Make solutions of salt, sugar, aniline, &c., in water; filter. Distil the solution of salt, and condense water again. What is left behind? What is found in the condenser?

Put some small growing plant through a split cork in a wide-mouthed bottle so that the roots dip into a solution of aniline. After an interval observe the leaves. Take six or eight large, healthy leaves; pass the petioles through three or four holes in each of two cards, and put the cards over two tumblers nearly full of water. After a short interval invert two dry empty tumblers over the cards; place one set of leaves in the sunshine, and one in a shady place. After ten minutes observe what has taken place. From which set of leaves has there been most evaporation?

Take a leaf from a young plant whose roots have been placed in water; put it back downwards on a polished metal surface, and leave it for a few minutes. What do you notice? Repeat the same experiment with a similar leaf, placed face downwards. Observe again. From which side of the leaf does evaporation take place?

[To show the existence of air.] Invert wide-mouthed bottle or tumbler full of water in water; invert another bottle or tumbler, apparently empty, below mouth of first. What passes from second to first bottle? Burn a candle in a lamp-glass with narrow top (i) with lower end open; (ii) with lower end closed. What happens in each case? Test the gas left in tube with lime-water. Also blow or breathe into lime-water.

Put two healthy young growing plants through split corks into bottles so that the roots dip into water; in one case allow free access of air, in the other shut off the air by sealing the cork with melted candle-grease. Observe the difference after a few days. Repeat the experiment, using garden-soil instead of water, and pouring the melted grease over the surface of the soil in one of the pots or bottles. Observe again. What do the roots require besides water?

Grow young seedlings of corn on damp paper. Mark the longest rootlet very carefully with a fine camel's-hair brush with India ink or purple ink by lines, say, $\frac{1}{4}$ in. apart, beginning at the tip. Keep the plants moist and warm, and notice which of the $\frac{1}{4}$ in. intervals increase in length, and which remain the same. Where is the growing point of the root?

Keep some of the growing seedlings or young plants without water; water others very occasionally; others, regularly; and to others again give large quantities of water, keeping the soil always completely saturated. Note the difference in growth after the lapse of, say, a fortnight. [The pots in which the seedlings are grown should be numbered, and a diary of all that is done should be kept.]

Observe the forms of the leaves of several plants. Note the veins. Is there a midrib, or are the veins parallel? Note the upper and under surfaces. How are the leaves placed on the plant?

Examine various buds. Note the bud-scales. Watch the growth of the buds; how do they grow? (By lengthening the distance between successive leaves.) Note the "eyes" of the potato; plant several "sets" of potatoes; also slips of geranium, heliotrope, leaf of begonia, &c.; likewise crocus-bulbs, iris, &c. Watch their growth. Note the rootlets, root-hairs, &c.

Rear various plants, those named above or others; place some of them in the school windows. Turn the pots round from time to time; do any of the leaves or stems turn round towards the light? Put some plants in a dark place, and others in the light; after a few days note the differences.

Take several young plants or seedlings—sow-thistle, oat, wheat, carrot, bean. Note the kinds of roots. Is there one main root, or are there several fibrous roots?

Note parts of flowers, several kinds of flowers; leaves, their veins, &c.; fruits; seeds and seed-vessels.

Take young saplings of oak or other trees. Cut the stem horizontally and vertically. Note inner and outer bark, sap-wood, heart-wood, and in some cases the pith.

Identify the chief wild plants found in the neighbourhood, including the chief weeds; the chief plants in cultivation in the district, including grasses; also the chief forest and orchard trees. Remark where possible their roots, buds, branches, flowers, fruit, seeds, &c.

Let the children keep diaries of phenomena within their observation: the date of sowing of various crops, of the appearance of the wheat, &c., above the ground; the dates of the appearance of buds of various kinds on trees.

Note the yield of various kinds of crops. Grow different varieties of wheat in different soils. Try varieties of other farm plants. Grow specimens of different grasses, &c. Note length of time from sowing to the various stages of the growth up to seeding.