

THE PLACE OF HEALTH INSTRUCTION IN THE CURRICULUM  
OF THE SENIOR HIGH SCHOOLS IN KANSAS

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O. F.

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## CHAPTER I

### THE PROBLEM AND DEFINITION OF TERMS USED

One of the basic needs involved in the successful life of our youth is health. In the Cardinal Principles of Secondary Education is found a statement of seven objectives of education. The first of these recognized objectives is the development and maintenance of sound health in the youth of our nation.<sup>1</sup> A well rounded and carefully planned program of health instruction will contribute to the attainment of this objective.

#### I. THE PROBLEM

Statement of the problem. This thesis discusses the problem of scheduling health instruction in the senior high schools. This problem is found in many schools of our State. To find a definite place for health instruction in the curriculum is a great problem that needs immediate attention. It is the purpose of this study to determine the contents of a health course in order to illustrate the need for more time allotted to health instruction and to arrive at an ideal method of scheduling instruction.

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<sup>1</sup>Charles C. Wilson, Health Education, (Washington: National Education Association, 1943), p. 3.

Too often health instruction is left to "chance", on the possibility that health areas will be correlated with other subject matter. Administrators need to take the initiative in alleviating this problem.

Importance of the study. The foremost problem of health instruction in the curriculum of the senior high school is that of scheduling health instruction. The school administrators need to believe in and emphasize this phase of the educational program. In improving the scheduling of health instruction the administrators will (1) need to hire trained health instructors, (2) need to suggest that the state raise the health certification standards, and (3) request that teacher education institutions offer a major in health education.<sup>2</sup>

The author believes that health instruction has a definite place of its own in the school curriculum. Of the "Ten Imperative Needs of Youth," as listed in the Secondary School Handbook of Kansas, six are concerned with the health needs of our youth. The members of the Kansas State Board of Education feel that these needs are important and suggest that the principals base their program

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<sup>2</sup>American Association for Health, Physical Education, and Recreation, Administrative Problems in Health Education, Physical Education and Recreation. (Washington, D. C.: 1953), p. 20.



to serve the needs of all youth. Health instruction, if placed in the curriculum, should assist in this endeavor. The six imperative needs which are directly concerned with health instruction are listed below:<sup>3</sup>

2. All youth need to develop and maintain good health and physical fitness.

3. All youth need to understand the rights and duties of the citizens of a democratic society and to be diligent and competent in the performance of their obligations as members of the community and citizens of the state and nation.

4. All youth need to understand the significance of the family for the individual and society and the conditions conducive to successful family life.

6. All youth need to understand the methods of science, the influence of science on human life, and the main scientific facts concerning the nature of the world of men.

8. All youth need to be able to use their leisure time well and to budget it wisely, balancing activities that yield satisfactions to the individual with those that are socially useful.

9. All youth need to develop respect for other persons, to grow in their insight into ethical values and principles, and to be able to live and work co-operatively with others.

Health instructors should therefore be trained and employed for the sole purpose of teaching health. At the present time science instructors, home economists, and physical education instructors are qualified by the State

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<sup>3</sup>Kansas Secondary School Handbook. (Topeka, Kansas: State Department of Education, 1956), p. 15.

to teach health. These are the qualifications recommended by the Kansas State Board of Education for:<sup>4</sup>

Science: Teacher Preparation Requirements

Class A: Twenty-four semester hours with a minimum of six semester hours in the particular subject taught.

Practical Arts: Teacher Preparation Requirements

Home Economics

Class A: A minimum of twenty-four semester hours in home economics distributed as follows:

Six semester hours in foods and nutrition in courses such as: Foods (preparation, selection and marketing, meal planning and service), nutrition, dietetics and school food service.

Six semester hours in clothing, textiles and related art courses such as: Clothing construction, clothing selection and buying, costume design, clothing design and textiles.

Six semester hours in home and family living from courses such as: Housing, home furnishings, home management or home administration, family finance, consumer buying, family health, home nursing or home care of the sick, family relations, child development, personal health and development.

Six semester hours from the above areas according to the student's needs.<sup>5</sup>

Physical Education: Teacher Preparation Requirements

Class A: Twenty semester hours, including five semester hours in the field of health, physiology, first aid or hygiene and ten semester hours in the field of physical education including teaching methods in physical education.<sup>6</sup>

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<sup>4</sup>Ibid., p. 65.

<sup>5</sup>Ibid., p. 68.

<sup>6</sup>Ibid., p. 71.

Health educators believe that science instructors may have the tendency to be too technical<sup>7</sup> and physical education instructors, if allowed to make their own health schedule planning, may limit health instruction to "rainy-days". Experience and observation, by the author, have indicated the lack of interest in teaching health by the physical educator, home economist and the science instructor. In solving the problem of scheduling health instruction these other factors will emerge and may be solved.

## II. DEFINITION OF TERMS

Senior high school. Since the study includes school systems with the six-three-three as well as the eight-four educational plan, a senior high school will be defined as that part of secondary schools that provides for the educational needs of both boys and girls in grades nine through twelve.

Curriculum. The curriculum consists of the everyday situation faced by the learner under the guidance or supervision of the school.

The curriculum may be thought of, then, as all of the selected and guided experiences provided by the

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<sup>7</sup>G. L. Brownell, E. L. Vernier and J. F. Williams, The Administration of Health Education and Physical Education. (Philadelphia: W. B. Saunders Company, 1958), p. 135.



school, including responsibility of the staff for the equality of these experiences which are directed toward providing the needs both of individuals and of the group.<sup>8</sup>

Scheduling. Scheduling refers to the method of setting aside a fixed time and place for instruction.

Health instruction. "Health and safety instruction describes the organization of learning experiences directed toward the development of favorable health and safety knowledge, attitudes, skills and practices."<sup>9</sup>

### III. LIMITATIONS OF THE STUDY

The present study is not concerned with that phase of health education which involves healthful school living and health services. Brownell, in describing this phase of the health education program, states:

a. Healthful school living includes the appropriate measures taken by educational authorities to ensure a wholesome environment for pupils and employees.<sup>10</sup>

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<sup>8</sup>Rosalind Cassidy, Curriculum Development in Physical Education. (New York: Harper and Brothers, Publishers, 1954), p. 30.

<sup>9</sup>C. L. Brownell, Principles of Health Education Applied. (New York: McGraw-Hill Book Company, Inc., 1949), p. 5.

<sup>10</sup>Ibid.

b. Health services represent the combined efforts of physicians, dentists, nurses, teachers, psychologists, parents and others to determine health status, prevent diseases and obtain the means of correcting remediable defects among students and school personnel.<sup>11</sup>

The scheduling of health instruction in the senior high schools is of great concern to education today. This study is limited to the senior high schools of Kansas with the enrollment of 1,000 or more. The junior high schools, as part of the secondary schools,<sup>12</sup> are not included.

Although the methods and procedure of teaching health and the qualifications of the instructors are essential to the health instruction program, they will not be discussed in this study because the author believes they are a study in themselves.

The author will limit the discussion to the time element in the scheduling of health instruction. The objectives of the health course will be discussed in order to bring out the desirability and educational validity of the health instruction program. Suggested content will aid in justifying the extent of the allotted time set aside for the instruction of health.

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<sup>11</sup>Ibid.

<sup>12</sup>Kansas Handbook, op. cit., p. 32.

#### IV. PROCEDURES USED

Related reading. Research in related literature was done on curriculum construction, methods and procedures in teaching health, and on principles and organization of health education to determine the requirements of the health educational program.

Informational analysis. Comparison and generalization of current health text and course of studies were undertaken by the author to arrive at the recommended major areas of concentration for a health course.

Test. To determine pupil achievement and to determine if knowledge and interest are higher in the schools scheduling health instruction by the semester or its equivalent in number of days, the Trusler-Arnett "Health Knowledge test" was given to the senior high schools who volunteered to administer the test to a group of students enrolled in health. This test was used since it has a reliability coefficient of .86 and the norms were established from a computation of scores made by students in the Middle-West.

Questionnaire. A questionnaire was constructed and given to the health instructors who taught the course

to determine some factors which may have influenced the test results. The questions pertained to educational background, text used and schedule planning. The questionnaires are to be found in the appendix.<sup>13</sup>

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<sup>13</sup>Appendix D - J, pp. 49-55.



## CHAPTER II

### THE HEALTH INSTRUCTION PROGRAM

In the Seven Cardinal Principles of Secondary Education the first objective listed is health. This implies that education for healthful living is of first importance. If such is the case there should be a definite place in the curriculum of the senior high schools. Bucher states that:

A concentrated course in health education should be required of all students at least for one and preferably two years at the secondary level. Health educators should teach such courses and these subjects should be given the same credit and time allotment as other important ones in the curriculum.<sup>1</sup>

A planned program of health instruction aimed at the development of intelligent health behaviors on the part of all students is essential to the school's health education program. If the health education program at the senior high school level is to be truly effective in improving the knowledge, attitudes and behavior of young people, it must be centered around the individual's needs, abilities and interests.<sup>2</sup> Health instruction needs

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<sup>1</sup>Charles A. Bucher, Administration of School Health and Physical Education Program. (St. Louis: The C. V. Mosby Company, 1955), p. 100.

<sup>2</sup>Ruth E. Grout, Health Teaching in Schools. (Philadelphia: W. B. Saunders Company, 1958), pp. 246-248.

to guide young people in doing that which is good for themselves and others. At the high school level, the health instruction program has a definite place in the curriculum.

## I. OBJECTIVES

The health course may have the following or similar general objectives as suggested by Brace:<sup>3</sup>

1. To develop in students a breadth of vision and an awareness of their responsibility for a health program which will contribute to the improvement of the health and living conditions of all of the people.
2. To develop in students a knowledge of and a desire for positive health, and to build health practices which will function in safeguarding the health of the individual, the family and the community.
3. To develop in students an understanding of and a competence in procedure and skills for dealing with illness and emergencies in the home and the community.
4. To develop in students, through instruction and guidance, an appreciation of the health professions, and to lead students who are inclined in that direction to the selection of a health profession as a vocation.

Turner, Sellery and Smith<sup>4</sup> support the above objectives in their major objectives of the school health

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<sup>3</sup>David K. Brace, Health and Physical Education for Junior and Senior High Schools. (New York: A. S. Barnes and Company, 1948), pp. 28-29.

<sup>4</sup>C. E. Turner, C. Morley Sellery and Sara Louise Smith. School Health and Health Education. (St. Louis: The C. V. Mosby Company, 1957), p. 43.

education program. They, too, indicate the significance of correcting physical defects, and preventing and reducing the dangers of communicable disease.

The importance of developing and maintaining desirable health knowledge, health habits and mental attitudes toward health are further accentuated by these authors. It appears that the health instruction course would be an asset to the health education program.

## II. CONTENT

In order to reach the afore mentioned objectives, the contents of the health instruction program may contain the following areas recommended by the White House Conference Recommendation for Course of Study: (1) food habits and nutrition, (2) sunshine and fresh air, (3) rest and sleep, (4) exercise, (5) body cleanliness, (6) elimination, (7) hygiene of special organs, (8) posture, (9) sanitation and prevention measures, (10) clothing, (11) safety and first-aid, (12) mental hygiene, (13) sex education, (14) alcohol, tobacco and drugs, and (15) physiology and anatomy.

Health textbooks for senior high school instruction are gradually increasing in numbers and improving in quality. In order to arrive at the above suggested units, five recent references suitable for the high school student have been



analyzed by comparison and generalization.<sup>5</sup> A committee for the revision of the course of study of health in the Kansas City, Missouri, school system cited seven textbooks as references.<sup>6</sup> The author of this thesis was able to obtain and review only five of these references.

This phase of the study was extended to include courses of study<sup>7</sup> in order that a comparison could be made between the suggested contents of health educators and those of school personnel. Courses of study are used to guide the instructor in giving instructions in health and are being used widely in large school systems to provide uniformity of instruction.

The analysis indicates very little difference in suggested content. This difference can be seen in the areas under attitudes toward sports and progress of medical science. If this is the case, it can be assumed that the content should include the afore mentioned units. It seems imperative that "the content covered at the secondary level should also be adapted to the needs and interests of the students in this age group."<sup>8</sup>

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<sup>5</sup>Appendix A, pp. 35-39.

<sup>6</sup>Ibid., pp. 35-39.

<sup>7</sup>Appendix B, pp. 40-44.

<sup>8</sup>Bucher, op. cit., p. 257.

### III. STUDENTS' INTERESTS

The interests of the student are an important factor in planning the contents in the health instruction program. The Research Quarterly of the American Association for Health, Physical Education and Recreation for October, 1952, reports that health interests of 10,000 secondary school students from twenty-six high schools of ten different states were ascertained by use of the Byrd Health Inventory of 300 Items. The schools were located in highly populated cities, as well as rural areas. Ninety per cent of the twenty-five health items of greatest interest to boys and girls were identical. A computation of the health interests of students, listed according to frequency of choice, is as follows:<sup>9</sup>

1. Habit Forming Substances
2. Safety
3. Family Health
4. Mental Health
5. Exercise and Body Mechanics
6. Health as a Social Problem
7. Care of Special Organs
8. Health and the Physical Environment
9. Health as a Social Accomplishment
10. Chronic and Degenerative Disorders
11. Fatigue and Rest
12. Nutrition and Health
13. Infection and Immunity
14. School Health
15. Heredity and Immunity

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<sup>9</sup>Joseph E. Lantagne, "Health Interests of 10,000 Secondary School Students," The Research Quarterly, (October, 1952), p. 332.

16. Community Health
17. Excretion and Health
18. Health Services and Facilities
19. Occupational Health
20. Trends and Possibilities
21. International Health

The health textbooks and courses of study analyzed have not failed to consider, in their recommended areas of study, the above student interests. The analyses do, however, indicate a need for enlarging the trends and possibilities in health and in international health.

Similar surveys have been made--one being that of Jonathan Dayton Regional High School, Springfield, New Jersey, where 485 questionnaires were given--and the results were as follows:<sup>10</sup>

1. Twenty-four indicated that they disliked health.
2. The subjects of most interest were alcoholism, narcotics addiction, social diseases, mental illness and most phases of first-aid and driver education.
3. Subjects students felt most important were the following: (a) discussing and solving teen-age problems; (b) studying emotions and personalities;

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<sup>10</sup>Joan L. Hoffman, "Health Classes Teen-Agers Like," Journal of Health, Physical Education and Recreation. (November, 1955), p. 31.



and (c) sex education, child care and preparation for marriage.

This was by no means a survey of equivalent groups but it is a method of portraying the interests in the field of health instruction of the youth today.

The wide variety of pupil interests calls for a definite schedule planning. Since it is important in secondary education, it should be given its place in the curriculum and be taught in consecutive daily periods. Brownell, Vernier and Williams<sup>11</sup> state, "Full five periods of direct health teaching are recommended. . . ." Grout<sup>12</sup> states that, "In the secondary schools, as in the elementary, time must be allowed for health teaching." She informs us that separate courses, with consecutive time allotments, are suggested by the American Association of School Administrators as being the most effective means of instructing health.

In order to sufficiently instruct the students in the major health areas, developed from the needs and interests of the students, more thought needs to be given to the scheduling of health instruction.

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<sup>11</sup>Brownell, Vernier and Williams, op. cit., p. 13.

<sup>12</sup>Grout, op. cit., p. 196.

In comparing the physical needs of students, as given by Grout,<sup>13</sup> with the student interests listed by Joseph E. Lantiagne, a close correlation can be observed. Examples of this are as follows: At the high school age growth in height and weight is occurring at a rapid rate, especially in boys, and interests listed which correspond to this are habit forming substances and those pertaining to nutrition and health. Exercise, play, sleep and rest are all listed as important needs, while exercise, body mechanics, fatigue and rest are included in the list of student interests.

Illness and disease are growing problems at this age level and the students realize these needs by their growing concern for family health, health as a social accomplishment, chronic and degenerative disorders, infection and immunity, school health, and health services and facilities. Perhaps their interest in safety education stems from the fact that they are susceptible to accidents and injuries. In regard to emotional and sex adjustments, at this age our youth show an interest in the opposite sex. This is illustrated by their concern for family health and mental hygiene.

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<sup>13</sup>Ibid., pp. 246-247.

A view of the analysis of courses of study and health textbooks in the appendix<sup>14</sup> is a good indication that health instruction programs are dealing with the needs and interests of the student.

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<sup>14</sup>Appendix A and B, pp. 35-44.

## CHAPTER III

### THE SCHEDULING OF HEALTH INSTRUCTION

Administrators have handled the scheduling of health instruction utilizing various plans. The American Association for Health, Physical Education and Recreation gives us these three general procedures of scheduling health instruction for high school students:

1. separate courses in health education,
2. establishment of specific areas of work in health education in already existing courses other than physical education, and
3. a combined health and physical education class organized so that specific periods are devoted to health instruction and other periods devoted to physical education periods.<sup>1</sup>

#### I. COMMON PRACTICES IN SCHEDULING

Some practices in scheduling health instruction now in use are: (1) unit plan: conducting classes for a semester, nine weeks or six weeks; (2) three-two days: health is taught on Tuesdays and Thursdays and physical education is taught the remainder of the days of the week; (3) occasionally: classes are scheduled on rainy days or on days when the boys have the gymnasium; (4) integration;

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<sup>1</sup>AAHPER, op. cit., p. 11.



through the biological sciences, social studies or home economics.<sup>2, 3, 4</sup>

Ned L. Warren, former Supervisor of Health and Physical Education, Arlington County Public Schools, Arlington, Virginia, presented the following plan based on an experimentation and investigation:<sup>5</sup>

A semester of health education and a semester of physical education in the seventh grade.

A full year of health education in the eighth grade.

A semester of health education and a semester of physical education in the ninth grade.

A semester of health education and a semester of physical education in the tenth grade.

A full year of physical education in the eleventh grade.

A semester of health education and a semester of physical education in the twelfth grade.

Warren's study began in 1948, and was brought about by criticism of the three-two day play of physical education and health instruction. In 1952-55, he had compiled evidence which indicated that the semester plan had many

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<sup>2</sup>Brace, loc. cit.

<sup>3</sup>Grout, op. cit., p. 197.

<sup>4</sup>Delbert Oberteuffer, School Health Education. (New York: Harper and Brothers, 1954), pp. 90-98.

<sup>5</sup>Ned L. Warren, "A New Plan for Scheduling Health Education," Journal of Health, Physical Education and Recreation, December, 1956, pp. 12-13.

advantages over the previous plan. Some of these advantages could be stated as: (1) the school board hiring health instructors, (2) the school board providing health rooms and equipment, (3) the development of interest in health, and (4) development of definite plans of instruction.

Administrators in Arlington believe that the afore stated method surpasses all other methods since the units of instruction are more concentrated.<sup>6</sup>

Oberteuffer, in discussing grade placement and time allotment for direct health teaching, indicates a survey of opinions and recommendations from various organizations, groups and experts in health education. The opinions are better portrayed in Table I, page 22, by Oberteuffer.

The "most frequent recommendations of state departments of education are for daily class periods for one or two semesters."<sup>7</sup>

The Kansas State requirements for graduation include one unit of health and physical education. It is stated in the handbook as follows:

Credit in physical education, not to exceed one-half unit; may be granted for physiology and hygiene, first-aid, and health. If credit is given in physical

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<sup>6</sup> Ibid.

<sup>7</sup> Grout, loc. cit.

TABLE I

TIME ALLOTMENT AND GRADE PLACEMENT FOR  
 DIRECT HEALTH TEACHING\*

Grade	Best	Next Best	Least Desirable
9	1 class period a day for a semester	1 class period 3 times a week for a semester	1 class period once a week for a year
10 11	1 class period a day for a semester	1 class period 3 times a week for a semester	1 class period once a week for a year
12	1 class period a day for a semester	1 class period 3 times a week for a semester	1 class period once a week for a year

\*Delbert Oberteuffer, op. cit., p. 90.



education for any of these subjects, it cannot be given in any other field.<sup>8</sup>

Physical education is so defined by the State Board of Education that credit can be received for health and physical education without having formal health instruction. It is the author's opinion that the State should clarify this requirement in order to provide for both health and physical education in the curriculum of the senior high schools. The State defines their physical education requirement as follows:

Physical education is that part of general education which proceeds to the development of knowledges, skills, and health habits through physical activity and the study and application of the sciences and arts that contribute to physical fitness.<sup>9</sup>

## II. SURVEY AND TESTING

In the study, conducted by the author, of the senior high schools in Kansas with an enrollment of 1,000 or more, it was found that nine schools have no formal health instruction classes, two schools schedule health yearly on the two-three days per week plan, and five schools use the unit plan. In the schools using the unit plan, one is on a six weeks basis, two schools are on the nine weeks

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<sup>8</sup>Kansas Handbook, op. cit., p. 45.

<sup>9</sup>Ibid., p. 44.

basis, one school is on a twelve weeks basis, and one school is on the eighteen weeks basis or one semester.

Table II, page 25, indicates the results of the Trusler-Arnett "Health Knowledge Test" given to students in the four senior high schools which cooperated in administering the tests. This test is designed to measure knowledge for grades nine through the first two years of college. The test was composed of matching completion, true-false and multiple choice questions which were used to cover the various phases of health education. The test items were reviewed by teachers, supervisors and specialists in health education. (Reliability is .86) Two similar forms are available but the author limited the testing to form A for simplicity.

In considering the health knowledge tests these additional tests were studied:<sup>10</sup>

1. "Gates-Strang Health Knowledge Test," consists of Multiple choice questions and having a reliability of .74 - .86.
2. "Kilander Health Knowledge Test," consists of multiple choice questions and has a reliability of .83.

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<sup>10</sup>Leonard A. Larson and Rachael Dunaven Yocom, Measurement and Evaluation in Physical, Health and Recreation Education. St. Louis: The C. V. Mosby Company, 1951), p. 247.

TABLE II

STUDENTS RANKING ABOVE THE SEVENTY-FIFTH PERCENTILE  
AND FIFTIETH PERCENTILE IN EACH SCHOOL GROUP

9th Grade		10th Grade		11th Grade		12th Grade		Sum	Health	Instruction	Total No. of Days
Boys Girls Total		Boys Girls Total		Boys Girls Total		Boys Girls Total		Total	Total	Total	
75%-ile	.50 .33 .44							.44			78
50%-ile	.65 .53 .61							.61			
A											

10th Grade		11th Grade		12th Grade		Sum	Health	Instruction	Total No. of Days
Boys Girls Total		Boys Girls Total		Boys Girls Total		Total	Total	Total	
75%-ile	.00 .80 .16	.00 .50 .44				.36			30
50%-ile	.00 1.00 .20	.00 .75 .67				.49			
B									

11th Grade		12th Grade		Sum	Health	Instruction	Total No. of Days
Boys Girls Total		Boys Girls Total		Total	Total	Total	
75%-ile	.00 .33 .30	.60 .13 .31		.30			45
50%-ile	1.00 .67 .70	.60 .62 .61		.65			
C							

11th Grade		Sum	Health	Instruction	Total No. of Days
Boys Girls Total		Total	Total	Total	
75%-ile	.39 .26 .31	.31			60
50%-ile	.61 .45 .52	.52			
D					



The author selected the Trusler-Arnett test due to its validity being reported higher and the fact that the standardization was made on the mid-western states.

In Table II, page 25, the percentile in the first column refers to the percentile norms which were computed from the scores made by 1,843 students in high school and college. The percentages in the following columns refer to the per cent of students who reached or exceeded the percentile norms indicated.

Table A refers to a class A, four year senior high school located in a first class city. Health instruction is taught on Tuesdays and Thursdays on the ninth grade level for an approximate total of seventy-eight days of instruction. The text used was Modern Health by Otto, Julian, Tether.

Table B refers to a class A, three year senior high school located in a first class city. Health instruction is taught daily for six weeks in the physical education course. No specific textbook was used by the tenth, eleventh, and twelfth grade girls. The boys used Physical Fitness for a textbook.

Table C refers to a class A senior high school located in a first class city and consisting of three years of secondary educational training. This health instruction class is a mixed group consisting of both boys and girls



in the eleventh and twelfth grade level and taught for nine weeks for a total of forty-five days of instruction. The textbook used is the Textbook of Anatomy and Physiology, by Kimber, and others.

Table D refers to a class A senior high school located in a first class city. Health instruction is taught in the eleventh grade for twelve weeks. No specific textbook is used.

Table II indicates that in school A forty-four percent of the students reached the seventy-fifth percentile or more. School B was second highest with thirty-six percent of the students reaching the seventy-fifth percentile or more. School D, having thirty-one percent of the students reaching the seventy-fifth percentile or more, was next.

Table II also designates that in considering the fiftieth percentile norms school C was first with sixty-five percent of the students reaching the fiftieth percentile or more. School A was second highest with sixty-one percent of the students reaching the fiftieth percentile or more.

School A had health instruction for approximately seventy-eight days where school C had health instruction for forty-five days.

Summary of survey testing. In the investigation of suggested methods of scheduling health instruction,

the author set up a study to survey the sample senior high schools and tried to obtain their consent to have a health test administered. Four schools, one scheduling health instruction every-other day and three scheduling health on consecutive days, concentrated to administer the test. In all schools tested the areas of weakness are: mental health, body systems, nutrition and first-aid.

## CHAPTER IV

### SUMMARY AND CONCLUSION

No course is of much value unless it is functional. Adequate emphasis of health instruction, taking into consideration age, grade, needs, interests and abilities of the student, should include the following units: (1) appearance and personality, (2) mental and emotional health, (3) stimulants and narcotics, (4) structure and function of the body, (5) foods and nutrition, (6) microbe menace and body defenses, (7) social health and public sanitation, (8) first-aid and safety, and (9) family life education. These are merely suggested units, since units should certainly be related to the health needs of the student and of his community, as well as being based on authorities in health education.

Since health is a foremost objective of education, organized emphasis in this area should not be left to chance or made elective. Health instruction as a "rainy day" subject in physical education is indefensible. Such a course should be planned to meet the needs of the pupils and required for graduation with credit.

Some of the advantages of a separate course could be stated as follows:

It gives the subject greater importance and so gains the respect from students as well as teachers. It enables all students to take the course. It permits normal-sized classes. The granting of grades and credit is facilitated. Boys and girls can be taught



in the same class-sectioning. Use can be made of teachers who are specifically trained in health education.<sup>1</sup>

One more factor involved is that of time. More time and concentrated classes are needed to cover the subject matter, from the standpoint of the students' needs and interests. The results of the test clearly indicate that more time needs to be allotted to the instruction of health, since health is of importance. It appears that the students in school A, receiving approximately seventy-eight days of health instruction, have acquired a more thorough knowledge of health.

The author believes that the above could be accomplished by placing health instruction in the sophomore year, or first year in high school, since it is here that the students require guidance in social, mental and physical needs involved with their new environment. If at all possible it should be offered as an elective in the senior year. This should be offered with credit and daily for one semester at both levels.

"The scheduling of classes, time allotments, credit, size of classes, books and materials, and the employment of trained teachers are all within the province of the administration."<sup>2</sup>

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<sup>1</sup>AAHPER, op. cit., p. 13.

<sup>2</sup>Ibid., p. 30.



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# APPENDIX

Volume 100

- XII

## APPENDIX

1. Name  
 2. Date  
 3. Place  
 4. Purpose  
 5. Name  
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 100. Purpose



# APPENDIX A

Topics recommended for health instruction classes from  
analyses of textbooks, grades IX - XII

## References

TOPICS	Health and Fitness	Health and Safety for You	Modern Health	Teen-Agers	Enjoying Health	Totals
<b>I. Appearance</b>						
1. Skin	X	X	X	X	X	5
2. Hair	X	X	X	X	X	5
3. Hands and nails	X	X	X		X	4
4. Feet	X	X	X		X	4
5. Posture	X	X	X	X	X	5
6. Eyes	X	X	X	X	X	5
7. Ears	X	X	X	X	X	5
8. Hair dyes		X				1
9. Cosmetics		X			X	2
10. Clothing				X	X	2
11. Overweight and underweight	X		X			2
12. Good teeth	X	X	X	X	X	5
<b>II. Physical Health</b>						
1. Physical examinations	X	X		X	X	4
2. Physical activity	X		X	X	X	4
3. Sleep and rest	X	X	X	X	X	5
4. Fatigue	X	X	X		X	4
5. Care of the body as whole					X	1
6. Care of nose and throat		X				1
7. Allergies	X	X	X	X	X	5

## References

TOPICS	Health and Fitness	Health and Safety for You	Modern Health	Teen-Agers	Enjoying Health	Totals
III. Food and Nutrition						
1. Vitamins	X	X	X		X	4
2. Minerals	X	X	X		X	4
3. Calories	X	X	X	X	X	5
4. Diet	X	X	X		X	4
5. Fads		X	X			2
IV. Structure and Function of the Body						
1. Digestive System	X	X	X	X	X	5
2. Circulatory	X	X	X	X	X	5
3. Respiratory	X	X	X	X	X	5
4. Excretory			X			1
5. Nervous	X	X	X	X	X	5
6. Muscular	X	X	X		X	4
7. Skeletal	X	X	X	X	X	5
8. Endocrine	X	X	X	X	X	5
9. Reproductive				X		1
V. Stimulants and Narcotics						
1. Tobacco	X	X	X	X	X	5
2. Alcohol	X	X	X	X	X	5
3. Narcotics and Drugs	X	X	X	X	X	5
VI. Safety and First Aid						
1. Traffic Safety	X		X	X	X	4
2. Fire hazards			X		X	2
3. Swimming		X	X	X	X	4
4. Accidents (Home)	X	X	X	X	X	5
5. First-aid	X	X	X		X	4
6. Equipment	X	X	X		X	4
VII. Environment						
1. Ventilation	X	X	X		X	4
2. Heating	X	X			X	3
3. Lighting	X	X			X	3

## References

TOPICS	Health and Fitness	Health and Safety for You	Modern Health	Teen-Agers	Enjoying Health	Totals
<b>VIII. Home Life</b>						
1. Human development		X		X	X	3
2. Parenthood		X		X	X	3
3. Heredity		X	X	X	X	4
4. Maternal and infant hygiene	X					1
5. Adolescence		X	X	X		3
6. Home care of the sick	X		X		X	3
7. Budget, time and money				X		1
<b>IX. Public Sanitation</b>						
1. Water	X	X	X		X	4
2. Food	X		X		X	3
3. Milk	X		X		X	3
4. Community cleanliness	X					1
<b>X. Social Health</b>						
1. Public health	X	X	X		X	4
2. Health agencies	X	X			X	3
3. Bacteriology	X	X	X		X	4
4. Scientific research	X					1
5. Public health nursing	X		X		X	3
6. Communicable diseases	X	X	X		X	4
7. Non-communicable diseases	X	X	X		X	4
8. Prevention of disease	X	X	X		X	4
9. Industrial hygiene	X				X	2
10. Vocational guidance				X		1



## References

TOPICS	Health and Fitness	Health and Safety for You	Modern Health	Teen-Agers	Enjoying Health	Totals
XI. Mental and Emotional Health						
1. Fear		X	X			2
2. Feelings of inferiority and superiority		X	X			2
3. Getting along with people	X			X	X	3
4. Dreams	X		X			2
5. Nervous disorders	X	X				2
6. Personality	X					1
7. Attitudes toward opposite sex	X	X		X		3
XII. Attitudes Toward Sports						
1. How to excel			X			1
2. Graceful figure			X			1
3. Athletics	X	X	X			3
4. Sportsmanship	X		X			2
XIII. Progress of Medical Science						
1. Patent medicines and quackery	X			X	X	3
2. Superstitions			X			1
3. Health fields--occupations		X			X	2



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# APPENDIX B

Topics recommended for health instruction classes from  
analyses of courses of study, grades IX - XII

## References

TOPICS	California	Chicago	Denver	Detroit	Philadelphia	St. Louis	Kansas City, Missouri	Totals
I. Appearance								
1. Skin	X	X	X	X	X	X	X	7
2. Hair	X	X	X	X	X	X	X	7
3. Hands and nails		X			X	X	X	4
4. Feet	X	X	X			X		4
5. Posture	X	X	X		X	X	X	6
6. Eyes	X	X	X	X	X		X	6
7. Ears	X	X	X	X	X	X	X	7
8. Hair dyes	X		X					2
9. Cosmetics	X	X		X		X		4
10. Clothing	X	X	X	X	X		X	6
11. Overweight and underweight		X	X	X	X	X		5
12. Good teeth	X	X	X	X	X	X	X	7
II. Physical Health								
1. Physical examinations	X	X		X	X	X	X	6
2. Physical activity	X	X	X	X	X		X	6
3. Sleep and rest	X	X	X	X	X	X	X	7
4. Fatigue		X	X		X	X		4
5. Care of the body as whole	X	X	X	X	X	X	X	7
6. Care of nose and throat	X	X	X			X	X	5
7. Correction of defects	X	X	X	X	X	X	X	6
8. Allergies	X	X	X		X	X		5

## References

TOPICS	California	Chicago	Denver	Detroit	Philadelphia	St. Louis	Kansas City, Missouri	Totals
III. Food and Nutrition								
1. Vitamins	X	X	X	X		X		5
2. Minerals	X	X	X	X		X		5
3. Calories	X	X	X	X		X		5
4. Diet	X	X	X	X	X	X	X	7
5. Fads		X			X	X		3
IV. Structure and Function of the Body								
1. Digestive System	X	X	X	X		X	X	6
2. Circulatory	X	X	X	X		X	X	6
3. Respiratory	X	X	X	X	X	X	X	7
4. Excretory	X	X	X	X	X	X	X	7
5. Nervous	X	X	X	X		X	X	6
6. Muscular	X	X	X	X		X	X	6
7. Skeletal	X	X	X	X		X	X	6
8. Endocrine	X	X	X	X	X	X	X	7
9. Reproductive	X	X	X	X		X	X	6
V. Stimulants and Narcotics								
1. Tobacco	X	X	X		X	X		5
2. Alcohol	X	X	X		X	X	X	6
3. Narcotics and Drugs	X	X	X	X	X	X	X	7
VI. Safety and First Aid								
1. Traffic safety	X	X	X	X	X	X		6
2. Fire hazards	X	X	X		X	X		5
3. Swimming (Water safety)		X		X	X	X		4
4. Accidents	X	X	X		X	X		5
5. First-aid	X	X		X	X	X		5
6. Equipment	X	X		X	X	X		5
VII. Environment								
1. Ventilation	X							1
2. Heating	X							1
3. Lighting			X					1



## References

TOPICS	California	Chicago	Denver	Detroit	Philadelphia	St. Louis	Kansas City Missouri	Totals
VIII. Home Life								
1. Human development	X		X		X	X		4
2. Parenthood	X	X	X		X			4
3. Heredity	X	X	X		X	X	X	6
4. Maternal and infant hygiene	X	X	X		X			4
5. Adolescence	X	X	X		X		X	5
6. Home care of the sick	X	X	X	X	X			5
7. Budget, time and money	X	X	X					3
IX. Public Sanitation				X		X		2
1. Water	X	X	X	X	X	X	X	7
2. Food	X	X	X	X	X	X	X	7
3. Milk	X	X	X	X	X	X	X	7
4. Community cleanliness	X	X	X	X	X	X	X	7
X. Social Health								
1. Public health	X	X	X	X	X	X	X	7
2. Health agencies	X	X	X	X	X	X	X	7
3. Bacteriology				X			X	2
4. Scientific research					X		X	2
5. Public health nursing	X		X		X	X		4
6. Communicable diseases	X	X	X	X	X	X	X	7
7. Non-communicable diseases	X	X	X	X	X	X	X	7
8. Prevention of disease	X	X	X	X	X	X	X	7
9. Industrial hygiene					X			1
10. Vocational guidance		X		X	X			3



## References

TOPICS	California	Chicago	Denver	Detroit	Philadelphia	St. Louis	Kansas City, Missouri	Totals
<b>XI. Mental and Emotional Health</b>								
1. Fear and worry	X	X	X		X	X		5
2. Feelings of inferiority and superiority	X	X			X	X		4
3. Getting along with people	X	X	X	X	X	X	X	7
4. Speech defects			X					1
5. Dreams								0
6. Nervous disorders					X	X	X	3
7. Personality	X	X	X		X	X	X	6
8. Attitude toward opposite sex	X	X	X	X	X	X	X	7
<b>XII. Attitudes Toward Sports</b>								
1. How to excell								0
2. Graceful figure	X		X	X				3
3. Athletics	X		X			X		3
4. Sportsmanship		X	X	X				3
<b>XIII. Progress of Medical Science</b>								
1. Ancient beliefs					X			1
2. Patent medicines and quackery	X			X	X		X	4
3. Superstitions	X		X		X			3
4. Health advertising	X		X	X				3
5. Health fields--occupations	X	X	X		X			4

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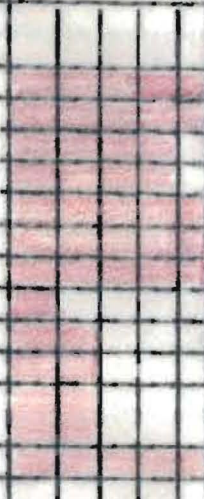
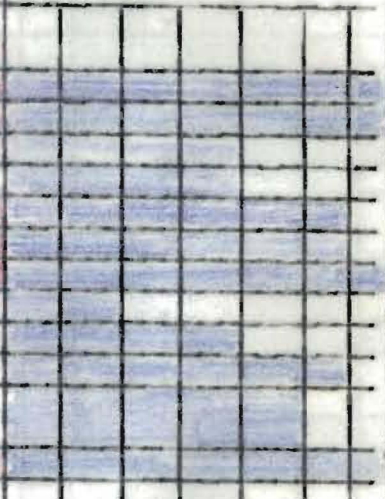
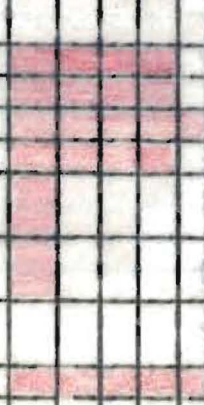
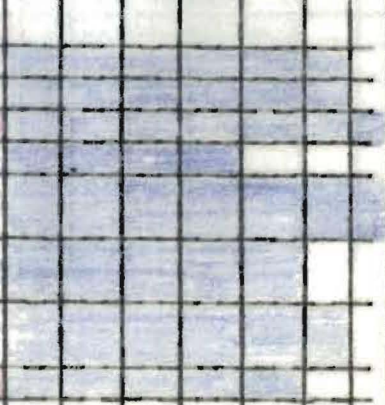
# APPENDIX C

Topics recommended for health instruction classes from  
analyses of textbooks and courses of study,

grades IX - XII

(Each color represents text and/or course of study)

## Coverage of Information

TOPICS	In Textbooks Studied	In Course of Studies Analyzed
I. Appearance 1. Skin 2. Hair 3. Hands and nails 4. Feet 5. Posture 6. Eyes 7. Ears 8. Hair dyes 9. Cosmetics 10. Clothing 11. Overweight and underweight 12. Good teeth		
II. Physical Health 1. Physical examinations 2. Physical activity 3. Sleep and rest 4. Fatigue 5. Care of the body as whole 6. Care of nose and throat 7. Correction of defects 8. Allergies		

## Coverage of Information

TOPICS	In Textbooks Studied	In Course of Studies Analyzed
III. Food and Nutrition		
1. Vitamins		
2. Minerals		
3. Calories		
4. Diet		
5. Fads		
IV. Structure and Function of the Body		
1. Digestive System		
2. Circulatory		
3. Respiratory		
4. Excretory		
5. Nervous		
6. Muscular		
7. Skeletal		
8. Endocrine		
9. Reproductive		
V. Stimulants and Narcotics		
1. Tobacco		
2. Alcohol		
3. Narcotics and Drugs		
VI. Safety and First Aid		
1. Traffic safety		
2. Fire hazards		
3. Swimming		
4. Accidents		
5. First-aid		
6. Equipment		
VII. Environment		
1. Ventilation		
2. Heating		
3. Lighting		



## Coverage of Information

TOPICS	In Textbooks Studied	In Course of Studies Analyzed
VIII. Home Life		
1. Human development		
2. Parenthood		
3. Heredity		
4. Maternal and Infant Hygiene		
5. Adolescence		
6. Home care of the sick		
7. Budget, time, and money		
IX. Public Sanitation		
1. Water		
2. Food		
3. Milk		
4. Community cleanliness		
X. Social Health		
1. Public Health		
2. Health agencies		
3. Bacteriology		
4. Scientific research		
5. Public health nursing		
6. Communicable diseases		
7. Non-communicable diseases		
8. Prevention of disease		
9. Industrial hygiene		
10. Vocational guidance		

## Coverage of Information

TOPICS	In Textbooks Studied				In Course of Studies Analyzed			
XI. Mental and Emotional Health								
1. Fear								
2. Feelings of inferiority and superiority								
3. Getting along with people								
4. Speech defects								
5. Dreams								
6. Nervous disorders								
7. Personality								
8. Attitude toward opposite sex								
XII. Attitudes Toward Sports								
1. How to excel								
2. Graceful figure								
3. Athletics								
4. Sportsmanship								
XIII. Progress of Medical Science								
1. Ancient beliefs								
2. Patent medicines and quackery								
3. Superstitions								
4. Health advertising								
5. Health fields--occupations								

APPENDIX D

QUESTIONNAIRE

School A

1. Health Instructor:

Male X

Female       

2. Graduated from the following college or university

Ottawa University

3. Students:

Girls       

Boys X

Mixed class       

4. Grade level:

9th X

10th       

11th       

12th       

5. Title of Textbook: Modern Health by Otto-Julian-Tethes

6. PROFESSIONAL PREPARATION: (Please indicate college credits)

Nutrition X

Chemistry       

Family Living       

Bacteriology X

First Aid X

Health Teaching Methods X

Safety Education X

School Health Education Program X

Community Health X

School Health Administration X

Mental Health X

Others:       

Biology X

Psychology X

Physiology X

Comments: At the time of the test we had not studied the two units in our text on Personality. This, of course, would have an effect on the scores.



APPENDIX E

QUESTIONNAIRE

School 1A

1. Health Instructor:

Male       

Female   X  

2. Graduated from the following college or university

Emporia State Teachers -- M. A. Peabody College, Nashville,  
Tennessee.

3. Students:

Girls   31  

Boys       

Mixed class       

4. Grade level:

9th   X  

10th       

11th       

12th       

5. Title of Textbook: Modern Health by Otto, Julian, Tether

6. PROFESSIONAL PREPARATION: (Please indicate college credits)

Nutrition       

Chemistry       

Family Living       

Bacteriology       

First Aid   X  

Health Teaching Methods   X  

Safety Education       

School Health Education Program   X  

Community Health   X  

School Health Administration       

Mental Health       

Psychology   X  

Biology   X  

Others: These are just guesses.

Physiology   X



APPENDIX F

QUESTIONNAIRE

School B

1. Health Instructor:

Male X

Female       

2. Graduated from the following college or university

K.S.T.C., Emporia, B.S. ; Kansas University, M.S.

3. Students:

Girls 17 Boys 6 Mixed class X

4. Grade level:

9th        10th        11th X 12th X

5. Title of Textbook: Textbook of Anatomy and Physiology  
Kunter, Gray, Slachpole and Leavell

6. PROFESSIONAL PREPARATION: (Please indicate college credits)

Nutrition       

Chemistry X

Family Living       

Bacteriology       

First Aid X

Health Teaching Methods       

Safety Education       

School Health Education Program       

Community Health       

School Health Administration       

Mental Health       

Psychology X

Biology X

Others:       

Physiology X

APPENDIX G

QUESTIONNAIRE

School B

1. Health Instructor:

Male X

Female       

2. Graduated from the following college or university

Bethany College

3. Students:

Girls       

Boys X

Mixed class       

4. Grade level:

9th       

10th X

11th X

12th X

5. Title of Textbook: Physical Fitness

6. PROFESSIONAL PREPARATION: (Please indicate college credits)

Nutrition       

Chemistry       

Family Living       

Bacteriology X

First Aid X

Health Teaching Methods       

Safety Education       

School Health Education Program       

Community Health X

School Health Administration X

Mental Health       

Psychology X

Biology X

Others:       

Physiology X

APPENDIX H

QUESTIONNAIRE

School C

1. Health Instructor:

Male \_\_\_\_\_

Female   X  

2. Graduated from the following college or university

Kansas State Teachers College, Pittsburg, Kansas.

3. Students:

Girls   X  

Boys \_\_\_\_\_

Mixed class \_\_\_\_\_

4. Grade level:

9th \_\_\_\_\_

10th   X  

11th   X  

12th   X  

5. Title of Textbook:

6. PROFESSIONAL PREPARATION: (Please indicate college credits)

Nutrition \_\_\_\_\_

Chemistry \_\_\_\_\_

Family Living   X  

Bacteriology \_\_\_\_\_

First Aid   X  

Health Teaching Methods   X  

Safety Education   X  

School Health Education Program   X  

Community Health   X  

School Health Administration \_\_\_\_\_

Mental Health   X  

Psychology   X  

Biology   X  

Others \_\_\_\_\_

Physiology   X

APPENDIX I

QUESTIONNAIRE

School D

1. Health Instructor:

Male X

Female       

2. Graduated from the following college or university

Kansas State University--1938 (B.S. in P. E.)

University of Michigan -- 1947 (M.A. in ED)

3. Students:

Girls       

Boys X

Mixed class       

4. Grade level:

9th X

10th X

11th X

12th       

5. Title of Textbook:

A.R.C. First Aid Textbook

No Adopted Health Text--Several Ref.

6. PROFESSIONAL PREPARATION: (Please indicate college credits)

Nutrition       

Chemistry X

Family Living       

Bacteriology X

First Aid X

Health Teaching Methods X

Safety Education X

School Health Education Program X

Community Health X

School Health Administration X

Mental Health X

Psychology X

Biology X

Others:       

Physiology X



# APPENDIX J

## QUESTIONNAIRE

School D

State

1. Health Instructor:

Male \_\_\_\_\_

Female X

2. Graduated from the following college or university

K. S. T. C. Emporia, Kansas

3. Students:

Girls X

Boys \_\_\_\_\_

Mixed class \_\_\_\_\_

4. Grade level:

9th \_\_\_\_\_

10th \_\_\_\_\_

11th X

12th \_\_\_\_\_

5. Title of Textbook: None (No adopted textbook) First Aid Book

6. PROFESSIONAL PREPARATION: (Please indicate college credits)

Nutrition \_\_\_\_\_

Chemistry \_\_\_\_\_

Family Living \_\_\_\_\_

Bacteriology \_\_\_\_\_

First Aid X

Health Teaching Methods \_\_\_\_\_

Safety Education X

School Health Education Program X

Community Health X

School Health Administration \_\_\_\_\_

Mental Health X

Psychology X

Biology X

Others: \_\_\_\_\_

Physiology X

**FORM A**

Published by  
Bureau of Educational Measurements  
Kansas State Teachers College, Emporia

Possible score ..... 144

Time: 50 minutes

Number wrong  
and omitted .....**TRUSLER-ARNETT****HEALTH KNOWLEDGE TEST**For High School  
and CollegeBy V. T. Trusler, C. E. Arnett, Jr., and H. E. Schrammel,  
Teachers College, Emporia, Kansas**FINAL SCORE** .....

Name ..... Age ..... Grade .....

School ..... State ..... Date .....

**PART I**

**DIRECTIONS:** Read the following sentences carefully. If statement is true, place a plus (+) in the parenthesis before the sentence, as in example A below. If the statement is false, make a minus (—) in the parenthesis, as in example B.

Example: (+) A. Bread is food.

(—) B. Potatoes grow on trees.

- ( ) 1. Medical doctors are considered to be better qualified to treat the sick than are chiropodists.
- ( ) 2. Babies should be taught to walk as soon as possible after birth.
- ( ) 3. When obtaining glasses, it is important that care be exercised in selecting a competent examiner of one's eyes.
- ( ) 4. Milk is a nearly perfect food.
- ( ) 5. When food is eaten rapidly, the digestive processes function more efficiently than when it is eaten slowly.
- ( ) 6. It is impossible for one to gain pleasure from his work.
- ( ) 7. One has greater power to ward off fatigue while in training than when not in training.
- ( ) 8. Hobbies may serve as a means of compensation for certain deficiencies in life.
- ( ) 9. The highest recovery in all symptoms of fatigue is secured during sleep.
- ( ) 10. The best thing to do for an infection is to see a physician immediately.
- ( ) 11. The ductless glands have no significant connection or effect upon a person's emotional life.
- ( ) 12. Intimacies between a boy and a girl, commonly called "petting" or "necking," are harmful because they frequently lead to immoral social conduct.
- ( ) 13. Washing the hands frequently is of value in the prevention of infection.
- ( ) 14. Human behavior is a combination of our innate and acquired behavior patterns.
- ( ) 15. Recreational activities offer an opportunity to offset tensions in human organisms.
- ( ) 16. When children under ten years of age ask questions concerning sex, it is best to ignore them.
- ( ) 17. Shifting eyes are a reliable index of an unstable and vacillating character.
- ( ) 18. Human emotions are significant factors for determining what individuals strive for or seek to avoid.
- ( ) 19. Physical defects are often a cause of maladjustment.
- ( ) 20. All children should be immunized for protection against smallpox.
- ( ) 21. Poison from snakes attacks the body through the circulatory system.
- ( ) 22. Emotional strain may result in the most serious kind of fatigue.
- ( ) 23. One whose mental life, interests, and activities are largely centered around himself is an introverted personality.
- ( ) 24. Blindness in newborn babies is often caused by gonorrhea.
- ( ) 25. Syphilis germs are more prevalent in unclean, poorly attended rest rooms than in clean ones.
- ( ) 26. A reflex is a common reaction of the lower animals, but not of man.
- ( ) 27. Headaches and bodily pains of various kinds are often found among hysterical individuals.
- ( ) 28. During work there is little increase in oxygen consumption.
- ( ) 29. Strenuous exercise increases our desires, but decreases our need for food.
- ( ) 30. If one desires to develop a strong character, few pleasurable pursuits should enter his life.
- ( ) 31. It is comparatively safe to reduce one's weight in large amounts upon one's own initiative.
- ( ) 32. The causes and cures for cancer are now scientifically established.
- ( ) 33. Syphilis may be transmitted by a mother to her child during the pre-natal period.
- ( ) 34. Cosmetics may be harmful to the skin.



- ( ) 35. "Athlete's foot" is a disease confined only to the feet.
- ( ) 36. The burden of establishing mental health rests with the individual.
- ( ) 37. Blue eyes are usually weaker than brown eyes.
- ( ) 38. Fears beyond the normal amount are conducive to healthful personalities.
- ( ) 39. The practice of closing schools when epidemic diseases appear is unjustified from the point of view of health conservation.
- ( ) 40. It is not advisable for a prospective mother to be under a doctor's supervision.
- ( ) 41. The cortex is the outer layer of the brain.
- ( ) 42. Fear is shown by a response to withdraw and in some instances temporary paralysis.
- ( ) 43. The best thing to do when a person faints is to throw cold water in his face.
- ( ) 44. Frequent baths are advisable for students when classrooms are crowded.
- ( ) 45. If a person fails to adjust himself efficiently to life's situations, he is said to have failed in developing an integrated personality.
- ( ) 46. Most of the advertisements heard over the radio may be accepted as reliable and true.
- ( ) 47. Nervous breakdown may be functional and not organic in character.
- ( ) 48. Sitting in a straight chair is better for posture than sitting in overstuffed chairs.
- ( ) 49. Tuberculosis germs are spread by mosquitoes.
- ( ) 50. Loss of weight, unless by reason of diet or exercise, indicates approaching illness.
- ( ) 51. Phantasy is characteristic of child life.
- ( ) 52. Work without satisfaction shows little decrease in the efficiency of one's output.
- ( ) 53. If one feels faint, the best thing he can do is to lie down.
- ( ) 54. Unless chemical and bacterial tests have been made of water, it is not certain that it is safe for drinking purposes.
- ( ) 55. The circulation of the blood goes out from the heart through the veins and comes back to the heart through the arteries.
- ( ) 56. A mother's diet during the pre-natal period is an important factor in the development of a sound set of teeth in a child.
- ( ) 57. The more intelligent a person is, the less likelihood there will be of his developing neuroses, or nervous disorders.
- ( ) 58. Butter is more healthful as a part of one's diet than oleomargarine.
- ( ) 59. The canine teeth are those used for the grinding of food.
- ( ) 60. Puberty is a term applied to maladjusted glandular development.
- ( ) 61. Proper knowledge of the lungs with respect to tuberculosis can be obtained without the use of the X-ray.
- ( ) 62. Normal development of the heart is secured by increasing the demand for oxygen in the skeletal muscles.
- ( ) 63. Because diabetics are easily infected, they should exercise extreme care in cases of abrasions on the skin.
- ( ) 64. The vitamin content of meat is reduced by cooking.
- ( ) 65. The tendency of adults to practice childish behavior is an unwholesome mental attitude.
- ( ) 66. Hypnosis is frequently used to secure information from young children.
- ( ) 67. Cretinism is a particular type of feeble-mindedness caused by lack of thyroxin.
- ( ) 68. If an artery is cut, a tourniquet should be placed between the cut and the nearest joint.
- ( ) 69. Whether or not cancer is inherited is not definitely known.
- ( ) 70. The proper air for breathing should consist of about one-fourth water vapor.
- ( ) 71. Bluffing is a prominent characteristic of the "daredevil."
- ( ) 72. Silver nitrate is dropped into babies' eyes at birth to prevent weakening of sight.
- ( ) 73. As one ages he outgrows his emotional difficulties.
- ( ) 74. The problem of fatigue is not very well understood.
- ( ) 75. An oculist is better qualified to treat the eyes than an optometrist.
- ( ) 76. The best way to develop organic vigor is to exercise the visceral muscles directly.
- ( ) 77. Probably there is no such thing as mental work except as it is in some way an aspect of physical activity.
- ( ) 78. Young people need longer but fewer rest periods than adults to ward off fatigue.
- ( ) 79. Lung capacity is a reliable index of the condition of the lungs.
- ( ) 80. The common blood disease called haemoglobin is characterized by a deficiency of anemia in the blood.



- ) 81. The daily diet of the average high school student should consist of approximately five thousand calories.
- ) 82. It is a lack of vitamin D that causes teeth to decay.
- ) 83. One who brags or bullies his fellows is suffering from a superiority complex.
- ) 84. Nearly every deformed person has an inferiority complex.
- ) 85. During the adolescent period the lack of proper food is more harmful than at any other period in life.
- ) 86. Reliable evidence indicates that regular exercise enhances one's resistance to infection.

## PART II

**DIRECTIONS:** Place the number of the part which makes the best answer to the statement in the parenthesis before the sentence, as in the example.

**Example:** ( 2 ) Bread is made from: 1. meat. 2. flour. 3. fruit. 4. eggs.

In this example "flour" is the correct answer; therefore, figure "2" has been placed in the parenthesis.

- ) 87. Wholesome mental attitudes can be: 1. suddenly acquired. 2. easily won. 3. developed through consistent right thinking. 4. inherited.
- ) 88. Pasteur is considered to be the: 1. father of bacteriology. 2. inventor of X-ray. 3. father of medicine. 4. discoverer of insulin.
- ) 89. In tennis the word for a zero score is: 1. let. 2. tent. 3. love. 4. court.
- ) 90. The instrument used by physicians to listen to the heart is called: 1. a stethoscope. 2. an audioscope. 3. a cardiometer. 4. a microscope.
- ) 91. A dangerous poisonous gas in automobile exhaust is: 1. carbon trioxide. 2. carbon monoxide. 3. carbon dioxide. 4. carbon tetraoxide.
- ) 92. Habitual use of alcohol may cause: 1. an increase in blood volume. 2. a stimulation of the mental processes. 3. a lowering of heart rate. 4. a lowered efficiency in most activities.
- ) 93. A common form of examination of the condition of the stomach consists of: 1. palpation. 2. complete gastric analysis. 3. sensitization tests. 4. blood cultures.
- ( ) 94. Personality is principally a: 1. product of heredity. 2. problem of nature. 3. social product. 4. matter of intelligence.
- ( ) 95. The immediate contraction of muscle tissue is dependent upon the: 1. nucleus of the muscle cell. 2. blood supply. 3. nerve stimulus. 4. food supply.
- ( ) 96. Football is a dangerous game unless one has: 1. efficient officials. 2. a soft field for playing. 3. easy opponents. 4. adequate equipment.
- ( ) 97. Tissue develops from a single cell through processes of: 1. cleavage. 2. cell maturation. 3. addition of other cells. 4. cell division.
- ( ) 98. The main function of the nervous tissue is: 1. irritability. 2. contractility. 3. conductivity. 4. metabolism.
- ( ) 99. The best first aid for a turned ankle is: 1. walking on it. 2. complete rest and elevation. 3. rubbing with liniment. 4. painting it with iodine.
- ( ) 100. The ultimate source of human energy is: 1. activity. 2. food. 3. proteins. 4. sunshine.
- ( ) 101. Neurotic dispositions are present in: 1. all individuals. 2. very few individuals. 3. no individuals. 4. only those individuals with organic disease.
- ( ) 102. Endocrinology refers to the study of: 1. duct glands. 2. criminal instincts. 3. ductless glands. 4. nerve supply of the endothelium.
- ( ) 103. Chicken pox is easily confused with: 1. measles. 2. diphtheria. 3. acne. 4. smallpox.
- ( ) 104. Bacteria in outdoor air: 1. are very dangerous. 2. cause little contagion. 3. are killed by sunshine. 4. multiply rapidly.
- ( ) 105. Measles are most contagious: 1. before the rash appears. 2. when the rash appears. 3. when the skin is peeling. 4. as the rash disappears.
- ( ) 106. The peritoneum serves as: 1. protection. 2. insulation. 3. waste collector. 4. blood supply.
- ( ) 107. Of all cases of paralysis, the majority are: 1. anesthetics. 2. organic in nature. 3. functional in nature. 4. hysterically developed.



### PART III

**DIRECTIONS:** From the list of words in Column II, select the one which matches or completes each item of Column I, and write its number in the parenthesis. No word in Column II should be used more than once. Match items of a section only with answers of the same section. Be sure to fill in a number in each parenthesis. The sample has been correctly answered.

**Example:** Man eats a. ( 12 ) and wears b. ( 5 ).

#### Section A

#### Section B

Column I	Column II	Column I	Column II
ure of the heart to send blood in	1. ambulance	The five special senses are 124. (    ),	1. adenoids
nal amounts to the brain causes	2. attempt	125. (    ), 126. (    ), 127. (    ),	2. adrenal
(    ).	3. blushing	128. (    ).	3. arm
th may result in a short time if	4. carbohydrates		4. elbow
ding from a 109. (    ) is not	5. clothes		5. esophagus
ped immediately after the injury	6. cold		6. equilibrium
rs.	7. doctor	Five of the important endocrine	7. feeling
re need be no cause for great ex-	8. epidermis	glands are: 129. (    ), 130. (    ),	8. fingers
ment when 110. (    ) of the nose	9. epiglottis	131. (    ), 132. (    ), 133. (    ).	9. forearm
rs.	10. fainting		10. gonads
en a bruise first occurs, common	11. fats		11. hearing
aid would be to apply 111. (    )	12. food		12. intestines (small)
he injury.	13. hemorrhage	Five commonly named parts of the	13. intestines (large)
case of dislocation of a joint one	14. large blood vessel	arm are: 134. (    ), 135. (    ),	14. lungs
uld not 112. (    ) repair but call	15. medulla	136. (    ), 137. (    ), 138. (    ).	15. lymph
13. (    ).	16. neck (base of)		16. mouth
ee important kinds of food the	17. popliteal space		17. pituitary
y needs are: 114. (    ),	18. protein	The six major structural parts of the	18. rectum
(    ), and 116 (    ).	19. radial artery	digestive system are: 139. (    ),	19. shock
ee functional parts of the skin are:	20. sebaceous gland	140. (    ) 141. (    ) 142. (    ),	20. sight
(    ), 118. (    ), 119. (    ).	21. sweat gland	143. (    ), 144. (    ).	21. smell
r places on the human body, other	22. temple		22. spleen
n the wrist, where one may test	23. vitamins		23. stomach
e rate are 120. (    ), 121. (    ),			24. taste
(    ), and 123. (    ).			25. thigh
			26. thyroid
			27. wrist

# APPENDIX L

## KEY

### Trusler-Arnett Health Knowledge

#### Form A

Papers must be scored according to this key. Give one point for each correct answer. An omission is counted as an error. In Part III following item 114 the answers for any one statement may be in any order.

Possible score. . . . . 144

PAGE I	14. (+	27. (+	40. (-	55. (-	68. (-
PART I					
Column I	15. (+	28. (-	41. (+	56. (+	69. (+
1. (+	PAGE I	29. (-	42. (+	57. (-	70. (-
2. (-	PART I				
	Column II	30. (-	43. (-	PAGE 2	71. (+
3. (+		31. (-	44. (+	PART I	
4. (+	16. (-	32. (-	45. (+	Column II	72. (-
5. (-	17. (-	33. (+	46. (-		
6. (-	18. (+	34. (+	47. (+	58. (+	73. (-
7. (+	19. (+	35. (-	48. (+	59. (-	74. (+
8. (+	20. (+	PAGE 2	49. (-	60. (-	75. (+
9. (+	21. (+	PART I		61. (-	76. (-
10. (+	22. (+	Column I	50. (+	62. (+	77. (+
11. (-	23. (+		51. (+	63. (+	78. (-
12. (+	24. (+	36. (+	52. (-	64. (+	79. (-
13. (+	25. (+	37. (-	53. (+	65. (+	80. (-
	26. (-	38. (-	54. (+	66. (-	81. (-
		39. (-		67. (+	82. (-



83. (-	92. (4	100. (2	108. (10	120-123	(10
				(16	(17
84. (-	93. (2	101. (1	109. (14	(17	(22
				(19	(26
85. (-	PAGE 3	102. (3	110. (13	(22	
	PART II				134-138
86. (-	Column II	103. (4	111. (6	PAGE 4	(3
				PART III	(4
PART III	94. (3	104. (2	112. (2	Column II	(8
					(9
87. (3	95. (3	105. (1	113. (7	124-128	(27
				(6	
88. (1	96. (4	106. (1	114-116	(11	139-144
			(4	(20	(5
89. (3	97. (4	107. (2	(11	(21	(12
			(18	(24	(13
90. (1	98. (3	PAGE 4	117-119	(8	(16
		PART III		129-133	(18
91. (2	99. (2	Column I	(20	(2	(23
			(21		

## APPENDIX M

TABLE I

Distribution of Scores  
Trusler-Arnett Health Knowledge Test

Scores	High School Grades				College	
	IX	X	XI	XII	Fr.	Soph.
135-9	--	--	--	1	--	--
130-4	--	--	--	--	--	1
125-9	--	--	1	3	10	17
120-4	--	9	9	8	27	32
115-9	5	11	17	26	64	51
110-4	9	21	32	35	62	60
105-9	22	50	43	50	66	45
100-4	39	69	42	35	34	20
95-9	58	54	60	36	21	17
90-4	66	56	31	15	14	2
85-9	54	43	13	9	1	--
80-4	47	33	8	4	3	--
75-9	44	22	6	--	1	1
70-4	33	16	3	--	--	--
65-9	12	4	--	--	--	--
60-4	9	3	1	--	--	--
55-9	10	1	--	--	--	--
50-4	3	--	--	--	--	--
45-9	2	1	--	--	--	--
<hr/>						
No. Cases	413	393	266	222	303	246
Median	89	97	101	106	111	113
S. D.	13.3	12.6	10.4	10.4	8.9	8.7
P. E. Median	.55	.54	.54	.59	.43	.48
P. E. Score	3.4	3.2	2.6	2.6	2.2	2.2

Read table thus: In grade IX, five of the 413 scores were in the 115-119 interval; nine, in the 110-114 interval; and so on.

## APPENDIX N

TABLE II

## Percentile Grade Norms

## Trusler-Arnett Health Knowledge Test\*

Scores	High School Grades				College	
	IX	X	XI	XII	Fr.	Soph.
99 %-ile	116	120	124	128	128	130
95 %-ile	108	115	119	121	124	127
90 %-ile	104	110	115	118	121	124
85 %-ile	102	108	113	116	119	122
80 %-ile	99	106	111	114	118	120
75 %-ile	97	104	109	113	117	119
70 %-ile	96	103	108	111	116	118
65 %-ile	94	102	106	110	115	116
60 %-ile	93	100	104	108	113	115
55 %-ile	91	98	103	107	112	114
50 %-ile	89	97	101	106	111	113
45 %-ile	87	95	100	105	110	112
40 %-ile	85	93	99	104	109	111
35 %-ile	83	91	98	102	107	110
30 %-ile	81	89	96	100	106	109
25 %-ile	79	87	95	99	105	107
20 %-ile	77	85	94	97	103	106
15 %-ile	74	82	91	96	101	104
10 %-ile	71	78	88	93	98	101
5 %-ile	63	73	82	89	94	98
1 %-ile	54	63	73	84	83	94

Read table thus: In grade IX, a score of 116 merits a 99 percentile rank; one of 108, a 95 percentile rank; one of 89, a 50 percentile rank; and so on.

\*Manual of Directions. Trusler-Arnett Health Knowledge Test.