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A Proposed Curriculum of Ninth-Grade Mathematics for Chief Joseph Junior High School

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A PROPOSED CURRICULUM OF NINTH-GRADE MATHEMATICS
FOR CHIEF JOSEPH JUNIOR HIGH SCHOOL

A LIBRARY RESEARCH

Presented to
the Faculty of the Graduate School
Central Washington State College

In Partial Fulfillment
of the Requirements for the Degree
Master of Education

by
George Michael Mathews

August, 1964

THIS PAPER IS APPROVED AS MEETING
THE PLAN 2 REQUIREMENT FOR THE
COMPLETION OF A RESEARCH PAPER.

Harry L. Garrison
FOR THE GRADUATE FACULTY

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CHAPTER I

THE PROBLEM

During the past few years, the technological advances in our country and in other parts of the world have been almost too tremendous in scope for the human mind to contemplate. Yet, during this same period of time, little has been done to develop a flexible curriculum serving the diversity of individual talents and utilizing the available technology, research, and theory relevant to the teaching and learning process.

There has been no greater need for education which will develop conceptual thinking in all people than there is now. The schools must take a lead in devising methods that will free the limits on a person's power to deal with changes inevitable in future developments.

Statement of the Problem

This study's purpose is to develop a flexible-scheduling program in ninth-grade mathematics for Chief Joseph Junior High School, Richland, Washington, which can be integrated into the over-all curriculum at the time when the school adopts the idea of flexibility.

Importance of the Study

The importance of this study lies in the realm of the teacher and the learner.

Adoption of such a schedule predicts these values for the learner: (1) a developing of understanding of basic principles and processes by which he can pursue inquiry in the mathematics domain; and (2) a developing of less dependence on the teacher in the self-directed study of mathematics.

Predicted values for the teacher are: (1) a better usage of his unique talents; (2) a better usage of the material resources and investments in mathematics education; (3) a better usage of the human resources in his department through cooperation; (4) the increased opportunities to test his own decisions and be given more responsibility; and (5) a continual growth of teaching competence, guided by his evaluation.

Limitations of the Study

Literature supporting this study will be limited to the Central Washington State College library, Ellensburg, Washington, and to materials received from the Richland School District.

The study will be limited to a proposed curriculum of ninth-grade mathematics fitted to the present staff, student body, and buildings in the Richland junior high school context. To the

extent that conditions at other schools may be similar to those at Chief Joseph Junior High School, the proposed schedule may be adapted wholly or with modifications.

CHAPTER II

REVIEW OF THE LITERATURE

Modern technology impinges upon education with increasing force. It both demands change and makes possible achievements never before dreamed of. The explosion of knowledge renders a new curriculum obsolete almost before it is put into place. Changing occupational patterns require that the training programs in schools achieve a degree of flexibility never before anticipated (3:v).

Reasons for Flexible Scheduling

In the past, and to some extent, at present, methodology of teaching placed its focal point on rote-memory learning and equal education for all. As a result, teaching learning have emphasized the "what" rather than the "why" and the "how." The student must now, and in the future, be taught "conceptual thinking instead of manipulative skills" (1:151).

The space age has developed a great deal of astonishment and, also, bewilderment on the part of many individuals. As technology progresses, jobs which do not now exist and professions which can not now be described will come to the fore and with these sweeping changes must come a dynamic new education which can produce individuals who are adaptable (1:14).

Our dedication to equality cannot ignore the fact that individual differences do exist, not only in talent or ability, but also in motivation. Each student should be allowed to develop to the full, in his own fashion and to his own destiny. This means that "there must be diverse programs within the educational system to take care of the diversity of individuals" (5:81).

There is also the matter of the inquiring mind, which has been thwarted in the past as being rebellious. Inquiry encourages responsible creativity, without denying the values of tested traditional practices. Acceptance of this premise requires the development of each student's ability to go it alone, in his quest for knowledge, and, in the end, to understand that his education is a process that continues long after his formal schooling is completed (9:4).

Ability and Interest Grouping

Bush and Allen say that "Grouping of pupils increases the possibilities for individualizing both teaching and learning" (3:13). It is quite evident, from research, that actual, accurate grouping or placement is no easy chore.

Most authorities on this subject agree that intelligence and aptitude tests, achievement tests, observation by previous teachers, interest inventories, and expressed desires of students and parents are among the more reliable and useful indicators of

ability and interest traits.

However, Brown states that "The I.Q. measures intellectual potential only and is ineffective as a prognosticator of performance. The problem with the I.Q. is that it is based solely upon intelligence factors and reflects neither motivation nor creativity" (1:58).

Guidance plays a major role in this operation in that its purpose is to ensure the individualization of high school education to all students with all kinds of abilities and from all kinds of backgrounds (3:74).

The proposed grouping of students follows:

(1) a comprehensive group; (2) a subject-talented group; (3) a gifted group; and (4) a remedial group. In some cases, there also exists a group of students with limited ability. Within the comprehensive, or satisfactory ability, group there are two subgroups, the high-interest and the low-interest students. The same subdivisions exist in the subject-talented group (3:61).

After due consideration is made to grouping students in terms of ability and interest, a secondary problem arises in trying to match the student to all possible different levels of materials (2:18).

"Flexibility should allow," as stated by Bush and Allen,

"the possibility to group and regroup according to developing abilities and interests" (3:65).

Types of Instruction

As would be expected when dealing with a variety of students having differences of ability, interest, and background, different types of instruction in differing amounts must be employed.

Trump states that "Research does not indicate that any one method of teaching is best for all teachers in any given situation. Each teaching method has its own way of providing for individual differences among pupils" (10:12).

The instruction methods proposed are: (1) large-group instruction; (2) small-group instruction; (3) laboratory instruction; and (4) individual study. Large group instruction places primary emphasis on presenting materials with a minimum of interaction. It is also designed to conserve teacher time, to improve the quality of the presentation, and to make use of special talents possessed by individual members of the staff (3:37).

The primary purpose of small-group instruction is to create an atmosphere where interaction may take place. Size is a definite factor here, as a number greater than fifteen will not be conducive to active participation by all members (9:24-25).

Laboratory instruction is based primarily upon use of

audio and visual aids to learning. It can be employed for usage of electronic aids, including sound equipment, usage of reference materials, usage of programmed-learning learning apparatus, experimentation, and construction of models (3:150-151).

Individual study is instruction in which the student engages in activities entirely independent of the other students and, in general, is quite free from teacher supervision (3:35). It is in this manner, as so aptly stated by Trump, that the learner "increases personal responsibility for his own learning, develops his creativity and inquiry, and improves his effectiveness in thinking critically in solving problems and dealing with other people" (8:338). Through this method, educators can and must nourish and cultivate the built-in curiosity of the student if intellectual mavericks are to continue to develop in this age of conformity (1:72).

Utilization of Staff

The types of instruction covered in the preceding section lend themselves to the team-teaching approach. In team teaching, the staff member best qualified, by specialization, interest, or background, to teach a unit or portion of a unit is the one who can provide the best presentation of the subject matter (1:71). Through use of team teaching, along with the flexibility allowed, more time can be given to preparation, repetitive teaching can be avoided, and

opportunities can be provided for varied learning situations (4:17).

Beginning teachers face a new kind of induction in this type of program, being assigned a lighter load, which can lead to more productive professional growth (3:43).

Flexible Schedule Units

These units, also called modular units, are based on a concept of area where the horizontal measurement represents a class size and the vertical component depicts time. With the usage of the area concept for a basic time-class size module, smaller than is traditionally employed, the problem of total curricular scheduling becomes one of exactness, complexity, and a greater opportunity for a larger and more intensive offering of courses. "Modular units that have been considered by school districts for planning are:

15 students for 30 minutes

15 students for 20 minutes

30 students for 15 minutes

15 students for 25 minutes

10 students for 10 minutes

The smaller the modular units, the greater the flexibility --but also the greater the complexity" (3:26).

CHAPTER III

A PROPOSED CURRICULUM OF NINTH-GRADE MATHEMATICS FOR CHIEF JOSEPH JUNIOR HIGH SCHOOL

Guided by a survey of the literature on flexible scheduling and by a study of several existing school schedules where this plan is in effect, the investigator has constructed a program for Chief Joseph Junior High School, Richland, Washington.

The proposed program will cover the following topics:

- (1) ability and interest grouping; (2) subject-matter grouping;
- (3) types of instruction; (4) a proposed weekly schedule for students and staff; (5) the staff and its qualifications; (6) the utilization of space; and (7) the utilization of material aids.

Ability and Interest Grouping

The criteria that have been used for grouping in the Richland School District are: (1) the Iowa Test of Educational Development; (2) the Differential Aptitude Test; (3) observations and recommendations by previous teachers; (4) the Lee Algebraic and Lee Geometric Readiness Tests; and (5) the expressed desires of parents and students. Through employment of these indicators

of desirable traits, the following groupings should occur: (1) remedial; (2) comprehensive; (3) subject-talented; and (4) gifted. It must be stated, at this time, that the need for a limited-ability grouping should not occur due to the unique program for these students already in effect.

Subject-Matter Grouping

Upon completion of ability and interest grouping, it will be necessary to place these students in Geometry, Algebra, or Remedial Mathematics. The remedial group will be assigned to Remedial Mathematics; the gifted to Geometry; and the comprehensive and subject-talented groups to Algebra.

Estimated ninth-grade enrollment is to be approximately three hundred students. Based on past percentages in the specific categories of ability and interest grouping, there should be about forty-five students in Geometry, two hundred ten in Algebra, and forty-five in Remedial Mathematics.

As viewed by the investigator, there will be many individual differences contained within each class grouping. So, to provide a finer design, which should tend more to homogeneous grouping, the following division shall be made. The Algebra grouping will be regrouped under this plan: (1) subject-talented: high interest-- 45 students; (2) subject-talented: low interest and comprehensive:

high interest--120 students; and (3) comprehensive: low interest--45 students.

Types of Instruction

Three types of instruction will be employed in the form of large-group instruction, small-group instruction, and individual study. So that these methods of instruction can be geared to the school's 7 1/2 hour day, and without too much complexity, a basic student-time module of fifteen students for thirty minutes will be adopted.

After much deliberation, it was decided to offer two basic time units for large-group instruction, four basic time units for small-group instruction, and four basic time units for individual study to the Geometry class.

The Algebra class was offered four basic time units for large-group instruction. Each subgroup of Algebra was offered its own amounts of small-group instruction and individual study based on particular need. These are as follows: (1) subject-talented, high interest: three basic time units each of small-group instruction and individual study; (2) subject-talented, low interest and comprehensive, high interest: four of small-group instruction and two of individual study; and (3) comprehensive, low interest: five units of small-group instruction and one unit of individual study.

Remedial Mathematics was assigned four basic time units of large-group instruction and six units of small-group instruction.

The exact layout of class size-time relationships may be seen in Figure 1.

Proposed Weekly Schedule by Subject Area, Time Allotment, and Mode of Instruction

The material in the preceding section was carefully analyzed and laid out in weekly schedules as might be utilized for actual registration of students. Careful consideration was taken, at this time, as how to best use the instructional staff and these weekly schedules were portrayed with this fact in mind.

Figure 2 shows a complete overlap of two sections of Algebra designed to be instructed at the same time period.

Figure 3 shows a complete overlap of the section of Geometry and the section of Remedial Mathematics. This was so designed because of strong opinion that a teacher or teachers capable of performing a creditable task with gifted students would also be the best qualified to direct remedial students.

Teaching Staff

With the types of instruction described in this study, the opportunity to use an individual talent of one of the staff members is to the best advantage of the entire student population.

	GEOMETRY			ALGEBRA															REMEDIAL		
A	a ₁			a ₂															a ₃		
	a ₁			a ₂															a ₃		
	b ₁	b ₂	b ₃	a ₂															a ₃		
	b ₁	b ₂	b ₃	a ₂															a ₃		
B	b ₁	b ₂	b ₃	b ₄	b ₅	b ₆	b ₇	b ₈	b ₉	b ₁₀	b ₁₁	b ₁₂	b ₁₃	b ₁₄	b ₁₅	b ₁₆	b ₁₇	b ₁₈	b ₁₉	b ₂₀	
	b ₁	b ₂	b ₃	b ₄	b ₅	b ₆	b ₇	b ₈	b ₉	b ₁₀	b ₁₁	b ₁₂	b ₁₃	b ₁₄	b ₁₅	b ₁₆	b ₁₇	b ₁₈	b ₁₉	b ₂₀	
	c ₁	c ₂	c ₃	b ₄	b ₅	b ₆	b ₇	b ₈	b ₉	b ₁₀	b ₁₁	b ₁₂	b ₁₃	b ₁₄	b ₁₅	b ₁₆	b ₁₇	b ₁₈	b ₁₉	b ₂₀	
	c ₁	c ₂	c ₃	c ₄	c ₅	c ₆	b ₇	b ₈	b ₉	b ₁₀	b ₁₁	b ₁₂	b ₁₃	b ₁₄	b ₁₅	b ₁₆	b ₁₇	b ₁₈	b ₁₉	b ₂₀	
C	c ₁	c ₂	c ₃	c ₄	c ₅	c ₆	b ₇	b ₈	b ₉	b ₁₀	b ₁₁	b ₁₂	b ₁₃	b ₁₄	b ₁₅	b ₁₆	b ₁₇	b ₁₈	b ₁₉	b ₂₀	
	c ₁	c ₂	c ₃	c ₄	c ₅	c ₆	c ₇	c ₈	c ₉	c ₁₀	c ₁₁	c ₁₂	c ₁₃	c ₁₄	b ₁₅	b ₁₆	b ₁₇	b ₁₈	b ₁₉	b ₂₀	
	c ₁	c ₂	c ₃	c ₄	c ₅	c ₆	c ₇	c ₈	c ₉	c ₁₀	c ₁₁	c ₁₂	c ₁₃	c ₁₄	c ₁₅	c ₁₆	c ₁₇	b ₁₈	b ₁₉	b ₂₀	

FIGURE 1

MODULE STRUCTURE IN TERMS OF TYPES OF
INSTRUCTION FOR GEOMETRY, ALGEBRA,
AND REMEDIAL MATHEMATICS

CODE:

A: LARGE GROUP INSTRUCTION

B: SMALL GROUP INSTRUCTION

C: INDEPENDENT STUDY

a: CLASSES IN A

b: CLASSES IN B

c: CLASSES IN C

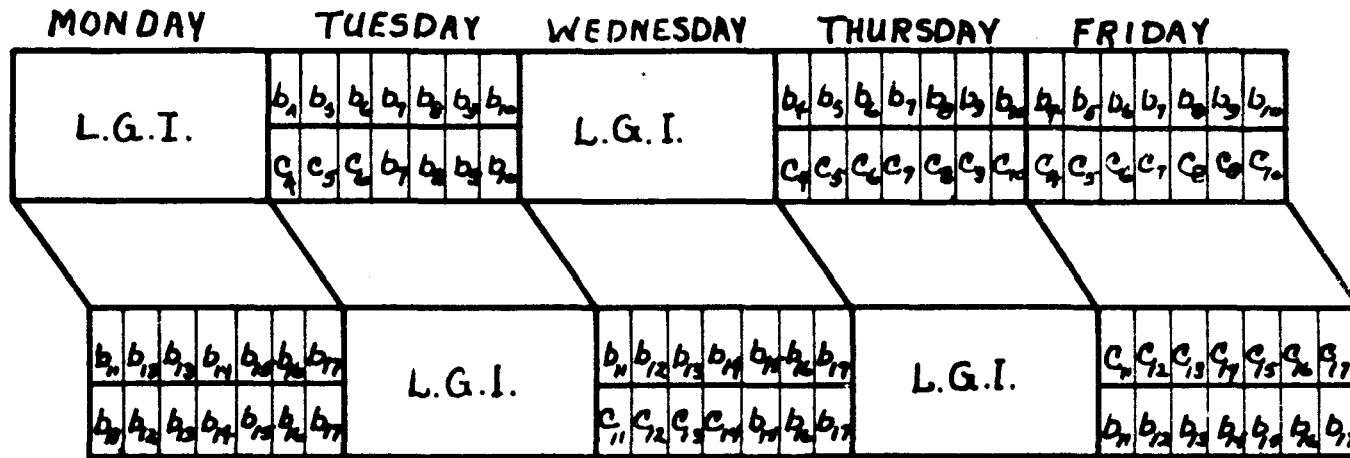


FIGURE 2

TIME AND STAFF UTILIZATION IN TEACHING TWO SECTIONS IN ALGEBRA

CODE:

L.G.I.: LARGE GROUP INSTRUCTION

b_N : SMALL GROUP INSTRUCTION

c_N : INDEPENDENT STUDY INSTRUCTION

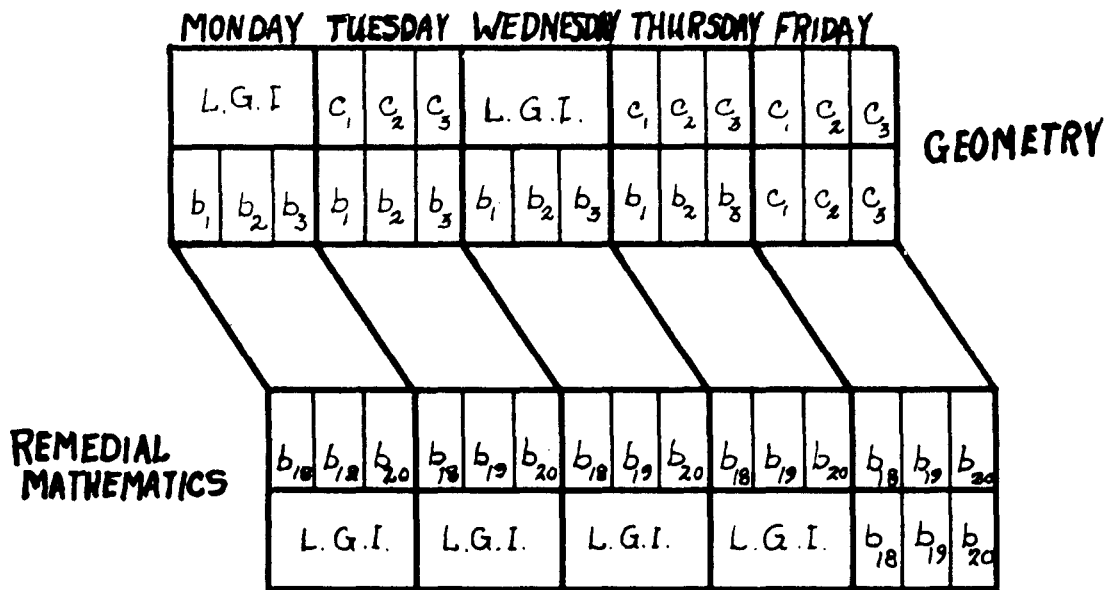


FIGURE 3

TIME AND STAFF UTILIZATION IN
TEACHING SECTIONS OF GEOMETRY
AND REMEDIAL MATHEMATICS

CODE:

L.G.I. : LARGE GROUP INSTRUCTION.

b_N : SMALL GROUP INSTRUCTION

c_N : INDIVIDUAL STUDY INSTRUCTION

The teaching staff at Chief Joseph Junior High School, in the subject area of mathematics, is comprised of eight teachers. Of these, seven have the master's degree, its equivalent, or are nearing completion of requirements for that level. The remaining staff member is essentially what could be classified as a beginning or intern teacher.

As may be seen, the possibility of the first seven being senior teachers, as well as staff teachers, is to be deemed quite important. This duality of role and joint leadership provides the necessary setting in which individual teachers can best use and further develop their individual talents. Also, with the combining of small-class groups into a large unit, through which large-group instruction is conveyed, should come the combining of knowledge of the subject or subjects being taught.

The sharpening of wits and challenge created by team planning should develop imaginative instructional materials and inspirational lesson plans or dynamic means for a truly high level of interaction. With this kind of leadership, curiosity or the inquiring mind of the students should rapidly develop.

However, the non-professional or non-instructional duties such as grading papers, collecting money, typing examinations, and a host of other tasks could be done just as competently and, undoubtedly, more efficiently by a clerical assistant. This assistant

could be hired on a half-day basis for each day of the week or at a minimum of one-half day a week. In this manner, the teaching staff could be freed to keep up with developments in their curricular area, to plan and prepare lessons, to develop imaginative instructional materials, and to improve evaluation of student work (9:8).

Utilization of Space

The space required for the types of instruction, which have been described, is quite definite. A list of needs is as follows:

(1) one large room for large-group instruction with a capacity of over one hundred; (2) seven small rooms or areas for small-group instruction with capacities of about fifteen each; and (3) space for over a hundred students for use in individual or independent study.

By close scrutinization of the floor plans and actual observation of the facilities of the plant, it was found that the large group could be placed in the auditorium, the cafeteria, or the band room with very little scheduling difficulty. The cafeteria was ruled out because of distracting noises from the kitchen, poor acoustics, and because all students would be on the same level rather than at different elevations, thus decreasing the optimum conditions for visual contact.

Small-group space, for approximately fifteen individuals, was exceedingly difficult to find when kept within these strict size limits. It was found that the available space was in most cases either

too large or too small.

A list of these spaces included two small rooms in the library, a large conference room adjoining the counselors' suite, three over-size classrooms capable of holding about sixty each, and a large number of traditional-sized classrooms with capacities of about forty each.

By testing acoustics, it was seen that two small groups could be placed in a regular classroom and three groups could use an oversize classroom, with little or no distraction resulting from talking in an adjoining group.

Individual study created a major problem until, by referring to Harper, Parnell, and Oliver, visualization of not all students being at the same place at the same time became clear. The students may select one of three places to study: (1) the cafeteria study area where students may study and talk together; (2) the quiet study area, which can be located in a vacant classroom; and (3) the library, where a full-time librarian is on hand to aid students in research projects (4:13).

Utilization of Material Aids

A variety of material aids must be provided in conjunction with the types of instruction involved. Chief Joseph Junior High School is quite fortunate in having a large amount of these aids in

its possession at present.

Aids, which can be used in large-group instruction, are microphones, overhead projectors, slide projectors, 16 mm film projectors, and tape recorders.

In independent study, the need becomes more individual in that the use of reference materials, models, mechanical teaching and self-appraisal devices, charts, and do-it-yourself kits can be employed as visual aids to learning. Tapes and tape recorders can be used to review for examinations or to listen to a lecture missed because of absence.

CHAPTER IV

SUMMARY AND RECOMMENDATIONS

Summary

Flexible scheduling practices can be adopted which will result in a higher quality of education now and in the future.

Utilization of staff, space, and material aids, especially money, can approach maximum efficiency and the savings can be channeled into further improvements in education.

With this efficiency will come a more ideal learning situation, for the student, in which he will be allowed to be creative and inquiring. By allowing such freedom, the student may be able to accomplish his purpose of growth in self-realization and social responsibility.

Training of Staff

Teachers should be employed for a period of not less than three weeks in a summer workshop prior to taking part in such a curricular change. The purpose of this is (1) to familiarize themselves with the team-teaching approach; (2) to make plans; (3) to develop materials; and (4) to find individual talents which can be used.

Proposed Evaluation Devices

Since this is just a proposed schedule, action has not taken place and, as such, evaluation devices have not been needed.

However, when this study took place, certain criteria were kept in mind. These are:

- (1) national standardized achievement tests to compare the learning gained from this curriculum with that of the traditional pattern;
- (2) teacher self-evaluation;
- (3) teacher evaluation made by the pupils;
- (4) teacher evaluation made by other teachers;
- (5) evaluation of human costs; and
- (6) evaluation of material costs.

Parental Information

The parents must be informed of the imminent curricular change. A letter can be sent to each individual home in the district, not only to those who have school-age children, describing what will take place, how it will be accomplished, what material and human resources will be needed, and what values should materialize if this program is adopted. In this letter, an invitation should be tendered to the citizenry to participate in evening sessions at the school in which their specific questions can be dealt with.

Student Information

The learner must be informed that his role as a student will be changed. Role-expectations must be clearly defined so that the learner does not meet with a bewildering and frustrating learning experience.

An orientation day can be spent in which all students go to an assembly or large-group lecture on the types of instruction and the students' role in each. After the completion of the large-group lecture, the students can be divided into smaller groups in which specific questions can be asked.

BIBLIOGRAPHY

BIBLIOGRAPHY

1. Brown, B. Frank. The Ungraded Highschool. Prentice-Hall, Inc., Englewood Cliffs, New Jersey, 1963.
2. Bruner, Jerome. The Process of Education. Harvard University Press, Cambridge, Massachusetts, 1961.
3. Bush, Robert N., and Dwight W. Allen. A New Design for High School Education. McGraw-Hill, Inc., New York, 1964.
4. Harper, P. S., Dale Parnell, and E. E. Oliver, "The Daily Schedule--Shorter Periods, Longer Periods, Variable Periods, or What?" The Bulletin of the National Association of Secondary School Principals, Vol. 45, No. 264, April, 1961 (pp. 12-17).
5. Report of the President's Commission on National Goals, Goals for Americans. Prentice-Hall, Inc., Englewood Cliffs, New Jersey, 1960.
6. Saylor, J. Galen, and William M. Alexander. Curriculum Planning for Better Teaching and Learning. Holt, Rhinehart and Winston, New York, 1962.
7. Taba, Hilda. Curriculum Development, Theory and Practice. Harcourt Brace, New York, 1962.
8. Trump, J. Lloyd, "Developing and Evaluating a Class Schedule to Help Each Pupil Learn Better," Journal of Secondary Education, Vol. 36, No. 6, October 61 (pp. 338-345).
9. Trump, J. Lloyd, and Dorsey Baynham. Focus on Change-- Guide to Better Schools. Rand-McNally and Co., Chicago, 1961.
10. Trump, J. Lloyd, New Horizons for Secondary School Teachers, National Association of Secondary School Principals, National Education Association, Washington, D. C., 1957.

APPENDIX

PERIOD	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
	ALGEBRA-L.G.I.	ALGEBRA-L.G.I.	ALGEBRA-L.G.I.	ALGEBRA-L.G.I.	INDIVIDUAL PLANNING
	ALGEBRA-L.G.I.	ALGEBRA-L.G.I.	ALGEBRA-L.G.I.	ALGEBRA-L.G.I.	INDIVIDUAL PLANNING
	GEOMETRY-L.G.I.	INDIVIDUAL PLANNING	GEOMETRY-L.G.I.	INDIVIDUAL PLANNING	INDIVIDUAL PLANNING
	GEOMETRY-S.G.I.	GEOMETRY-S.G.I.	GEOMETRY-S.G.I.	GEOMETRY-S.G.I.	INDIVIDUAL PLANNING

	ALGEBRA-S.G.I.	ALGEBRA-S.G.I.	ALGEBRA-S.G.I.	ALGEBRA-S.G.I.	ALGEBRA-S.G.I.
	ALGEBRA-S.G.I.	TEAM PLANNING	TEAM PLANNING	TEAM PLANNING	ALGEBRA-S.G.I.
	REMEDIATION-S.G.I.	REMEDIATION-S.G.I.	REMEDIATION-S.G.I.	REMEDIATION-S.G.I.	REMEDIATION-S.G.I.
	GEOMETRY-S.G.I.	GEOMETRY-S.G.I.	GEOMETRY-S.G.I.	GEOMETRY-S.G.I.	REMEDIATION-S.G.I.

	ALGEBRA-S.G.I.	ALGEBRA-S.G.I.	ALGEBRA-S.G.I.	ALGEBRA-S.G.I.	ALGEBRA-S.G.I.
	ALGEBRA-S.G.I.	TEAM PLANNING	TEAM PLANNING	TEAM PLANNING	ALGEBRA-S.G.I.
	REMEDIATION-S.G.I.	REMEDIATION-S.G.I.	REMEDIATION-S.G.I.	REMEDIATION-S.G.I.	REMEDIATION-S.G.I.
	REMEDIATION-L.G.I.	REMEDIATION-L.G.I.	REMEDIATION-L.G.I.	REMEDIATION-L.G.I.	REMEDIATION-S.G.I.

	ALGEBRA-S.G.I.	ALGEBRA-S.G.I.	ALGEBRA-S.G.I.	ALGEBRA-S.G.I.	ALGEBRA-S.G.I.
	ALGEBRA-S.G.I.	ALGEBRA-S.G.I.	ALGEBRA-S.G.I.	TEAM PLANNING	ALGEBRA-S.G.I.

	ALGEBRA-S.G.I.	ALGEBRA-S.G.I.	ALGEBRA-S.G.I.	ALGEBRA-S.G.I.	ALGEBRA-S.G.I.
	ALGEBRA-S.G.I.	ALGEBRA-S.G.I.	TEAM PLANNING	TEAM PLANNING	ALGEBRA-S.G.I.

FIGURE 4

WEEKLY SCHEDULES FOR THE TEACHING STAFF

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
	ALGEBRA - L.G.I.	ALGEBRA - S.G.I.	ALGEBRA - L.G.I.	ALGEBRA - S.G.I.	ALGEBRA - S.G.I.
	ALGEBRA - L.G.I.	ALGEBRA - I.S.I.	ALGEBRA - L.G.I.	ALGEBRA - I.S.I.	ALGEBRA - I.S.I.
	ALGEBRA - L.G.I.	ALGEBRA - S.G.I.	ALGEBRA - L.G.I.	ALGEBRA - S.G.I.	ALGEBRA - S.G.I.
	ALGEBRA - L.G.I.	ALGEBRA - S.G.I.	ALGEBRA - L.G.I.	ALGEBRA - I.S.I.	ALGEBRA - I.S.I.
	ALGEBRA - S.G.I.	ALGEBRA - L.G.I.	ALGEBRA - S.G.I.	ALGEBRA - L.G.I.	ALGEBRA - I.S.I.
	ALGEBRA - S.G.I.	ALGEBRA - L.G.I.	ALGEBRA - I.S.I.	ALGEBRA - L.G.I.	ALGEBRA - S.G.I.
	ALGEBRA - S.G.I.	ALGEBRA - L.G.I.	ALGEBRA - S.G.I.	ALGEBRA - L.G.I.	ALGEBRA - I.S.I.
	ALGEBRA - S.G.I.	ALGEBRA - L.G.I.	ALGEBRA - S.G.I.	ALGEBRA - L.G.I.	ALGEBRA - S.G.I.
	GEOMETRY - L.G.I.	GEOMETRY - I.S.I.	GEOMETRY - L.G.I.	GEOMETRY - I.S.I.	GEOMETRY - I.S.I.
	GEOMETRY - S.G.I.	GEOMETRY - S.G.I.	GEOMETRY - S.G.I.	GEOMETRY - S.G.I.	GEOMETRY - I.S.I.
	REMEDIAL - S.G.I.	REMEDIAL - S.G.I.	REMEDIAL - S.G.I.	REMEDIAL - S.G.I.	REMEDIAL - S.G.I.
	REMEDIAL - L.G.I.	REMEDIAL - L.G.I.	REMEDIAL - L.G.I.	REMEDIAL - L.G.I.	REMEDIAL - S.G.I.

FIGURE 5

WEEKLY SCHEDULES FOR THE NINTH GRADE STUDENTS