HOME MECHANICS INSTRUCTION FOR GIRLS

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CHAPTER I

PURPOSES AND EXTENT OF THE STUDY

The idea of classes in home mechanics for girls is relatively new in the field of Industrial Arts. These courses have been added to the curriculums of a number of the larger schools with the primary aim of furthering the education of girls in the proper use, care and repair of the principal mechanical devices in the home. Further aims include education in consumers' knowledges and avocational activities. When the writer made a search for organized material that could be used in a home mechanics class for girls, it was found that nothing which could be used as a text had been written. Since instructional material was not available, and very little had been written upon the subject, "Home Mechanics Instruction for Girls", the writer felt that there was a need in the field of Industrial Arts for an extensive study of this particular problem.

Origin of the Problem. During the summer of 1932, the writer offered a short woodwork course to a group of Junior High boys and girls. The girls in this class produced work results comparing favorably to that of the boys and they showed a surprising amount of interest and enthusiasm for the course. With the personal conviction that girls really could profit from shop work courses, supported by many requests from parents that girls should be allowed to take shop work, the writer became

convinced that a course should be organized especially for the specific purpose of training girls to manage better the physical equipment of the home. With these convictions in mind the writer decided to make a study which would develop a course of instruction that would not only train the girls how to use, care for, and repair the mechanical devices of the home, but also instruct them in the upkeep of the home and its furnishings. After a preliminary study by the writer the title, "Home Mechanics Instruction for Girls", seemed most appropriate for this investigation.

Purposes of This Study. The principal objective of this study is to develop a course of instruction that will more completely train future home managers. Another objective is to develop an outline of material suitable for teaching, and a complete course of study with some typical instruction sheets for teaching Home Mechanics to girls.

Home Mechanics Instruction for Girls Defined. In this study the title Home Mechanics Instruction for Girls is used in this form for the first time, so far as the writer has been able to determine. While making this investigation, a number of phrases synonymous to Home Mechanics Instruction for Girls were encountered. The following are examples of such terms:

1. Mechanics of Home Economics.
2. Home Problems.
3. Home Mechanics.
4. Home Tinkering.

5. Practical Mechanics for Girls.

6. The Exchange Unit.

7. Household Mechanics.

8. Household Equipment.

9. Household Science.

10. Home Management.

The writer made an intensive search in literature pertaining to the field of Industrial Arts, but was unable to find a definition of Home Mechanics. However, a number of noted educators in the field of Industrial Arts have proposed aims and objectives for this subject. In the following paragraphs a few of these aims and objectives are given: Newkirk, (8 page 29)* gives the chief aim for a Home Mechanics course for boys as follows:

> The chief aim of home mechanics is not the development of great skill but some skill must be developed if pupils later are to use the knowledge gained in keeping the mechanical appliances about the home in repair, and in some cases making small articles of equipment. However, it is valuable to know how things should be done so that the future home owner can intelligently employ skilled labor.

The University Extension News, (27 page 13), contains some statements of reasons for having a home mechanics course for boys:

> The purpose of the course in home mechanics is to give the boy a thorough knowledge of the use and maintenance of the various household appliances, involving various kinds of repairs, so as to secure efficient use of these appliances. It is not the purpose to train boys to do

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*This method will be used throughout this thesis to refer to bibliographical material. The first number indicates the author's rank alphabetically in the bibliography and the second number refers to the page in the book or magazine quoted.

> those jobs which only a specialist should handle, but to give training in those jobs which can be done in an unspecialized way. This training will give self reliance and in many cases will avoid the bringing in of an expert, thus saving no inconsiderable amount of time and inconvenience.

Trybom, Director, Vocational Education, Detroit Public Schools gives a number of statements concerning the boys' household mechanics courses offered in the Detroit schools: (24 page 27)

> The immediate aims of the course are (1) to develop intelligence, initiative and thinking power in connection with the care and repair of the mechanical devices and furniture, etc., of the modern home; (2) to provide the opportunity of using tools and materials and of planning and doing the various jobs involved.

Selvidge, (22 pages 69-70) gives the following objectives for boys' home mechanics:

> Attitudes, interests and habits of thought and action are of much greater importance than specific skills. Any kind of home tasks which will direct the boys' attention to the care of things in the home, increase his interest in having things neat and orderly, and give him pride and confidence in his ability to do things, are worth while.

These quoted aims of Home Mechanics Instruction are for courses intended for boys, but could also serve as a basis for Home Mechanics courses for girls. Since no discrete definition has been found for the title of this thesis, the writer is obliged to propose one.

Definition: "Home Mechanics Instruction for Girls" is the instruction necessary to teach girls to use and repair mechanical devices of the home, also to instruct them in the upkeep and general repair of the house and furniture.

Delimitations. The course of study produced in this thesis is intended for Senior High School girls and is planned to continue for one semester, or ninety hours of classroom work. Or it could be given to ninth grade girls in the Junior High School. With a few minor changes in the course it could be used in an evening school for women.

Studies of a Similar Nature. A review of the literature of the field of Industrial Arts reveals very few studies similar to the one the writer is undertaking. In addition to making a search in the field of Industrial Arts Education, the writer examined the Readers Guide from the years 1911 to 1937, the Industrial Arts Index, and a list of 800 graduate theses and dissertations in industrial arts and vocational industrial education accepted by institutions of higher learning in the United States. The search showed only five similar studies. A number of magazine articles, however, have been published about home mechanics for girls. The writer tried to secure all of these theses for examination, but only the Spencer and Korn theses were loaned from their respective libraries.

Elizabeth Battle made the first study in 1899 at the University of New York. The title of her thesis is: Manual Training Related to Girls. The study was a philosophical study of Manual Training for girls. Manual training at that time was considered any work done with the hands. This applied to both boys and girls. The aims of this course

were to develop neatness, exactness, sense of form, methodical arrangement, and general manual dexterity, but did not aim at instruction in a specific trade. The curriculum for the girls included sewing, cooking, paper cutting, clay modeling, drawing, sloyd, carpentry, free hand drawing, and mechanical drawing.

H. L. Spencer of the University of Pittsburgh, completed a thesis in 1926 entitled: Household Activities Involving Mechanics Performed by Women. Spencer used the questionnaire method of collecting data. He submitted a questionnaire about thirty-two type jobs to women home managers to determine the number of times these jobs had been done, and also to determine their opinions as to whether or not housekeepers should be able to do these jobs. The tabulations in the Spencer thesis shows: (23 page 68)

1. The belief that girls should be given training in mechanical activities justified by the evidence derived in the survey.
2. There is no reason why school training in these activities is not feasible with present school equipment.
3. The number of specific mechanical activities is large.
4. Essential skill and knowledge could be developed through the performance of a relatively small number of type jobs.
5. Type jobs high in the list are those that are common to all households, manual activities involving the cleaning and renovation of household objects and materials.

6. Those low in the list are largely those requiring considerable muscular effort. It is doubtful if any of these activities are appropriate for women.

C. E. Korn, who received his Master's Degree from the Iowa State College in 1933, wrote a thesis on the subject: Industrial Arts for Girls in Secondary Schools in the Middle West. The aim of this survey was to find the extent to which industrial arts exclusive of home economics and commercial subjects is offered to girls. Fifty-two per cent of the schools replying to the questionnaire were offering some type of industrial arts for girls. A study of this report shows that very few schools have courses especially designed for the needs of girls. In most cases the girls were taking the same type of course as the boys.

Fred Prebble of the Iowa State College at Ames, wrote a thesis in 1933 entitled: Organized Material for Curricula in Home Mechanics for Girls and Home Economics for Boys. Prebble collected his material through the use of the questionnaire. Data were obtained from men who had published magazine articles on the topic, from the homes of eighth and ninth boys and girls, from teachers, superintendents, principals, and college professors. The material was tabulated and organized into comprehensive course outlines.

Expected Outcomes and Uses of Results. The results obtained from this study should have numerous uses: first, the job sheets will prove helpful to teachers of home mechanics for

girls; second, the findings will be helpful to superintendents, principals, supervisors, and teachers who are planning a home mechanics course for girls; third, it is probable that with a few minor changes this course could be used in an evening class for women, or it could be used as the basis for a course for girls in the last year of junior high school; fourth, the girls who take home mechanics instruction will be able to maintain a happier life and become more useful citizens; fifth, there has developed during this study a list of objectives which will prove useful in actual practise.

Comparatively few schools have taken any action toward promoting a program of home mechanics for girls. An investigation will show numerous schools that have home mechanics courses for boys. The writer is of the opinion that it is more important that girls should be given this course than boys, since the majority of girls become home managers. It is hoped that in the near future every school superintendent or principal throughout this country will realize the importance of home mechanics for girls and make it a compulsory subject so that every girl will be better able to take her place in life, that of becoming a more efficient home maker and manager. In Chapter I the origin, purpose and extent of the study have been shown. In Chapter II an effort will be made through a study of contemporaneous literature to establish the fact that there is a great need for a practical education for girls.

CHAPTER II

PRACTICAL EDUCATION FOR GIRLS

A few decades ago it was thought by the majority of people that women were frail, helpless creatures who were unable to understand or perform any type of mechanical work. Opinions are changing as we find girls in colleges taking engineering courses along with boys. It has been proven that women are quite capable of understanding and doing mechanical work within the limits of their normal strength. Ericson, (8 page 176) is of the opinion that there is not as much difference in the mechanical aptitudes of boys and girls as is commonly supposed.

Separate Industrial Arts Classes for Girls. Newkirk and Stoddard, (16 page 40) maintain the position that more effective work is done in Industrial Arts courses when girls are in separate classes from boys. The writer also believes girls feel inferior to boys when doing mechanical work, therefore they would not feel so free in working because of being laughed at by the boys. It is natural to conclude that girls will make much better progress in Industrial Arts courses when in segregated classes. Judd (14 page 28) makes the following comment concerning mixed classes of boys and girls:

> We have undoubtedly made the mistake in this country in our enthusiasm for equality of opportunity of administering to girls a course of study originally

> designed for their brothers. In due time we shall learn to give to girls an education suited to their needs.

In the study made by Korn, (15 page 46) it was found that very few schools offered courses especially designed to meet the needs of girls, but most of them offered to girls courses originally planned for boys. The above facts seem to prove that girls should be given a course in Industrial Arts especially planned for their needs. If Industrial Arts courses with the emphasis on home mechanics instruction are to be offered to girls in separate classes, just what kind of work shall be offered? What do women do?

Industries in Which the Majority of Women are Employed. The U. S. Bureau of Census provides statistics based on the 1930 enumeration, which shows that many women are employed in mechanical industries.

> Of the whole number of female gainful workers, 3,149,391 or 29.2% were engaged in domestic and personal service; 2,416,288 or 22.4% were employed in manufacturing and mechanical industries; 1,762,795 or 16.4% were engaged in professional service, mainly in teaching; and 1,716,384 or 15.9% were employed in trade.

These figures show that next to domestic and personal service, the manufacturing and mechanical industries are second in importance as a form of work done by women. Domestic and personal service as an occupation for women is and probably always will be the most common type of work done by employed women. Two-thirds of all employed women, or those in the first two groups, would undoubtedly profit from instruction in courses of equipment and mechanical devices.

Per Cent of Women Home Managers. The census report also shows that in 1930 there was a total of 48,773,249 women ten years old and over. Of this group 10,778,794 or 22.1 per cent were gainful workers. This left 37,994,455 or 77.9 per cent who are unemployed and are presumably in the home. A Statistical Abstract of the United States Census for 1936 showed that in the continental United States there were of all classes 29,904,663 families. The U. S. Census for 1930 also showed there were 48,773,249 women ten years old and over. These figures show that approximately one half of the female population ten years old or over have charge of a home. These statistics indicate that whether women do household work or follow other occupations, they will find themselves in a position to use the information learned in a Home Mechanics course.

Extent of Mechanical Equipment in Enid Homes. During the school year of 1936-37 the writer conducted a survey of 300 homes in Enid, Oklahoma to find the mechanical equipment contained in the average home. Only ten items of equipment that are most commonly found in the home were listed to be used in this survey. The list includes electric fan, electric iron, electric mixer, electric percolator, electric refrigerator, sewing machine, electric sweeper, electric toaster, electric waffle iron, and washing machine. This group was presented to classes totaling 300 students in Longfellow Junior High School and by a show of

hands the information was collected regarding the various items of equipment. The data given in Table I shows the three most common mechanical appliances found in the homes ranked as follows: (1) electric iron, (2) sewing machine, and (3) electric washing machine. These three items of equipment were in over two-thirds of the 300 homes. Three other mechanical devices that ranked very close together were: (1) electric toaster, (2) electric fan, (3) electric sweeper. The next group includes only two items of equipment which ranked almost the same: (1) electric refrigerator, (2) electric waffle iron. The next two which ranked close were: (1) electric percolator, (2) electric mixer. Figure I gives the same information as Table I, but the ranking of the various appliances can be seen more readily. If a line were drawn horizontally across the graph starting at 100 on the frequency side, it would show that more than one-third of the homes contained the following equipment: electric iron, sewing machine, washing machine, electric toaster, electric fan, and electric sweeper.

Mechanical Equipment Available for Household Use. The housewife or home manager of today finds the equipment for her work has changed almost as much as in other occupations. For example, the device used to sweep with several centuries ago was a stick with a bunch of reeds or stiff grass tied on to one end. Now the modern home has an electric sweeper that is moved about over the rugs or floor coverings and

TABLE I

MECHANICAL EQUIPMENT FOUND IN 300 ENID HOMES

	Name	Frequency	Per Cent
1.	Fan Electric	114	38
2.	Iron Electric	243	81
3.	Mixer Electric	42	14
4.	Percolator Electric	49	16.3
5.	Refrigerator Electric	81	27
6.	Sewing Machine	233	77.7
7.	Sweeper Electric	112	37.3
8.	Toaster Electric	117	39
9.	Waffle Iron Electric	79	26.3
10.	Washing Machine	206	68.7

the dust is sucked up and caught in a bag. Besides the electric sweeper there are hundreds of other devices the modern home could have that was formerly unthought of. An article in the Journal of Home Economics, (12 page 632) lists the following electrical equipment available for household use:

> These include cooking, dish washing, mixing, stirring, beating, cleaning, polishing, waxing, sanding, scrubbing, mothproofing, and spraying, painting, washing, ironing, drying, food preservation, sewing, house heating, water pumping, lighting, ventilation, and miscellaneous minor ones.

It is probable that no one home has ever had all of the devices in it, but as time goes on more household work will

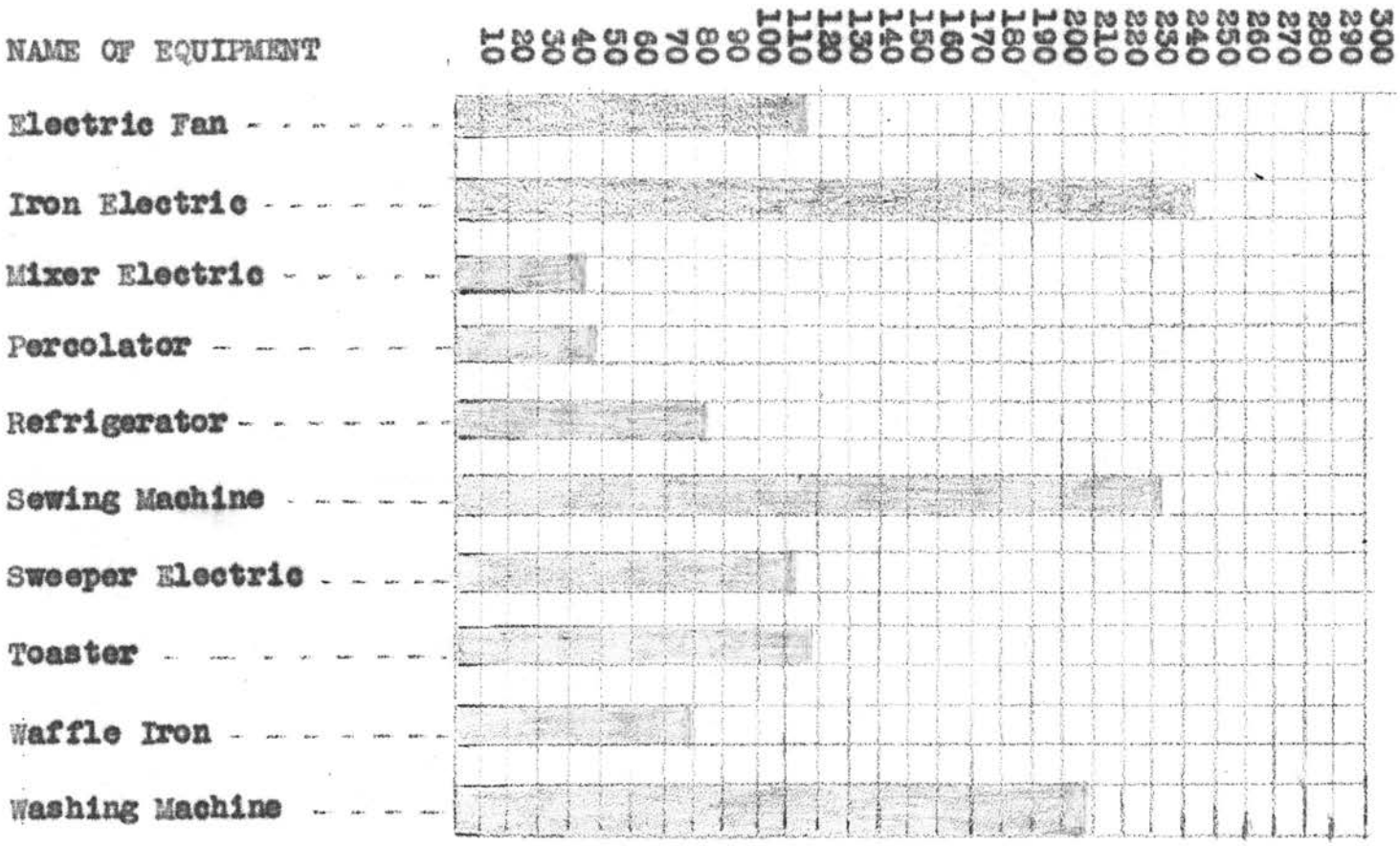

Table II. A Graphical Exhibit of Mechanical Equipment in the Homes

be done mechanically since there are machines available for most every home job. It is imperative then, that the future home manager know how to use and keep in repair the various household devices now on the market.

Edith Allen (1) has a book entitled, Mechanical Devices in the Home, in which the majority of household equipment is listed and their use is explained.

Proposal About Industrial Arts for Women. In the following paragraphs Harap, (10 pages 160-161) gives arguments which substantiate the writer's statements that there is a great need in the lives of the women of today for the information that could be imparted in Industrial Arts courses suited to women:

> Life in the home demands the ready skill to make things, to care for things, and to meet household emergencies. Household tasks are universal. Wherever there is a home there are numerous jobs to do. The "handy man" in our day is regarded with envious awe. We have developed a body of dependent, helpless, artless individuals who shrink before the simplest mechanical difficulties. The neglect of home construction and repair is due largely to ignorance of the common household skills. Furniture which should be repaired promptly is neglected; simple plumbing difficulties are allowed to do great damage or are corrected at high labor cost; gardens are left idle which should yield a considerable revenue; pictures, walls, floor coverings, are ignored when they can be made a source of joy and comfort; much unnecessary labor is expended in wasteful methods of cleaning; the walls, floors and ceilings of a house are allowed to ruin for want of the simple skills of plastering, cementing, and painting. These neglects are daily causing discomfort and loss.
>
> The person who is mechanically deficient permits damage and decay of household equipment and supplies the usefulness of which could easily be prolonged. Experts are called in to do trivial jobs at mechanic's

> rates, which the ordinary person skilled in the simple mechanical operations could perform with ease. Sometimes great damage is done and serious loss is incurred, especially in connection with the newer household appliances, because the untrained individual is not capable of acting immediately upon the discovery of a defect.
>
> It is not proposed here that carpenters, plumbers, painters, and masons should be replaced by amateurs. The household skills to be discussed here are intended first, to make the individual fit to perform the simpler tasks which do not require expert service; second, to do the many repair jobs which are immediate and urgent; third, to perform those special tasks in the home which are not common trade tasks; and fourth, to make such articles as the average home would enjoy having, but which it cannot possess because of lack of money or skill. The assumption is that the average home is not kept up to high efficiency because of the general lack of mechanical skill and that the results are discomfort and waste. Some prudent persons learn by observing the trained artisan, but the great body of men and women accept the discomfort and waste which result from ignorance of household skills without ever becoming seriously aware of them.

Bonser, (5 page 46) also states that Industrial Arts is a valuable subject in the daily life of women:

> On the basis of both individual and social values, it ranks well with other social or scientific studies, connecting even more closely than others with the experiences and needs of daily life.

The evidence just presented clearly points out the trend of thought representing many leading educators regarding the instruction of women in courses of a mechanical nature.

Objectives for a Course in Home Mechanics for Girls. The subject of objectives has been a topic upon which much has been written and said. It will always command the thought and earnest effort of achieving educators throughout the

civilized world. Hunter, (13 page 72) makes this statement concerning objectives:

> However we must have objectives toward which we press else our course will become of little consequence. . . . It is imperative that industrial arts teachers have a few very definite goals in mind or on paper if their course is to become a vitalizing influence in the lives of youth.

Bobbitt, (4 pages 215-18) gives some guiding principles and assumptions for a Practical Arts course for women. (The writer has changed the wording slightly.)

1. The home mechanics for girls should seek to develop those mechanical abilities of every kind which are needed for the proper management of a home.

2. The home mechanics course does not aim to prepare for activities that require a high degree of skill.

3. In the home mechanics course it will be considered more important to be able to judge and select furniture wisely than to be able to make it.

4. Home mechanics training is needed by the majority of girls. It should therefore be a part of the general training of all girls.

Newkirk and Stoddard, (16 page 40) comment as follows in regard to the guiding aims of a Home Mechanics course for girls:

> The girls need to know the shop experience which will enable her to become a more efficient member of the modern home. Industrial Arts appreciation and handy-man activities seem to be the guiding aims in organization of shop contents for girls.

Preston, (19 pages 32-34) who is an instructor of woodwork and drafting in the Junior High School at Lawrence, Kansas gives these objectives for the Home Mechanics offered to girls in that school:

1. To give information needed in the wise selection of industrial products.

2. To teach the care and use of the tools and mechanical devices used by girls and women in their homes and communities.

3. To teach how to proceed when household difficulties occur.

The major purpose of Home Mechanics he gives in these words:

> The imparting of information rather than the development of speed and skill must be the major purpose.

This group of guiding principles, aims, and objectives should be of sufficient comprehensiveness and importance to serve as the basis in the organization of a Home Mechanics course for girls.

In this chapter the writer has attempted to prove that practical knowledge such as would be presented in Home Mechanics Instruction for Girls would be helpful to women in nearly all lines of endeavor. In Chapter III the opinions of 150 housewives and home managers will be given concerning a Home Mechanics Course for Girls.

CHAPTER III

A SURVEY TO DETERMINE WHAT SHOULD BE TAUGHT IN A HOME MECHANICS COURSE FOR GIRLS

In order to determine what should be taught in a home mechanics course for girls, it became necessary to conduct a survey. Before attempting the investigation, the breadth of the search had to be limited.

Since the writer taught in Longfellow Junior High School in Enid, Oklahoma and due to the fact that it seemed fairly representative of parents in all walks of life, it was decided to conduct a survey of the parents within the boundaries of this school. In order to have a fair sampling of facts, it was inferred that the opinion of one hundred-fifty parents would be sufficiently inclusive to make the study worthwhile.

COLLECTING THE DATA

In this study the writer desired to find out just what housewives and home managers do in their daily work that is of a mechanical nature and things that they think they should be able to do. If this information could be obtained, the organizing of a home mechanics course would be more simple and the contents of the course would be of more practical value to girls who take the work.

The next problem which required a solution was: How could this information be collected from housewives and home managers? There are several methods used in research work to collect information. The most common of these

methods are personal interviews, visitations, examining reports and records, and the questionnaire. The method that is most commonly used, and to a certain degree over-worked, is the questionnaire. There are types of materials or information, however, that cannot be collected except by this method. After investigating the possibilities of these methods, a combination questionnaire, survey type of research, seemed most practical for this study.

The Questionnaire. Before attempting to make up a questionnaire form, for use in this survey, the questionnaires of two similar surveys, namely one of the University of Iowa Studies in Education, (27) and the so-called Denver Study, (6) were examined for possible help and suggestions. An attempt was made in these studies to find the practical jobs the boys do about the house and premises. The writer is indebted to the persons who conducted these surveys for some of the ideas used in the construction of the questionnaire form used in this study. The form was divided up into eight major units as follows: (1) the automobile, (2) general metal work, (3) electrical work, (4) painting and refinishing, (5) plumbing, (6) woodwork, (7) mechanical drawing, (8) general mechanics. Each one of these divisions was broken up into jobs which resulted in a total of sixty-one jobs which were practical and adapted to shop instruction. Appendix B contains a copy of the questionnaire form.

Circulation of Questionnaire. In the beginning of this survey the writer decided to use the visitation method, that is, personally visiting in the home and getting the questionnaire form filled out. When approximately seventy-five homes had been visited, this method of collecting data was discontinued, because too much time was consumed while making calls. The personal visits in the home of school patrons were helpful to the writer because of the many ideas and suggestions that were given. The goal of getting 150 questionnaires filled out was only half done, so another method of collecting information was attempted. About two weeks before the Christmas vacation started, the writer made a large fruit bowl. The woodwork students were informed that anyone who would take a questionnaire home and have their mother properly fill it out would get their name put in a box and have a chance at a "drawing" to get the fruit bowl. This method worked miraculously, for within a few days over 100 questionnaires were filled out and returned.

INTERPRETING THE DATA

Tabulation and Explanation of Returns. The task of checking 150 questionnaires with each one having sixty-one items to be checked proved to be a task that commanded no small amount of time and effort. The housewife or home manager was instructed to check the items as follows: "Place a check mark (✓) after the jobs you have performed, place an (X) after the jobs you have wanted to do, but did not

TABLE III

A LIST OF JOBS ACTUALLY DONE BY HOUSEWIVES

	Names of Jobs	Frequency
1.	Varnishing furniture	132
2.	Lubrication of sewing machine	130
3.	Sharpening a knife	128
4.	Polishing floors	125
5.	Painting woodwork and furniture	124
6.	Cleaning and polishing furniture	120
7.	Lubrication of washing machine	116
8.	Washing the car	115
9.	Cleaning the car upholstery	114
10.	Putting in an electric fuse (house)	112
11.	Varnishing floors	109
12.	Removing scratches from furniture	106
13.	Polishing the car	105
14.	Adjusting a sewing machine	105
15.	Repairing an electric extension cord	102
16.	Painting interior walls	96
17.	Repairing a screen door	95
18.	Sharpening a pair of scissors	91
19.	Making stakes for garden or flowers	90
20.	Adjusting burners on a gas stove	88
21.	Painting a porch floor, ceiling	83
22.	Upholstering chair seats	82
23.	Staining furniture	78
24.	Varnishing linoleum	78
25.	Regluing loose joints in furniture	77
26.	Repairing upholstery (furniture)	77
27.	Removing old finish on furniture	71
28.	Removing and replacing tire (car)	70
29.	Lubrication of vacuum cleaner	70
30.	Repairing a garden hose	68
31.	Lubrication of lawn mower	65
32.	Replacing handles in hoes, rakes, shovels, etc.	64
33.	Painting screens	63
34.	Soldering pans, buckets, tubs, etc.	63
35.	Repairing drawers in furniture	62
36.	Repairing faucets (replacing washers)	61
37.	Applying kalsomine	60
38.	Repairing electric iron	56
39.	Putting on new screens	54
40.	Filling holes and cracks in floor	54
41.	Replacing door hinges	53
42.	Lubrication of fan	53
43.	Repairing an inner tube	52
44.	Putting in a window glass	45
45.	Make knife and fork box	45

TABLE III, (CONTINUED)

	Names of Jobs	Frequency
46.	Repairing plaster	41
47.	Do lettering or printing	33
48.	Repairing a vacuum sweeper	32
49.	Make house plans	32
50.	Making simple furniture drawings	29
51.	Clean and adjust a spark plug	28
52.	Adjusting frigidaire	28
53.	Adjusting lawn mower	28
54.	Cleaning and adjusting door locks	27
55.	Planing doors to make them fit	23
56.	Lubrication of food mixer	22
57.	Testing for a missing cylinder (car)	18
58.	Repairing a percolator (element and fuse)	16
59.	Inking with a ruling pen	15
60.	Cleaning an electric motor	10
61.	Putting a new valve in a gas stove	7

know how to do." When an analysis of the contents of these questionnaires was made it was found that the material could be grouped naturally into three divisions. This material forms the content of Tables III, IV, and V. Table III contains a list of the jobs actually done by housewives. The ten jobs ranking highest in this group are: (1) varnishing furniture, (2) lubrication of sewing machine, (3) sharpening a knife, (4) polishing floors, (5) painting woodwork and furniture, (6) cleaning and polishing furniture, (7) lubrication of sewing machine, (8) washing the car, (9) cleaning the car upholstery, (10) putting in an electric house fuse. The major unit, (See page 70 this thesis), having the greatest number of jobs in this high ranking group is unit number (4) entitled painting and refinishing.

TABLE IV

JOBS HOUSEWIVES WANTED TO DO BUT DID NOT KNOW HOW TO DO

	Names of Jobs	Frequency
1.	Repairing a vacuum sweeper	59
2.	Repairing an electric iron	57
3.	Repairing a percolator	56
4.	Cleaning an electric motor	55
5.	Putting a new valve in gas stove	49
6.	Adjusting lawn mower	46
7.	Repairing faucets (replacing washers)	43
8.	Planing doors to make them fit	41
9.	Making a simple furniture drawing	41
10.	Putting in a window glass	40
11.	Inking with a ruling pen	39
12.	Test for a missing car cylinder	39
13.	Make house plans	39
14.	Clean and adjust a spark plug	39
15.	Filling cracks and holes in floors	37
16.	Repairing plaster	37
17.	Repairing furniture upholstery	36
18.	Repairing a garden hose	36
19.	Repairing an extension cord	36
20.	Adjusting frigidaire	35
21.	Lubrication of food mixer	35
22.	Repairing an inner tube	35
23.	Do lettering or printing	35
24.	Make knife and fork box	35
25.	Upholstering chair seats	34
26.	Sharpening a pair of scissors	33
27.	Removing old finish on furniture	32
28.	Painting a porch floor or ceiling	31
29.	Soldering pans, buckets, tubs, etc.	31
30.	Painting interior walls	30
31.	Cleaning and adjusting locks	30
32.	Lubrication of fan	29
33.	Repairing drawers in furniture	29
34.	Removing and replacing car tire	29
35.	Replacing door hinges	29
36.	Regluing loose joints in furniture	28
37.	Replacing handles in hoes, rakes, and shovels	27
38.	Removing scratches from furniture	26
39.	Lubrication of lawn mower	26
40.	Painting screens	26
41.	Varnishing linoleum	26
42.	Putting on new screens	25
43.	Adjusting burners on a gas stove	24
44.	Staining furniture	23
45.	Lubrication of vacuum cleaner	22

TABLE IV (CONTINUED)

	Names of Jobs	Frequency
46.	Applying kalsomine	21
47.	Putting in a fuse (house)	20
48.	Adjusting sewing machine	19
49.	Making stakes for flower beds	18
50.	Repairing a screen door	16
51.	Varnishing furniture	14
52.	Polishing the car	13
53.	Lubrication of washing machine	12
54.	Varnishing floors.	9
55.	Lubrication of sewing machine	9
56.	Cleaning the car upholstery	8
57.	Polishing the floor	8
58.	Sharpening a knife	7
59.	Cleaning and polishing furniture	6
60.	Washing the car .	5
61.	Painting woodwork and furniture	4

Table IV lists the jobs housewives wanted to do but did not know how to do. If a study is made of Tables III and IV it will reveal that the jobs low in frequency in Table III are the high ranking jobs of Table IV, also the low ranking jobs in Table IV are the jobs of high frequency in Table III.

Table V is a composite of Tables III and IV. The first ten jobs of highest rank are practically the same ones as previously mentioned in Table III, however, some of the jobs have changed their order of rank. Major unit number (4) still ranks first in having the most jobs placed in the ten jobs of highest rank. From Table V a list of jobs with high frequencies will be selected for use in the proposed Home Mechanics Instruction Course For Girls.

TABLE V

JOBS HOUSEWIVES ACTUALLY DID AND THE JOBS THEY WANTED TO DO BUT DID NOT KNOW HOW TO DO

	Names of Jobs	Frequency
1.	Varnishing furniture	145
2.	Lubricating a sewing machine	139
3.	Repairing an extension cord	136
4.	Sharpening a knife	135
5.	Putting in a fuse	132
6.	Polishing floors	132
7.	Removing scratches from furniture	132
8.	Lubricating a washing machine	128
9.	Painting interior walls	126
10.	Cleaning and polishing furniture	126
11.	Painting woodwork and furniture	126
12.	Adjusting a sewing machine	124
13.	Sharpening a pair of scissors	123
14.	Cleaning the upholstery	122
15.	Washing the car	120
16.	Polishing the car	118
17.	Varnishing floors	118
18.	Upholstering chair seats	114
19.	Repairing an electrical iron	113
20.	Painting porch floors or ceiling	113
21.	Adjusting burners on a gas stove	112
22.	Repairing a screen door	111
23.	Making stakes for flower beds	108
24.	Staining furniture	106
25.	Varnishing linoleum	104
26.	Repairing a garden hose	104
27.	Repairing faucets	104
28.	Regluing loose joints in furniture	103
29.	Removing old finish	103
30.	Repairing upholstery	101
31.	Removing and replacing tire	99
32.	Soldering pans, buckets, tubs, etc.	94
33.	Lubricating vacuum cleaners	92
34.	Lubricating lawn mower	91
35.	Filling cracks and holes in floor	91
36.	Replacing handles in rakes, hoes, and shovels	91
37.	Repairing drawers in furniture	91
38.	Repairing a vacuum sweeper	91
39.	Painting screens	89
40.	Repairing an inner tube	87
41.	Putting in a window glass	85
42.	Replacing door hinges	82

TABLE V (CONTINUED)

	Names of Jobs	Frequency
43.	Lubricating a fan	82
44.	Applying kalsomine	81
45.	Making knife and fork box	80
46.	Putting on new screens	79
47.	Repairing plaster	78
48.	Adjusting a lawn mower	74
49.	Repairing a percolator	72
50.	Making house plans	71
51.	Making a simple furniture drawing	70
52.	Do lettering and printing	68
53.	Clean and adjust a spark plug	67
54.	Cleaning an electric motor	65
55.	Planing doors to make them fit	64
56.	Adjusting frigidaire	63
57.	Lubrication of food mixer	57
58.	Test for a missing car cylinder	57
59.	Cleaning and adjusting locks	57
60.	Putting new valve in gas stove	56
61.	Inking with a ruling pen	54

An examination of the tables will show that women perform more of the repair and mechanical work about the house than is commonly supposed. The jobs of a really mechanical nature such as repairing a vacuum sweeper or an electric motor proved to be the ones about which more information is desired.

Statements Made by Parents Favoring Home Mechanics Instruction for Girls. At the time the questionnaires were sent home with the students to be filled out by their mothers or the housekeepers, instruction was given to the students to get a written statement from the parent regarding the value of such a course for girls.

When these statements had been examined it was found they

could be classified as follows: (1) general education, (2) saving expenses, (3) operating household equipment, (4) maintaining home equipment. Not all of the parents commented on the value of a course of study in Home Mechanics for Girls, but the majority seemed glad to express themselves about this type of work for girls. Some of the more favorable of these comments are quoted here:

(1) GENERAL EDUCATION.

I believe home mechanics to be a much needed item in any girl's life.

Yes, I think it a very good idea for women to know how to do these jobs. Even though she does not do them often, there are times when it would certainly be to her advantage to know them.

I think it would be a good thing to teach girls as well as boys to do these jobs mentioned on this questionnaire.

I think a course like this would be very helpful for girls, as most of us at some time or other need to do most of these things listed in this questionnaire.

I think girls should take home mechanics.

I think some mechanical work would be of a great help to most girls.

I think it necessary for every girl to know the things taught in a home mechanics course.

I think every girl should be handy Annie.

I think home mechanics a very good subject for girls.

These items are practical and something every woman should know how to do.

I think home mechanics a fine idea for it is much needed by women.

Most of this list is every day problems every home maker faces. I think it much more important than any course offered in our schools today. No girl's education is complete without a general knowledge of all homemaking arts.

I think home mechanics a good subject to teach. There are not many housewives that know how to do all of these things.

I think all of these items would be helpful to all women.

I think all youngsters should learn some of these things when growing up. Only wish I had had the opportunity. Hope the plan will be adopted whereby our girls and boys may learn a little more about these various things.

This would be an excellent course for future housewives.

I think every girl should be able to do these jobs, girls should not be so helpless.

(2) SAVING EXPENSE.

Considerable expense would be saved about the home if girls were taught a course of this sort.

It is good common sense to know these things. If a woman is ever in need of a mechanic real sudden, she can do the job herself and thus save time, money, and trouble to others.

I think it would be great for girls to take a course in home mechanics. It would be a help to her, and be the saving of many a dollar to herself and her husband, should she marry. I know what I know from experiments, reading, etc. As necessity is the mother of invention, buthow much better it would have been had I learned these things as a girl when in school. So it would be an asset to our girls and also the boys if the girls took home mechanics. It isn't only the boys who must be jack of all trades, but Jenny must be a little of everything too.

(3) OPERATING HOUSEHOLD EQUIPMENT.

I have found it very convenient to know how to do most everything about the house, yard, and car.

I think it a fine thing for a housewife to do each of the jobs listed on the questionnaire. I am proud of the mechanical work that I am able to do about the house.

(4) MAINTAINING HOME EQUIPMENT.

A course in home mechanics for girls would certainly meet with my approval. I think that every housekeeper should be able to repair their household equipment.

A woman takes more interest in her home when she does more of the repairing and beautifying of it.

These statements made by housewives and home managers indicates they do see a real need for the training of girls and women in the mechanical work usually done about the home.

This chapter seems to the writer to be the most important part of the thesis, due to the fact, it contains information of vital importance to this investigation. The materials in Tables III, IV, and V show the jobs housewives found most valuable to them in their daily work. The content of this chapter will influence to a great degree the teaching content of the proposed course in Home Mechanics Instruction for Girls.

In the next chapter the results of a survey to determine what shopwork is taught to girls in 200 cities, will be presented. This survey shows what cities offer home mechanics and industrial arts to girls. Outlines of these courses will be presented to show the nature of the courses.

CHAPTER IV

HOME MECHANICS COURSES OFFERED TO GIRLS BY OTHER SCHOOLS

In the beginning of this study it was planned to obtain courses of study from as many schools as possible that were offering Home Mechanics to girls, and with the aid of this material to organize a course designed especially for girls. Since so few schools offer this type of work, it was impossible to obtain sufficient information to make the final results valuable in organizing a course of instruction adapted to the mechanical ability and needs of girls. A number of descriptions of programs were obtained by means of a survey of about 200 cities and these will be included in this chapter.

Collection of Data. A thorough search made in recent literature in the field of Industrial Arts, resulted in the finding of information about a few schools that offered Home Mechanics instruction to girls. The writer believing there must be more schools offering this type of work, sent about 200 questionnaire postal cards to cities throughout the United States. The cards were of the double type with answer spaces provided on the return, self-addressed card. A list of cities and their superintendents was obtained from the Educational Directory for 1936-37, (26). The cities selected for use in this study were chosen on the basis of their having the approximate population of Enid, Oklahoma, which is nearly

30,000 inhabitants, and their prominence as progressive cities. When the return cards had been checked, those schools listing Home Mechanics programs for girls were sent letters asking for a more detailed description of the course than was obtained from the postal card.

Form of Questionnaire Card. The following is a copy of the form used on the double postal cards sent out to 200 cities.

(Message on Addressed Card)

Dear Sir:

I am a teacher of industrial arts at the Longfellow Jr. High School, Enid, Oklahoma. I am writing a master's thesis on: Home Mechanics Instruction for Girls. Included in my thesis I want a section devoted to the home mechanics or industrial arts that other schools are offering to girls.

If your school is offering home mechanics or industrial arts to girls, please fill out the attached postal card and send it to me. In case your school does not offer such a course to girls, will you please send the names of any schools you know with a program of industrial arts or home mechanics for girls. If it is inconvenient for you to supply the information, please give the return card to an industrial arts teacher.

Yours sincerely,

Ray E. Brown

(Questionnaire form on Return Card)

Name of Teacher _____
Address _____
Name of School _____ Enrollment _____
City _____

Name of Course for Girls	No. in each Course	Grades in Each	Length of Period	No. Periods Per Wk.	No. Wks. in Each	Cost to Students

What do the girls and parents think of course? _____
What is your opinion of course? _____

Summary of Findings. From the 200 questionnaire cards sent out, seventy-four replies were received. The returns showed fifty-two cities not offering any type of industrial arts work to girls, however, an additional six cities did not offer the work, but reported other places giving such courses to girls. In two cities it was reported that home mechanics had been offered to girls formerly, but due to the depression and need of the space for boys' classes, the work was discontinued. In one city it was indicated that a course of this nature would be given this fall. Fourteen cities reported that various types of industrial arts courses were offered for girls. Some encouraging comments were also given in answer to the last two questions on the card. The reason for the small number of cards returned in comparison to the number sent out was probably the lack of home mechanics courses offered in schools throughout the United States. The information obtained from the reply cards was organized into Table VI. An analysis of the table shows few of the cities in any general agreement on the items listed. Under the heading, "grades in each", it seems that it is more common to offer industrial arts courses to girls in the upper grades since it was offered more times in the senior year of high school than in any of the other grades ranging from the seventh to the twelfth. The amount of time devoted to shopwork for girls was agreed upon to a greater extent than any other heading, as nine cities out of fourteen gave the courses

TABLE VI

DATA RECEIVED FROM 14 CITIES OFFERING INDUSTRIAL COURSES TO GIRLS

City	Course Title	No. In Each Course	Grades in Each	Length of Period	No. Periods Per Week	No. Wks in Each	Cost to Students
Atlantic City, N. J.	Woodwork	20	2	30 Min.	4	40	None
Bakersfield, Calif.	Home Mech.	30	7 & 8	40 "	5	18	None
Bridgeport, Conn.	Home Problems	600	9th	52 "	2	12	None
Dubuque, Iowa	Home Management	140	12th	60 "	5	20	?
Greenwich, Conn.	Metal Work	100	9 to 12	40 "	5	10	$2.00
Hartford, Conn.	Home Mech.	17	8th	43 "	5	10	None
	Printing	54	7-8-9	43 "	5	40	?
	Woodwork	15	7th	43 "	5	10	?
	Mech. Drawing	4	8th	43 "	5	10	?
Jefferson City, Mo.	Household Mech.	17	12th	60 "	5	36	$1.50-3.50
Kansas City, Mo.	Home Mech.	300	7th	90 "	2	3	None
Knoxville, Tenn.	Home Mech.	18	9-10	60 "	5	18	.50
Minneapolis, Minn.	Printing	30	12th	50 "	5	18 or 36	None
St. Paul, Minn.	Art Woodwork	40	10-12	45 "	5	?	.50
Santa Barbara, Calif.	Mech. of Home Ec.	40	8th	50 "	2	6	None
Tacoma, Washington	Woodwork	21	10-12	60 "	5	40	Varies
Washington, D. C.	Leather Tooling	10	Vocational	80 "	2	18	Varies
	Basketry	14	"	80 "	1	18	None

five times per week. There was not enough agreement on the other questions to be worthy of mention.

Tabulation of Data About Twenty-four Schools. Data supplied by cards used in the survey together with information taken from magazine articles concerning Home Mechanics for Girls was organized into Table VII. A study of Table VII discloses that mechanical drawing, electrical work, house planning, woodwork, art metal, home mechanics, refinishing furniture, and printing are the types of work most commonly offered. However, some of the cities giving a course called home mechanics must surely include in the course much of the work just mentioned. Other courses offered by only one city, and not listed in the table, include: (1) mechanics of home economics, (2) house problems, (3) wrought iron work, (4) beadwork, (5) foundry, (6) sheet metal, (7) wood turning, (8) wood carving, (9) art woodwork, (10) bookbinding, (11) model building, (12) furniture weaving, and (13) study of design.

Examples of Home Mechanics Courses for Girls. Descriptions of a number of exemplary programs of Home Mechanics and Industrial Arts Courses for Girls that are to be found in various parts of the United States are included in this section. Most of these descriptions were taken from magazines because a more detailed account was obtained from this source than was secured through letters. The next few pages are made up of descriptions of these courses for girls.

TABLE VII

A LIST OF CITIES AND THE TYPES OF INDUSTRIAL ARTS COURSES OFFERED TO GIRLS

	Mechanical Dr.	Free Hand Dr.	Refinishing Furn.	Electrical Work	House Planning	Woodwork	Leather Craft	Ceramics	Art Metal	Upholstery	Basket Weaving	Printing	Home Mechanics	
California, Bakersfield													*	
California, Santa Barbara													*	
Connecticut, Bridgeport													*	
Connecticut, Greenwich									*					
Connecticut, Hartford	*					*						*	*	
D. C. Washington							*				*			
Iowa, Greenfield						*		*						
Iowa, Marshalltown				*		*			*					
Indiana, Muncie			*	*	*	*			*			*		
Indiana, Terre Haute	*	*	*	*	*									
Illinois, Princeton	*	*			*	*	*	*	*					
Illinois, Chicago 1 Jr. Hi.													*	
Kansas, Wichita			*	*									*	
Kansas, Abilene	*			*		*	*		*					
Kansas, Lawrence													*	
Minnesota, St. Paul						*								
Minnesota, Minneapolis												*		
Missouri, Kansas City				*		*							*	
Missouri, Jefferson City													*	
Missouri, Clayton				*	*	*			*				*	
Oklahoma, Stillwater				*		*	*			*	*	*	*	
Tennessee, Knoxville														
Wisconsin, Augusta	*			*	*	*				*				
Washington, Tacoma						*			*					

Muncie, Indiana. Miss Ella Holenback, Publicity Chairman of the Home Economics Department in the city schools of Muncie, Indiana describes as follows a course which she organized and

which is called "Home Tinkering for Girls and Home Economics for Boys", (11 page 659).

> Boys will be boys--sometimes, and sometimes girls would be boys and boys would be girls. At least there are times when girls and women wish for the ability to do some kind of work ordinarily done by men, and certainly all men sometimes find themselves so hungry they would gladly cook their own supper.
>
> Realizing the desirability, both of having students in home economics receive at least a minimum of training in many of the small mechanical duties common in any home and of having those in industrial arts getting some knowledge of food selection and preparation, several junior high school classes in the schools of Muncie, Indiana, were alternated during three weeks, the girls taking industrial arts and the boys taking work in foods.
>
> When first discussing the possibility of exchanging classes, both boys and girls were somewhat skeptical. The boys especially were not anxious to go into the kitchen, but after a few days trial both boys and girls were enthusiastic about their new work and would gladly have extended the time to include a more comprehensive course.
>
> The boys spent some time studying the selection of foods. One day the entire class went as a group to the cafeteria and selected their lunches, the manager scoring their trays. The remainder of the work was done in preparing enough kinds of dishes to make a balanced lunch and then serving the lunch, with emphasis on service and table manners.
>
> Most of the industrial arts work done by the girls centered around the use of the common woodworking tools, such as saws, hammer, plane, and screw-driver, and in refinishing home furniture by the application of paint, enamel, and varnish. In addition, some practice was given in correcting troubles that occur frequently with common household electrical devices, typical units of instruction here were the testing and replacement of fuses, and the repairing of extension cords on irons and lamps.
>
> Teachers interested in similar courses will easily think of other units which offer equal possibilities in training boys and girls to be more independent.

Terre Haute, Indiana. Sylvan A. Yager describes as follows a course which is offered at the Indiana State Teachers College, (30 page 29).

> The Indiana State College Training School has developed a course in Industrial Arts for girls that may be of some interest to school men.
>
> The original idea was not to provide just another course to take care of conflicts in students' programs but rather to open up a new field for girls which seemed to present unexplored opportunities.
>
> The course has been given several times and needless to say several changes have been made in regard to content, organization, and method. The following is a description of the course which consists of five separate units and continues for the entire year.
>
> The first unit deals with mechanical and free hand drawing and sketching, and extends over a period of about four weeks. The girls are taught the fundamental principles of orthographic projection with emphasis on their application. Free hand sketching and pencil and rule drawing principles are emphasized.
>
> The second unit extends over a period of eight weeks, and deals with the study of design, construction, care and refinishing of furniture, involving:
>
> 1. A brief study of the most popular periods of furniture, with emphasis upon the characteristics of each period studied.
> 2. A brief study of a few most common pieces of furniture, such as the chair, table, bed and dresser, to the extent that the girls will understand something about how they are made and what to look for in the intelligent purchasing of furniture. Frequent visits are made to furniture stores and furniture factories in connection with this part of the course.
> 3. A brief study of the different kinds of wood used in furniture construction is studied with emphasis upon the characteristics that make each wood adapted to furniture making.
> 4. A brief study of how to care for furniture, with emphasis upon how to clean and polish and simple repair, such as regluing parts of a chair.

5. A study of the refinishing of furniture, involving actual practice in as wide a variety of work as time will permit. Some girls refinish furniture in their rooms.

The third unit is devoted to nine weeks of furniture weaving. Each girl is given opportunity to make two or more projects with instructor's approval. The girls design their own projects.

The fourth unit extends over a period of three weeks and is devoted largely to the care and repair of household mechanical appliances. The study of this unit will help the girl to better understand how to use and care for these appliances. Other work of an electrical nature taken up are:

1. Conductors and non conductors of electricity.
2. Electrical circuits and their purpose.
3. Fuses, their purpose and how to replace them.
4. Making an extension cord.
5. Repairing, or making an electrical iron cord.

The fifth unit extending over a period of twelve weeks or remainder of term is devoted to the study of the major problems connected with the planning and building of a house, from the selection of a site to the all important problem of financing.

Bakersfield, California. S. W. Hoessel gave a very interesting account of the Home Mechanics course as taught in the Bakersfield schools. This material was included in a letter.

Our Home Mechanics course for girls is taught to acquaint the girls with the mechanical things used in the home, their repair and upkeep, and proper things to look for when buying. The course is divided into several units and other things are added as they are brought up in class discussion.

Outline of Course

Unit I
1. Construction and repair of faucets.
2. Construction and repair of garden hose.

Unit II
1. Door stop and book end construction.

a. Kinds of lumber.
b. Tracing patterns.
c. How to plane grain of wood.
d. Use of coping saw.
e. Use of hand saw.
f. Use of file.
g. Use of sandpaper.
h. Painting and kinds of paint and care of oily rags.
i. Nailing.
j. Gluing.
k. Putty and different uses.

Unit III
1. Construction of tin work

a. Soldering.
b. Machines.

Unit IV
1. Electricity and all its parts.

a. Fix iron cord.
b. Make buzzer, common push button.

Unit V
1. Construction and parts of automobile.

Unit VI
1. Art metal work.
a. Designing and making of bracelet, etc.

Unit VII
1. Tools
a. Names and uses.

About half of the work is lecture and the other half is hand work. There is a forty minute period every day for five days in a week and eighteen weeks in length.

Clayton, Missouri. Hall, (9 pages 159-160), a teacher of industrial arts at Clayton, Missouri offers an unusual Industrial Arts course to high school girls in that city described as follows:

The interests of girls in shopwork are different from those of boys, in that the experience of girls

should enable them to become more effective in the modern home. Thus a course for girls should embody instruction in the use of tools which are commonly found in the home, or which are useful to the woman in the home; also the construction, operation, care and maintenance of the various types of mechanical and electrical appliances and apparatus, some of which are found in practically all homes of today.

The instruction should include instruction concerning the varieties of wood used in furniture construction, as well as in floors and interior trim; the various kinds of finishes, together with some practical work experience in simple repairs, and refinishing pieces of furniture. Girls are also interested in knowing something about domestic architecture, home furnishings, and equipment. Problems in art metal and wood carving may be introduced to provide opportunities for design, in addition to the development of manipulative skill.

Aims

The aims of instruction in practical mechanics for High School girls may be stated briefly as follows:

1. To teach them how to operate, care for, and maintain the mechanical and electrical devices of the modern home.

2. To give information concerning the wise selection of industrial products.

3. To develop the ability to read blue prints and other drawings, and an understanding of how a dwelling is designed and constructed with respect to practical and esthetic values.

4. To provide opportunity for exploring abilities and aptitudes in craft work.

Home Mechanics

Some types that have been found interesting to high school girls.

1. Electric service in the home.
2. The water supply system.
3. Miscellaneous repairs and adjustments

1. Bench work. Woodwork.

Girls should not undertake work that will overtax their strength--use small power machines.

Suggested Jobs

1. What-not shelves--small foot stool--decorative boxes.

2. Wood carving.

3. Wood turning for those who show an interest.

    1. Potato masher.
    2. Bud vase.
    3. Gavel.
    4. Candle stick - lamp.

4. Finishing.

    1. Finishing furniture.
    2. How to repair and renew finishes.

        1. Care of floors and trim.
        2. Care of furniture.

5. Metal Craft. - Copper, pewter, silver.

    Suggested Projects
    1. Book ends.
    2. Dish sets.
    3. Bowls.
    4. Trays.
    5. Ornaments.

Planning

Girls should be able to plan and make a sketch of various objects they intend to make in the shop.

Drawing in the second semester may be largely architectural. Make simple house plans and elevations.

Stillwater, Oklahoma. By a personal visit to the shop building and an interview of the teachers in charge, the writer secured information about industrial arts courses being

offered to the girls in the Stillwater High School.

The first six weeks is elementary woodwork. The girls make the following projects:

1. Bread board.
2. What Not, (Girls own design).
3. Upholstered footstool.
4. Electric project.

The second six weeks is devoted to home mechanics. The girls bring all types of household appliances from home and repair them in the shop. The third six weeks is a general shop course in which leather craft, basket weaving, book-binding, and printing are taught.

Princeton, Illinois. Frank Balthis, Jr., of Logan Junior High School lists a number of Industrial Arts courses offered to girls in Princeton, Illinois. The information was included in a letter. Courses offered girls are wood, metal craft, leathercraft, graphic arts, ceramics, planning, and model building.

> The girls show a decided interest in the work, some even more than some of the boys. Their chief interest is in metal tapping and leathercraft. The model building is an innovation this year and will doubtless be more popular next year.
>
> The girls themselves have expressed various outcomes from their crafts work. One eighth grade girls says she is learning to do things neatly and also do things she couldn't do before. Another girl stated she will be able to do better work in improving her home. Several expressed the belief that they had improved their ability to measure accurately. Another girl said she had developed confidence by being able to tackle a repair job without waiting for someone to

do it for her. One girl said the crafts work was making her more patient.

The parents' attitude can be measured by their willingness to give the girls money to purchase the material needed for their work. The cooperation in this particular has been above expectations. The remarks made at the annual school exhibit by the parents insure the fact that the parents are fully in sympathy with the undertaking. The work as done was done better than they seemingly would expect possible.

We plan to consolidate as much as possible with the art and science departments so that there will not be any overlaping and so that those units or parts of work best suited for the crafts work can be learned in the Crafts classes.

Marshalltown, Iowa. I. G. Terry, gave in another letter an interesting account of the work done by girls in courses of a mechanical nature in the Marshalltown High School:

We are giving a semester's course in electricity to girls. In the course we include some simple electrical theory, but for the most part the work is of a mechanical nature. We have them construct simple circuits, take apart and test household appliances, calculate the cost of operating, and study the different appliances on the market with the view of learning special units of different types of appliances. We put in some jobs like making an extension cord, attaching plugs, installing different types of switches, and identifying electrical accessories. This work takes up one half or two thirds of the semester, and for the balance of the semester we let the girls choose some type of project they wish to make. Of course we help them with suggestions. One project which has proved to be very popular is a Sewing Set Lamp which gives them work in woodwork, metals, and electricity combined.

Augusta, Wisconsin. H. C. Rose, (21 pages 292-94), who teaches industrial arts in the High School at Augusta, Wisconsin has organized the following course:

During the first semester, the girls learned many of the simple but useful processes in woodwork,

wood finishing, and upholstery through the making of a number of small projects and the fireside or radio bench.

The fundamental processes were taught with as many facts about industry, design, material, and sound construction as seemed to be suggested by the work. Because the projects had value in themselves and were new, they aroused the creative interest in the pupil, and a desire to own a well made project helped to keep up working standards. In fact, the school interest became so great that over half of the lady teachers came for a Saturday mornings class.

Of course, the students are always permitted to make changes in the design and surface decoration in order to develop selective ability, but the essential construction was standardized so that the material could be organized and taught efficiently.

In order to give the girls an insight into industry, some of the operations were demonstrated twice. Once as they were to do it, or sometimes as it has been done in the past, and once as the modern factory would do it. Many demonstrations were given of things too difficult for the students to do, but which could be understood and appreciated. Samples of good and bad constructions also were studied.

The last semester of work was called "General Mechanical Drawing". Because of a girl's interest in houses rather than in mechanics, most of the time was spent in a study of house arrangement, and the construction of mechanical and electrical equipment. After the preliminary work in drawing on the technique of using the tools was finished, each girl chose a magazine picture of a small home and began to study materials and construction so that she could plan this home as she would like to have it. Because the houses were all different and each girl was working on her own drawings, there was a great deal of interest shown in our semi-weekly round-table talks where each feature of every house was discussed.

Wichita, Kansas. According to a Wichita paper, (Wichita Beacon, 1935), the following course is offered to girls in Wichita Public Schools:

The renewed interest in the home, brought about since the depression set in, is being felt even in the schools.

Plain evidence of that is the popularity of a course added to the high school curriculum here last fall. The course, "home mechanics", teaches what the name implies--the hundred and one little tasks around the house, repairing electric irons, furniture, reading meters, and such similar necessities.

It is for girls only, and although only a few enrolled at first, now there have been two classes organized, and plans already are underway for even further expansion next year.

J. C. Woodin, supervisor of industrial education in the Wichita public school system, is the originator of the course and is the chief instructor.

"The day of the handy man around the house seemed definitely past," he explained. "The repair shops were doing a rushing business, repairing furniture, working on electrical appliances, patching fallen plaster, men of the house no longer seemed interested in doing such things themselves. Instead, they called in a repair man. It didn't cost much, and saved them the trouble."

"But when the depression arrived--well, there just wasn't any money to pay the repair man, and they didn't know how to do it themselves. So the repairs just naturally weren't made."

"And that's what suggested the new course to me. If the men aren't interested, surely the women are. They, after all, are the ones who have to use that broken toaster, that electric fan that wabbles and spits sparks that make the radio roar."

And just what is the home mechanics class? Well, as Woodin explains, everything that is taught is practical. The girls learn to do a great many mechanical things that every housewife should know how to do.

The class is in two divisions, one group studying electrical appliances, their repair and upkeep; and the other studying furniture painting and refinishing, waxing and polishing of floors, how to patch plaster and paper over places that have been torn, what chemicals ought to be used to polish silver and other metals, and various other things that housewives ought to know.

"We feel that when a girl passes this course she will be a much better housewife," Woodin said. "She won't stand helplessly around when the pipes freeze and the faucets start dripping. She won't have to call for help when a fuse burns out late at night.

> "Instead, she'll just get out her tool kit and make the needed repairs right then and there, without bothering friend husband reading comfortably in the big chair. A regular "Handy Ann" around the house.

All of these courses have been taught for a number of years, and have proven successful, therefore, all could be used as the basis for organizing Home Mechanics Courses for Girls in other schools.

Information of much value to this study is contained in this chapter. Table VI gives a list of fourteen city schools and data about each industrial arts course offered. Table VII shows the industrial arts courses in twenty-six cities in various parts of the United States. Descriptions of a group of industrial arts and home mechanics courses for girls is also presented.

The final chapter of this study will contain the proposed Home Mechanics Instruction Course for Girls based upon subjective thinking and the data presented in Chapters III and IV.

CHAPTER V

THE PROPOSED COURSE OF STUDY

Before going further with this study, two questions will be answered in order that the purpose of this chapter might be more clear to the reader. The first of these two questions is; What is a course of study? The second is; How are courses of study made?

What is a Course of Study? Ericson, (8 page 332), defines a course of study in these words:

> A course of study in its simplest form may be said to be a collection of subject matter organized and arranged in a logical order for instructional purposes. In more complete form, and as often organized, it may include several other features for the purpose of assisting the teacher in presenting the subject matter in the most effective way. The function of a course of study is to define for the teacher the scope of subject matter to be covered within a given time, and to indicate the order in which this subject matter is to receive attention.

How are Courses of Study Made? Courses of study are made in several ways. One method in common practice is for specialists and teachers to collect available courses of study and after a complete analysis of them, form from these, a course of study most applicable to the existing conditions of a particular school. Sometimes the supervisor of the course makes the course of study. A much better method is given by Ericson, (8 page 333), when he states:

> Under a skillful supervisor the making of a course of study will eventually come as a responsibility and privilege of the teacher. The latter alone can be

> expected to have the expert knowledge of the proper sources of subject matter and its possibilities in application to the interests and life of the students to be served.

Probably one of the best plans for course of study making is for all the teachers of like subjects and grades, with the aid of the supervisor to construct a course of study suited to the needs of a particular school or locality.

It is the usual practice for a curriculum committee to decide the activities and experience necessary to achieve certain educational objectives. Since the writer was not able to work with a group to determine what should be taught in the Proposed Home Mechanics Instruction Course for Girls he was forced to use the questionnaires previously explained in Chapters III and IV to determine the subject content.

What Should be Taught as Determined by Questionnaire. The following list of jobs was taken from Table V. This table was entitled JOBS HOUSEWIVES ACTUALLY DID AND THE JOBS THEY WANTED TO DO BUT DID NOT KNOW HOW TO DO. These jobs, which were selected because they had a high frequency ranking and due to the fact that they were adapted to shop instruction, are proposed to be included in the materials to be taught in the course for girls.

The jobs listed were not taken in consecutive order as recorded in Table V. A few were omitted because they were not suitable to be taught in shop classes. Other jobs were omitted because of their simplicity, or because they should be taught in other classes or at home.

	Names of Jobs	Frequency
1.	Varnishing furniture	145
2.	Repairing an extension cord	136
3.	Sharpening a knife	135
4.	Putting in a fuse	132
5.	Polishing floors	132
6.	Painting interior walls	126
7.	Cleaning and polishing furniture	126
8.	Painting woodwork and furniture	126
9.	Sharpening a pair of scissors	123
10.	Washing the car	120
11.	Polishing the car	118
12.	Varnishing floors	118
13.	Upholstering chair seats	114
14.	Repairing an electrical iron	113
15.	Painting porch floors or ceiling	113
16.	Adjusting burners on a gas stove	112
17.	Repairing a screen door	111
18.	Staining furniture	106
19.	Varnishing linoleum	104
20.	Repairing a garden hose	104
21.	Repairing faucets	104
22.	Regluing loose joints in furniture	103
23.	Removing old finish	103
24.	Repairing upholstery	101
25.	Lubricating vacuum cleaner	92
26.	Filling cracks and holes in floor	91
27.	Repairing drawers in furniture	91
28.	Putting in window glass	85
29.	Replacing door hinges	82
30.	Putting on new screens	79

Information that Should be Taught Based on the Findings of Chapter IV. An intensive analysis of all the data summarized in Chapter IV, namely, the questionnaire cards, magazine articles, and the letters received from various schools, indicates that the following subjects and jobs should be taught:

1. Art metal work. (Small dishes, trays, letter openers, etc.)
2. Repairing an extension cord.

3. Putting in a fuse, (house).
4. Repairing an electric iron extension cord.
5. Varnishing furniture and floors.
6. Painting woodwork and furniture.
7. Repairing faucets, (replacing washers).
8. Regluing loose joints in furniture.
9. Use of common woodwork tools.
10. Beadwork, (coin purses and novelties).
11. Making simple furniture drawings.
12. Make house plans.
13. Leathercraft, (coin purses, bill folds, etc.).
14. Cleaning and polishing furniture.
15. Instruction in the operation and maintenance of the common mechanical and electrical devices of the home.

Final Course Outline. This final list of instructional units or lessons represents what the writer believes girls should know. The inclusion of the material contained herein is based on subjective thinking and on the findings in Chapters III and IV. The following is a proposed course of study for use in a Home Mechanics Instruction Course for Girls, one semester in length and consisting of thirty lessons to be arranged in an effective instructional order by the teacher.

I. The Automobile.
   1. Washing and polishing the car.

II. General Metal.

1. Sharpening a knife.
2. Sharpening and adjusting a pair of scissors.
3. Repairing a garden hose.

III. Electrical Work.

1. Repairing an extension cord.
   a. Lamp
   b. Iron
2. Put in a house fuse.
3. Repair an electrical iron. (Replacing heating element).

IV. Mechanical Drawing.

1. Make simple furniture drawings.
2. Do lettering or printing.
3. Make house plans.

V. Woodwork.

1. Make several small projects so that girls will learn to use the common woodwork tools.
   a. Cutting board or cake board.
   b. Towel rack.
   c. Handkerchief box or sewing cabinet
   d. Corner shelves.
2. Repairing and rescreening screen door.
3. Regluing loose joints in furniture.
4. Upholstering chair seats.
5. Repairing upholstery.

VI. Painting and Refinishing.

1. Varnishing furniture and floors.

2. Painting woodwork and furniture.

3. Removing scratches from furniture.

4. Cleaning and polishing furniture.

5. Painting interior walls.

6. Painting a porch floor or ceiling.

VII. Plumbing.

1. Repairing faucets, (replacing washers).

VIII. General Mechanics.

Instruction in the operation and maintenance of the common mechanical and electrical devices of the home.

1. Electric iron.

2. Electric washing machine.

3. Electric sweeper.

4. Sewing machine.

5. Electric fan.

6. Lawn mower.

The groups of instructional material just listed do not make a course of study in its complete form, but it is a course outline arranged in a possible order of presentation. There remains for the teachers using the outline the task of selecting their own methods and instructional devices and the task of selecting or making instruction sheets.

Suggested Instructional Material. At present there is no book or set of job sheets available including all the work

contained in the final course outline. It is apparent that job sheets must either be selected from existing commercial sets of job sheets or be made for the thirty jobs proposed. In order to show to the beginning teacher how job sheets may be made, or selected for use in this course, seven typical job sheets are reproduced in this thesis. The jobs for which instruction sheets are included, are with two exceptions, those jobs ranking highest in each subdivision of the questionnaire. (See Appendix B.) Repairing water faucets was included in the place of adjusting burners, on the gas stove because the latter job will usually be done by the local gas company without charge. Regluing loose furniture was substituted for repairing a screen. The final list of jobs for which job sheets are suggested includes the following:

Jobs	Division No.
Washing a car	I
Sharpening a knife	II
Repairing an extension cord . . .	III
Varnishing furniture	IV
Adjusting burners on gas stove .	V
To repair furniture in which joints are loose	VI
Do lettering or printing	VII
Lubrication of sewing machine . .	VIII

JOB SHEET

By Edith L. Allen (1 pages 41-42)

Student's Name: _____ Class _____

Name of School: _____ Date Begun _____

THE JOB: To Sharpen a Kitchen Knife Made of Steel.

References: Mechanical Devices in the Home, Allen, pp. 158-159, 163. Household Mechanics Job Sheet, A4, Bedell.

Tools and Materials: -

If available, a household emery wheel. An oilstone, a steel, and a strop. A crock or jar with a rough edge. Some dull kitchen knives.

Information: -

Carving, butcher, and paring knives should be kept sharp if work with them is to be done well and easily.

Some housewives sharpen their kitchen knives from time to time on the rough edge of an earthen jar or crock. By this procedure they keep them in fairly good condition for cutting. Within recent years stainless steel paring knives have come into common use. These knives are rather more difficult to sharpen than plain steel.

Procedure: -

1. Sharpen a knife on the emery wheel.
   (a) Hold the knife on the emery wheel in such a manner as to grind to a wedge shape. A knife should have a thin wedge.
   (b) Grind without burning. Have work checked by instructor.
   (c) Finish sharpening on an oilstone.
   (d) Test to see if the knife cuts properly.
2. Sharpen a knife with the steel.
3. Sharpen a knife on the crock.
4. Examine and compare the knives you have sharpened.

Questions to Consider: -

1. How may knives be kept from becoming dull?
2. What is the advantage of sharpening a knife to a long thin wedge? What are the disadvantages?
3. Find out why the butcher uses a "steel", and the barber a "strop".
4. What household knives would you sharpen with a "steel"? Are there any you would "strop"?
5. Why is oil used on the stone?
6. What is "temper" in a knife? How may it be removed?

7. What knives might you sharpen on the edge of a crock?
8. Has the knife you sharpened a true wedge, or has the edge been "dubbed off" by whetting? Compare with the figure.
9. Is the cutting edge rough and full of very fine nicks or is it smooth?
10. Is the blade "blued" by burning on the emery wheel?
11. What is the effect on the cutting efficiency of a knife when it is burned or "blued"?

JOB SHEET

By Earl L. Bedell (3 page A20)

Student's Name _____ Class _____

Name of School _____ Date Begun _____

THE JOB: Repair a Leaking Compression Faucet.

Anyone who will make a careful study of the mechanism of a faucet will be able to stop its leaking. It will leak either through the nozzle or through the packing nut around the valve stem.

References: -
Allen, Mechanical Devices in the Home, pp. 120-122.
Keene, Mechanics of the Household, pp. 88-93.

Tools and Materials: -
Screw driver, monkey wrench, some rubber for gaskets, some cotton for packing.

Procedure: -
1. Determine where the faucet leaks.
2. Shut off the water.
3. Remove valve stem.
4. Replace gaskets, packing, etc. Have work checked by instructor.
5. Assemble.
6. Test. If handle operates with difficulty loosen packing nut.

Note: Wrap all nickel parts with a cloth before using a wrench.

Appraisal: -
1. Does it leak?
2. Does it operate easily?
3. Is the finish marred by the careless use of the tools?

Approval: -
Approved by the following pupils:
1. _____
2. _____

The two pupils whose signatures appear above, together with the pupil who is doing the job, will agree to a grade (mark) by placing a cross opposite the quality with which you agree.

1. Very good . . . . . ( )
2. Good . . . . . ( )
3. Fair . . . . . ( )
4. Poor . . . . . ( )
5. Unsatisfactory . . . . . ( )

Date Completed _____ Instructor's Grade _____

JOB SHEET

By Earl L. Bedell (3 page A-32)

Student's Name _____ Class _____

Name of School _____ Date Begun _____

THE JOB: To Repair The Extension Cord Used on an Electric Flat Iron.

The continual moving of the flat-iron when in use wears the insulation off the cord just where it enters the attachment piece, causing a short circuit. If the cord is otherwise in good shape, the damaged portion may be cut off and the newly cleaned ends attached to the binding posts. If the cord is badly worn, it should be replaced with a new one, although a worn place can be mended with tape.

References: -

Keene, Mechanics of the Household, p. 241.
Willoughby, Practical Electricity for Beginners, pp. 4-76.

Tools and Materials: -

A screwdriver, knife, some tape, and if needed, a new cord.

Procedure: -

1. Remove cover from attachment piece, then remove wires from binding posts.
2. Cut off damaged portion of wire, and clean new ends ready for attaching. Repair damaged places with tape.
3. Make ends fast under binding posts. Have the job checked by instructor at this point.
4. Assemble and test.

Appraisal: -

In determining how good a job has been done, the following points should be considered:

1. Are all the fine wires well fastened under the binding posts?
2. Is the attachment piece properly assembled?
3. Has it been actually tested?

Approval: -

Approved by the following pupils:

1. _____
2. _____

The two pupils whose signatures appear above, together with the pupil who is doing the job, will aggree to a grade (mark) by placing a cross opposite the quality with which you agree.

1. Very good . . . . . ( )
2. Good . . . . . ( )
3. Fair . . . . . ( )
4. Poor . . . . . ( )
5. Unsatisfactory . . . . ( )

Date Completed _____ Instructor's Grade _____

JOB SHEET

By Earl L. Bedell (3 page A-5)

Student's Name _____ Class _____

Name of School _____ Date Begun _____

THE JOB: To Repair a Piece of Furniture in Which the Joints are Loose.

The joints in a piece of furniture often become loose. This may be caused by rough treatment, but more often it is caused by excessive heat from a radiator or stove. A glued joint will not stand excessive changes in temperature.

References: -

Griffith, ESSENTIALS OF WOODWORKING, pp. 100-119.
Allen, MANUAL TRAINING FOR COMMON SCHOOLS, p. 77.

Tools and Materials: -

A selection of screws, angle braces, dowel pins, glue, clamps, and the necessary equipment for gluing.

Procedure: -

1. Remove piece, if possible, and clean off old glue. If pieces cannot be removed, screws or angle irons must be used to strengthen joints.
2. Should tenons be too small to make a tight joint, saw kerfs in ends and glue small wedges.
3. Put new glue on ends of tenons or rungs and clamp up tight. Use guards under clamps to protect varnish.
4. Wipe off surplus glue.

Appraisal: -

1. Is there any surplus glue?
2. Have pins, dowels or angle irons been used where possible?
3. Is it a good strong job? Does it look well?

Approval: -

Approved by the following pupils:

1. _____
2. _____

The two pupils whose signatures appear above, together with the pupil who is doing the job, will aggree to a grade (mark) by placing a cross opposite the quality with which you agree.

1. Very good . . . . . ( )
2. Good . . . . . ( )
3. Fair . . . . . ( )
4. Poor . . . . . ( )
5. Unsatisfactory . . . . ( )

Date Completed _____ Instructor's Grade _____

JOB SHEET

By Earl L. Bedell (3 page A-19)

Student's Name _____ Class _____

Name of School _____ Date Begun _____

THE JOB: To Revarnish a Piece of Furniture.

This is often called refinishing. If the old varnish is worn thin, but otherwise in good condition it need not be removed, but it is usually best to remove the old varnish. Many articles can be made to look like new by refinishing. Enamels are applied in much the same way as varnish.

References: -

Kidder, ARCHITECTS' AND BUILDERS' POCKET BOOK, pp. 1482-7.
Wood and Smith, PREVOCATIONAL AND INDUSTRIAL ARTS, pp. 53-55.

Tools and Materials: -

Good brush, varnish remover, hot soap suds, sand paper, cotton waste, stain, shellac, varnish.

Procedure: -

1. Wash furniture with warm water and strong soap.
2. Use varnish remover to remove varnish, being careful not to scratch the wood when scraping it off.
3. Sandpaper the rough spots. (Have work checked by instructor at this point).
4. Restain wood if necessary.
5. Apply thinned varnish or shellac. Dry 48 hours. Then sand lightly.
6. Apply final coat, carefully preventing any drips, laps, or brush marks.
7. Dry three or four days in a dust-proof room.

Note: Colored enamel, and colored varnish are treated in the same way as clear varnish.

Appraisal: -

1. Is there a clear hard surface, free from dust?
2. Are there any drips hanging over the edges?
3. Is it a good appearing job?

Approval: -

Approved by the following pupils:

1. _____
2. _____

The two pupils whose signatures appear above, together with the pupil who is doing the job, will agree to a grade (mark) by placing a cross opposite the quality with which you agree.

1. Very good . . . . . ( )
2. Good . . . . . ( )
3. Fair . . . . . ( )
4. Poor . . . . . ( )
5. Unsatisfactory . . . . . ( )

Date Completed _____ Instructor's Grade _____

JOB SHEET

By Edith L. Allen (1 page 53)

Student's Name _____ Class _____

Name of School _____ Date Begun _____

THE JOB: To Clean and Oil a Sewing Machine.

References: - Mechanical Devices in the Home, Allen, pp. 186-191. Figure 133.
Machine Sewing, Singer Sewing Machine Company, pp. 19-21.
Instruction books accompanying sewing machines. Sewing Machines, Cook, pp. 72-77, 125-127.

Tools and Materials: -
Sewing machine, clean soft cloth, oil, oil dropper, small brush, large pin or stiletto, screw driver.

Procedure: -

1. Remove the thread and bobbin case from the machine.
2. Wipe and brush all dust and grease from all parts of the machine, also all ends and knots of thread after cleaning the exposed parts of the machine, unbelt the balance wheel, turn back the head and clean underneath.
3. If the machine is clogged with gummy oil, this should be removed with an application of kerosene on the bearings.
4. Run the machine and wipe off all the kerosene.
5. Oil the machine at the points indicated in the instruction book.
6. Wipe off all excess oil.

Questions to Consider: -

1. What effect has dust and dirt on the bearings?
2. Why is it important to oil a machine?
3. How often should sewing machines be oiled? How often should those in our schools be oiled?

JOB SHEET

By Ray E. Brown

Student's Name _____ Period _____

Bench No. _____ Date Begun _____

THE JOB: To Wash and Polish an Automobile.

The finish on the average car will remain bright and new looking for a number of years if properly cared for.

References: -

Materials and Equipment:

Water hose with spray nozzle, sponge, or hose mop, chamois, auto wax, soft muslin cloth or rags.

Procedure: -

1. Spray entire body. Take special care in removing mud from body and under fenders.
2. With water flowing through mop, wash body and fenders thoroughly.
3. Remove excess water from car surface with chamois. (Note: If finish is dull first remove dirt film with a cleaner, before applying the wax polish. Use cleaner according to direction.)
4. Dampen a pad of cheese cloth or soft rags in water and apply wax to a small area, using a back and forth stroke to spread a light coating evenly over the surface. Allow to dry a few minutes and then polish with a fresh piece of cheese cloth. Repeat until the entire car surface has been polished.

Questions: -

1. Why use special care in removing mud from car body?
2. What causes the finish to loose its luster?
3. Why polish a small section at a time?

Of these job sheets, one was constructed by the writer and the remainder of them were copied from commercial sets now available.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions. Until recent years mechanical work of any type was considered too difficult for women to do. For this reason women and girls of the past have been barred from Industrial Arts courses offered in the schools. When it became apparent that women did possess mechanical ability and could profit from Industrial Arts courses, girls were given training along with boys in courses designed for the need of boys and not for girls.

Progressive educators are now aware of the fact that women have need of some mechanical training and a few schools are offering Home Mechanics Courses especially planned for the needs of women.

The findings in Chapter III collected in a survey of Enid homes indicate that women do much of the mechanical work about the home.

Based upon the findings in Chapter IV few schools offer special Home Mechanics to girls.

Based upon the evidence presented in this study, Home Mechanics Instruction for Girls should be a part of the education of every girl.

Recommendations for Schools. The course in Home Mechanics Instruction for Girls that has resulted from this study is

not claimed to include all that girls should be taught in a course of this type, but the writer feels confident in recommending the course which resulted from this study to all schools where mechanical work is not offered to girls.

Recommendations for Further Study. Several problems worthy of further investigation occurred to the writer during this study. One problem that should be worthwhile would be an analysis of a number of occupations in which women are commonly employed, to determine the work of a mechanical nature. Another problem probably too large for one person to solve, would be a survey of all the cities in the United States having a population of over 15,000 people to find the types of industrial arts courses offered to girls.

It is hoped that this study will not be considered as final and completed, but that much will be done toward organizing courses of a mechanical nature suited to the needs of women.

APPENDICES

A. A Selected Bibliography

B. Questionnaire Form

APPENDIX A

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APPENDIX B

The Questionnaire Form

QUESTIONNAIRE FORM

For Thesis Study: Home Mechanics Instruction for Girls

By Ray E. Brown

Information: This questionnaire has been prepared to find the mechanical work the housewife usually does.

Directions: Please study carefully the items indicated in the list below and indicate answers in the spaces at the right as required by the two following rules:

a. Place check mark (✓) after the jobs that you have done.
b. Place cross mark (X) after the jobs that you have wanted to do but did not know how to do.

I. The Automobile

1. Washing the car . . . . . 1. _____
2. Repairing an inner tube . . . . . 2. _____
3. Removing and replacing tire . . . . . 3. _____
4. Polishing the car . . . . . 4. _____
5. Cleaning the upholstery . . . . . 5. _____
6. Clean and adjust spark plug . . . . . 6. _____
7. Testing for a missing cylinder . . . . . 7. _____

II. General Metal Work

1. Sharpening a knife . . . . . 1. _____
2. Replacing handles in hoes, rakes, shovels 2. _____
3. Sharpening a pair of scissors . . . . . 3. _____
4. Repairing a garden hose . . . . . 4. _____

III. Electrical Work

1. Repairing an extension cord . . . . . 1. _____
2. Putting in a fuse . . . . . 2. _____
3. Repairing electric iron . . . . . 3. _____
4. Repairing a vacuum sweeper . . . . . 4. _____
5. Repairing a percolator (element and fuse) 5. _____
6. Cleaning electric motor . . . . . 6. _____

IV. Painting and Refinishing

1. Painting interior walls . . . . . 1. _____
2. Painting a porch floor or ceiling . . . . 2. _____

3. Varnishing furniture . . . . . 3. _____
4. Removing scratches from furniture . . . . 4. _____
5. Varnishing floors . . . . . 5. _____
6. Painting woodwork and furniture . . . . . 6. _____
7. Cleaning and polishing furniture . . . . . 7. _____
8. Applying kalsomine . . . . . 8. _____
9. Putting in a window glass . . . . . 9. _____
10. Painting screens . . . . . 10. _____
11. Removing old finish . . . . . 11. _____
12. Polishing floors . . . . . 12. _____
13. Staining furniture . . . . . 13. _____
14. Varnishing linoleum . . . . . 14. _____

V. Plumbing

1. Repairing faucets (replacing washers) . 1. _____
2. Adjusting burners on a gas stove . . . . 2. _____
3. Putting a new valve in a gas stove . . . 3. _____
4. Soldering pans, buckets, tubs, etc. . . 4. _____

VI. Woodwork

1. Repairing a screen door . . . . . 1. _____
2. Regluing loose joints in furniture . . . 2. _____
3. Putting on new screens . . . . . 3. _____
4. Making stakes for flower beds . . . . . 4. _____
5. Replacing door hinges . . . . . 5. _____
6. Make knife and fork box . . . . . 6. _____
7. Repairing drawers in furniture . . . . . 7. _____
8. Upholstering chair seats . . . . . 8. _____
9. Repairing upholstery . . . . . 9. _____
10. Filling cracks and holes in floor . . . 10. _____
11. Repairing plaster . . . . . 11. _____
12. Planing doors, to make them fit . . . . 12. _____
13. Cleaning and adjusting locks . . . . . 13. _____

VII. Mechanical Drawing

1. Making simple furniture drawings . . . . 1. _____
2. Make house plans . . . . . 2. _____
3. Do lettering or printing . . . . . 3. _____
4. Inking with a ruling pen . . . . . 4. _____

VIII. General Mechanics

1. Lubrication of mechanical devices
   a. Sewing machine . . . . . a. _____
   b. Vacuum cleaners . . . . . b. _____
   c. Lawn mower . . . . . c. _____
   d. Washing machine . . . . . d. _____

e. Food mixer . . . . . e. _____
f. Fan . . . . . f. _____

2. Adjusting mechanical devices
   a. Lawn mower . . . . . a. _____
   b. Frigidaire . . . . . b. _____
   c. Sewing machine . . . . . c. _____

Typed by Roberta Shirk