

8. Describe exactly how you would—
 (a.) Bend a glass tube at right angles ;
 (b.) Blow a bulb on the end of a glass tube ,
 (c.) Fuse a piece of tube to the side of another so as to form a T piece.
9. Starch is converted into sugar by boiling with dilute acid. How would you proceed to convince a class that this change takes place ?
10. What experiments would you make if called upon to give a lesson on sulphuric acid ?

Elementary Science.—For Class E.—Time allowed 3 hours

[Women that are proficient in needlework may substitute for this paper the paper on Domestic Economy.]

1. Describe the three states of matter, and give experimental illustrations.
2. Give the meaning of the terms “momentum” and “energy, and classify the varieties of energy
3. Describe a diving-bell, and explain any simple mode of illustrating it.
4. Make a sketch of a system of pulleys to gain a power of six.
5. What is the meaning of the term “resonance” ? How would you illustrate it experimentally ?
6. Describe experiments to illustrate the distribution of electricity on a sphere, a cone, a cube, and a disc.
7. State what you know of the chemical action of a voltaic current.
8. Describe in detail the burning of a candle.
9. How would you prepare nitric and hydrochloric acids ? What experiments could you make with them ?
10. Describe the structure and function of the lungs.

Domestic Economy and Laws of Health.—For Class E Time allowed 3 hours.

[For women only,—alternative with Elementary Science.]

1. Make a sketch of the heart, and state its functions.
2. Indicate the chief chemical differences between plants and animals.
3. Carbonic acid is largely used to give lightness to bread and pastry : describe the modes in which it is generated for these purposes.
4. Discuss generally the value of exercise, and how it should be taken.
5. Describe the skin, and state its functions. How is it specialised as an organ of touch ?
6. What situation would you prefer for a house ? Give reasons for your choice.
7. Describe what measures you would adopt on the appearance of an infectious disease in your house.
8. Describe all the essentially different modes you are acquainted with of using eggs in food.
9. How would you prefer a schoolroom to be lighted ? State your reasons.
10. What do you know of the effect of long-continued pressure of various kinds in producing deformation of the bones, more particularly in children ?

Elementary Knowledge of Agriculture.—For Class D. Time allowed 3 hours.

1. Give an account of the wheat-plant, or of any grass. Describe the flower and fruit, and show how the flower is fertilised.
2. Describe experiments which show what food is absorbed by plants from the air
3. What elements do plants absorb from the soil, and in what way and in what form are they absorbed ? Describe experiments which illustrate your answer
4. Explain why water is so essential to the growth of a good crop. How do plants obtain water during dry weather ?
5. Of what substances do soils commonly consist ? How far does chemical analysis supply adequate information as to available plant-food in the soil ?
6. What do you understand by the “exhaustion of the soil,” and how far is the term correct ? Is the exhaustion always due to the same cause ? How can it be remedied ?
7. What elements necessary for the growth of plants are most frequently wanting in the soil, and how could you supply them ? How would you ascertain what elements of plant-food were wanting in any particular soil ?
8. Distinguish between limestone, quicklime, and slaked lime. What are the uses of lime in agriculture ?
9. Give an account of the life-history of some insect which shows a complete metamorphosis. Explain the nature of the metamorphosis, and compare with insects in which there is no metamorphosis, or only an incomplete one.

Elementary Knowledge of Agriculture.—For Class E Time allowed : 3 hours.

1. Describe some flower which you know well, and explain the use of the various parts. Show how the seeds are formed from the flower
2. Describe the structure of some particular seed, and give an account of the changes it undergoes during germination. What conditions are necessary for germination ?
3. Explain why foliage-leaves are green, and show the relation of their colour to the nutrition of the plant. What do you know of plants which have no green leaves ?
4. In what way does the growth of a good crop depend upon warmth and moisture ?