in *teaching* arithmetic to beginners should be given to mental exercises.

The old system of first learning the rule and then "doing the sum" is fast becoming a thing of the past. The rule is best learned by working the question, analyzing the principles, and explaining the reasons.

To require a pupil to learn and understand a rule before he is permitted to see its principles illustrated by simple practical examples, places him somewhat in the position of the boy who was forbidden by his mother to go into the water till he had learned to swim.

In order to teach arithmetic, as well as other subjects, successfully, the teacher should have a thorough knowledge of the subject, a love for the employment, and an aptitude to teach. These are indispensable to success. The subject should be taught in classes; much time is saved by this means. Considerable time should be devoted to oral illustrations in each class. Individual assistance should be seldom given. If the class is engaged at an exercise they should work all the problems they can, marking any they cannot solve. Those difficult problems should be considered at the next recitation—the principle pointed out and indirect assistance given. Should any member of the class be successful in solving it, he should, after sufficient time has elapsed, go to the blackboard and show his work.

The action of mind upon mind is also a powerful stimulant, in a class, to exertion, and will usually create a zest for the study. The mode of analyzing and reasoning, too, of one scholar often suggests new ideas to others in the class.

The class should be composed of pupils of, as nearly as possible, equal capacities and attainments. If any of the class learn more quickly than others, they should take up an extra study, or be given additional examples to solve, so that the whole class may advance together.

The blackboard should be the teacher's slate. Scarcely a recitation should pass without the use of the blackboard. When a principle is to be demonstrated, or an opinion explained, if done upon the blackboard, all can see and will usually understand it at once. Geometrical diagrams should also be used in illustrating squares, cubes, solids, and many other points in arithmetic. No school should be without them.

Two objects, at least, should be aimed at in giving a lesson in arithmetic, viz., that of disciplining the mind, and making a practical application of the principles involved. Many teachers overlook these two objects, and therefore are not successful in teaching the subject. Their pupils may be able to *do* all the questions under the rule *in the book*, but fail in applying the principle when a practical problem is given.

The attention of the class can easily be secured by throwing life and variety into the exercise. Animation and variety always delight children, while they loathe dullness. Every example should be analized, the "why and wherefore" of every step in the solution should be required, till the learner becomes perfectly familiar with the process of reasoning.

The motto of every teacher should be thoroughness. Without it the great ends of the study are defeated. In securing this object, much advantage is derived from frequent reviews. Not a recitation should pass without practical exercises being given besides those assigned for the lesson.

Mental exercises, as I said before, are very useful. They make ready and accurate *arithmeticians* and afford excellent means to arrest and prevent habits of mechanical cyphering and copying.

The habit of self-reliance is invaluable in study. To acquire this habit the pupil, like a child learning to walk, must be taught to depend upon himself. Therefore, when assistance is required, it should be given indirectly; not by taking the slate and solving the problem for him, but by explaining the meaning of it, or illustrating the principle on which the operation depends, by supposing a familiar case. In this way the pupil will be able to solve the questions himself, and his eye will sparkle with the consciousness of victory.

The pupil should also be expected to solve examples independently of the answers. Without this attainment the pupil receives but little or no discipline from the study, and is unfit to be trusted with business calculations. What though he should come to the class with an occasional wrong answer? It is better to solve one question *understandingly* and alone, than to copy an hundred answers from the book.

Then, to recapitulate: *be lively, be thorough*, be practical, be vigilant, and success is sure to follow your efforts.

Penmanship in Public Schools.

BY S. G. BEATTY, PRINCIPAL OF ONTARIO BUSINESS COLLEGE, BELLEVILLE.

The importance of Penmanship as a branch of study in our public schools is of late years beginning to be properly appreciated. The question, "Can all children of average ability and a proper use of the muscles of arms and hands, be taught to write a good hand?"—so often asked, is now answered in the affirmative by every qualified, experienced teacher of the subject; but the next question in natural order—"How can this grand result be best and soonest brought about?" has scarcely yet been thought of, except by such teachers as make a specialty of the subject.

A moment's reflection will suffice to convince any one of the importance of this art. Its diffusion is so general among all classes that it may with propriety be styled the universal art. Turn our thoughts which way we will, we find the art of writing intimately connected with all commercial and social relations of life. There is no trade, calling, vocation or profession of which it is not the mouth-piece. It embodies thoughts in a visible language. Under its magic power ideas assume tangible form, and the eye may trace the operations of the mind. As a qualification for business it is of the first importance, and often goes far in the mind of an employer towards making up for other deficiencies. When a young man goes in pursuit of employment, the first thing he is asked to do is to give a sample of his hand-writing. Read the advertisements of business men, for clerks, book-keepers, etc, and it will be observed that they usually require the applicant to apply in his own hand-writing. Let a man in business circles step up to a desk and write some document in a clear, free, bold hand, and he will at once create an impression in his favor. The truth is, there is scarcely any position in which a man may be placed where a good hand-writing will not be of great value. It is always admired and appreciated.

When we reflect, and take into consideration it