

SECOND YEAR.

I. Devote time to getting conceptions, basing the work upon ideas already gained through the correct perceptions, but which are yet inadequate.

This work should result in notions as adequate as possible of such things as rivers, mountains, plains, the ocean, great cities, regions of perpetual winter and summer, of long continued day or night.

II. Interpretation of map.

Develop ideas of area, scale, proportion. Make a plan of the school-room, whose outline and proportion the child can see.

Outline the school-yard, father's farm, or the city block, showing that the map or outline represents the surface as a bird would see it from above.

Locate places in their appropriate positions within the area represented. City map.

III. Introduce the globe. Teach the shape of the earth; the division of the earth's surface into land and water; names of the grand divisions of each; compare the grand divisions of the globe with those drawn on a Mercator projection.

IV. Interpret the symbols of the map, as rivers, cities, mountains, etc.

V. Map of North America, so pointed out as to show its relief. Teach location of its mountains and plains. Show that its general outline and direction of its rivers depend on the location and direction of its mountains. Name its lakes, cities, oceans that border it, its great indentations and projections.

VI. Develop idea of a political division. Teach the political divisions of North America. Associate the name with the form and location.

VII. Review the surface and drainage of the United States. Teach the political divisions of the United States, the capital of each State, locate each capital on the map, and one or two important cities in the States. Use dissected maps. Develop ideas of comparative area.

(A United States R. R. map pasted on stiff cardboard and cut out by Statelines, makes a good dissected map, when not convenient to obtain a better one.)—*The Teacher's Institute.*

A CAUTION TO TEACHERS

Let us warn teachers, especially young ones, against attempting to reply to any question by a scholar when they do not really know what answer to give. No one can be prepared for every question which can be asked. The veriest fool can ask more in five minutes than the greatest philosopher can answer in a life-time. I know the temptation is great to give a reply of some sort, which may be right or may be wrong, "for fear the scholars should think us ignorant;" but that temptation must be battled with. The real reason why an answer is attempted, ninety-nine times out of a hundred, is pride, and it is pride which will certainly have a fall, for if the scholar does not know at once that the reply was a guess, he will remember it, and confront the teacher with it at some most inopportune time—perhaps quote his own words against him. Then, indeed, will the scholars look down upon that teacher, and probably give him a far lower place in their regard than he really deserves. If, however, their teacher is well informed, and well ahead of them, he will not sink at all in their estimation if he honestly confesses that he cannot answer some particular question.

It is generally one of fact on the spur of the moment. Still, he should carefully treasure the question, and see that he obtains the correct answer of it for the very next time he meets his class, and should give them the reply, with any other information about the subject he may think fit.—*Central School Journal.*

Question Drawer.

QUESTIONS.

Please publish the questions on History set at the late examinations, with answers to the last two, as I find it impossible with the books at my command to get satisfactory answers. J. B. P.

I hold a Second Class Certificate, Grade A. As I wish to enter a drug store to study, would you kindly inform me if my certificate would be considered as matriculation. W. L. G.

(1) Can you explain why chronologists give B.C. 3 as the date of the birth of Christ?

(2) How many years since the creation?

(3) How should children beginning to write be taught to hold the pen? Where should the handle point? Please give plain directions in simple language (as you would to a class). C. B.

Those of your readers who are of a mathematical turn of mind will find the following problem somewhat interesting. I should like someone to publish a solution, or at least an answer:—A rope whose length is 8 rods is fastened to the inside of a circular wall of radius 5 rods; over how much surface can a horse eat that is tied at the other end of the rope?

WM. W. IRELAND, Pefferlaw, Ont.

THE RIGHT-ANGLED TRIANGLE.

So much has been published on this triangle that one might hastily conclude that the subject has been exhausted. We may exhaust ourselves, but the subject can never be exhausted. The following problem and its solution are, so far as I know, original, and will awaken much curiosity, and necessitate much thought, science, and labor, to satisfy the curiosity:

Suppose we have a right-angled triangle whose base is 2 and perpendicular 1; it is possible to find a quantity which, if added to the base and to the perpendicular, will make the new hypotenuse rational; and if the same quantity be subtracted from the base and from the perpendicular, the second new hypotenuse will be rational.

In order to afford mathematicians an opportunity to try, I withhold the publication of the quantity till the first of November.

JOHN IRELAND, Fergus.

ANSWERS.

J. B. P.—The History questions were published in the last number of the JOURNAL. It will be a good exercise for some of our readers to furnish clear and concise answers to the two questions indicated. Perhaps some one who wrote successfully on this paper will give us the substance of his answers.

W. L. G.—We understand you to mean matriculation into the Ontario College of Pharmacy. The qualification for the certificate of the Pharmaceutical Council which presides over this college is "that the candidate shall furnish to the Council satisfactory evidence of having served an apprenticeship, under a written contract, for not less than three years, to a regularly qualified Pharmaceutical Chemist." He must also satisfy the Council that he has passed an examination entitling him to admission to a High School, etc. Your certificate would, no doubt, satisfy the latter requirement.

C. B. — (1) The exact date of the birth of Christ has been a subject of much debate, and has not been, and probably cannot be, definitely settled. The difference in opinion or computation amongst chronologists ranges over a period of about four years. This will be easily understood when it is remembered that the Christian era was probably not proposed till some time in the 6th century. We are not aware that there is any agreement amongst chronologists to regard the error in the accepted chronology as exactly three years, or, in other words, to fix B.C. 3 as the exact date of Christ's birth. That would be but the opinion of one or more.

(2) That is another unsettled question. The computations of critical students of the Hebrew, the Samaritan, and the Septuagint texts of the sacred scriptures make the date of creation at from 4000 to 6000 years B.C. The former has been the more commonly accepted view. It seems now, however, to be pretty generally admitted that the era of the creation of the world must be carried back much farther than even 6000 years before Christ.

(3) This brings us down to the practical with a sudden turn. We prefer to refer it to the authorities on penmanship. The old rule, in our school-boy days, was that the pen-handle must point over the right shoulder. Our own private opinion is that it is not a matter in regard to which any cast-iron rule can be laid down. The end is to be able to write (1) legibly and (2) rapidly. Probably some will do better by holding the pen in one way, some in another.

The following are my solutions of the five problems in your issue of September 15:

1.  $40 + 40 = 80 = \frac{1}{2}$  of remainder.  $80 \times \frac{2}{3} = 140$  and  $140 - 80 = 60 = \frac{1}{3}$  of his money. ∴ \$180 answer.