

Seed Germination Quiz Questions and Answers PDF

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Which part of the seed emerges first during germination?

- Plumule
- Radicle ✓
- Seed Coat
- Cotyledon

During germination, the radicle, or embryonic root, is the first part of the seed to emerge. This root anchors the plant and begins the process of nutrient and water absorption from the soil.

What is the primary function of the seed coat?

- Photosynthesis
- Protection ✓
- Water absorption
- Nutrient storage

The seed coat primarily serves to protect the seed from physical damage, pathogens, and desiccation, ensuring the seed's viability until conditions are favorable for germination.

What is the first stage of seed germination?

- Activation
- Imbibition ✓
- Dormancy
- Growth

The first stage of seed germination is imbibition, where the seed absorbs water, swells, and begins to activate metabolic processes necessary for growth.

Which condition is NOT essential for seed germination?

- Light ✓
- Oxygen
- Temperature
- Water

Seed germination typically requires moisture, warmth, and oxygen, but light is not essential for the initial stages of germination. Therefore, the condition that is NOT essential for seed germination is light.

Which of the following is a nutrient-rich tissue in seeds?

- Seed Coat
- Radicle
- Plumule
- Endosperm ✓

The nutrient-rich tissue in seeds is known as the endosperm, which provides essential nutrients to the developing plant embryo during germination.

What is the role of cotyledons in seed germination?

- Protect the seed
- Absorb water
- Provide oxygen
- Store food ✓

Cotyledons serve as the first leaves of a seedling, providing essential nutrients during the early stages of germination until the plant can produce its own food through photosynthesis.

Which factors can affect the rate of seed germination? (Select all that apply)

- Seed viability ✓
- Soil pH ✓
- Wind speed
- Seed age ✓

The rate of seed germination can be influenced by several factors including temperature, moisture, light, and oxygen availability. Each of these elements plays a crucial role in the metabolic processes that initiate germination.

What are the functions of the endosperm in a seed? (Select all that apply)

- Protection
- Photosynthesis
- Support for the embryo ✓**
- Nutrient storage ✓**

The endosperm serves as a nutrient-rich tissue that provides essential food reserves for the developing embryo in a seed, supporting its growth until it can photosynthesize independently.

What type of germination involves cotyledons remaining below the soil?

- Epigeal
- Aerial
- Subterranean
- Hypogeal ✓**

The type of germination where cotyledons remain below the soil is known as hypogeal germination. This process allows the seedling to conserve energy and protect the cotyledons from environmental stress.

Which factor can cause seed dormancy?

- Excess water
- Hard seed coat ✓**
- Optimal temperature
- Abundant light

Seed dormancy can be caused by various factors, including environmental conditions, seed coat impermeability, and physiological mechanisms within the seed itself.

Which parts of the seed are involved in the initial growth during germination? (Select all that apply)

- Radicle ✓**
- Seed Coat
- Cotyledons ✓**
- Plumule ✓**

During germination, the seed's embryo and cotyledons are primarily involved in the initial growth, as they provide the necessary nutrients and energy for the seedling to emerge and develop.

Which of the following are necessary conditions for seed germination? (Select all that apply)

- Water** ✓
- Light
- Temperature** ✓
- Oxygen** ✓

Seed germination requires specific conditions such as moisture, appropriate temperature, and oxygen. These factors are essential for the seed to activate its metabolic processes and begin growth.

Which environmental factors can lead to seed dormancy? (Select all that apply)

- Low temperature** ✓
- High humidity
- Lack of oxygen** ✓
- Presence of growth inhibitors** ✓

Seed dormancy can be influenced by various environmental factors such as temperature, moisture availability, light conditions, and the presence of specific chemicals in the soil. These factors can either promote or inhibit the germination process, leading to dormancy until conditions are favorable.

What are characteristics of epigeal germination? (Select all that apply)

- Cotyledons above soil** ✓
- Cotyledons below soil
- Rapid initial growth** ✓
- Requires more light** ✓

Epigeal germination is characterized by the cotyledons being raised above the soil surface and the stem elongating during the germination process. This type of germination is common in many dicotyledonous plants.