Principles.

1. The aim must be educational rather than industrial.
2. The scholars must be given an intelligent knowledge of the principles which underlie their work.
3. Working drawings to scale, of every exercise, should be made.
4. All bench-work should be done to exact measurement, and every piece of wood correctly lined before being cut or planed.

Practice.

(*a.*) *Object-lessons.*—(1.) Woods commonly used—(*a*) their structure and conditions of growth; (*b*) their seasoning; (*c*) their special properties and the uses dependent thereon; (*d*) their geographical distribution. (2.) Nails and screws—some of the kinds in common use, and their particular uses. (3.) Tools—their form, structure, and manipulation.

(*b.*) *Drawing.*—Isometric projections and working drawings—plans and elevations—of the specified exercises.

(*c.*) *Bench-work.*—(1.) Measuring and lining on suitable wood. Tools: Two-foot rule, square rule, try-square. (2.) Sawing to line across the grain on suitable wood, not more than ½ in. thick. Tools: In addition to the above, bevel- and tenon-saw. Models: Some such test of the exercise as gluing pieces to imitate parquet flooring (for instance, the herring-bone, 3 in. by 1½ in. by ¼ in.). (3.) Sawing to line in any direction on suitable wood, not more than ½ in. thick. Tools: In addition, the marking-gauge and panel-saw. Joints and models: Open box, or soap-box, or small bracket—butt joints glued. (4.) Planing. Wood for "truing-up" generally should not exceed 2 ft. by 1½ in. by 1½ in. Tools: In addition, jack-plane, smoothing-plane. Joints and models: Such as halving joint at end. Square and triangular frame halved joints. (5.) Boring, nailing, and screwing. Tools: In addition, bradawl, gimlet, hammer, screwdriver. Joints and models: Such as nail-box, simple bracket, &c., butt joints. (6.) Hand-chiselling and plain chamfering with chisel and plane. Tools: In addition, firmer-chisels. Joints and models: Such as Oxford frame, half-lap joints. (7.) Mortise-chiselling. Tools: In addition, mortising-chisels. Joints and models: Bridle joint, single mortise joint, dovetail-halving, common box dovetailing; any simple models involving above exercises. (8.) Tool-sharpening. Instruction to be given in the sharpening of planes and chisels, but not saws.

The above syllabus is prepared for a year's work for the average boy of Standards V., VI., or VII. The boys who show greater aptitude will be allowed to proceed to more advanced exercises when the above have been thoroughly mastered. The examination at the end of the year to be confined to the syllabus, omitting the models.

In metal-work, after an exhaustive inquiry, the London Board adopted the following syllabus:—

Draft Tentative Syllabus of Elementary Metal-work.

Theoretical Work.—1. Drawing: Drawing of tools used, and exercises to be performed. 2. Object-lessons—Materials: Metals generally, and those used in the course in particular; chemical and physical properties and uses; method of manufacture; source of supply.

Practical Work.—1. Cutting simple objects from zinc plate. 2. Chipping cast-iron—(1) narrow flat surfaces; (2) broad flat surfaces. 3. Filing cast-iron—(1) narrow flat surfaces; (2) broad flat surfaces. 4. Chipping and filing concave surfaces. 5. Bending cold wrought strip-iron into (1) simple and (2) complex curves. 6. Drilling. 7. Very simple turning. 8. Riveting. 9. Bending hot wrought bar-iron. 10. Shaping hot wrought bar-iron into simple forms. 11. Cutting forms from thin saw-steel plate, such as a pair of callipers to be heated in forge, filed, drilled, riveted, and finished. 12. Soldering zinc and tin plates. 13. Metal-spinning (zinc or "Britannia" metal).

(2.) MANCHESTER SCHOOL BOARD: SYLLABUS OF WORK IN HAND, EYE, AND MANUAL TRAINING.

WOOD-WORK, DRAWING, ETC., FOR ELEMENTARY SCHOOLS.

Work Period.	No.	Model or Exercise.	Finished Dimensions.	Material.	No.	Drawing.	Theory of Tools and Materials.
			Course of Work and Time-schedule for First-year Scholars.				
First Quarter's Work	1	Planing exercise	9″ x 1″ x 1⅜″ ..	Scotch fir ..	1	Elements of parallel or orthographic projection, and isometric projection, and drawing	Tool positions of plane, saw, chisel, gauge, try-square, and elementary uses.
	2	Sawing exercise	8½″ x 1″ x 1⅜″ ..	″ ..	2		
	3	Door-button on base	2¾″ x ⅝″ x 1″ base 4¾″ x ⅝″ x 2¾″	Yellow-pine	3		
Second Quarter's Work	4	Half-lap cross-joint	4½″ x 1″ x 1⅜″ ..	Yellow-pine	4	Orthographic and isometric projections	Construction and uses of the above, and other tools now brought into use.
	5	Octagonal prism	8″ x 1⅜″ ..	Yellow-pine	5	Plan and elevation	
	6	Oblique sawing and paring	8½″ x 1″ x 1⅜″ ..	White spruce	6	Orthographic projection	
	7*	Hexagonal mat	5½″ x ⅜″ ..	Basswood ..	7	Plan and elevation	
Third Quarter's Work	8	Dovetail tee-joint	4½″ x 1″ x 1⅜″ ..	Yellow-pine	8	Orthographic and isometric projections	Growth of trees, structure of wood, soft woods in common use. The pines and firs.
	9	Pan-stand ..	6″ x 1½″ x ½″ ..	Walnut or pine	9	Plan, elevation, and working drawing of joint	
	10	Mortising exercise	9″ x 1½″ x 1⅜″ ..	Yellow-pine	10	Plan, elevation, and isometric drawing	
Previous to Govt. Examination	11	Bridle-joint ..	4½″ x 1⅛″ x 1⅜″ ..	Basswood ..	11	Orthographic and isometric projections	Basswood, walnut. Recapitulation previous to Government examination.
	12	Modifications, 4, 6, 11	Various for tests	Yellow-pine or white spruce	12	Various for test of principles	

NOTE.—Exercises or models marked * are optional, all others must be taken in numerical order.