\_\_\_ * \_\_\_ Types of symbiosis:   1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_   * **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**- \_\_\_\_ species \_\_\_\_\_\_\_\_\_\_\_ and the other is \_\_\_\_\_\_\_\_\_ harmed nor helped   Example: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_   * **\_\_\_\_\_\_\_\_\_\_\_\_\_**- One species \_\_\_\_\_\_\_\_\_\_\_(parasite) and the other is \_\_\_\_\_\_\_\_\_\_ (host)   Example: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_   * \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- beneficial to \_\_\_\_\_\_\_\_\_\_\_\_\_\_ species   Example: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_   |  |  |  |  | | --- | --- | --- | --- | | **Type of relationship** | **Species harmed** | **Species benefits** | **Species neutral** | | 1. |  |  |  | | 2. |  |  |  | | 3. |  |  |  |  1. **Trophic Levels**  * Each \_\_\_\_\_\_ in a food \_\_\_\_\_\_\_\_is known as a \_\_\_\_\_\_\_\_\_ level. * Trophic levels represent a \_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_ in the \_\_\_\_\_\_\_\_\_ of \_\_\_\_\_\_\_\_\_ and matter in an ecosystem. * As you move \_\_\_ a food chain, available \_\_\_\_\_\_\_\_\_ decreases. * \_\_\_\_\_\_\_\_\_ is transferred upwards but is \_\_\_\_\_\_\_\_\_\_\_\_\_ with each transfer.   How Does Energy Flow Through an Ecosystem? | Earth Reminder   * **\_\_\_\_\_\_\_\_ chain**- \_\_\_\_\_\_\_\_\_\_ model that shows how matter and \_\_\_\_\_\_\_\_\_\_ move through an ecosystem * **Food \_\_\_\_\_\_**- shows \_\_\_\_ possible feeding \_\_\_\_\_\_\_\_\_\_\_\_\_\_ in a community at each \_\_\_\_\_\_\_\_\_ level  1. **Nutrient Cycles**   Cycling maintains \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (balance) in the environment.   * \_\_\_ cycles to investigate:   1. \_\_\_\_\_\_\_\_ cycle  2. \_\_\_\_\_\_\_\_\_ cycle  3. \_\_\_\_\_\_\_\_\_\_\_\_\_ cycle  **\_\_\_\_\_\_\_\_ cycle-** evaporation, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, condensation, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  **\_\_\_\_\_\_\_\_ cycle-** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_ cycle carbon and \_\_\_\_\_\_\_\_\_\_\_ through the environment.  **\_\_\_\_\_\_\_\_\_\_\_ cycle-**  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ nitrogen (N2) makes up nearly \_\_\_ %-\_\_\_ % of air.  Organisms \_\_\_\_ \_\_\_\_\_ use it in that form.  \_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_ convert nitrogen into \_\_\_\_\_\_\_\_\_\_\_ forms.  Only in certain \_\_\_\_\_\_\_\_\_\_\_\_ and industrial \_\_\_\_\_\_\_\_\_\_\_\_\_\_ can \_\_\_\_\_ nitrogen.  **Nitrogen\_\_\_\_\_\_\_\_\_\_\_\_\_\_** - \_\_\_\_\_\_\_\_\_\_atmospheric nitrogen (N2) into \_\_\_\_\_\_\_\_\_\_\_\_(NH4+) which can be \_\_\_\_\_\_\_ to make organic compounds like\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_.  **Nitrogen-fixing\_\_\_\_\_\_\_\_\_\_\_\_\_:** Some live in a \_\_\_\_\_\_\_\_\_\_\_\_\_\_ relationship with plants of the \_\_\_\_\_\_\_\_\_\_\_\_family (e.g., soybeans, clover,\_\_\_\_\_\_\_\_\_\_\_\_).   * Some \_\_\_\_\_\_\_\_\_\_\_\_-fixing bacteria live \_\_\_\_\_\_\_ in the\_\_\_\_\_\_\_. * Nitrogen-fixing \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_are essential to maintaining the fertility of semi-\_\_\_\_\_\_\_\_\_\_ environments like \_\_\_\_\_\_ paddies.   **\_\_\_\_\_\_\_\_\_\_ in food chains-**  While energy \_\_\_\_\_\_\_\_\_\_\_\_ as it moves up the food chain, \_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_ in potency.   * This is called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_   Ex: \_\_\_\_\_\_ & Bald \_\_\_\_\_\_\_\_\_\_\_ |
| SUMMARY : \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | |