

Name _____

The Backbone of Plant Growth: How Stems Support Plants

Open-Ended Response Answer Key

1. Stem flexibility allows plants to sway in the wind, reducing the risk of damage from strong gusts and supporting heavy foliage. This adaptability is crucial for plants growing in exposed environments, where wind is a common stress factor.
2. Apical dominance refers to the phenomenon where the terminal bud inhibits the growth of lateral buds, resulting in the upward growth of the main stem. This mechanism helps maintain the plant's vertical orientation and influences branching patterns, shaping overall plant architecture.
3. Stem architecture affects resource acquisition and competitive interactions within plant communities. Plants with different stem structures may exploit resources differently, leading to niche differentiation and species coexistence. Additionally, stem diversity contributes to habitat complexity, supporting a wide range of organisms.
4. Herbaceous stems are soft and flexible, typically undergoing annual growth cycles and dying back to the ground each year. In contrast, woody stems are hard and rigid, persisting throughout the plant's life and capable of secondary growth. These differences reflect their respective strategies for resource allocation and environmental adaptation.

