

## Chapter 31 - Plant Structure and Function

### I. Reproductive Structures of Flowering Plants

#### A. Think Sporophyte and Gametophyte

1. Plants reproduce sexually, often relying on pollinators to bring sperm and egg together
  
1. The \_\_\_\_\_ (diploid) develops from the zygote by mitosis: it consists of roots, stems, leaves and flowers.
  - a.
  
1. Meiosis of cells within flowers produces the small haploid \_\_\_\_\_ which in turn produce either sperm or eggs.
  - a.

#### A. Components of Flowers

1. The specialized parts of the flower grow from the modified end of the floral shoot the *receptacle*.
  - a. \_\_\_\_\_ (collectively called the calyx) are the outermost green, leaflike parts
  
  - a. \_\_\_\_\_ (Collectively called the corolla) are the colored parts located between the reproductive structures and the sepals.

#### A. Where Pollen and Eggs Develop

1. Male parts called \_\_\_\_\_, are located inside the corolla.
  - a. Often the stamen consists of a slender stalk (\_\_\_\_\_) capped with an anther.
  
  - a. Inside the \_\_\_\_\_ are \_\_\_\_\_ in which pollen grains develop.
  
1. Female parts are located in the central part of the flower.
  - a. The \_\_\_\_\_ is the vessel-shaped structure with an expanded lower chamber (ovary) slender column (style), and upper surface (stigma) for pollen landing.
  
  - b. In the ovary eggs \_\_\_\_\_, fertilization occurs, and seeds mature.
  
1. So-called “perfect” flowers have both male and female parts; “imperfect” flowers lack the parts of one sex.

### I. A New Generation Begins

#### A. From Pollination to Fertilization

1. \_\_\_\_\_ is the transfer of pollen to the surface of the stigma by the action of insects, birds, or other agents.

1. In \_\_\_\_\_, a pollen tube forms producing a path that the sperm will follow to the ovule.
  - a. Ovule (potential seed) enclosed by integuments.
1. Sperm are released into the pollen tube --
  - a. One sperm fuses with the egg nucleus to form a diploid zygote
    - (1) zygote - the first cell of the developing embryo

I. From Zygote to Seed

A. Formation of the Embryo Sporophyte

1. The zygote undergoes repeated divisions to form an embryo \_\_\_\_ as a part of an ovule and is accompanied formation of a fruit.

A. Formation of Seeds and Fruits

1. From zygote to embryo, the plant supplies nutrition until the time when the connection between the ovule and ovary wall is broken.
1. The mature ovule's integuments develop into \_\_\_\_\_ around the seed
  - a. Seed = embryo + food reserves + coat
1. A \_\_\_\_\_ is a mature ovary with seeds (ovules) inside
  - a. When seeds form, other floral parts change and start to form fruits
    - (1) *Simple fruits* are derived from a single ovary
      - (a) Peach

Chapter 32 - Plant Growth and Development

I. Patterns of Early Growth and Development -- An Overview

A. Seed Germination

1. \_\_\_\_\_ is the resumption of growth after a time of arrested embryonic development.
1. Environmental factors influence germination.
  - a. \_\_\_\_\_ provide the water amounts necessary to swell and rupture the seed coat
  - a. \_\_\_\_\_ moves in and allows the embryo to switch to aerobic metabolism.
  - a. \_\_\_\_\_ and number of daylight hours are also influential.

I. Adjustments in the Rate and Direction of Growth

A. Plant Tropisms

1. A plant tropism is a
  - a. It is evidenced by a turning of a root or shoot toward or away from an environmental stimulus.
  - a. Hormones mediate the shifts in rates at which different cells grow and elongate to cause the overall responses.
1. \_\_\_\_\_ is the growth response to gravity -- shoots grow up, roots grow down.
1. Phototropism is the response to \_\_\_\_\_.
1. Thigmotropism is a shift in growth triggered by physical contact with surrounding objects.