A Study of Sewing as a Subject of Instruction in the Schools of Kansas

by

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A Study of Sewing As A Subject of Instruction In the Public Schools of Kansas.

Chapter I.

Nature and Extent of the Problem.

The study of sewing reported here involves an inquiry into how extensively and to whom sewing is taught, what constitutes the course of study, what are the aims or objectives of the instruction, how well trained are the teachers and how efficient is the instruction. This study of sewing also involves the preliminary development of a test of pupil achievement in sewing since the measurement of instruction efficiency seems to demand more adequate measuring instruments than any which are now available.

The scope of the problem is limited to the public elementary and high schools in the state of Kansas which employ teachers of sewing. In fact, it was assumed that relatively few schools in cities of the third class having a population of less than 1000 employed full time sewing teachers, and such cities were accordingly not included in this study. The data collected are for the school year 1924-5.

Sewing is interpreted in this study to include most of that which is usually treated in courses in clothing and clothing construction. Some knowledge of textiles,

color, design, mechanical processes and their correct use, as well as the wear, care and hygiene of clothing is implied in the fuller meaning of the term.

the standpoint of the individual girl consists in the fact that virtually all girls are concerned with sewing either from necessity of economy in the construction, repair and remodeling of clothes, or from the desire to do needlework for recreation or pastime—perhaps later on even as a social diversion in connection with sewing clubs. From the standpoint of the school, the number of teachers employed to teach this subject, the time devoted to it and its educational value in comparison with other subjects all tend to give a practical bearing to the problem. From the standpoint of the state or community, it is indeed a practical question to inquire how effective are the returns secured from the money invested in teachers, equipment and buildings in connection with this subject.

During the present school year a total of 315 high schools in this state had one or more classes in sewing. It is estimated that a total of 350 teachers were concerned with the teaching of these classes, and that many other teachers were devoting their attention to sewing in the elementary school.

The State University, the State Agricul-

tural College, the three teachers' colleges, and some other schools in the state are preparing additional teachers in this field. Consequently it seems the more appropriate to inquire what agreement there is in theory or practise regarding the method or content of instruction, the objectives which form the goal, and the adequacy of the instruction in this field.

ing shows that leaders in the subject are recognizing the lack of uniformity in aim; content, and method of sewing instruction, and feel the need of measurement as a means of producing more effective teaching. Miss Trilling and Miss Hess speak of clothing instruction as being "vague in its purpose."

"The grade in which the work is begun," they state, "the subject matter taught, the method of teaching and the standards of attainment have varied with the locality, the preparation of teachers and the purposes for teaching." These authors express the urgent need for clearly defined objectives in sewing instruction, and for measurement of the results of teaching.

Miss Williams² also feels the necessity of more standard courses in the subject. In speaking of home economics, she says, "There are effective methods by which a sound scheme of instruction in home economics can be organized.

Informational Tests in Teaching Textiles and Sewing. Trilling, Mabel B. and Hess, Adah, Jour. of Home Econ. 3: Oct. 1921.

^{2.} Standards of Attainment for Ability in Machine Sewing, Williams, Florence. Masters Thesis, University of Chicago.

The first necessitates the clear statement of goals of instruction. The second is the designing and use of standardized tests to measure the results of instruction.

Doctor Murdock was the first to attempt to apply scientific measurement to sewing. She has produced the Murdock Sewing Scale, and the Murdock Analytic Scale, both for hand stitches.

Miss Brown³ who has assisted in establishing norms for the Murdock Sewing Scale, has experimented in regard to the proper age for teaching handsewing. She has furnished evidence that handsewing is not profitably started below the ninth grade, and has found a low but positive correlation between speed and workmanship in handsewing.

Several other tests have been compiled, measuring results in instruction in clothing.

The Home Economics Information Tests include in the series a test of information concerning sewing and the principles of dress.

The Trilling and Bowman Test⁴ aims to judge the amount of "acquisition of information and ability to reason in situations involving use of materials presented in textiles and clothing courses."

- 1. The Measurement of Certain Elements of Hand Sewing, Murdock, Katherine, Teachers College Contrib. to Educ. No. 103, New York, 1919.
- 2. A New Analytic Sewing Scale. Murdock, Katherine, Teachers College Record. 23: Nov. 1932.
- 3. Investigations Concerning the Murdock Sewing Scale. Brown, Clara M. Teachers College Record 23: Nov. 1922.
- 4. Standardized Tests in Textiles and Clothing. Trilling, Mabel

B., and Williams, F. Jour. of Home Econ. 2 Nov. 1920.

Miss Williams, in her graduate study at the University of Chicago, constructed the test Standards of Attainment for Ability in Machine Sewing. It is an attempt to measure sewing machine stitching as applied to seams and hems in cotton material. Excellence of machine sewing, spacing, constructive elements, tension, length of stitch and neatness are judged.

Charts for Diagnosing Defects in Buttonholes issued by the State Teachers College at Emporia is a means for measuring processes involved in making buttonholes.

The above contributions are significant in that they indicate a recognition of the lack of uniformity in sewing instruction, and a realization that the remedy for the condition lies in the formulation of definite objectives and the use of objective measurement to determine the efficiency of instruction.

For securing the information needed concerning the present status of sewing as a subject of instruction in the public schools, a questionnaire was prepared and sent to the school superintendents in the first and second class cities and to those of the third class cities having a population of at least one thousand. Copies were sent also to the principals of the community high schools. Returns were received from 63 per cent of the schools. One hundred and thirty nine schools were asked to provide the information, and 88 schools responded. The request was not repeated, since it was assumed that the schools which responded were representa-

tive of the total number. Some of the best schools, however, were among those from which no reports were received.

A copy of the questionnaire sent to the superintendents follows:

Copy of the Questionnaire to Superintendents.

To	the	Super	intendent	of	Schools	•
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A study of Domestic Art (sewing) as a subject of instruction in the schools of Kansas seems to be much needed. In attempting such a study I am asking your cooperation in furnishing some definite information. I have had considerable training and teaching experience in sewing work to fit me for making such a study and am taking additional graduate courses in that field.
Will you please have the following information provided as

fully as possible and returned without delay in the return envelope. The facts will be used only for a general analysis of

this problem.

- 2. THE SUPERVISOR OF DOMESTIC ART.... 1. CITY....
- 3. List of all instructors in Domestic Art:

Teaching in % of time Where train- Degree Salary Name Grades, Jr.H. to teach- ed in domes- Held S. or H. S. ing sewing. tic Art?

Is sewing made to include millinery, tailoring, etc, in your

- school?....
- In which grades is sewing compulsory?......
- In which grades is sewing elective?.....
- Indicate number enrolled in sewing by grades: 7.

IV VI V VII VIII IX X XI XII

- Is the subject offered to boys?....In what grades?..... State briefly the specific objectives of each course 9.
- offered in domestic art:
- 10. Do you make any use of objective tests in grading pupils
- 11. Do you use standard tests or scales for measuring results or classifying pupils in sewing?....If so, which ones?.....
- 12. What opportunity is given pupils to become acquainted with commercial standards in sewing?.....
- 13. Do pupils sell articles made in school?......
- 14. On reverse side list books used as texts or references.
- 15. Please enclose a copy of your course of study in sewing for all the grades in which it is taught.

Chapter II.

Analysis and Interpretation of Data Collected.

which furnished the information showed that sewing was included in the curriculum in all the first and second class cities and in 86 per cent of the larger third class cities. In only a few schools was this subject taught in grades below the junior high school. These reports indicated that instruction in sewing most frequently comes in the ninth grade. However, many schools teach sewing in several different grades. Table I, which follows, shows the distribution by percentages of cities according to the grades in which the subject is taught:

Table I. Percentage of Cities Offering Sewing Instruction in the Various Grades.

Grade 5 6 7 8 9 10 11 12 3.5 8.5 33.3 35 83.3 75 55.6 41.7

In some of the schools training in sewing is required of all girls or of those in certain courses. In others it is entirely elective. But more frequently, sewing is a required subject in certain grades and elective in others. In none of the schools reporting was sewing offered to boys either as a required or an elective subject.

The following table shows the distribution of the sewing teachers according to their placement in the school systems. The tabulation includes only teachers from the cities which furnished the requested information.

Table II. Distribution of Sewing Teachers.

Classification of school	lst Class City	2nd Class City	3rd Class City	Total
Senior H. S. Junior H. S. Both Sr. and	12 13	20 18	34 3	66 33
Junior H. S.	8	15	3	26
No. of cities furnishing information.	7	35	46	88

The academic degrees held by the teachers of sewing are presented in Table III.

Table III. Academic Degrees Held by Teachers of Sewing.

Classifi- cation of city.	B.S. or A.B.	Both B.S. and A.B.	Masters Degree .	None	Certif- icate only	No Data
lst Class 2nd Class 3rd Class	11 40 35	1		2 2	3 2 5	11 9
Total	86	2	0	4	10	20

The above table gives evidence that eighty-eight instructors have academic degrees. Four reported that they had none. The ten teachers who indicated the possession of certificate only, presumably have no degrees. It is also possible that a large part of the twenty persons making no response to the question withheld the information as a result of its being negative.

of sewing received their training. Approximately 75 per cent of these Kansas teachers attended Kansas colleges. One third of them studied at the State Agricultural College. Fifteen per cent received their training at the Teachers College in Pittsburg; eleven per cent at the State University and the remainder at various other colleges.

Table IV. Colleges in which Teachers of Sewing Received Their Training.

College lst		and Cl. Cities	3rd Cl. Cities	Total	Per Cent
State Agri- cultural College	3	19	15	40	33.33
Teachers College Pittsburg	L ·	9	8	18	15.
State Uni- versity	1	8	2	11	11.
Teachers College Emporia	1	, 1	4	6	5.
Teachers College Hays			2	3	1.66
Other In- stitutions in Kansas		3	5	· · · · · · · · · · · · · · · · · · ·	6.75
Two or more institutions in Kansas	3	2	1	6	5.
Institutions in Kansas and other states	6	12	8	26	20.8

An analysis of the time spent by the instructors in the teaching of sewing shows that only teachers in the senior high schools of the first class cities devote all their school time to sewing instruction. The teachers of the first class cities spend on an average four-fifths of their time, those of the second class cities, more than one-half, and those of the third class, less than one-half to teaching sewing. It is possible that many of these teachers are giving training in other phases of household arts.

The aims or objectives of the sewing instruction were stated by sixty eight of the teachers as requested in the questionnaire. Forty-six specific aims, and eleven more general purposes were named by these teachers. The specific objectives were classified by the writer under headings signifying various possible functions of the sewing instruction.

The accompanying table presents the distribution according to this classification. The terms under the main headings are those used by the teachers and the groupings of them is based upon the writer's interpretation of what was meant.

Table V

Classification of objectives according to function in sewing instruction and in order of frequency of appearance in the questionnaires.

1. Principles of Dress.

Design...

DOMESTIC	
Color14	
Appropriateness11	
Taste 4	
Artistic dress 4	
Foundation of correct dress 1	
Total58	i i
2. Fundamental Processes.	
Skill and technique11	
Hand processes 9	
Principles of sewing 9	
Machine sewing 7	
Stitches 6	
Use of machine 3	
Seams	
Total48	ı,
3. Garment Construction.	
Garment construction14	
Simple Garments 9	
Make own clothes 4	
Own simple sewing 4	
Dressmaking	
Reconstruction	
Total35	E

Table V (Continued)

4. Study of Textiles.	
Textiles31	
5. Care of Clothing.	
Repair11	
Care 7	
Renovation3	
Total31	
6, Selection of Material.	
Selection of Material	
7. Habits or Character Qualities.	
Accuracy 3	
Neatness	
Speed2	
Thoroughness	
High standard of work	
Cooperation1	
Independence1	
Total12	
8. Economy in Dress.	
Economy7	
Cost4	
Total11	۲

Table V (continued)

9. Hygiene of Dress.	
Hygiene of Dress	7
Tidiness of person	1
Total	8
10. Use of Commercial Standards.	
Commercial Patterns	4
Ready, vs Home-made	
Garments	1
Total	5
11. Pattern Construction.	
Alteration of pattern	3
Drafting	2
Total	4
12 Miscellaneous Objectives.	
Clothing manufacture	1
Fancy work	2
Total	3
13. Sewing as an Avocation.	
Enjoy Sewing	1

The above classification of specific objectives of sewing instruction indicates the emphasis which the teachers of this subject place on the different functions of sewing. Principles of dress in some form was mentioned most often, but fundamental processes, and garment construction when taken together are the most prominent among the aims of these teachers. If the study of textiles and selection of material were combined, this kind of knowledge would rank high among the objectives of sewing instruction. One is impressed also by the variety and lack of agreement with reference to the purposes in teaching sewing as voiced by these teachers. It is significant that enjoyment of sewing, as an objective of clothing instruction, was listed by only one teacher.

Although many teachers named the specific objectives of their sewing instruction, some also made general statements of the purposes of their courses. Among the general objectives were the following:

"To train girls to be useful in the home."

"Worthy home membership."

"Good Homemakers."

"Respect for work--use of hands as well as head."

"Lessen field between school and home life."

"Home making."

"Deeper appreciation of home making."

"Work in D. A. centers about the home. The social, economic, and hygienic aspects are studied."

Without further definition, such general aims are rather hazy in meaning. The objectives of sewing instruction as expressed by the teachers of sewing present evidence that these Kansas schools lack common purposes in teaching sewing. While there is some similarity in the aims of such instruction, yet there is much diversity and indefiniteness. Some teachers seemingly have no clear-cut objectives for teaching sewing.

An inquiry was also made in the questionnaire concerning the course of study employed in these schools. Courses of study were received from twenty seven schools, nine others reported that the State Course was being followed, and seven schools expressed uncertainty as to the nature of the course of study. Thirty eight schools did not respond to this request. The following are examples of some replies received:

"My course of study is one I prepared for my own use."

"There is none. I use the best from many different sources."

"No particular course of study is used. Each child is taught the stitches and is required to make certain garments. The nature of each problem studied depends upon the ability of the child and the result of former problems."

In general, the data in regard to the courses of study are significant in that they reveal a lack of uniformity in subject content and method, an overlapping of the courses in the various grades, and an uncertainty as to

the age at which the child can profitably receive training in sewing. By forty-five per cent of those responding to the questionnaire, no mention was made of a course of study.

The literature studied in the sewing courses and the text books used for purposes of instruction are closely related to subject matter and method. Of the eighty-four schools reporting, approximately fifty per cent included no list of reference or text books used. The other 50 per cent of the schools had from 1 to 15 volumes. The works listed by these schools are arranged below according to the number of schools which used each book:

Books Used As Texts or References.

Clothing for Women, Baldt41
Shelter and Clothing, Kinney and Cooley33
Textiles, Woolman and McGowan22
Textiles and Clothing, McGowan and Waite22
Dressmaking, Faber18
Principles of Clothing Selection, Butterick Publishing Company18
Clothing, Choice, Care, and Cut, Woolman
School Sewing based on Home Problems, Burton11
The Secret of Distinctive Dress, Pickens
Constructive Sewing Book, Fuller 7
Textiles, Dooley 7
Elements of Costume Design, Downs-O'Leary 6
Household Arts for Home and School, Cooley and Spohr 5
Fabrics and How to Know Them, Denny 4
The Business of the Household, Faber 4
Sewing Handbook, K.S.A.C., Extension Division 4
Elementary Home Economics, Matthews
Textile Fabrics, Dyer 3
School Sewing, Burton and Burton 3
Textiles and Clothing, Watson
The Dressmaker, Butterick Publishing Company 3
Principles of Correct Dress, Winterburn 2
Sewing Handicraft for Girls, McLauphin 2

Books Used As Texts or References, (Con't)

Selection of Clothing, Kinne and Cooley	.2
Textiles and Sewing, Matthews	3
Costume Design and Illustration, Traphagen	2
What Dress Makes of Us, Quigley	2
Sewing Machines, Cook	1
Essentials of Sewing, Cook	ı
Textile Raw Material, Zipher	1
Household Textiles	1

In addition to the above list of reference books, several teachers mentioned the use of bulletins from various state schools.

The following table indicates the number of different books used by schools.

Table VI. Number of different books employed by schools.

Number of Books	1	2	3	4	5	6	7	8	9	10	11	12	No
Number of Schools	1	1	7	8	9	7	3	4	2	3	0	1	42

The methods which the teachers employed in measuring the pupils' achievement in the subject of sewing are considered under:

- 1. Extent to which informal objective tests were used.
- 2. Extent to which standardized tests were used.
- 3. Extent to which commercial standards were employed.

The number of teachers who stated that they used informal objective tests is shown in Table VII.

Table VII. Number of Teachers
Using Objective Tests.

fication of city.	teachers in study.	teachers using ob- jective tests.	teachers not re- plying.	using obj. tests.	
First Class	27	7	7	26	
Second Class	. 55°	3	17	5	
Third Class	43	6	0	14	
Total	125	16	24	13	

Objective tests are apparently used to a small extent by sewing teachers in the first class cities. About one-fourth of these instructors make some use of this method in determining the pupils' progress. But only 13 per cent of the teachers of sewing in general use tests of this type.

The types of objective tests used are tabulated below,

Table VIII, Types of Objective Tests
Used by Sewing Teachers.

The teachers have attempted to measure progress in sewing by means of standardized tests in only a few schools.

Table IX. Number of Teachers Using Standardized Tests.

To Measure Achievement in Sewing.

Classifi- cation of City.	No. of teachers in study.	No. of teachers using stand- ard tests.	No. of teachers not re- plying.	Percentage using stand-ard tests.
lst Class	27	2	5	7
2nd Class	5 5 .	3	9	5
3rd Class	43	4	5	9
			• • • • • • • • •	
Total	125	9	19	7

The extent to which standardized tests are used is apparently greatest among the teachers of the smallest cities. However, a total of only 9 (an average of 7 per cent) of the sewing teachers say that they employ standardized tests as a means of measuring the results of instruction in sewing. The tests specified by these teachers are: Home Economics Information Tests, Kansas State Teachers College (Emporia) Buttonhold Tests, and "Columbia" tests (This reference is probably to the Murdock Scale or the Columbia Home Economics Information test.)

A study of the responses concerning the use of commercial standards revealed such replies as, "Trips to stores," "handling and studying of ready-made garments," and "readings and discussions." Thirty per cent of the

teachers report some such consideration given to commercial standards. These are of course, far different from the application of commercial standards to the work done by the girls. Comparatively few teachers reported the sale of ready-made articles. This condition was apparently due to the frequent requirement that the girls make clothing for themselves. Some teachers do permit sewing for other members of the girls' families.

Accordingly, it appears that the chief means employed by teachers of sewing for measuring the achievement of pupils in that subject is the subjective tests prepared by each individual teacher or supervisor. Thus the difficulty of determining the efficiency of instruction in sewing is apparent.

Considering the lack of definite objectives, the uncertainty of subject-content and diversity of method in sewing instruction, careful experimentation and measurement are needed to determine the best content, direction and procedure. In attempting to measure the results of sewing instruction, sewing teachers are faced with the necessity of employing adequate measuring instruments. The inadequancy of the tests which are available demands that other sewing tests be provided before actual measurement of the efficiency of sewing instruction will become possible.

Chapter III.

Development of Simple Project Test for Measuring Achievement of Pupils in Elementary Sewing.

adequate measurement of the efficiency of instruction in sewing, the writer undertook to develop from the common elements in the courses of study and the objectives stated by the teachers, a test that may give a fair measure of the progress made toward attaining these aims and objectives. The test comprises a series of simple projects and is limited to processes involved in the actual sewing technique and garment construction. It is intended for pupils who have had one or two years of the subject, and utilizes both hand and machine sewing.

To determine the processes which should be included in the test, a detailed study was made of the courses of study and the statements of their objectives as submitted by the teachers in this field. The items of subject content were listed and analyzed into component stitches and processes. The analysis of stitches, garments and processes is shown here.

Table X. Classification of School Sewing into Processes.

	*****		and discussion expenses
Hand Stitches	Machine Stitches	Machine Attachments	Mending
basting plain hem French hem running stitch backstitch	hem French seam felled seam plain seam	gathering hemming tucks	Darning: hose linen wool
combination overcasting gathering blind stitch			Patching: hemmed over- casted.
Processes in garment making	F	asteners	Ornamental Stitches.
Straight hom curved hem joining lace		uttons uttonholes	featherstitch hemstitching
sewing on lace plackets wool seam finis cording		nap s	French knots
bound seam bound pocket	h	ooks and eyes	satin stitch
bias facing fitted facing plaiting		yelets	lazy daisy outline
attaching skirt attaching sleev attaching colla and cuffs.	res		
			8 %

The following is a classified list of the articles and garments mentioned in the courses of study.

Personal and Household.

towel
pincushion
school bag
laundry bag
sewing bag
stove lifter
handkerchief
dresser scarf
pillow slip

Undergarments.

slip night gown kimona pajamas bloomers teddies stepins brassier underskirt

Outer-Garments.

small apron
bungalow apron
domestic science apron
middy
skirt
blouse
sport suit
cloth hat

simple school dress finer school dress house dress silk dress wool dress evening dress graduation dress operetta costume

Children's Garments

Infant's layette Rompers Child's dress. Examination of these lists suggests sufficient content for several tests in sewing; but most of the handstitches are included in the Murdock scales which are already available. It is possible that the Charts for Diagnosing Defects in Buttonholes could be applied with a certain degree of effectiveness to other fasteners which involve the buttonhole stitch.

of the other items, only the processes more frequently involved in garment construction, chiefly machine sewing, and the three kinds of mending most frequently listed by the teachers (hemmed patch, over-casted patch, and darning hose) were included in the test proposed. Projects were then devised which seemed representative of these processes.

The test, when developed, consisted of the following series of twelve separate projects or individual tests, each intended to measure achievement in the particular processes involved:

- 1. Plain hem, machine stitched.
- 2. Hem on curved material, machine stitched.
- 3. French seam, machine stitched.
- 4. Felled seam, machine stitched.
- 5. Bias facing, machine stitched.
- 6. Fitted facing, machine stitched.
- 7. Bound pocket, machine stitched.
- 8. Plaiting skirt and attaching to underwaist, machine stitched.

 Wool seam, and finishes, notched, bound,

overcasted.

- 10. Darning hose.
- 11. Hemmed patch.
- 12. Overcasted patch.

The necessary material was provided for each student, also a test sheet which included uniform directions and a definite statement of procedure. Spaces were provided for information concerning the individuals taking the test. An attempt was made to present the directions so that they would be easily understood. Furthermore, in a majority of the tests, the project was presented as though a part of a real garment.

A preliminary use of the test was made in the city schools of Topeka and Lawrence. Each separate project was given to about fifteen students in junior high school courses in sewing. The total number of specimens secured in preliminary test was 170.

The problem of scoring the preliminary test returns in sewing necessarily raised the question of subjective methods versus objective methods. Standards in sewing are still subjective to a marked degree. An attempt was made to reduce the subjective element so far as was possible by combining the judgment of several persons in determining the score given any speciment of sewing. Nine competent

judges were selected for this purpose. The judges comprised three selected teachers of junior high school sewing, three university students taking advanced training in sewing, and three professional sewers familiar with commercial standards. Each judge working independently scored the separate specimens of sewing. The judgment of each was recorded on a separate score sheet as 'S-'; 'S'; or 'S+', to designate unsatisfactory, satisfactory, or very satisfactory, quality of work.

The judges were requested to base their decisions on 'workmanship,' 'following of directions' and 'completeness of project.' Neatness was at first suggested as one of the items to be considered, but neatness and quality of workmanship were found to be not easily distinguishable.

In tabulating the judgments, the three types of judges were treated as three groups of three judges each. The recorded judgments were then analyzed with reference to:

- judges within a group tended to agree with each other.
- 2. The extent to which the groups of judges agreed one with another in these judgments.
- 3. Any tendency of one group to score more leniently or severely than the others.
- 4. Any marked disagreement pertaining to particular projects.

The accompanying table presents the agreement in judgment within the individual groups.

Table XI. Agreement in Judgment within each of the Groups of Judges.

	Complete Agreement	Partial Agreement	Complete Disagree- ment.	Sum of Complete and partial ag- reement.
Teachers	38%	51.7%	10.7%	89.7%
Students	56%	42.4%	.8%	98.4%
Profession	al 27.4%	62. %	10.6%	89.4%

In this table partial agreement means that two of the three judges agreed. The three 'student' judges gave the same score to 56 per cent of the specimens submitted. The 'teachers' agreed completely in 38 per cent of their decisions, and the 'professional' sewers in 27 per cent. Complete disagreement was rare among the student judges.

The combined or average judgments of the groups are indicated in the following table.

Table XIII. Agreement Between Median Judgments of the Three Groups of Judges.

	Complete Agree- ment	Partial Agree- ment		Sum of complete and partial ag- reement
Median of three groups	3 7 . 5%	52.5%	10.0%	90%

It is a significant fact that with three groups of judges, even so different presumably in training, experience, and standards with reference to sewing as were those selected, still there was virtual agreement between the groups on nine out of every ten specimens judged. At least two of the three groups agreed on the merit of all but 10% of the specimens. The median judgments were identical on 37.5% of the specimens. It is highly probable that a moderate amount of common practice and training in the exercise of such judgments would give a considerable increase in the per cent of complete agreement among the three groups.

This fact seems the more significant in connection with the evidence presented in the preceding table, showing that there is a striking tendency for the independent judgment of the individual judge to agree with the composite judgment of her group. The members of the 'student group' whose training had been more similar than that of the other groups, agreed completely on more than half of the specimens. Consequently on these the rating of a pupil's work by one of the judges or by the group would be the same. Furthermore, on 42% of the specimens the chance tendency was 2 to 1 that the judgment of any one of the individuals would agree with the group judgment. Accordingly, the judgment of an individual sewing teacher (as competent as those in the student group) might be expected to agree with the majority of the group on 84% of the specimens (17 out of 20).

The implication is that in a test composed of these simple sewing projects, with definite and uniform directions for the pupils in taking the test and for the teachers in judging the specimens, the subjective elements in the scores of well-trained teachers may be greatly reduced.

A comparison of the percentages of all specimens which were scored 'S-'; 'S'; and S+' by each group of judges is indicated below.

Table XIV. Percentage Distribution of Specimens Scored 'S-'; 'S'; and 'S+'.

Judges	Percentage of 'S-' Scores.	Percentage of 'S' Scores.	Percentage of 'S+' Scores.
Teachers	42.8	49.1	8.
Students	29.4	52.6	17.8
Profes- sional	34.8	55.3	11.9
Median	32.5	53	9.5

This distribution of scores shows that the precent of specimens scored 'S-' by each group of judges was high and that the median of all the judges was 32.5%. Approximately 1 in 3 of these specimens represented unsatisfactory work. However, the inferiority of some of the specimens of sewing was probably due to the pupil's using an incorrect process, sometimes because the directions proved to be inadequate. Less than 10% of the specimens were regarded by the judges as 'very satisfactory.'

The above table also indicates that the 'teacher' judges scored more specimens as unsatisfactory, and fewer of them as very satisfactory than did the other groups. The 'student' judges were more lenient in their judgments of the sewing specimens.

The trial test demonstrated that the directions for making some of the projects were not sufficiently clear. Furthermore, it was evident in those projects involving the cutting of the piece of cloth that this preparation should be made in a standardized manner previous to the testing. Otherwise the project would involve the testing of other functions than the particular one for which the test was designed.

The trial test provided suggestions for the improvement of several of the elements of the test. After the test had been revised each of the component projects was given to from fifty to one hundred junior high school students in Lawrence, Topeka, and Kansas City, Kansas. Because the close of the school year was near at hand there was no opportunity to test a greater number of pupils.

The specimens of sewing for each project were then ranked by the judgement of the writer into nine divisions according to order of their merit. These groups of specimens were later scored by three judges selected from the students in advanced sewing at the University. Each judge worked independently. They were, however, not unaware of the rank which had been given to each specimen by the writer. Their judgments were recorded for the individual specimens as unsatisfactory, satisfactory or very satisfactory ('S-'; 'S'; and 'S+', respectively). The final score of each specimen was the composite of these three judgments.

The accompanying diagram showing the distribution of the test scores in grades VII, VIII, and IX, illustrates the close agreement between the composite score of the judges and the rank given by the writer.

Table XV. Comparison of Judges Scores with the Ranking.

										_
Ranks	1	S	3	4	5	6	7	. 8	9	
Grade VII		,		3				.,**		
5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	3	3 5	19	20 8	10 22	3 30	35	12	3	
Grade VIII										
s + s s-	6	4 5	4 23	23	10 19	5 25	19	5	0	
Grade IX										
S+ S S-	25 8	53 7 9	13 98	12	4 93	58	49	19	2	•
	42	1.49	159	100	158	121	103	36	5	

Specimens ranked 1 or 2 were generally considered by the judges to be 'very satisfactory'. Specimens ranked 3, 4, 5, or 6 were judged in most instances as 'satisfactory' and those ranked 7, 8 or 9 were consistently scored 'unsatisfactory.'

A percentage distribution of the composite scores of the judges is indicated according to grades, as follows.

Table XVI. Percentage Distribution of Scores by Grades.

Grade	St	S	S	Total No. of Specimens
VII	4.5	32.5		175
VIII	9	42.5	48.3	155
IX	16.6	37	46.2	543

This table includes only the projects in which all three grades were tested, namely, plain hem, hem on curved material, French seam, felled seam, patching and darning. The remaining projects were made by the ninth grade alone; since the sewing teachers in the schools tested considered the seventh and eighth grade sewers generally unprepared for them.

It is interesting to note that the percentage distribution of scores shows that 37 per cent of the specimens of sewing made by the seventh grade were scored, 'S', or 'S+', 51 per cent of those made by the eighth grade received the same rank and 53 per cent of the specimens of the ninth grade sewers were considered satisfactory or very satisfactory. The ninth grade scored somewhat lower in making the other specimens than on the projects reported above. One-half of the seams on

woolen material, one-third of the bound pockets, one-fifth of the fitted facings and one-seventh of the bias facings were scored satisfactory or very satisfactory. However, three-fourths of the specimens of attaching plaited skirt to waist were marked 'S' or 'S+'.

The next table presents the percentage distribution of the scores on each project by the years of sewing instruction which the pupils have received. (The patches, in scoring, were treated as one project because of close similiarity. They are so reported in this and the previous table.)

Table XVII. Percentage Distribution of Scores by Years of Sewing.

Year of	First			Sec	Second			Third		
Sewing	•		* ****	* * * * * *						
Scores	8+	S	S-	S+	S	S-	s +	S	S-	
Plain Hom	13	35	52	19	42	39	8	35	57	
Hom on Curved Material	4	28	68	3	33	63	11	17	72	
French Seam	5	38	57	11	56	33	15	44	41	
Felled Seam	14	47	38	17	34	49	83	30	48	
Darning	10	59	31	18	33	48	. 89	36	36	
Patching	13	34	53	10	33	57	16	37	47	
Wool Seam	3	57	40	6	38	56	8	46	46	
Bound Pocket	40	13	46	24	18	59	25	35	40	
Attaching Skirt to Waist	35	41	34	1.7	50	33	20	60	30	
Fitted Facing	9	27	64	20	46	33	33	33	33	
Bias Facing	6	Ó	9#	0,	31	69	0	0	100	

Pupils in grades seven, eight, and nine were tested in the first six projects as listed in the above table. The number of pupils involved according to years of sewing instruction was as follows for these six projects.

First year, 32 to 53 pupils. Second year, 30 to 36 pupils. Third year, 18 to 27 pupils.

Pupils in the ninth grade only were tested in the last five projects as listed above. Their number was not the same on all projects but varied as follows:

First year, 11 to 35 pupils. Second year, 15 to 34 pupils. Third year, 15 to 26 pupils.

The analysis of the pupils scores in the preceding table shows that in seven of the eleven projects the third year group excelled the other group in the percentage scored'very satisfactory. The same group had the largest percentage of 'unsatisfactory' scores in three of the projects. In only two projects did the first year group have the highest percentage of 'S-' scores yet in six of the projects more than 50 per cent of their specimens were 'unsatisfactory'. On only one of the test projects was less than a third of the specimens prepared by second or third year sewing pupils scored 'unsatisfactory'.

sentative in both training and selection and if these projects are considered as a fair test of the sewing skills involved, one may conclude that approximately half of the pupils who receive one or more years of sewing instruction are able to apply the simple processes of this test in an acceptable manner. The percentage of successful achievement in some of the projects was notably higher but one may raise the question whether more effective results in general should not be expected in this subject?

Summary and Conclusions

- 1. Sewing is taught in the public high schools of Kansas in practically all of the first and second class cities and in a majority of the cities of the third class having a population of at least one thousand. Many of these cities also make sewing a part of the training for girls in the seventh or eighth grade. Approximately 400 teachers are employed to give instruction in this subject.
- 2. Half of the teachers of sewing have received their training in two of the teacher's training institutions of the state, yet close to one-fourth of the sewing teachers apparently do not have any academic degree and none have reported the possession of a graduate degree.
- 3. Much uncertainty and diversity of opinion is expressed by the sewing teachers in their questionnaire replies with reference to the real purposes, the
 subject content and the method of instruction in sewing.
 Varied and conflicting practices are a normal outcome of
 this situation.
- 4. The measurement of the effectiveness of instruction in sewing is dependent in practice chiefly upon the subjective tests or personal attitude of the teacher. Only 13 per cent of the sewing teachers report any use of objective tests and seven per cent indicate the

use of standardized tests for testing results.

- 5. A test based on the common elements in the courses of study submitted and on the objectives of sewing instruction as stated by the teachers was constructed by the writer. The test comprises a series of 12 simple projects and is limited to processes involved in elementary sewing technique and garment construction.
- 6. The test was given a preliminary trial.

 Then it was revised and employed in testing close to a hundred pupils in junior high school on each element of the test.
- 7. Nine selected judges scored the sewing specimens made in the preliminary test. They represented three judges each, of sewing teachers, advanced students in sewing and professional sewers. The scores were expressed as very satisfactory, satisfactory and unsatisfactory. The three groups of judges were in complete or virtual agreement in scoring 90 per cent of the specimens. The three student judges showed complete agreement on 56 per cent of the specimens and partial agreement on 42 percent. In the subsequent testing only student judges were employed.
- and by years of sewing instruction showed a significant difference by grades but much less difference by years of instruction in the subject. In several of the projects as
 many as 20 per cent of the specimens were very satisfactory
 but even more frequently the unsatisfactory specimens exceeded 50 per cent of the number made by the pupils in one or more
 of the groups.

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Appendix

Specimens of sewing illustrating each project in the test are displayed in the appendix.

The specimens shown are representative of 'S+', scores.

Age ...14..... City Water Three Water Thre When is your next birth In what Grade (or H. S. Have you ever made the stilling at the market have the sample you are now to war in the contract of the contract

PLAIN HEM - THE STATE OF THE W

MA

Muslin, medium quality and the transform Red thread, No. 50.

DIE

Read the directions

what to do. Sew the best you can, but work rapidly. See that your measurements are exact. Make the hem the short way of the material

Turn hem, making first fold a inch wide, and second fold 1 inch wide. Baste material in place if necessary. Stitch carefully on the sewing machine. Remove bastings. Attach finished specimen of your work to this paper. Name Beatrica O. Carro. School Topeka Catholic High.

Age ...14. City ... Topeka ... Date May 28, 1925.

When is your next birthday? ... August 26.

In what Grade (or H. S. Class) are you? ... Freshman.

How many semestors (2 yrs) of sewing have you had? ... 6.

Have you ever made the stitches, or the part of a garment like the sample you are now to make? ... Yes.

PLAIN HEM -- MACHINE STITCHED

MATERIALS

Muslin, medium quality 6 inches by 4 inches Red thread, No. 50.

DIRECTIONS

Read the directions carefully, so you will know exactly what to do. Sew the best you can, but work rapidly. See that your measurements are exact. Make the hem the short way of the material

Turn hem, making first fold to inch wide, and second fold I inch wide. Baste material in place if necessary. Stitch carefully on the sewing machine. Remove bastings. Attach finished specimen of your work to this paper.

MATE

HEM ON CURVED MATERI

Segment of muslin

length 6 inches

outer width 4 ir

inner width 2 inches

Red thread

DIRECTIONS

Read the directions carefully, so you will know exactly what to do. Sew the best you can, but work rapidly. Make all measurements as accurate as you can.

Turn hem, making first fold $\frac{1}{4}$ inch wide, and second 1 inch wide. Arrange the extra fullness as you would in the curved part of a skirt hem. Baste hem in place. Stitch on sewing machine. Remove bastings.

Attach fin

this paper.

Wame School .Topeka. High. School
Age 16 City Topeka, Kansas Date . May. 12., 1925.
When is your next birthday?Feb. 22
In what Grade (or H. S. Class) are you? Ninth
How many semesters ($\frac{1}{2}$ yers) of sewing have you had?
Have you ever made the stitches, or the part of a garment like
the sample you are now to make?Yes

HEM ON CURVED MATERIAL - MACHINE STITCHED

MATERIALS

Segment of muslin

length 6 inches

outer width 4 inches

inner width 2 inches

Red thread

DIRECTIONS

Read the directions carefully, so you will know exactly what to do. Sew the best you can, but work rapidly. Make all measurements as accurate as you can.

Turn hem, making first fold $\frac{1}{4}$ inch wide, and second 1 inch wide. Arrange the extra fullness as you would in the curved part of a skirt hem. Baste hem in place. Stitch on sewing machine. Remove bastings.

Attach fin

this paper.

No beautiful a

Name Age ...16.... City .. To When is your next birthday In what Grade (or H. S. Cla How many semesters (} yrs) Have you ever made the stit the sample you are now to SEAMS ON COTTON

Muslin, 9 inches by 4 Red thread. To the second second

Read the directions (to do. Make all measurement rapidly.

1. Make a French Sean gether lengthwise by means as you would in sewing up that the seam is exactly 1 necessary use bastings to tch it on the sewing machine.

2. Make a felled seam

of material to the edge of your specimen. Arrange this seam lengthwise, also, so the two finished seams will be in the same direction. Have the felled seam i inch in width when finished. Make the seam as you would in a middy or bloomers. Hold the material in place with bastings, if necessary. After stitching on the sewing machine remove bastings.

If

Attach the finished specimen of your work to this paper.

Copy of Test Sheet

Name
Age16 CityTopeka Date May.29,.1925
When is your next birthday?
In what Grade (or H. S. Class) are you?94
How many semesters $\binom{1}{2}$ yrs) of sowing have you had?1
Have you ever made the stitches, or the part of a garment like
the sample you are now to make?Yes

SEAMS ON COTTON MATTERIAL - MACHINE STITCHED

Materials

Muslin, 9 inches by 4 inches, cut into 3 inch strip. Red thread.

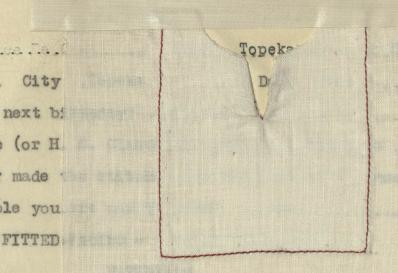
DIRECTIONS

Read the directions carefully, so you will know exactly what to do. Make all measurements exact. Sew the best you can but work rapidly.

- 1. <u>Make a French Seam</u>. Join two of the strips of muslin together lengthwise by means of a French seam, that is, make the seam as you would in sewing up the sides of a nightgown or apron. See that the seam is exactly 1/8 of an inch in width, when finished. If necessary use bastings to hold the material in place while you stitch it on the sewing machine. Then remove bastings.
- 2. <u>Make a felled seam</u>. With a felled seam join the other strip of material to the edge of your specimen. Arrange this seam lengthwise, also, so the two finished seams will be in the same direction. Have the felled seam in inch in width when finished. Make the seam as you would in a middy or bloomers. Hold the material in place with bastings, if necessary. After stitching on the sewing machine remove bastings.

Attach the finished specimen of your work to this paper.

Name ... Restrice .T.a. C Age ...14... City When is your next b! In what grade (or H Have you ever made like the sample you



Musling, 4 inc inches wide, { ing in center Fitted piece of muslin for facing Red thread

DIRECTIONS

Read the directions carefully, so you will know exactly what to do. Sew the best you can, but work rapidly.

Use the smaller piece of material as a facing for the curve and the slitted opening of the larger piece. The facing is cut and shaped ready to fit against the opening. Attach it as you would the facing to the neck opening of a middy. If you regard it necessary baste before stitching with the sewing machine. Then remove bastings.

Attach finished specimen of your work to this paper.

FITTED FACING - MACHINE STITCHED

MATERIALS

Musling, 4 inches square, with curved neck line $(1\frac{1}{2})$ inches wide, $\frac{3}{4}$ inch deep) and $\frac{1}{2}$ inch vertical opening in center

Fitted piece of muslin for facing

Red thread

DIRECTIONS

Read the directions carefully, so you will know exactly what to do. Sew the best you can, but work rapidly.

Use the smaller piece of material as a facing for the curve and the slitted opening of the larger piece. The facing is cut and shaped ready to fit against the opening. Attach it as you would the facing to the neck opening of a middy. If you regard it necessary baste before stitching with the sewing machine. Then remove bastings.

Attach finished specimen of your work to this paper.

Topeka.

Name17..... City When is your next birthd In what grade (or H. S. How many semesters (yr Have you ever made the state of the sample you are now to the you are now

Muslin, 4 inches wide. 2 inch deep)

Bias strip, Length 4 inches, width 1 inch.

Red thread

DIRECTIONS

BIAS FACILA - MARIE -

Read the directions carefully so you will know exactly what to do. Sew the best you can, but work rapidly.

Face the curved edge of muslin, with the bias strip of material. Proceed as you would in facing the neck of an apron. Whenever you think it is necessary baste pieces of material in place before stitching with the machine, Remove bastings whem completed.

Attach the specimen of your work, when finished, to this paper.

Name			School .To	opeka	
Age	17	City .Topek	a	Date . May. 12.	1925
When is	your next	birthday? .	May.10,	1926	
In what	grade (or	H. S. class	are you? .	Sewing.I	*!*!*!*!*
How man	ny semester	s (½ yrs) of (sowing have	you had??	
Have yo	ou ever mad	e the stitche	s or the pa:	rt of a garment	like
the san	mp le you ar	e now to make	?Yes		

BIAS FACING - MACHINE STITCHED

MATERIAL

Muslin, 4 inches square with curved neck line ($1\frac{1}{2}$ inches wide, $\frac{3}{4}$ inch deep)

Bias strip, Length 4 inches, width 1 inch.

Red thread

DIRECTIONS

Read the directions carefully so you will know exactly what to do. Sew the best you can, but work rapidly.

Face the curved edge of muslin, with the bias strip of material. Proceed as you would in facing the neck of an apron. Whenever you think it is necessary baste pieces of material in place before stitching with the machine, Remove bastings whem completed.

Attach the specimen of your work, when finished, to this paper.

Name . Bernice Wharton

Age 16 . . City . Topeka . .

When is your next birthday? . . .

In what Grade (or H. S. Class) as

How many semesters (½ yrs) of seventhere you ever made the stitches,

like the sample you are now to ma

BOUND POCKET - MACHINE

MATERIAL

3 inch square muslin, with horizontal cut ($1\frac{1}{2}$ inch) for pocket opening muslin 6 inches by $2\frac{1}{2}$ red thread

DIRECTIONS

Read the directions carefully, so you will know exactly what to do. Sew the best you can, but work rapidly.

Make a bound pocket to fit the opening in the muslin square. Whenever you think it is necessary, baste pieces of material in place before stitching with the machine. Remove bastings when completed.

Attach the finished specimen of your work to this paper.

Name Bernice Wharton School Topeka High School
Age16 City .Topeka Date May.26,.1925.
When is your next birthday? May 5th
In what Grade (or H. S. Class) are you? Freshman
How many semesters (2 yrs) of sewing have you had?4
Have you ever made the stitches, or the part of a garment
like the sample you are now to make?Yes
er a finning transfer of the contract of the c

BOUND POCKET - MACHINE STITCHED

MATERIAL

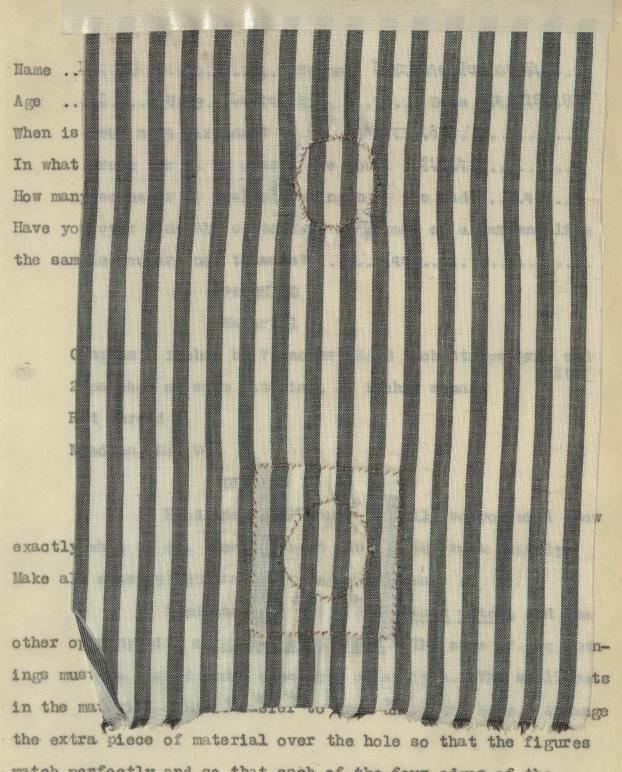
3 inch square muslin, with horizontal cut ($1\frac{1}{2}$ inch) for pocket opening muslin 6 inches by $2\frac{1}{2}$ red thread

DIRECTIONS

Read the directions carefully, so you will know exactly what to do. Sew the best you can, but work rapidly.

Make a bound pocket to fit the opening in the muslin square. Whenever you think it is necessary, baste pieces of material in place before stitching with the machine. Remove bastings when completed.

Attach the finished specimen of your work to this paper.



match perfectly and so that each of the four edges of the parch are about equal distance from the center. On the wrong side of the patch see that the edges are all equal distance from the center. If it is necessary clip uneven ones before finishing the sewing of them.

PATCHING

Material

Gingham 6 inches by 7 inches (3/16 inch strips-gray and white)
2 patches of same material, $2\frac{1}{2}$ inches square

Red thread

Needles, No. 9

DIRECTIONS

Read the directions carefully so you will know exactly what to do. Sew the best you can but work rapidly.

Make all measurements as accurate as you can.

Mend one opening with a hemmed patch, and the other opening with an over-casted patch. The edge of the openings must be turned under exactly to of an inch. The small cuts in the material make it easier to turn under the edge. Arrange the extra piece of material over the hole so that the figures match perfectly and so that each of the four edges of the parch are about equal distance from the center. On the wrong side of the patch see that the edges are all equal distance from the center. If it is necessary clip uneven ones before finishing the sewing of them.

Age14..... City .. Ton When is your next birthday . . For In what grade (or H. S. Class) a How many semester (byears) of se Have you ever made the stitches, like the sample you are now to m



MATERIAL.

Medium quality cotton, or heavy silk Piece of stocking, circular opening - 5/8 inch in diam., 3 inches square Darning cotton, white and black Darning needle

DIRECTIONS

Read the cirections carefully, so you will know exactly what to do. Sew the best you can, but work rapidly.

Arrange the opening in the stocking material over the darning ball. Be careful not to stretch it. Mend the hole by darning as you would darn stockings. Put in the first threads (those up and down) with black darning cotton. Then use white darning cotton for weaving across these first threads. Each time you thread your needle, use only two strands of darning cotton.

When darning is finished, remove from darning ball and attach the specimen of your mending to this paper.

DARNING STOCKINGS

MATERIAL

Medium quality cotton, or heavy silk

Piece of stocking, circular opening - 5/8 inch
in diam., 3 inches square

Darning cotton, white and black

Darning needle

on the second of the second of

DIRECTIONS

Read the cirections carefully, so you will know exactly what to do. Sew the best you can, but work rapidly.

Arrange the opening in the stocking material over the darning ball. Be careful not to stretch it. Mend the hole by darning as you would darn stockings. Put in the first threads (those up and down) with black darning cotton. Then use white darning cotton for weaving across these first threads.

Each time you thread your needle, use only two strands of darning cotton.

When darning is finished, remove from darning ball and attach the specimen of your mending to this paper.

ment like the sample y

PLAITING SKIN and ATTACHING TO UND

MATERIAL

wool, 9 inches by 3 inches muslin, 3 inches by 3 inches bias tape, \(\frac{1}{4}\) inch wide red thread

DIRECTIONS

Read the directions carefully so you will know exactly what to do. Sew the best you can, but work rapidly. Make measurements as accurate as you can.

- 1. Arrange woolen material into three plaits, each one inch wide. Make plaits as you would in plaiting a middy skirt. Baste in place.
- 2. Attach plaited wool material to muslin, as you would to an underwaist. Baste before stitching on machine. Remove bastings. Attach finished specimen of your work to this paper.

Name
Age15 City Lawrence Date May 28, 1925.
When is your next birthday? May 31, 1925
In what Grade (or H. S. Class) are you? Sophomore
How many semesters (2 years) of sewing have you had?5
Have you ever made the stitches, or the part of a gar-
ment like the sample you are now to make?No

PLAITING SKIRT and ATTACHING TO UNDERWAIST.

MATERIAL

wool, 9 inches by 3 inches muslin, 3 inches by 3 inches bias tape, ½ inch wide red thread

DIRECTIONS

Read the directions carefully so you will know exactly what to do. Sew the best you can, but work rapidly. Make measurements as accurate as you can.

- 1. Arrange woolen material into three plaits, each one inch wide. Make plaits as you would in plaiting a middy skirt. Baste in place.
- 2. Attach plaited wool material to muslin, as you would to an underwaist. Baste before stitching on machine. Remove bastings. Attach finished specimen of your work to this paper.

> Strip of flannel, 5 Silk seam tape, 6 #

Read the exactly what to do. Sew

Make all measurements as a Cut the st

Baste and stitch on machin divide the seam into third

1. Finish

2. Finish

3. Finish the last third by binding the two edges, separately, with silk tape.

Remove bastings and attach the finished specimen of your work to this paper.

hes.

Name			School .	Junior Hi	gh School
Ago	15	City . Topel	ką	Date .	May 12, 1925
When is yo	our next bir	thday?	May 30.		******
					h School 9) d?2
Have you	over made th	ne stitches	, or the pa	art of a	garment like
the f	samp le you s	tre now to	make?	No	

SEAMS ON WOOL MATERIAL

MATERIAL

Strip of flannel, 5 inches by 7 inches Silk seam tape, 6 inch length

DIRECTIONS

Read the directions carefully so you will know exactly what to do. Sew the best you can, but work rapidly.

Make all measurements as accurate as you can.

Cut the strip of flannel in two lengthwise. Baste and stitch on machine, a seam $\frac{1}{2}$ inch wide. With plns divide the seam into thirds.

- 1. Finish one of the thirds with small neat notches.
- 2. Finish the center third with neat overcasting.
- 3. Finish the last third by binding the two edges, separately, with silk tape.

Remove bastings and attach the finished specimen of your work to this paper.