1. A **stimulus** is…

   ☐ a gene that controls a response

   ☐ a type of cell that senses light

   ☐ a change that an organism can detect and react to

   ☐ a kind of food that gives energy

2. Where does the energy in most ecosystems originally come from?

   ☐ the soil

   ☐ the Sun

   ☐ rocks

   ☐ the wind

3. When resources are unlimited, a population shows **exponential growth**, which means it…

   ☐ grows in a straight line

   ☐ shrinks steadily

   ☐ grows faster and faster

   ☐ stays exactly the same

4. **Population density** measures…

   ☐ how heavy each individual is

   ☐ how many individuals live in a given area

   ☐ the total sunlight

   ☐ the number of species

5. A **community** in ecology is…

   ☐ the non-living parts of an area

   ☐ one population and its food supply

   ☐ all the populations of different species living together in an area

   ☐ a single species living in an area

6. A species that has an especially large effect on its community is a _____ species.

   _____

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_____

8. Photosynthesis creates new carbon atoms that did not exist before.

   ☐ True ☐ False

9. An animal moving toward or away from a stimulus is showing a _____.

   _____

10. Assume transfer efficiency is 10% in this example. From 10,000 units, how many reach the next trophic level?

    _____

1. **a change that an organism can detect and react to**

   A **stimulus** is a change in the environment (like light or heat) that triggers a **response**.

2. **the Sun**

   Sunlight is captured by **producers** (plants) through photosynthesis, feeding the whole ecosystem.

3. **grows faster and faster**

   Exponential growth speeds up as the population gets bigger – a J-shaped curve.

4. **how many individuals live in a given area**

   Population density is the number of individuals per unit area or volume.

5. **all the populations of different species living together in an area**

   A **community** is all the interacting populations of different species sharing an area.

6. **keystone**

   A **keystone species** holds the community together; losing it can collapse the whole ecosystem.

7. **succession**

   In **succession**, species return step by step, slowly rebuilding the community after a disturbance.

8. **False**

   It incorporates existing carbon from CO_2 into organic molecules.

9. **taxis**

   A **taxis** is a directed movement of an animal toward or away from a stimulus.

10. **1000**

    Under the supplied 10% assumption, $10{,}000 \times 0.1 = 1{,}000$. Real transfer efficiencies vary.

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