SEED PLANT STRUCTURES

ROOTS: absorb water and nutrients and anchor the plant in the soil.

STEMS: move water and nutrients and provide support.

LEAVES: produce food, echange gases and transpire.

FLOWERS / CONES: male and female reproductive structures.

SEEDS: contain an embryo and food supply for a new plant.

PLANT PROCESSES

Water Movement

OSMOSIS
Water moves from an area of high concentration to low concentration.

CAPILLARY ACTION
Water particles 'stick' to each other as they move up the plant stem.

TRANSPIRATION
Evaporation in the leaves causing areas of low water concentration needing to be replaced from below.

PLANT PROCESSES

Nutrient Movement

DIFFUSION
Movement of nutrients from areas of high concentrations to areas of low concentrations.

ACTIVE TRANSPORT
Movement of nutrients from areas of low concentrations to areas of high concentrations (this process requires energy).

PLANT PROCESSES

Food Production and Use

PHOTOSYNTHESIS
Chloroplasts in the leaves capture the Sun's energy, combine it with Carbon Dioxide and water to make SUGAR.

CELLULAR RESPIRATION
Plants use the sugar they produce as food, they also produce Carbon Dioxide and water - as waste.

LIFE CYCLE

Seed > Seedling > Adult

The seed contains an embryo, food and a seed coat.

The seedling is the embryo that has begun photosynthesis (producing its own food).

An adult plant is one that has produced its own reproductive structures (flowers or cones).

SEED PLANT REPRODUCTION

POLLINATION
Pollen grains land on the stigma of the flower - above the ovary - producing a tube which grows down to the ovule. The ovule then grows into a seed.

POLLINATORS
Wind, living organisms (birds, insects and other organisms) move the pollen to the stigma through various methods.

VEGETATIVE REPRODUCTION

RUNNERS
Long stems that grow along the surface of the soil.

RHIZOMES
New stems growing undergrond.

SUCKERS
New plants forming on the roots.

CUTTINGS/GRAFTING
Cuttings are small pieces of plants that can grow into new plants, while grafting attaches one plant part onto another plant, which can then grow together to make a new plant.

ADAPTATIONS

Thick stems: to store water or reduce evaporation and to protect plants from extreme temperatures.

Spines/Thorns: to protect the plant from predators.

Narrow Leaves: to help them pollinate and reduce water loss.

Fibrous Roots: gathering nutrients from a large area around the plant.

ADAPTATIONS

Tap Roots: gathering nutrients deep in the soil, or water.

Wide Leaves: to help them gather sunlight for photosynthesis.

Bright Flowers and Sweet Nectars: to attract pollinators.

Needle leaves (coated with resin): to prevent water loss.

Rapid Seed Production: to enable plants to reproduce in short growing season conditions.