

4. *First-grade Art Geometry.*

This stage is intended to teach elementary notions of practical geometry, and the use of simple drawing-instruments. The pupil should be taught to draw clean, join lines passing fairly through indicated points, and the greatest care should be exercised to prevent the formation of slovenly habits, such as using both hands to the dividers, or forcing their points into the paper. He should then be shown how to take given distances from the scale, and step them along a given line, and he should be practised in the use of set squares for drawing lines parallel and perpendicular to each other. By the help of the blackboard the teacher should explain and define an angle, a triangle, a square, a rectangle, a circle, &c. The pupil may then be practised in such simple exercises as the following: Construct a square or rectangle, the lengths of the sides being given in inches and eighths. Divide them when drawn into a given number of equal parts. An irregular four-sided figure is roughly sketched on the blackboard; the dimensions of its sides and diagonals are given. Draw the figure its proper size. Neatness and accuracy should be insisted upon, and, if unsatisfactory in these respects, the figures should be redrawn. It is desirable to accustom the pupil to the erasure of superfluous lines or portions of lines, and to the employment of "dotted" or "chain-dotted" lines and arcs to distinguish lines drawn for constructional purposes. The examination will be confined to examples in the following constructions, and equal value will be attached to neat drawing and to geometrical accuracy: (1) The division of a given line into a given number of equal parts by trial with the dividers, and also by construction; (2) to draw lines parallel and perpendicular to given lines by means of the set squares, and also by construction; (3) to construct an equilateral triangle and a square of given sides; (4) to construct an angle equal to a given angle; (5) to bisect a given angle; (6) to construct a triangle, given the sides, or sides and angles; (7) to construct a triangle similar to a given triangle and standing on a given base; and (8) to describe two circles of given radii touching each other.

*Second-grade Art.*—The subjects of examination comprised in the second-grade course are as follows: (1) Freehand drawing from flat examples, (2) freehand drawing from models, (3) practical plane and solid geometry, and (4) linear perspective. The second-grade examinations are of a considerably higher standard than those of the first grade, though still elementary. Teachers of public elementary schools are also required to pass in (5) drawing on the blackboard. First, second-grade freehand: An advanced freehand copy to be enlarged or reduced. Second, second-grade model-drawing: The exercise consists in drawing from a group of three or more objects of well-defined form, such as geometrical models, simple vases, or objects of plain construction. The candidate is required to draw the objects placed before him as they appear from the point of view in which he may be seated, and is expected to show a knowledge of the effect of perspective in modifying the appearance of the models. No ruling, measuring, or use of instruments is allowed; but the pencil may be held between the eye and the objects for the purpose of estimating their apparent size.

*Second-grade Art Geometry.*—This stage is intended to embrace simple plane geometrical constructions relating to lines, circles, and tangents to circles. The pupil should be shown how to hold a drawing-pen, and practised in ruling ink lines and describing ink circles of different strengths. Indian-ink should be used, as ordinary inks corrode and destroy the nibs of the pen. A general idea of the form of such simple solids as the cube, pyramid, prism, cylinder, cone, and sphere, is to be imparted at this stage. For this purpose models should be employed. By means of sketches on the blackboard the elementary notions of orthographic projection and of section should be explained. The examination-paper will embrace the following:—Plane geometry: Elementary constructions required in geometrical-pattern drawing and simple tracery; construction for circles passing through three given points, or touching three given lines; tangents to two circles; construction of regular polygons by any general method, together with their inscribed and circumscribed circle; construction of irregular polygons from given sides, diagonals, and angles; proportional division of lines; reduction and enlargement of plane figures; the use of plane scales and scales of chords; elementary construction of the ellipse. Solid geometry: Plan, elevation, and section of the solids above named, in simple positions; projection of plane figures. Four, perspective: In this exercise candidates will be required to show a knowledge of the use of vanishing- and measuring-points used in horizontal planes; and to represent simple solids, or objects on the ground-plane in any position. Fifth, drawing from memory on the blackboard: This exercise is intended to test the candidates' power to use, in aid of their general teaching, the skill which they may have obtained in drawing. In addition to facility in the use of chalk and the blackboard, it is required that they should be able to give a fair representation of the form of any familiar object. To do this from memory should be the result of sound instruction in model-drawing, in the course of which teachers of drawing should form in their pupils habits of observation enabling them to represent familiar objects in any point of view. Candidates will therefore be required to draw from memory one of three or four objects of ordinary household furniture, or domestic utensils of well-defined form, to be named by the examiner. Candidates will also be required to draw Roman or Italic letters about nine inches high. Ten or fifteen minutes are allowed for working this exercise.

Recent regulations issued by the Science and Art Department in Form 590, and dated 4-88, relating to the elementary school-teachers' certificate D (drawing), state as follows: "The certificate is granted to candidates who (a) obtain a first-class in the second-grade freehand; (b) pass the examinations in second-grade geometry; (c) obtain a first-class in the second-grade linear perspective; (d) pass the examination in model-drawing with chalk upon the blackboard (the examination in this subject takes the place of the second-grade examination in model-drawing and in blackboard from memory); (e) pass the examination in drawing in light and shade from common objects and casts of ornament."