

Examination Papers.

EDUCATION DEPARTMENT, ONTARIO.—  
ANNUAL EXAMINATIONS, 1893.

PUBLIC SCHOOL LEAVING.  
AGRICULTURE.

Examiners: { CLARKE MOSES.  
A. B. DAVIDSON, B. A.

1. State fully the nature and sources of plant-food.
2. What are the principal means adopted by good farmers in restoring impoverished soils to a state of fertility?
3. (a) State the sources and chief value of any four animal artificial fertilizers.  
(b) Discuss the merits of lime as a fertilizer.
4. (a) What conditions are necessary to nitrification?  
(b) State the best methods of preserving the nitrates in the soil against leaching.
5. Distinguish between trenching and subsoiling, and state when and why each is beneficial.
6. (a) What is a Silo.  
(b) Briefly state the advantages to be derived from the process of ensilage.
7. (a) What uses do forests serve in the economy of nature?  
(b) State why and where forest trees should be cultivated on the farm.

Values—1.—5; 2.—10; 3.—6+6; 4.—6+6; 5.—2+10; 6.—2+10; 7.—6+6.

TEMPERANCE AND HYGIENE.

Examiners: { CLARKE MOSES.  
A. B. DAVIDSON, B. A.

1. Distinguish natural from artificial drinks, give examples of each, and state fully the advantages of natural over artificial.
2. State fully what are the uses of water in the processes of (a) digestion, (b) circulation.
3. (a) What is the natural standard temperature of the human body?  
(b) How is this standard preserved in hot and in cold climates?  
(c) How is this standard affected by the use of alcohol?
4. (a) Compare the work done by the heart of a healthy full-grown man under natural circumstances of food and labor and that of a man who takes into his system six fluid ounces of alcohol per day?  
(b) What inference would you draw from the comparison?
5. Describe fully the effects of alcohol on the small blood vessels.
6. State fully the action of alcohol (a) as a stimulant, and (b) as a poison.
7. Any person supplying tobacco to persons under 18 years of age, without the written authority of guardian, is liable to be fined or imprisoned.  
(a) Give four reasons why you consider this law a good one.  
(b) State four injurious effects produced on the human body by the use of tobacco.

Values—1.—2+1+6; 2.—6+6; 3.—1+5+4; 4.—6+6; 5.—10; 6.—7+7; 7.—4+4.

HIGH SCHOOL ENTRANCE.

AGRICULTURE.

Examiners: { ISAAC DAY, PH. B.  
J. S. DEACON.

1. Explain the terms: tillage, subsoiling, active constituent of soil, leaching, underdraining, and composts.
2. The principal constituents of ordinary soil are sand, clay, and humus.  
Describe each of these, and tell its use.
3. What means could one employ to prevent the loss of plant-food by drainage?
4. Name the artificial fertilizers, and tell why each is important.
5. Tell what you can about plowing, under the following heads:—  
(a) The time to plow,  
(b) The object of plowing,  
(c) The points of merit in plowing.

6. Define each of the following, and give an example of each: annual plant, perennial plant, tuber, bulb.

Values—1.—12; 2.—12; 3.—12; 4.—15; 5.—15; 6.—9.

TEMPERANCE AND HYGIENE.

Examiners: { J. S. DEACON.  
ISAAC DAY, PH. B.

NOTE.—Any five questions may be taken.

1. Name and describe the substance of which milk is composed. Why is milk better for drinking purposes than alcohol?
2. "It is both false and foolish for any one to boast that he is not a water drinker."  
Illustrate this statement fully.
2. "In addition to these sources of liquid food, Nature distills for us the pure liquid."  
What sources are meant, and how is the pure liquid distilled?
4. Explain fully the importance of fibrine, and show how alcohol affects it.
5. Relate the story of an Arctic Expedition in which the value of temperance is shown as a preventive of scurvy.
6. "All persons who indulge much in any form of alcoholic drink are troubled with indigestion."  
Explain the progress of this disease in drinkers of alcohol.
7. What reasons have we for concluding that drunkenness leads to insanity?

Values—1.—15; 2.—15; 3.—15; 4.—15; 5.—15; 6.—15; 7.—15.

HISTORY.

Examiners: { JOHN SEATH, B. A.  
ISAAC DAY, PH. B.

NOTE.—Candidates will take any four questions in British History and any two in Canadian.

I.

BRITISH HISTORY.

1. What caused the "Wars of the Roses?"  
Give an outline of their history, naming and locating the principal battle fields and explaining the results of the wars.
2. What led to the conflict between the Crown and the Parliament, which began in the reign of James I.? Give as full an account as you can of the results.
3. Sketch the history of Walpole's administration.
4. Name and give an account of three of the most important reforms since the reign of George III., explaining the importance of each.
5. Write as fully as you can on any three of the following, explaining the interest England had in each of them:  
The Eastern Question.  
The American Civil War.  
The Seven Years' War.  
The Crusaders.
6. Give as full an account as you can of any three of the following:  
William Pitt, the Elder.  
Gladstone.  
Marlborough.  
Simon de Montford.  
Tennyson.  
Milton.

II.

CANADIAN HISTORY.

1. Sketch the early settlements of Canada under the following heads:  
Jacques Cartier.  
Champlain.  
The Company of One Hundred Associates.
2. State the causes and the results of the Canadian rebellions.
3. Write full notes on any four of the most important events in Canadian History since Confederation, explaining why each is important.  
Values—I, 1.—4+8; 2.—6+6; 3.—12; 4.—4×3=12; 5.—4×3=12; 6.—4×3=12. II, 1.—4+6×4; 2.—6×8; 3.—14.

GEOGRAPHY.

Examiners: { ISAAC DAY, PH. B.  
JOHN SEATH, B. A.

1. Define each of the following:—bay, watershed, canal, strait, desert, archipelago, channel, isthmus, peninsula, and cape. Give one example of each, and tell its exact position.
2. (a) Describe the trans-continental route of the Canadian Pacific Railway.  
(b) What communication has recently been established between this railway and the Eastern Hemisphere, and of what commercial advantage will this be to Canada?
3. Compare the Dominion of Canada with the United States as to shape, mountains, climate, and products.
4. Sketch a map of Southern Europe, showing the position of Portugal, Spain, France, Sicily, Italy, and Turkey.
5. (a) Why do the people south of the equator have summer while we have winter?  
(b) Why do the days become warmer as they grow longer?  
(c) When are the days in the northern hemisphere the longest?
6. Name and locate as many as you can of the different regions comprising the British Empire? Which are the more important regions? Why?  
Values—1.—10+5=15; 2.—5+7=12; 3.—4×3=12; 4.—12; 5.—5+5+2=12; 6.—5+2×5=12.

THE HERBERTIAN "STEPS OF INSTRUCTION."

THE subject matter of each branch as arranged above is supposed to be divided into suitable lesson-units. In arithmetic, such a lesson-unit might be "The Division of a Fraction by an Integer;" in Geography, "The Basin of a River;" in United States History, "The Battle of Gettysburg." In the teaching of the lesson, the teacher will, according to the theory of formal steps, observe and pass the following stages successively:

- 1.—Preparation, that is, recalling the previous lessons and other knowledge familiar to the child as aids to apperception, indicating also what is the aim of the present lesson.
- 2.—Presentation, the gathering of all the facts on the lesson topic in hand. The method of presenting the facts will, of course, vary with the nature of the lesson.
- 3.—Comparison, viz., of facts with facts to discover their meaning. (A fine field for the cultivation of a most useful mental power, too often neglected).
- 4.—Generalization, that is, the pupil's reaching as the fruit of his own investigation, those conclusions commonly called principles, definitions, laws, rules, formulas, etc.
- 5.—Application, that is the bringing back of the laws and principles already learned and applying them to new particular cases in science, business, and social, political, moral or religious life. This completes the cycle. The pupil starts from individual facts or events, and returns again to them, but this time with power to interpret them. Higher than this no knowledge rises; greater power none can possess. Herbart's system is by no means mechanical, although thoroughly systematized and formulated. On the contrary it brings into the elementary school the charm of reality and invests each subject with greater interest. It promotes correct thinking habits, gives clearer apprehension of knowledge, economizes thought and effort, and furnishes to the pupil the broadest and best basis for future acquisitions. Herbart and his followers have given to Germany a body of over eight thousand enthusiastic teachers, who follow progressive and scientific methods in pedagogy. It is not given to one man to grasp all of truth, or to perfect any system of education, but may it not prove that Herbart, more than any other, has solved the problem of Elementary Education?—*Primary Education.*