

(1.) PLANT LIFE.

(a.) *The Study of Plants as Growing Things.*

Grow an onion in a bottle of water, and note appearance of root and stem. Make a model in clay of the various stages of growth at short intervals.

Grow mustard-seed on damp flannel, and note stages of growth.

Notice a few curious roots.

The carrot: Cut off the top of one and grow it in a saucer of water. Contrast the root of a daisy (fibrous).

Roots which walk: Strawberry or strayberry. Violet-root.

Contrast root of Iris and Solomon's Seal in their modes of extension.

Stem: Count the rings in a trunk that has been felled; rings, how produced; estimate age of tree; the record of wet or dry seasons.

Climbing stems: Ivy.

Train bindweed up a stick and note that it turns to the right. If you unwind it and force it the other way (to the left), note how it resumes its old direction again, holding the stick with one of its leaf-stalks to get a purchase for the change.

Simple experiments to show effect of light on (1) leaves and (2) roots. Celery: Blanching.

Leaves of deciduous trees contrasted with leaves of evergreens. Contrast leaves of holly, ivy, and box with leaves of oak, elm, and beech.

Note autumn tints. Collect and press leaves of various colours in autumn.

Buds: Leaf-buds and flower-buds.

Parts of a flower.

Fruits: Different kinds.

(b.) *Blossoms, Fruits, Seeds, and Leaves.*

Parts of a flower.

Flowers of curious shape.

Pea-blossom.

Insects and flowers.

Colours of flowers and insects.

Fruits. How seeds are scattered.

Shooting seeds.

Flying seeds.

Curious flowers, *e.g.*, primrose, compound flower (daisy), water lily.

Leaves: Shape, veining, arrangement.

Flowers as supplying (1) weather-glass, (2) clock, (3) calendar.

Examine celery plant. Cut leaf stalks into thin sections to see how a plant is built up.

(c.) *How Plants are adapted to their Surroundings.*

A bunch of spring flowers (according to time of year).

A bunch of summer flowers (according to time of year).

A bunch of autumn flowers (according to time of year).

Flowers and the soil. Bog plants.

Riverside plants.

Plants that grow in running water.

Plants that grow in still water.

Meadow plants.

Plants of the heath and moor.

Plants of the hills. Plants of the wood. Plants of the sea-coast and salt-marshes.

Sundew and flesh-eating plants.

Ferns.

The spores of ferns.

Grow some spores in a pan under glass and watch growth and development of a fern. Contrast with growth of mustard from seed.

Mosses.

Lichens.

Funguses.

Simple experiments in manuring plants.

How plants help to hinder each other's growth.

Parasites: Mistletoe.

Plants which help or injure man.

(2.) ANIMAL LIFE.

(a.)

The Cat (compare with Dog).—Eyes; rough, dry tongue; soft pads and sharp claws, teeth, method of holding prey, drinking, covering of fur, whiskers, tail.

The Cow (compare with Sheep and Goat).—How she takes her food, teeth, chewing, milk (cheese and butter), tail, hoofs, covering, ears, horns, nose.

The Horse (compare with Donkey).—Covering, teeth, hoofs, tail, mane.

The Rabbit (compare with Hare).—Teeth,

legs, feet, claws, covering, tail, whiskers, ears, eyes.

The Mouse (compare with Rat and Water-rat).—Teeth, paws, tail, whiskers, eyes, ears.

A Fish.—How fitted to live in water, weight, shape, covering, temperature, movements.

A Plaice (compare with Herring).—Flat, eyes on one side of head, gills, movements.

Animals which sleep in winter.—Examples: Squirrel, dormouse, common snake, frog, toad, snail, slug. Preparation made for sleep.

(b.)

Mole.—Shape, snout, teeth, paws, claws, eyes, ears, fur, food.

Hedgehog.—Covering of spines, how it rolls itself into a ball and why, head, teeth, food.

Common Snake (compare with Viper).—Shape, covering, teeth, how it moves, how it swallows its prey.

Frog (compare with Toad and Newt).—Movement, capture of prey, breathing, winter-quarters.

Garden-snail (compare with Slug).—Shell, mantle, head, horns, eyes, food, preparation for winter-sleep.

Earth-worm.—Shape, rings, locomotion, food, usefulness.

Spider (contrast with Bee).—Shape, segments, legs, jaws, spinnerets, web, breathing organs.