

Replacements

Replacement Tossups

(1) Amaculara is a now extinct species that was thought to serve this ecosystem role with supporting evidence from fossils of W-shaped indents on Cambrian trilobites. Lotka-Volterra equations model their relation to their weaker counter role. Any trophic level can serve this role in relation to all trophic levels below it. For the point, name this general class of territorial hunters that eat prey.

ANSWER: predators

(2) Two important points on this shape are the perihelion and aphelion. Johannes Kepler used these shapes to improve upon astronomical predictions of Copernicus and Tycho Brahe. These shapes proved more accurate than circles for the orbits of the planets. For the point, name this shape, a regular oval with equal distance to two points.

ANSWER: ellipses (prompt on oval; prompt on “orbit”s with “an orbit that traces out what shape?”)

(3) In response to this condition, Immunoglobulin E antibodies are produced. The hygiene hypothesis states that lack of exposure leads to this condition. Blood pressure drops rapidly and breathing is blocked in serious forms of this condition that may lead to anaphylaxis [an uh fuh lack sis]. Hay fever is a specific type of this condition. For the point, name this reaction by the body to normally harmless substances like peanuts or pollen.

ANSWER: allergies (accept allergy; accept any type of allergy so long as allergy is mentioned)

(4) This force is described in pipes by the Darcy factor. The magnitude of this force does not depend on surface area according to Amonton’s second law. A coefficient denoted mu describes this force which comes in static and kinetic types. Drag is an example of this force in fluids which is decreased in magnitude by lubricants. For the point, name this force that resists changes in motion.

ANSWER: friction (prompt on “drag” until mentioned)

(5) These birds are members of the family Trochilidae and are found exclusively in the Americas, with their highest biodiversity in the lower elevations of the Andes. These birds are capable of backwards flight, and males of birds in this family often have splendid throat feathers. These birds feed predominantly on flower nectar, and include the smallest bird species in the world. For the point, name these birds whose wings produce a namesake sound while beating up to dozens of times per second.

ANSWER: hummingbirds