

Name _____

The Versatile Plant Stem: An Essential Organ for Growth and Support

Open-Ended Response Answer Key

1. Stem flexibility allows plants to sway in the wind, reducing the risk of damage from strong gusts and promoting efficient nutrient transport by minimizing resistance in the vascular system.
2. Vegetative propagation relies on stem structures such as stolons and rhizomes to produce new plants from existing ones, enhancing genetic diversity and facilitating the spread of desirable traits in agriculture and horticulture.
3. Plant stems serve as essential components of food chains, providing energy and nutrients for herbivores and decomposers. As herbivores feed on stems, they transfer energy to higher trophic levels, while decomposers break down dead stems, returning nutrients to the soil.
4. Herbaceous plants have soft, flexible stems that typically die back to the ground each year, while woody plants have hard, rigid stems that persist throughout the plant's life. These differences reflect their growth habits, with herbaceous plants prioritizing rapid growth and reproduction, while woody plants invest in long-term structural support and resource storage.

