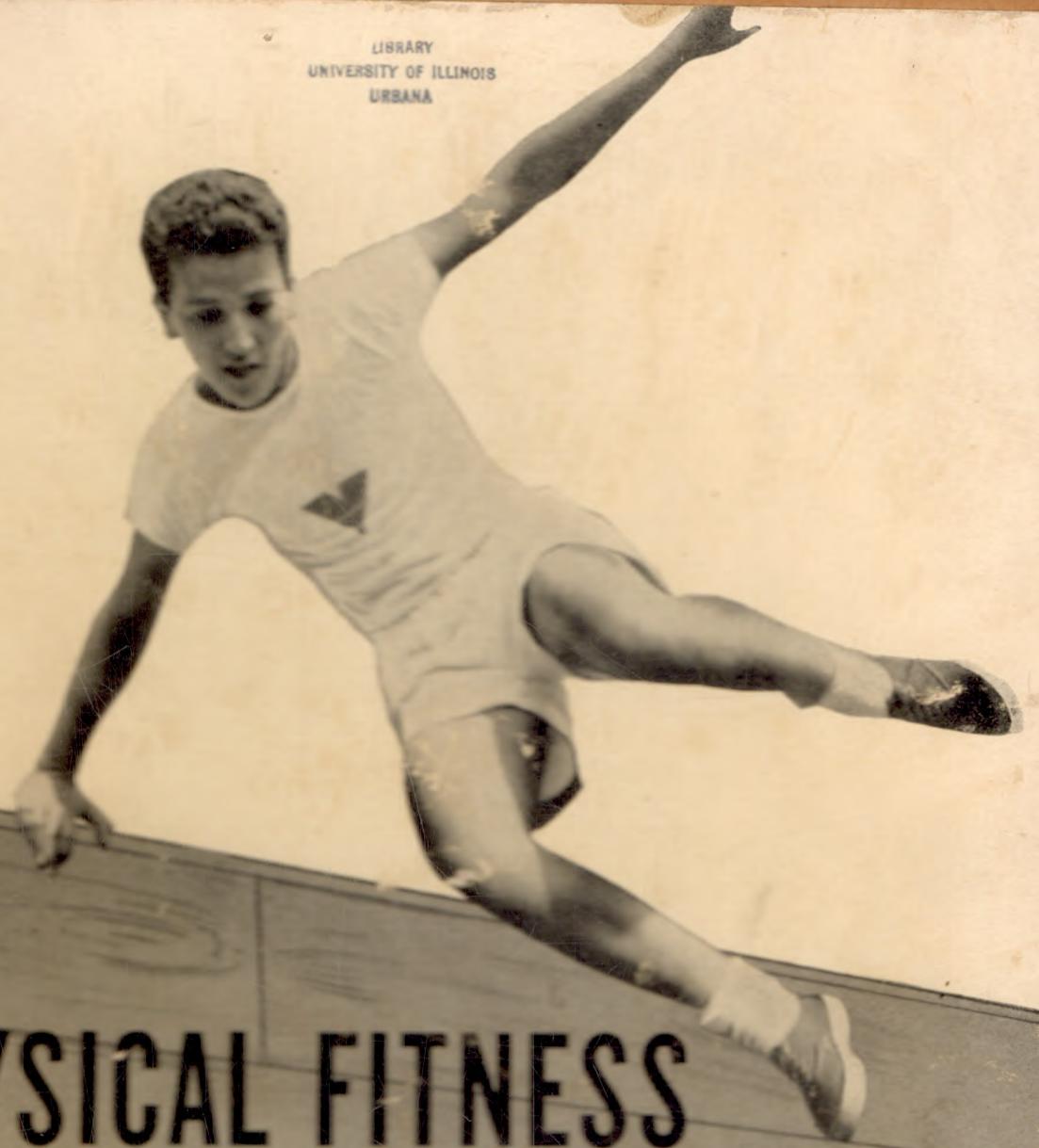


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PHYSICAL FITNESS

Through PHYSICAL EDUCATION



FOR THE VICTORY CORPS

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PHYSICAL FITNESS

Through PHYSICAL EDUCATION

For the Victory Corps

Prepared by a committee appointed by the Commissioner of Education with the collaboration of the U. S. Army, the U. S. Navy, the U. S. Public Health Service, and the Physical Fitness Division of the Office of Defense Health and Welfare Services

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U. S. OFFICE OF EDUCATION.....JOHN W. STUDEBAKER, Commissioner

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FOREWORD

ALL THOUGHTFUL citizens recognize the fact that America is engaged in the most serious and difficult war the Nation has ever faced. A successful culmination of the struggle can be assured only through the earnest, sustained, and sacrificial efforts of everyone. This will involve service in the armed forces for most young men and work in agriculture or industry for many young women.

Wartime service demands a condition of strength, endurance, stamina, coordination, and agility beyond that ordinarily required for peacetime pursuits. There are many data and reports of observations by competent persons which indicate that American youth are deficient in the physical characteristics needed by soldiers, sailors, and airmen. Military and naval authorities have stated often that the preparation of recruits for active service could proceed more rapidly if the young men who are inducted into the armed forces were in better physical condition.

The high schools of the country have recognized the seriousness of the situation confronting the Nation and have indicated repeatedly their eagerness to make the maximum contribution of which they are capable to the war effort. One of the definite and objective things that the high schools can do, which will show almost immediate results, is a program of physical education for all normal high-school boys and girls. The selection of pupils for participation in a program of vigorous and rugged activities should be based on acceptable examinations and tests in order that the curriculum may be adapted to the needs and abilities of each individual.

This bulletin has been prepared as a guide to high-school principals and teachers in planning and executing wartime programs of physical education. It is one of the publications in the Victory Corps series and is intended for use in connection with all five divisions of the High-School Victory Corps.

The Army, Navy, United States Public Health Service, physical educators, and staff members of the U. S. Office of Education have collaborated in the preparation of this manual and it has been approved by the National Policy Committee for the Victory Corps. The committee consists of the following persons:

Chairman—EDDIE RICKENBACKER, World War I Flying Ace.

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Lt. Col. HARLEY B. WEST. War Department General Staff, G-3 Division.
Maj. FRANCIS PARKMAN. Office, Director of Industrial Training, Headquarters, Army Air Forces.

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WILLARD E. GIVENS, Executive Secretary, National Education Association.

Civilian Aviation

FRANK A. TICHENOR, Chairman of the Aeronautical Advisory Council.
Department of Commerce, Publisher "Aero Digest."

In addition, three agencies with special interest in physical fitness have given constant advice and assistance both in the development of plans for the manual and in the preparation of the manuscript. They are the Division of Physical Fitness of the Office of Defense Health and Welfare Services, the U. S. Public Health Service, and the American Association for Health, Physical Education, and Recreation.

The program outlined in this volume is recommended for use in high schools in order that American boys and girls may become more physically fit to carry their unusually heavy responsibilities during the next few years.



U. S. Commissioner of Education.

CHAPTER I

A Physical Education Program for Every School

The Program

THIS BULLETIN presents a wartime program of physical education that is planned to contribute to the physical fitness of high-school pupils as a part of the total war effort. The content of the program, the selection of pupils for participation, and the methods of fitting the program into the total curriculum of a school are explained. Instruction and practice in aquatics, gymnastics, combatives, sports and games, and other vigorous activities adapted in intensity and duration to the individual needs of pupils are emphasized. The choice of activities and methods of presentation are made in light of the needs of youth at the present time and the recommendations of representatives of the Army and Navy.

It is recognized that programs of health service, health instruction, healthful school living, physical education, and recreation all have an important influence on physical fitness. The content of this bulletin, however, is directed definitely toward the conditioning of high-school pupils for service in the armed forces and industry and agriculture.

In general, the activity program should provide at least one regular school period daily of instruction in physical education for all pupils. The instructional period should be supplemented by an elaborate participation program including intramural and interscholastic athletics, and other vigorous activities. It is recommended that all normal pupils, after an adequate period of training, should participate in competitive athletics, mass athletics, road work, hikes, week-end journeys, camping, hard physical work such as plowing, cutting wood, or digging dirt, and similar

activities for at least 10 hours each week in addition to the physical education period that is included in the school schedule.

Camping provides one of the most desirable forms of activity outside the regular daily school schedule. Camping experience contributes to physical fitness and provides training in many skills and activities that are of direct military value. The recent statements of Army officers corroborate the observations of the Civilian Conservation Corps and other leaders of youth during the past decade that most American youth do not have the ability to live comfortably and safely in the open country. It is true, for example, that large numbers of boys do not know how to hold and use an axe, build and use a fire out-of-doors, arrange a comfortable sleeping place in the woods, and avoid the hazards and discomforts of insect, reptile, and plant poisoning. It is recommended, therefore, that much attention and emphasis be given to providing extensive camp experience on week-ends, during holidays, and vacations for all boys and, if possible, for all girls. Many educators have stated that school systems should provide camps for all high-school boys during 2 months each summer in which training would be provided in woodcraft, campcraft, swimming, sports, gliding, and ground training in aviation. This larger program may not be practicable now, but every school can provide shorter periods of camping experience.

Purpose

The purpose of the program outlined in this manual is to make secondary school pupils physically fit to undertake the unusually heavy tasks they will probably be called upon to

assume in the near future. For some it will be for induction into the armed forces. For this group the program will have for its objective the development of:

- (a) Strength, endurance, stamina, and bodily coordination.
- (b) Physical skills that will be of direct value and use in the armed forces and war work.

For others it will be for employment in agriculture, industry, commerce, domestic services, and other essential occupations. The program is, therefore, for all pupils. The activities should be adapted (1) to their respective abilities to perform them, and (2) to the prospective services in which they engage on leaving school.

Selection of Pupils for Participation

The selection and classification of pupils for participation in the physical activities are based on (1) their physical condition and (2) their size and maturity. It is recommended that the physical condition of the pupils be evaluated by the observation of all pupils by their teachers and a more complete inspection of the pupils who seem to deviate seriously from the normal. The techniques of carrying on the observation and inspection are described in Chapter III on Selection of Pupils for Training. The boys may be classified according to size and maturity through the use of the classification procedure described in Chapter VI on Standards and Tests. Data are not available for a similar classification of girls. It is important that teachers be guided by the results of the selection and classification procedures in planning and adapting the program of activities to meet the needs and abilities of each pupil. Emphasis should be placed on the fact that young children enrolled in high school, many of whom are 15 years of age or younger, should not be stimulated or urged to achieve the levels of performance in strength and endur-

ance attained by trained soldiers. Only the pupils who are in excellent physical condition should be encouraged to participate in vigorous physical activity such as plowing, cutting wood, cutting grass, or athletic games for 15 hours each week. It usually requires about 1 month of training before a normal youth can practice physical exercises strenuously for protracted periods of time without undesirable muscle soreness and fatigue.

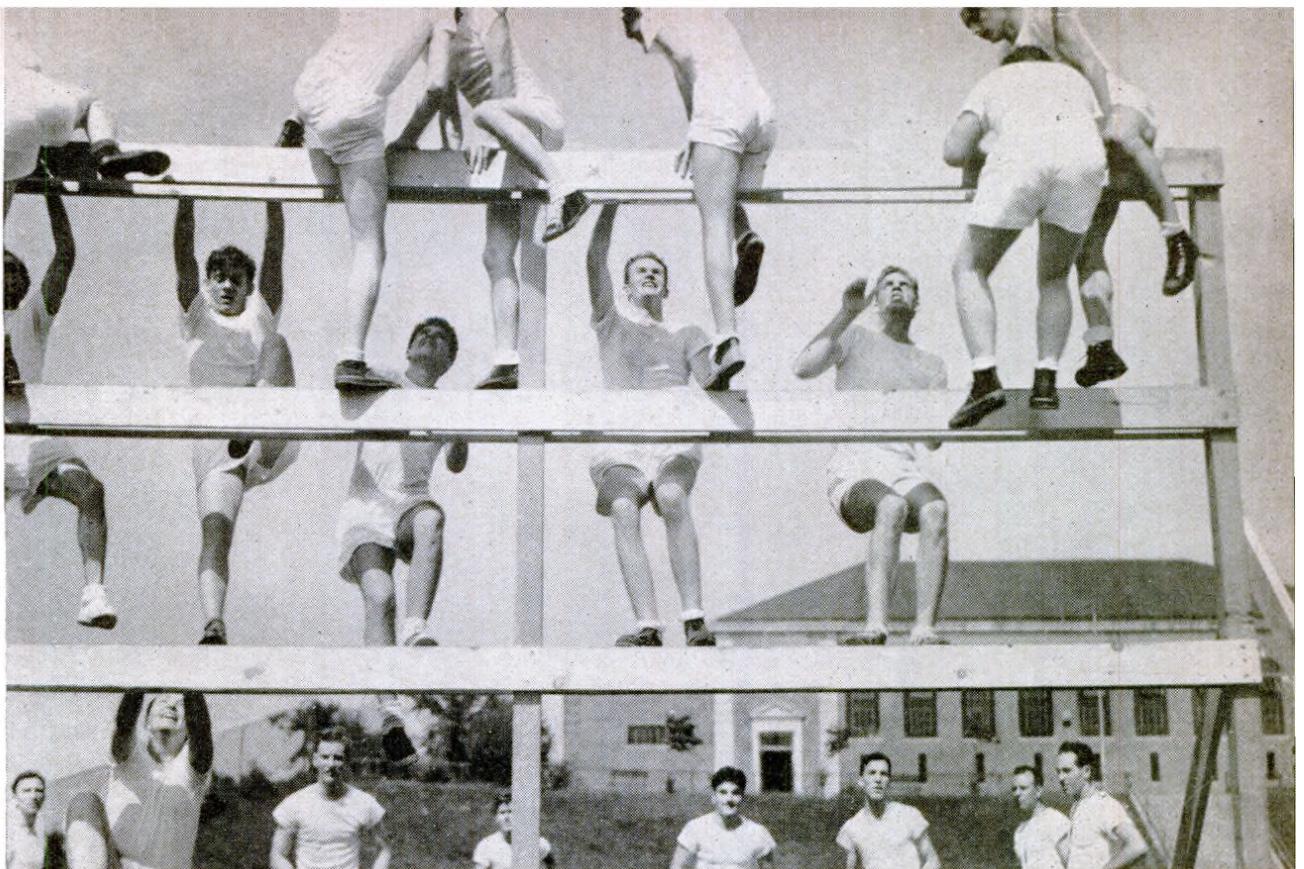
Initiating the Program

In fitting the physical education program into the total program of a school it is necessary that there be provided the minimum essentials of (1) adequate time in the daily schedule, (2) a competent teacher, (3) a place for conducting the classes, and (4) at least a minimum amount of supplies and equipment.

The initiation of the program on a Nationwide basis will demand an expenditure of time, effort and money. It promises, however, reasonable certainty of attaining the objective of maximum physical fitness for the participants. Basically it calls for but two changes in the usual high-school program. The first is an increase in teaching time allotted to instruction in physical education, and the second change is an increase in the intensity of the exercises.

Adaptation of Program for Small Communities

The proposed program is flexible enough to permit schools of all types, including large and small urban and rural schools, to make such adaptations as will enable them to undertake it. Many of the activities can be conducted without apparatus or equipment, but the greater values should be expected where at least a minimum amount of supplies and equipment are provided and adequate buildings and playing fields are available. In cases of necessity, there are many activities that can be practiced during inclement weather in school buildings that do not have gymnasiums. The maximum use and adaptation



should be made of corridors, classrooms, auditoriums, stages in auditoriums, and paved outdoor courts in poorly equipped schools. Some of the activities that can be used under unfavorable conditions are calisthenics; gymnastic stunts; chinning and the hanging half lever on removable bars in doorways or on bars attached to brackets on the walls of corridors; the push-up; the sit-up; climbing ropes suspended in corridors, auditoriums, or stages; the leg lift; the forward bend; jump and reach; standing broad jump on mats or other soft surfaces; potato races in corridors, auditoriums, or basements; grip and chest exercises that can be practiced with low-cost spring or elastic equipment; and bar vault in corridors, auditoriums, stages, or basements where a safe bar and mats may be provided.

There are many days during the cold winter months on which warmly clothed children can participate in vigorous activities out-of-doors. This is particularly true in situations where there are paved surfaces that can be

kept free of snow, ice, mud, and water. It is recommended, therefore, that paved courts be provided where they seem to be needed and that a maximum use be made of the outdoors for physical education activities.

There are probably many communities in which existing facilities and personnel can be used to supplement the school facilities and personnel in carrying out the instructional and participation phases of the physical education program. Consideration should be given to the possibility of cooperation between schools, and any organizations such as YMCA's, athletic clubs, recreation departments, Granges and other community agencies, in planning and executing the school program of physical fitness.

Need for Physical Fitness

Large numbers of pupils now enrolled in high schools will enter into active service in the armed forces and wartime industry in the immediate future. In addition to the boys

who will be called to some form of service, it has been estimated that by the end of 1943, 6,000,000 women will be employed in war production, many of whom will be drawn from the age group now in high school. These youth must be fit in order to render effective service. They must be fit not only from the standpoint of technical skill and morale, but also physically fit, which means that they must have the strength, skill, stamina, and endurance required for active service and hard work.

Army and Navy officers have stated that large numbers of the young men inducted into military service whose physical examinations reveal no serious physical defects, lack development, skills, strength, and endurance to such a degree that the program of military training is retarded for several months while the recruits are being built up physically.

It is common knowledge among physical education instructors in high schools and colleges that large numbers of their male students are weak, have poor coordination, cannot climb a rope, carry a burden equal to their own weight, or vault out of a trench the height of their chests. The poor physical condition of the majority of American young people is a serious handicap in training soldiers, sailors, and airmen and interferes with the maximum industrial and agricultural production.

Nature of Physical Fitness

A person who is physically fit for military or naval service must be capable of maintaining sustained effort with a maximum of speed and skill. This means that one must have strength, stamina, endurance, and good co-

ordination. Speed, agility, and flexibility in movement are important factors in skill.

There are several conditions that affect the development and maintenance of a desirable level of physical fitness. Participating regularly in a rational program of physical education has been demonstrated to be one of the most important elements that contribute to physical fitness. Other significant factors that influence physical fitness, favorably or adversely, are physical defects, communicable diseases, accidents, nutrition, personal health habits, and environmental conditions.

The development of physical fitness through the use of physical education activities demands vigorous participation over protracted periods of time. An individual must press his effort until it hurts. This means that he must not stop at the first sign of fatigue, but continue his exertions until he is tired.

Preparation for service during wartime demands that boys must learn to swim long distances while fully clothed and carrying equipment; they must be able to keep themselves afloat for many hours. Arm and shoulder strength must be developed so that they can climb down ropes or scale walls while carrying heavy loads. The ability to take hard falls without serious injury must be developed. In combative activities it is necessary to stress delivering their energy in a quick explosive effort. Games and sports must develop a spirit of aggressive attack and ability to take physical punishment without flinching. For industrial groups, which are far greater numerically than the armed forces, physical strength and stamina are needed to speed up work for long hours without absences which would slow production.

CHAPTER II

Responsibility of School Administrators and Teachers

Administrative Adjustments

THE SUCCESSFUL operation of the wartime program of physical education in high schools that is recommended in this bulletin will probably necessitate adjustments in several administrative and managerial procedures on the part of many school administrators and teachers. Some of these functions must be performed on the State level, others on the city and county level, and several in each local high school.

Some of the items that should receive attention on the State level are: (1) supervisory and consultant service; (2) a program of pre-service and in-service training of teachers; (3) credit for physical education toward high-school graduation; (4) planning for the cooperative efforts of school authorities and representatives of public health, nutrition, civilian defense, recreation, and voluntary health and recreation groups; and (5) providing for inclusion of physical education in the State course of study through action of the State Curriculum Commission or by other means.

The functions that should be performed on a city and county level in promoting and administering an adequate program of wartime physical education include:

1. The official approval of the program by the board of education.
2. A program of interpretation and publicity to help the citizens of each community and the members of the board of education to understand the objectives and content of the program.
3. The allocation of—
 - (a) At least one regular school period daily for the instruction of every pupil

in physical education. Daily periods of at least 60 minutes and a maximum class size of 50 pupils are recommended.

- (b) Teaching and supervisory personnel to conduct the program.
- (c) Funds for facilities, equipment, and supplies.
4. The approval of standards concerning—
 - (a) Attendance.
 - (b) Excuses.
 - (c) Return of pupils to classes after absence.
 - (d) Marking.
 - (e) Credit.
 - (f) Record keeping.
 - (g) Dress for activity classes.
 - (h) Physical examinations.
5. The arrangement of schedules for athletic games. Since participation in competitive extracurricular activities of a vigorous, bodily-contact nature is highly desirable, it may be necessary to change the existing school transportation schedules in some instances in order that the interscholastic and intramural athletic program may function.
6. The adoption of a policy which would make school facilities available for use by the citizens of the community.

Adaptations in Local Schools

The details of planning and operating the high-school program of physical fitness will be different in each school. The interest, diligence, and enthusiasm with which the principal and teachers of a school attack the problems involved will determine largely the quality of results that are achieved.



In many schools, if the program of physical education recommended in this manual were adopted, changes in the school program would be necessary. These changes would include (1) increase in time for instruction and participation in physical education activities; (2) a requirement that all normal pupils participate regularly; (3) an increase in the intensity and ruggedness of the activities included in the program; and (4) changes in the methods of program planning, class organization, and teaching.

In schools with inadequate facilities and faculty, adjustments can frequently be made that will permit the conduct of the minimum essentials of the program. Gymnasiums and athletic fields, for example, are highly desirable, but their absence does not prohibit all parts of the program. Playground space, vacant lots, blocked-off streets, building roofs, and other makeshifts can be used if necessary.

Enthusiastic leaders can do much to adapt a program to conditions where there are minimum facilities. Supplies and equipment usually are necessary for a program of physical fitness, but apparently they will be severely rationed during the war. It will still be possible, however, to carry on a minimum program without them, but in situations where supplies and equipment are available, their conservation, which has always been desirable, now becomes a necessity.

The ways in which additional time in the school day may be found for physical education include reorganization of the school program or lengthening the school day. The problem of securing additional teacher time is an important one that must be solved in a different way in each school. It may be that the principal could (1) utilize the help of volunteers such as recreation workers or other highly motivated teachers; (2) increase

the number of teaching periods required of all teachers; (3) eliminate classes whose contributions to the war effort are of less immediate value; (4) bring back to teaching former teachers who are not employed at the present time; and (5) organize larger classes with pupil squad leaders acting under the direction and supervision of a teacher.

The increase in the strenuousness of the activities and duration of participation make it essential that pupils be classified in ability groups. At least three groups seem desirable and these are:

1. The normal group which will be able to take the full program.
2. The pupils who return to school after absence due to illness who will need a modified program for a limited time.
3. The physically handicapped and less healthy pupils. Such pupils, properly conditioned, are frequently able to take their places in war industry.

The daily instructional periods should be filled with activities of sufficient ruggedness to make the pupils physically fit. This involves among other things, an extension of the intramural and interscholastic programs. These additional vigorous physical activities will augment the benefits derived from required classes. Pupils who participate in the interscholastic and intramural programs should participate in the regular instructional periods in physical education.

When intramural schedules are prepared, emphasis should be placed on competition for the largest number of pupils the greatest number of times possible. This means that round-robin schedules and other procedures that involve large numbers should be used instead of elimination tournaments.

It is important that every school keep proper records, maintain standards of accomplishment, provide for safety, and care for pupils in case of accident.

The administrative procedures of local schools should require teachers of physical fitness to reduce to a minimum the time so

frequently lost in routine class procedures such as: (1) Assembling classes after the bell; (2) taking roll; and (3) taking a shower bath and dressing after class.

Planning by the Teacher

Each teacher should develop and use plans and programs that are suitable to the particular situation in which he is teaching. The statements on the following pages make suggestions which should be helpful to a teacher in developing his own plans. Provision should be made for each of the following items:

A. Plan ahead.

Before the beginning of each school year (the preceding spring, if possible) the chairman of the physical fitness program for schools not having a full-time teacher, or director of the physical education department in schools having several teachers, or the city director of physical education in centers having such directors, in cooperation with other men and women instructors, should work out suggested standards and policies to be followed. When an agreement has been reached by the persons having specific responsibilities for physical education, a conference should be held with the proper administrative authorities to review, adjust, and approve the plans which have been made.

B. Consider all activities which may be included in the secondary school program of physical education.

After the plans and policies have been approved, the instructor should make a list of all of the activities which may be used in the program during the year. Emphasis should be placed on the fact that the entire program, including instructional and participation periods, must be planned. In selecting activities a teacher should keep clearly in mind the following items:

1. The contribution that the selected activities might make to the development of physical fitness.
- This bulletin names activities which are suitable. The instructor can add to the ones suggested any activities which he desires. The activities that are added should be rugged and vigorous.
2. The facilities, equipment, and supplies that are available.
 - (a) Size and number of courts.
 - (b) Size and location of gymnasium.
 - (c) Play areas and supplies such as balls, bats, and nets.
 - (d) Budget for the year.
3. The characteristics of the community.
 - (a) The interests and attitudes toward certain activities of rural and urban communities. Where community interests are narrow, intelligent effort should be made to enlarge and broaden them.
 - (b) Suitability of activity for the location and available facilities.
4. The pupils.
 - (a) Age and number of pupils.
 - (b) Previous training of pupils.
 - (c) Pupils having physical defects.
5. The schedule.
 - (a) Length of periods and number per week.
 - (b) Season of year.
 - (c) Length of time to be spent in each activity.

C. Arrange a schedule of activities so that variation is adequate and the proper amount of time is devoted to each.

The following practices should be observed in arranging schedules:

1. Boys' and girls' programs should be coordinated so as to make efficient use of the facilities, equipment, and supplies available.
2. The same activity should be offered long enough for the pupils to become skilled in it.
3. Special effort should be made to provide activities which the pupils will use daily at home and on week ends.
4. Based upon a physician's recommendations, suitable activities should be provided for pupils who may be unfit to participate in the regular program.
5. Insofar as possible, the intramural program should be coordinated with the physical educa-

tion instructional period. Intramural contests in the various sports should be conducted in the intramural period throughout the time the sports are being taught in the physical education class. The intramural program, however, should not occupy the time of the physical education period.

6. After the schedule has been in operation for a part of the year, it may be desirable to change it to some extent. When this is done revision of the whole program should be made.
7. If it is necessary to make grade combinations in schools where enrollment is small (less than a total enrollment of 150 for the upper four grades), it will probably be best to combine grade 9 with 10 and 11 with 12. In very small schools it may be necessary to have the physical education period for all four grades at one time.
8. Plans should be made for a physical education demonstration or program with as many pupils taking part as possible. Such programs should be a natural outgrowth of physical education instruction, utilizing the activities regularly taught. One value in such programs is letting the public see the progress being made. The physical fitness day of American Education Week in November and National Health Day on May 1 are desirable days for such demonstrations.
9. Provision should be made to allow pupils to check their achievement against desirable physical fitness standards. Standards given in this bulletin will be useful for that purpose.
10. In schools where there are no facilities to take care of classes in bad weather, plans for these days should be made ahead of time. Activities such as the ones given under conditioning exercises can be carried on in classrooms, corridors and playrooms.
11. Every pupil participating in the regular program should have a vigorous workout during each physical education period.

D. Plan for the effective organization and use of the class period.

Each physical education period should be organized and operated in a way to provide a relatively long period of continuous participation in vigorous activities for all pupils. All routine activities, therefore, such as changing clothes, roll call, and moving pupils from one activity to another, should be carried out with

as little loss of time as possible. All possible "short cuts" in class routine should be used. Some suggestions concerning the arrangement and management of class periods are given in the following paragraphs.

A typical class period: (40 to 60 minutes)

1. Changing from street clothes to gymnasium suits—4 to 6 minutes
2. Checking attendance— $\frac{1}{2}$ minute
3. Marching—2 to 3 minutes
4. Conditioning exercises—8 to 12 minutes
5. Group activities—18 to 28 minutes
6. Showers and dress—8 to 10 minutes

SUGGESTIONS FOR CONDUCTING A CLASS PERIOD:

1. *Changing from Street Clothes to Gymnasium Suits.*

In this part of the period the chief objective is orderliness and speed. Careful organization will promote the former and a consistent policy of tolerating no delay will promote the latter.

If individual lockers are used, the organization problem resolves itself into making

proper assignments and checking regularly to see that lockers are kept clean and orderly. Sections of adjacent lockers may be assigned to each class, or if this creates crowded dressing conditions, alternate lockers may be assigned.

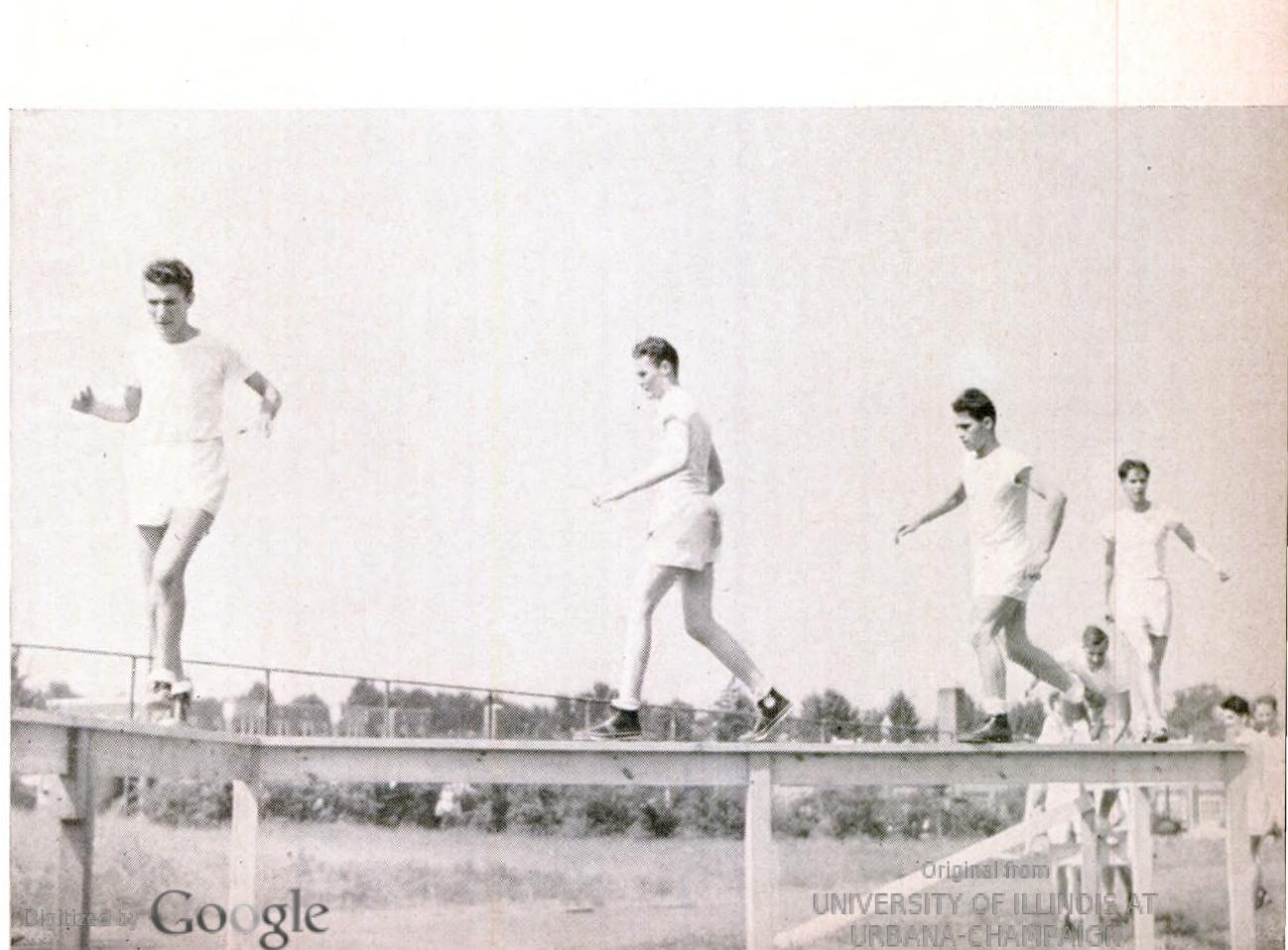
If a central cage system is used, baskets should be so arranged that they can be issued with no loss of time. Designated pupils can be of valuable assistance in distributing baskets. After some experimentation the teacher should set a definite time limit for students to be out of the locker room.

2. *Checking Attendance.*

The object is to enable the instructor to keep accurate records. Provision should be made not only for listing the pupils who are absent, but also for finding the ones who are not suitably dressed. Several plans for gaining this information are suggested here:

(a) Squad or group system:

- (1) Locker rooms. Place check sheets for the leaders at some designated place in the locker



room in order that absentees and those wearing unsuitable apparel may be listed while the pupils are dressing. When this system is used, pupils of one attendance group should be assigned adjacent lockers.

(2) Indoor or outdoor. Plan to have group in systematic order such as a line or file and check attendance.

(b) Number system:

(1) Paint on the gymnasium floor, wall, sidewalk, or fence enough consecutive numbers for the largest number of pupils in any one class. Each pupil is assigned a number corresponding to a number given him in the instructor's roll book. When attendance is checked pupils stand on their respective numbers. Vacant numbers indicate absence and can be quickly noted.

(2) Numbers corresponding to those in the instructor's roll book are assigned to pupils. Pupils in line call their own numbers as soon as the preceding number has been called, but not before. When there is a pause in the numbering, absence is indicated.

(c) Basket system:

When all gymnasium suits are issued through a central cage, the roll may be taken by the cage monitor when he issues the baskets.

3. Organizing a Class.

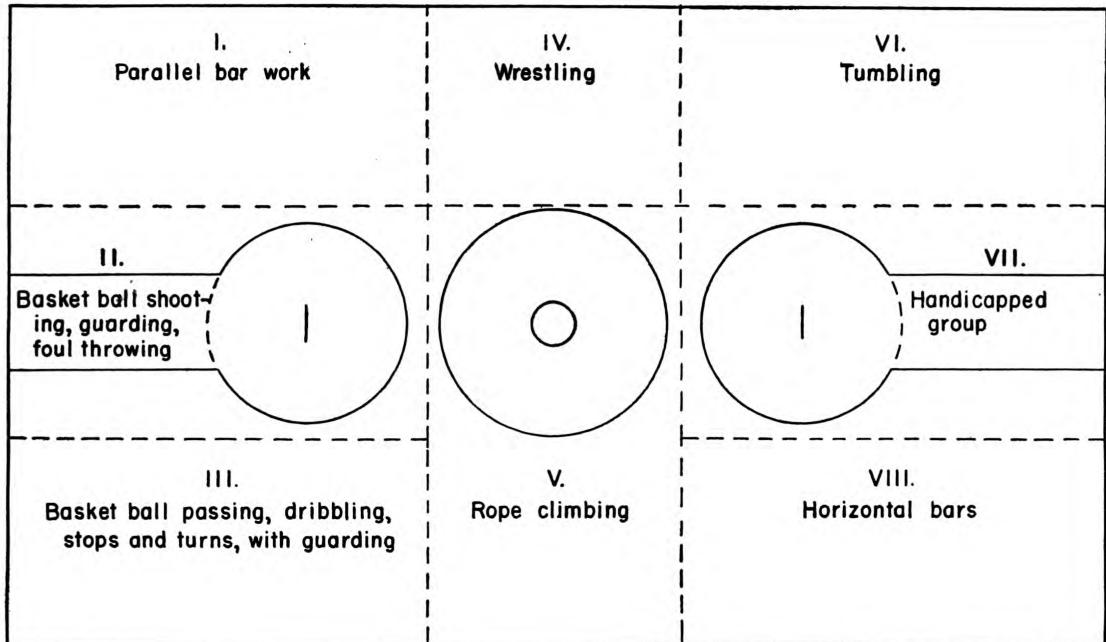
Before the class begins, the teacher should check carefully to see that all equipment is in position ready for use. Supplies should be easily accessible so that the leader or some other designated member of the group may obtain them before going to group activity.

The class may be divided into groups and a leader should be designated for each group. These groups and their leaders may be permanent for a semester, or if it seems desirable, for a shorter period of time.

In either event, the instructor should designate the area to be used and the activity to be carried on in that area. For example, wrestling may be specified at one place and volley ball at another. He can quickly assign the groups to the activity in which they are to participate. With permanent groups they can rotate from day to day or week to week.

If the group activities are outdoors where some distance is to be covered between the place of conditioning exercises and the place where the group activities are to be conducted, the group may run there under the direction of the group leader.

FLOOR PLAN FOR A CLASS PERIOD IN A SMALL GYMNASIUM





When the groups are re-formed daily the number which can participate in each activity can be designated and the pupils given their choice of the activity in which they wish to participate. Leaders are assigned to positions and pupils told to report where they wish. When the previously designated number for an activity has been reached, all late comers are instructed to report to some other group. Care must be exercised to see that those reporting to groups do so in an orderly manner. Pupils must also be required to change groups from day to day or on the same day if there is a general change of assignments.

The group leaders should be given special instruction by the teacher so that they are able to assume responsibility for their activities. Sub-leaders will need training so that someone can take charge when the leader is absent or participating in some other activity. When the groups begin their activity, the teacher should move from group to group taking advantage of teaching situations which arise.

4. Showers and Dress.

Except in rare instances it is not necessary to reassemble the class at the end of the period.

Pupils should go directly to the locker room, take showers, dry thoroughly, and dress quickly. Close supervision is necessary. The members of each class should be made responsible for seeing that the room is clean when they leave.

5. Methods in Activities.

The following suggestions concerning the methods of conducting activities are believed to be pertinent.

(a) *Marching.* The object of instruction in marching is to teach the pupils a few fundamental commands and movements which will enable the instructor to move them quickly and effectively to the places where they carry on activity. If the instructor is alert to the teaching possibilities, he may promote ease of movement, proper body carriage, group solidarity, and attention to commands during this period. While the pupils are learning the meanings of the various commands and how to do them, 5 or 10 minutes may be spent in marching. After that, 2 or 3 minutes of brisk drill should be enough for any one day. Commands should be clear and forceful. Movements should be brisk.

(b) *Conditioning exercises.* After the brief period of marching, the class should be brought into position for conditioning exercises. The instructor may demonstrate the exercises and lead them if he wishes. He may find it best, however, to give intensive training to a few pupil leaders and let them conduct the exercise while he moves among the pupils or behind them seeing that exercises are properly executed and giving special instructions wherever needed. During the course of the year a number of pupils should be given opportunity to lead the exercises.

At the beginning of the year more time will be required to teach the exercises and for the pupils to learn how to do them. After that, they can be used rapidly so that pupils get a thorough workout in about 10 minutes. It is recommended that a small number of exercises be used so that the pupils can learn them thoroughly, and become proficient in their use. If this is done it will not be necessary to consume time in explaining an exercise every time it is used.

The period for conditioning exercises may be varied occasionally to include cross-country running, obstacle races, and other suitable activities. On days when aquatics are scheduled, they may be entirely omitted.

If classes are as large as 50, it may be desirable to construct a platform about 4 feet high for the leader. This makes it possible for the entire class to see him. The leader should face the class and do the exercises in the opposite direction, e. g., he should do exercise with his left foot when class is doing the same exercise with its right foot.

(c) *Group and athletic activities.* After the marching and conditioning exercises are completed, the time left in the period may be used profitably in combative activities, group and team games, and athletic events.

E. Develop a suitable testing program

Tests serve to motivate pupils to make self-improvement, to give the teacher a record of what each pupil can do, and to classify pupils into groups of approximately the same abilities. Tests suggested in this bulletin are suitable for an effective testing program.

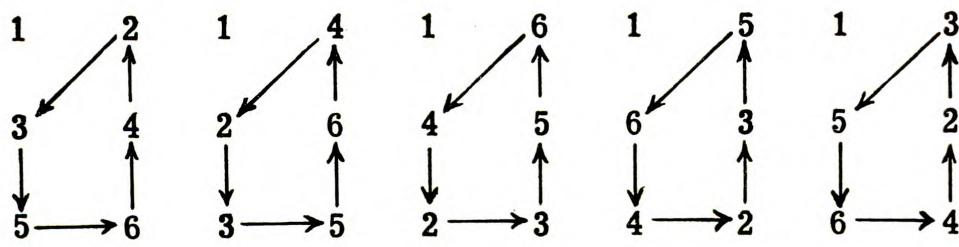
Class averages in a number of test items can be found easily by dividing the total of the scores of all pupils by the number of pupils in the class.

By comparing the records of a pupil with the class average and with his own previous records, a pupil may be motivated to practice harder. Records secured for this purpose also enable the instructor to determine the progress made by each pupil and make it possible for him to place a pupil in a group with others having similar ability.

The scores of the members of a group can be placed in order of rank from best to poorest. Pupils may then be divided into as many groups or squads as best suits the facilities to be used and activities to be offered. An arrangement of this kind permits pupils of approximately the same ability to be placed together in squads or groups.

F. Plan the intramural and interscholastic programs

The physical education period is a teaching period which during the present emergency is being devoted entirely to physical fitness. The intramural program should carry out this idea and should include only activities which



Round-Robin Tournament

contribute directly to physical fitness. A special period after school or, if there are transportation difficulties, during the regular school day, should be set aside for this purpose.

The object is to get as much pupil participation as possible. Where leagues are used, the round-robin type of tournament rather than the elimination type should be used. This will provide for greater participation. The diagram on page 12 illustrates the way the round-robin tournament operates.

Odd number of teams *Even number of teams*

The teams in opposite columns play each other. If there is an odd number of teams a bye should replace one of the numbers and be rotated in the same way that the numbers are rotated. Any number of teams may be used, but for best success, it will probably be desirable to use no more than 10 in one league. There can be any number of leagues. The "round" may be operated as many times as desirable. The winner of the league, if one is chosen, is determined on a percentage basis.

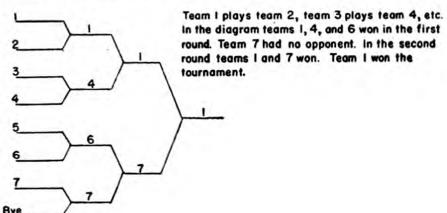
To stimulate interest it may be desirable to determine school champions from the league winners. The single and double elimination tournaments are useful for this purpose. The double elimination provides more competition and gives a loser a second opportunity to become champion. The single elimination tournament requires less time. In some situations it may be necessary to use this type of tournament to determine league winners.

The personnel of the teams may be determined in a variety of ways. A school should use the plan which seems best for its particular situation, home rooms, grades, clubs or organizations, independent groups, physical education classes, athletic association groups, and combination of groups. Each group should elect for a specified time a captain or leader who should be responsible for the team.

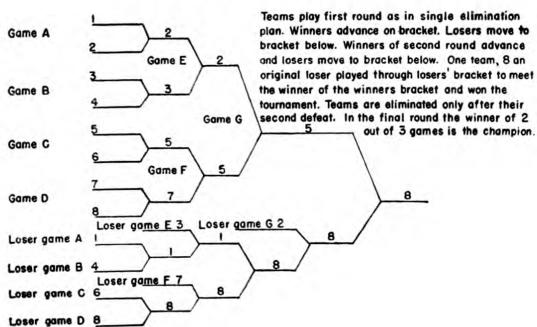
If the athletic coach is made responsible for intramural athletics, it will be necessary to conduct the contests so that the periods do not conflict with school team practice. If this conflict cannot be adjusted, some other fac-



THE SINGLE ELIMINATION TOURNAMENT



THE DOUBLE ELIMINATION TOURNAMENT



ulty member should assist with the intramural program. Otherwise, both intramural and interscholastic activities will suffer.

The interscholastic program should provide for greater participation wherever possible. Some schools are planning to have three or more teams in each sport participate in interscholastic athletics.

The interscholastic program should not be curtailed unless absolutely necessary. Readjustments should be made which will cut to a minimum the travel which is necessary. Long trips do not seem to be justifiable. The value to be derived from team play in developing the will to win and the courage to com-

pete in bodily contact with persons other than daily associates should not be lost sight of at this time.

G. Plans for cooperation with other agencies

The teacher should utilize community resources to a maximum in developing physical fitness. At the same time he should make himself and the school facilities available for the use of the community. Administrative policy, of course, must first make this possible.

The maximum use of facilities necessitates close cooperation on the part of many agencies in a community. The swimming facilities and leadership of the recreation department, for example, should be used. A plan for promoting swimming must be worked out by all who are involved. Likewise park and play areas should be available for use by the schools. School playground and gymnasiums, when not actually in use by the school should be available to the community and the leadership of the school should assist with programs for fitness for the entire community.

The total fitness program requires close cooperation between schools, medical and dental groups and other agencies. Teachers should have a clear understanding of the best way results can be achieved and should enter wholeheartedly into the cooperative program. Much of the success of a cooperative program depends upon administrative policy, but the alert and interested teacher can do much to develop proper policy and even more toward making it work effectively.

CHAPTER III

Selection of Pupils for Training

[Prepared by the United States Public Health Service]

THE PROGRAM outlined in this manual is set up for *healthy* high-school pupils. It is intended to be strenuous, even for the healthy. Therefore, it is too strenuous for those who are physically impaired. This means that a careful selection of students is needed before the training starts. It is necessary to differentiate between: (1) The healthy students who are able to take the program, and (2) those who are *not quite healthy* and therefore not able to take the program in its original form.

Physical training in the armed forces is, necessarily, more strenuous than any high-school program. It has, however, a safety factor which is absent in many schools. In the armed forces, the men have been found "healthy" by thorough medical examination and have ready opportunities for medical consultation. In many schools, the pupils have neither the one nor the other. In those schools, rigorous training is more risky than in the fighting forces.

Importance of Medical Examination

The medical examination eliminates avoidable hazards. In the Army it leaves the training officer with a group which is "healthy" to the best of contemporary knowledge. If in this group a man collapses, it is an unavoidable price paid for the progress of the group. If a high-school student collapses in training, without previous medical examination, that might have been avoided and cannot be excused by the importance of training.

Periodic medical examination of the students is a task beyond and outside the field of physical education. It is necessary for many reasons, and its need has been increasingly recognized. This development, however, was interrupted by the war. Now physicians are scarce, and in most high schools no physicians are available for periodic examinations. This means that the practical responsibility for the selection of the students will rest largely with the teacher of physical education.

Increased War Responsibility of the Teacher

This is the situation:

- (1) The program of harder physical training will put greater demands on the health of the students.
- (2) The schools will have greater difficulties in finding physicians for school examinations.

The combination of these two factors characterize the present situation. The teacher must make sure that he works with a healthy group; otherwise he risks more in the training than does any army officer.

The situation was different in the past, when physical education in high schools was lenient. In peacetime training, it proved of no particular danger that many students had not had medical examinations for years (regrettable as it was for other reasons). Collapses and other health impairments as the results of over-exertion were rare. If, now, capacity programs are recommended with the



aim of going to the limit of the student's ability (or even beyond it), then the situation is different. The students must be divided into those who can take the training and those who cannot. If this task is left to the teacher, then he needs safer methods of discrimination than heretofore.

To repeat, by far the best solution would be a thorough "medical" examination, followed by a "physical" inspection by the teacher. But this is impossible in most schools, with the limited number of physicians available in the country. Even if the money were available, the physicians could not be found.

Selection by the Teacher

We must start from a simple fact: It is impossible to diagnose disease or the absence of disease without a thorough medical examination. An experienced physician and an experienced teacher of physical education may make brilliant snap-judgments, and both may

be often right, but neither of them can rely upon such a diagnosis, and neither should. No competent physician would dare to say: "This student is healthy," without having tested him by a careful examination.

The educator may object: "But the medical examination, too, may be wrong. We often find cardio-respiratory disturbances which the physician has not discovered." This is quite correct. Therefore, observation by the sports teacher is a valuable supplement to the medical examination. In fact, it is so valuable that cooperation between medicine and physical education is leading to a new borderline field. In Europe, where this development is more advanced, it has led to the specialty of "sports physicians," who often came from the ranks of physical education.

But we cannot say that because *more* than medical examination is desirable, *less* than medical examination is sufficient. The teacher cannot possibly make a safe discrimination between his healthy students and those who

are moderately impaired, no matter what methods he applies.

Such unfailing diagnosis, however, is not demanded of the teacher, if he treats the situation as what it really is, an *emergency situation in which he and his students are doing their best*. With this attitude he does not overplay his role and will have the backing of parents and physicians.

The teacher needs that backing, for if he cannot support his selection by medical examination of the *entire class*, then he needs *another pattern* for safe selection. This pattern consists of: (1) Close cooperation of the parents of the pupils, and (2) medical decisions for those whose health he doubts. Lacking periodic medical examinations, this is the safest and most efficient procedure which the school can choose.

Cooperation of Teachers and Parents

There are many ways to make the students enthusiastic and to win the cooperation of the parents for the program. The following paragraphs describe but one method which is adapted to the present situation:

If at the beginning of the term the teacher or principal addresses the class, deals with the patriotic duties of high-school youth, discusses the potential service in fighting forces or in civilian war work, and ends with an explanation of the new program of physical training as a preparation for both; then the reaction of the class is enthusiastic—as was experienced in universities with similar programs. And if now the teacher asks: “Who is healthy enough to join the new program?” practically the entire class will report at once.

Here is where the “selection” starts; for at this point the teacher may ask that each who wants to participate should bring a written note from his family physician stating that he is in good health. This will arouse lively objections, since many students have no family physician and have been healthy for years. Others will report that their family physician has left for the Army. But all these students will readily accept the “compro-

mise” of the teacher to bring at once a written statement from their parents that they are entirely healthy.

The teacher could start without either document; in fact, he can start without any formality. But the above or a similar method, adapted to the local situation, is a great assistance to his task of selection, wherever he works without a school physician. In some communities, the teacher might not need to follow this procedure; in others he does. The decision is up to him and his principal.

Cooperation of Teachers and Physicians

The teacher has no influence upon the choice of the private physicians to whom the parents send his pupils. But if he is skillful, he can learn from every physician what he needs to know. Moreover, he may obtain written reports which remain as permanent documents in his department.

Since most of our high schools have no periodic examinations, they have no medical records on the *healthy* students. But some of them carry excellent medical documents about those students who are *physically impaired*. Their departments of physical training have files which testify to a systematic correspondence between the school and physicians, clinics, and hospitals. The medical responses are complete enough to have the value of medical records and contain important information about the physical training of those students who are not quite healthy.

Such direct connections between teacher and treating physicians will become indispensable in the forthcoming time of intensive physical training. In small communities, the teacher should have connections with the private physicians and, for his needy cases and questions of organization, with the county health officer.

Techniques of Selection

The selection of pupils by the teacher of physical education should be based on three

factors: (1) Case history, (2) Physical inspection, and (3) Careful observation during the first weeks of training.

Case History

The precise case history of the student is far more important than is generally known. It should reveal all former illnesses and temporary disturbances. A comprehensive case history furnishes most of the considerations which the teacher needs for his selection; therefore, the teacher cannot be persistent enough in getting it *before* he inspects the individual student. He obtains this material:

- A. From the student himself it is advisable to request a concise written report on:

(1) *All former illness*

- (a) Report all kinds of illnesses you have ever had, and the time when they occurred. (For instance: Scarlet fever, January–February 1929; Rheumatism, October till December 1941)
- (b) Have you ever been a hospital patient? When? How long? For what illness?
- (c) Have you had treatment by a physician or a clinic? When? How long? For what illness? (Here you may have to repeat things which you answered to question (a).)

(2) *All present illness or physical impairment*

- (a) Have you had medical treatment during the last 3 months? For what illness?
- (b) Do you, now, have any complaint regarding your health? (For instance, headache, a weak heart, a weak leg, abdominal pain, menstrual pain, etc.)
- (c) Have you been asked to report to any physician or clinic for further observation? For what disturbance?

(3) *Special wishes for physical improvement*

What special wishes do you have for improving your physical condition? (Do you feel lacking in strength or endurance? Do you want to put on or lose weight? etc.)

(4) *General remarks which the student wants to add regarding his condition.*

- B. From the parents (see below)
- C. From medical documents.

To obtain the case histories as precisely and quickly as possible, questions of the above type may be dictated to the students, and they may be told to answer them at home. If possible (and psychologically advisable in the respective communities), these brief reports may be *countersigned by one of the parents*. This increases the value of the report; in addition it encourages parents to write informative letters to the teacher or to get in personal touch with him. If the pupil has a home room teacher, he may add a brief comment to the report. Now the teacher of physical education may study these reports carefully. Rather than inspecting his students before he is familiar with the reports, he should postpone the physical inspection for a day or two.

Evaluation of the Reports

The evaluation of the reports is not too difficult, if the teacher spends time and thought on them. He may select and mark with colored pencil items which, in his judgment, are important for the student's present condition. He will disregard, for instance, measles or even diphtheria, if they have been overcome years before without reported after effects. He will, however, be keenly aware of an old heart disease, tuberculosis, or any nervous disease. In short, *he will mark all those facts which, from his knowledge of school hygiene and school health work, may be of influence upon the present condition of the student*. And he may summarize these facts with a pencilled note at the end of each report.

With this report at hand (and any previous medical document regarding the case), the teacher is well prepared to inspect the student.

Physical Inspection

The physical inspection in this program has one major objective: *to decide whether or not the student is able to take the strenuous program of physical training*. If, on the basis of history and inspection, the student seems *entirely healthy*, then he may be admitted to the

training. If, on the basis of either one, any physical impairment is found, or even the suspicion of an impairment, then the parents should be informed, and the student should bring a letter from a physician. For the sake of security, the teacher should not risk any decisions regarding, for instance, heart trouble or the strength of an abdominal scar. No medical officer of the armed forces would risk such a decision, and the teacher does not need to risk more.

Some Special Pointers for the Inspection by the Teacher

The following suggestions are confined to the practical aim of this inspection, to the decision regarding physical training.

(1) *The general appearance of the body* is an important factor; but the "type" alone is not decisive. A muscular student may tire easily, and a slender, weak-looking student may be surprisingly enduring. Many of these qualities are inherited; this is important for physical education, because it is very difficult to influence inherited qualities by training.

The *thin students* and the *fat students* require individual decisions. In both cases, the teacher should refrain from wholesale rules regarding physical training, for leanness as well as obesity are caused by a great variety of conditions. A thin student may be strengthened by physical training; but just as well he

may need rest and special medical measures. A fat student may or may not lose weight by training; in addition, he may be harmed by physical strain. Both the thin and the fat pupils should be sent to physicians; medical and laboratory examinations may arrive at a correct analysis of the individual case.

For judging the general appearance, knowledge of the *case history* is important. A thin boy may be entirely healthy, but if he has suffered from tuberculosis, or if tuberculosis is in his family, his leanness may have a different significance.

(2) *Weight and height* of the student may be taken, and the circumference of the thorax may be measured at deepest inspiration and expiration. Though these figures have no significance for the selection—the variety of types is too great—they are of interest in the re-examination of students during the training.

(3) Systematic tests of *vision* and *hearing* do not belong to this examination. Their bearing on physical education is limited to these grave cases which, by their defect, would risk accident in the training. (This refers to visual acuities of less than 20/50 after correction with glasses or to hearing defects which make it impossible to understand commands.) These gravest cases are known to the class teacher and should be reported to the teacher of physical education. Dubious cases should be decided by the physician.

(4) Pupils with considerable *enlargement of the tonsils* should be sent to a physician;

Los Angeles Playground and Recreation Department



they are fit for training either with medical permission or after short treatment.

(5) The condition of the *teeth*, while important for other reasons, has no relation to the selection for physical training.

(6) *Shoulder girdle and arms* require inspection for the training rather than for the selection. The great majority of pupils have well-trained legs but weak and poorly trained upper extremities. The improvement of this condition is an important task in the present training. It should also be considered in girls, for their prospective work in war industries.

(7) *The shape of the chest* has little significance for the selection. The form of the thorax is hereditary, and a pupil with a flat chest may be completely healthy. If the case history has made certain that there is no tuberculosis in the history of the pupil or his family, then only conspicuous deformities of the chest need medical decision. In all healthy pupils, no matter what their thorax form may be, the physical training can greatly improve respiration and respiratory musculature.

(8) *Heart function and circulation* are the most important problems in strenuous physical training. Their discovery is rightly entrusted to medical examinations in the armed forces as well as in the school health service.

But how can the teacher of physical education suspect a disturbance of heart function or circulation, if no medical examination has preceded his inspection? The following consideration may be of some assistance:

(a) The *case history* is again of particular importance. If the pupil has ever suffered from a heart disturbance of any kind, he needs a new medical examination before being admitted to capacity training. Attention should also be paid to *rheumatic fever* in the history, no matter when it had occurred. Rheumatic fever is frequently the cause of organic heart disease. Recent statistics have shown that its significance as a fore-runner to heart disturbances has not been fully appreciated in the discovery of cardiacs in schools.

(b) Since the teacher cannot examine the heart, he depends upon observing the circulation. In doing so, he should keep in mind: the circulation

sustained by a weak heart, even by a heart with an organic defect, may be entirely sufficient if the body is not in action. It may be compensated so well that even the pupil's pulse feels completely normal. The disturbance may clearly appear, however, after physical activity even of short duration.

Therefore the teacher should keenly observe his new students after physical activities. He should pay attention to changes which may be caused by a circulatory disturbance:

- (1) Is the student panting unduly? (An insufficient circulation does not bring enough oxygen to the tissues.)
- (2) Is any rapid movement of the heart visible on the left side of the thorax?
- (3) Does the student look conspicuously pale and exhausted?
- (4) Is the *pulse* speeded up abnormally or has it become distinctly irregular? Feeling the pulse does not belong to the duties of the teacher of physical education; but it can be assumed that most teachers have occasionally practiced it. *Irregularities of the pulse* require medical decisions; they are often more conspicuous after physical activity. The *speed of the pulse* varies greatly in different individuals. (The pulse rate of the healthy varies from below 60 to over 100 per minute.) The often quoted average of 72 per minute is too low for healthy adolescents, where the average can be assumed to be at least 10 beats more. In girls it is about 7 to 8 beats faster than in boys. After physical activity the pulse rate goes up; that amount too is highly variable, so that only an excessive increase—for instance, an increase of more than 20 beats per minute after short, moderate exercise—is suspicious. Quite generally the quickened pulse returns to normal after a few minutes of rest. If, for instance, 3 minutes after running, the pulse is still conspicuously speeded up, then the condition is questionable enough to deserve medical examination.

There are elaborate tests for the circulation, set up by physiologists and physical educators. Some of these tests are highly competent and may be added to the above considerations. But the teacher should never forget that no single method can cope with a problem which is highly complex even in the hands of specialized physicians.

(9) *Abdominal scars* from operations (in adolescents mainly appendicitis operations)



are solid in the great majority of cases and can be disregarded after a year. In some cases, however, they form weak spots of the abdominal wall and present the danger of ruptures (see below). It is impossible to differentiate a weak scar from a solid scar without medical examination, and the teacher should regard all abdominal scars with certain concern. In his present selection for strenuous training, he is safer if he obtains a note from a physician stating that no further caution is necessary.

(10) A *rupture* (*hernia*) is a protrusion of intestines through a weakened part of the abdominal wall; it is covered by normal skin and may appear as a small lump to the inspecting eye. The most frequent type of rupture among boys is the *inguinal hernia*, located in the groin. Girls too may have inguinal ruptures, but far less frequently. The rupture appears as a bulging only in its later stage; in

its early stages it can be recognized only by careful examination, which is not possible for the teacher. Hence attention should be paid to a dragging sensation of pain in the groin. A hernia of a high-school pupil should be operated on, as soon as it is diagnosed by a physician. With an untreated hernia the student is not fit for rigorous training. The operation, however, implies no risk or pain; and a few weeks afterwards the student is ready for any kind of training. Boys should be told that the operation is required for service in the armed forces.

Another type of hernia is the *umbilical* (*navel*) *hernia*, occurring in both boys and girls. In early childhood, a navel hernia may improve spontaneously; in high-school age, however, it requires operation. The operation is even less serious than that for an inguinal

hernia, and the student should be influenced to have it performed.

(11) *Menstrual disturbances* in high-school girls are seldom a reason for general rejection from a strenuous training program. With few exceptions, the girls can be admitted to their new program, if the regulations for the menstrual period are flexible and individual enough. This is necessary, for the physical constitution of adolescent girls is too individual to permit rigid standard rules for the group.

In weighing these individual variations, one should not forget that even gynecological examination substantiates only part of the disturbance, while most of the hormonal side is still highly problematic. This includes individual lack of strength and intensity of pain. Thus three groups are indicated:

- (a) The great majority of the pupils are able to submit to the customary regulations of the school regarding periodic excuse from physical training.
- (b) A second group is entitled to individual consideration and prolonged excuse during the menstrual period.
- (c) The gravest cases need medical advice.

(12) Orthopedic consideration regarding the *spine* is familiar to the teacher of physical education. There is, however, one special condition for which he should watch in his inspection; the *angular* prominence of one or two vertebrae. Such an angular prominence requires medical examination and in many cases X-rays, for it may be the symptom of an old tuberculosis of the spine, which might flare up under strenuous training. *Angular* deformities of the spine are always suspicious, because they may be caused by serious disease of one or two vertebrae. By recognizing such a spine as suspicious and suggesting medical examination the teacher may save the life of the student.

(13) The inspection of *pelvis* and *legs* broaches in every case questions regarding the training of legs and feet. The teacher is familiar with many of these questions; in fact,

he has studied them with particular care. Therefore, it is useful to recall that he should be cautious in judging *orthopedic disturbances*. His "diagnosis" may be right in many cases, but it is bound to be wrong in others. This may be illustrated by two examples:

A slight pain in the hip may seem to be well explained by a flat foot or a knock knee. Instead, it may be caused by a specific adolescent disturbance in the hip joint, which the teacher cannot possibly diagnose. Or a pain in a flat arch may seem characteristic of flat foot. Instead, it might be caused by a tuberculosis of one of the foot bones.

This leads to the general advice: The teacher should keep in mind that grave afflictions of a very different nature, such as tuberculosis or growths in bones, may start slowly and with apparently harmless symptoms. However, the most dangerous affliction, malignant growth, often starts without any pain. This means that *every deviation from the norm*, harmless as it may seem, should be transferred to medical examination. The teacher of physical education may well be the only person who, during the next year, will inspect high-school students.

Observation in Training

During the first weeks of training, the teacher has a great opportunity to supplement or modify his selection. *For at least 4 weeks, he should observe the students, as if the process of selection were not yet concluded.* In this period he may well discover cardio-vascular disturbances which nobody had suspected in the student. Here his observation may furnish the first and, perhaps, the only material by which a serious affliction can be discovered.

Grouping of Pupils

The modern teacher of physical education is familiar with the concept that training should be adapted to the individual. Therefore the physical inspection also serves the task of find-

ing the type of training which is best suited to the individual student.

This program, however, deals with capacity training of healthy youth and consciously refrains from individual modifications. The selection, therefore, must conform to this objective; it will lead to the differentiation of two groups: (1) The group which is physically able to begin the training, and (2) a group which, at this moment, is not physically able to take it. This group is too heterogeneous and too important from the medical, social, and psychological point of view to be discussed as a side issue of this program.

It will depend upon local school conditions whether part of this second group can be trained together with the healthy group. In that case, the rules of the program for the healthy must be considerably modified in its application for the others. The more rigorous the requirements for the healthy, the more individualized and considerate must be the measures for the weak. This will be discussed in a later publication.



Physical Standards for the Armed Forces

The physical requirements for the different branches of the two armed services vary so widely that it would be difficult to gather them all together here. Furthermore, since changes are made from time to time, any statement would be out of date before long. The general requirements for the Army and Navy may be obtained from recruiting stations, and school health guidance authorities should keep in touch with developments so as to be able to give helpful advice. They should, however, exercise particular care to make clear to the boys that only Army and Navy officials can speak authoritatively.

In general, the requirements for flight training in the air services are the most demanding

and stringent, and since it would be a waste of time and of teaching facilities to take boys into pre-flight aeronautics courses who clearly will not be able to qualify as aviation cadets, the following statement, prepared jointly by the medical departments of the Army and Navy air services, is appended.

In connection with the physical screening of boys for pre-flight work as potential pilots, bombardiers or navigators, the high school will, of course, wish to include all who have a fair chance of meeting the physical requirements at some later date, and to exclude only those who will clearly not be able to meet them, in spite of normal development or special remedial action in the meantime. It is, therefore, unnecessary to state the physical requirements in great detail, or to call for a lengthy physical examination, especially at a time when the medical profession is greatly overworked. The following general statement of requirements will serve as a guide.

For the Army—

Visual acuity 20/20 bilateral.
Normal color vision.
Unimpaired ocular muscle balance.
Unimpaired optical organism, anatomically and mechanically.
Good respiratory ventilation and vital capacity.
Hearing 20/20 each ear.
Serviceable non-carious teeth with good occlusion.
(Consult nearest Air Force Station or Aviation Cadet Examining Board for minimum dental requirements).
A stable equilibrium.
A sound cardiovascular system, nervous and organic.
A well-formed, well-adjusted, and coordinated physique.
Height: Minimum, 60 inches; maximum, 76 inches.
(Height, requirements for fighter pilots 64"-69"; for other pilots 64"-76"; for bombardiers and navigators 60"-76")
An integrated and stable nervous system.

For the Navy—

Normal vision 20/20 each eye, unaided by glasses.
Normal hearing.
Normal color vision.
Unimpaired ocular organs and ocular muscle balance.

Minimum height requirements, 64 inches; maximum height requirements, 76 inches.

Minimum weight requirements, 124 pounds; maximum weight requirements, 200 pounds. Weight in excess of 200 pounds may be acceptable provided such weight does not constitute obesity to extent of physical handicap.

Normal respiratory ventilation and vital capacity. A sound cardiovascular system, nervous and organic.

Minimum blood pressure, 105; maximum, 135. Freedom from rupture or evidence of abnormal relaxed rings, conducive to rupture.

Minimum of 18 sound teeth, 2 of which shall be opposing molars. (All incisors or satisfactory replacements).

A well-formed, well-adjusted coordinated physique, a stable equilibrium, an integrated and stable central nervous system.

No history indicative of susceptibility to hay fever or asthma.

Present height-weight requirements for applicants for air-crew training between the ages of 18 and 20 are incorporated in the following chart:

ARMY

Height in inches	18	19	20
60.....	105	117	146
61.....	107	119	149
62.....	109	121	151
63.....	112	124	155
64.....	114	127	159
65.....	117	130	163
66.....	120	133	166
67.....	123	137	171
68.....	127	141	176
69.....	130	145	181
70.....	134	149	186
71.....	139	153	191
72.....	141	157	196
73.....	145	161	200
74.....	148	165	200
75.....	152	169	200
76.....	156	173	200

NAVY

Height in inches	18	19	20
64.....	115	120	125
65 and under 68	119	124	129
68 and under 70	124	129	134
70 and under 72	130	135	140
72 and under 74	135	140	148
74-76.....	142	145	153

Minimum: 10 pounds under the standards shown above.

Maximum: Variations above the standards are disqualifying if sufficient to constitute such obesity as to interfere actually or potentially with normal physical activity.

Many of these requirements may be checked by suitably designated teachers. If in addition a brief examination of heart, lungs, and blood pressure could be given by a qualified physician, the practical needs of the situation would be met, and at the same time, advice on remedial defects such as weight and teeth, could be obtained.

Attention is called to the book "Are You Fit to be a Pilot?" by Ermi L. Ray and Stanley Washburn, Jr., (Wilfred Funk, N. Y., 1941) which contains many eye, hearing, balance, and coordination tests in a form suitable for administration by any responsible adult. While this book is in no sense official, a boy who can pass these tests will probably be able to meet those phases of the qualifying physical examination for aviation cadets as administered by a flight surgeon.

It should be emphasized again that in the opinion of the Army and Navy air services no boy should be excluded from pre-flight training in high school because of physical disqualification which time and positive remedial action may well cause to disappear.

CHAPTER IV

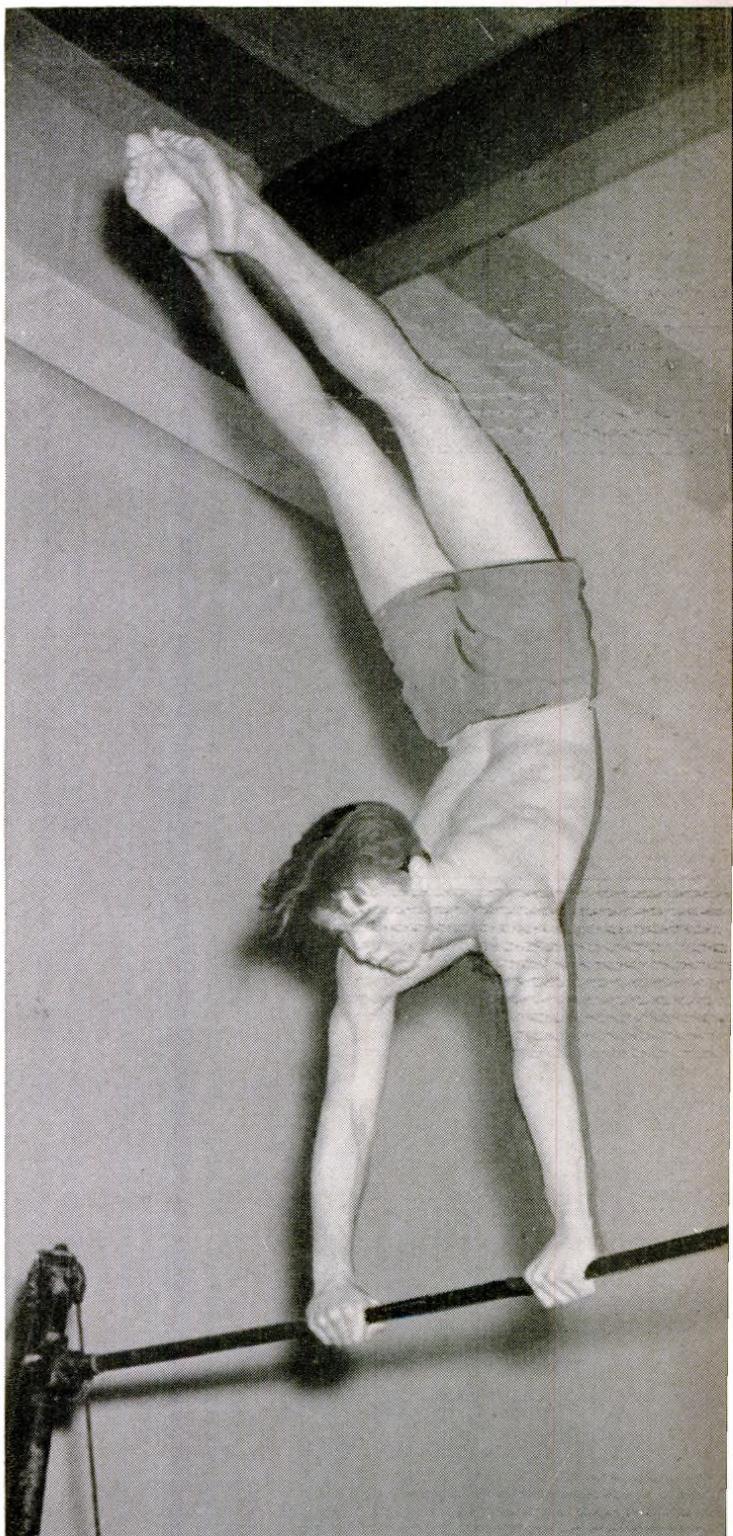
Activities For Boys

THE ACTIVITIES for boys that are recommended in this chapter have been selected in terms of the previously stated objectives which are to develop (1) strength, endurance, stamina, and bodily coordination, and (2) physical skills that will be of direct value and use in the armed forces and war work.

The traditional objectives of physical education are usually classified under the headings of (1) developmental, (2) recreational, and (3) educational. The material included in this chapter is directed definitely toward the accomplishment of the first objective. It seeks to develop strong and rugged boys who can become excellent soldiers or sailors promptly after entering the armed services or efficient workers if they are rejected by the Army and Navy. The recreational and educational objectives of physical education are important and should be stressed in a school program during times of peace. The urgency of the present situation makes it wise, however, to emphasize the developmental aspects of physical education.

In connection with the wartime program of physical education for boys the following items are emphasized:

1. Five periods each week of instruction in physical education activities for all high-school pupils.
2. The continuous observation of all pupils by the teacher and a more complete inspection by a physician of all individuals who appear to deviate from the normal.
3. Increased emphasis on interscholastic and intramural athletics, road work, hard physical labor, and camping.
4. The use of vigorous and rugged activities instead of many of the recreational sports that have been used.



The activities are grouped under four headings. These are: (1) Aquatics; (2) gymnastics; (3) combative activities; (4) sports and games.

Interscholastic Athletics

It is recommended that the program of interscholastic athletics be expanded to meet wartime demands. Probably never before has there been so great a need to develop in boys the spirit of competition and the will to win. Interscholastic athletics provide unusual opportunities to develop these characteristics. It is suggested, therefore, that the necessary modifications be made in the interscholastic athletic programs to permit many more pupils to participate.

Some practices which have been adopted by schools to increase participation and to meet the restrictions now placed upon transportation are:

1. The number of teams representing a school in a given sport has been increased. Instead of one team competing, arrangements are being made so that four or more may compete.
2. Schedules have been arranged so that a school plays another school more than one time in the same season.
3. Schedules have been arranged so that all schools played are conveniently located on a railroad line and the distance traveled is short.
4. Leagues have been formed of schools in the same geographical area and all games are played within the league.

It is believed that important criticisms of interscholastic athletics may be met by expanding the program rather than curtailing it, by giving more opportunity to participate in rugged activity rather than less.

Aquatics

Our armed forces are operating under conditions that demand an ability on the part of

the individual to handle himself successfully in the water while fully clothed. The success of the program depends upon the maximum use of all available school and community facilities.

Objectives

1. To stay afloat for a long period of time.
2. To swim under water.
3. To swim long distances without exhaustion.
4. To enter the water without submerging.
5. To be at home in the water fully clothed.
6. To render assistance to another person in water.

Organization

1. Classes should not exceed 50 boys.
2. Classes should be subdivided into small units.
3. Wherever possible the "Buddy" system should be used which provides for boys to be paired and required to stay near each other in the water.
4. Adequate check in and check out of swimmers is essential for safety.

Activities

Staying Afloat

All boys should be taught to stay afloat by:
Floating. *See American Red Cross Swimming and Diving Manual*, p. 59.
Breathing and Breath Holding. *Ibid.*, p. 19-20; 54.
Sculling. *Ibid.*, p. 69.
Treading Water. *Ibid.*, p. 149.

Fundamental Strokes

1. *Side stroke*: Valuable for life saving and swimming with equipment. *See War Department, Basic Field Manual, FM 21-20, Physical Training*, March 6, 1941, p. 102, and *American Red Cross, Swimming and Diving Manual*, p. 117.
2. *Breast stroke*: Useful in reconnaissance and life saving. *See War Department, Basic Field Manual, FM 21-20, Physical Training*, March 6, 1941, p. 111, and *American Red Cross*,

Swimming and Diving Manual, p. 85, 95, and 104.

3. *Back stroke*: An excellent stroke for a tired swimmer and for swimming with military equipment. See War Department *Basic Field Manual*, FM 21-20, *Physical Training*, March 6, 1941, p. 108, and American Red Cross *Swimming and Diving Manual*, p. 100.
4. *Trudgen stroke*: A powerful and valuable stroke for distance swimming. See War Department *Basic Field Manual*, FM 21-20, *Physical Training*, March 6, 1941, p. 107, and American Red Cross *Swimming and Diving Manual*, p. 127.
5. *Endurance swimming*: Developed by the use of fundamental strokes over long distances, and by the use of the crawl stroke.
6. *Swimming under water*: Valuable in reconnaissance and escaping hazards. Boys should be able to swim not less than 20 feet under water fully clothed.
7. *Swimming fully clothed*: Practice all of the above fully clothed.

Entering the Water

This term is used, rather than diving, to meet the needs of the war situation. While the practice of diving does develop skill and coordination, emphasis should now be placed upon jumping into the water with and without clothing.

1. Jump feet first.
2. Jump without submerging: Used to keep equipment dry.
3. Dive head first.

Lifesaving

See American Red Cross *Life Saving and Water Safety*, 1937, and War Department *Basic Field Manual*, FM 21-20, *Physical Training*, March 6, 1941, p. 119.

Suggestions

1. The teacher of swimming must be familiar with lifesaving practices.
2. Safety precautions should be observed.
3. Teaching practices suggested in the manuals of the American Red Cross and War Department *Manual FM 21-20* should be followed.

4. For practice in swimming fully clothed, shirt, trousers, and shoes are needed. They should be white or fast-dye, and shed as little lint as possible. Clothing should be laundered before use in the pool.

Gymnastics

This phase of the program contributes readily and easily to improved muscle tone and bodily development. When properly conducted, gymnastics are highly beneficial.

The activities which follow are based on the need for body conditioning, particularly the development of the musculature of the shoulder girdle, abdominal region, and legs.

Objectives

1. To develop endurance.
2. To increase strength.
3. To develop agility.
4. To develop specific skills applicable to the war situation.

Activities

Marching and Running

Marching—The purposes of marching are to teach some fundamentals of military tactics, and to move groups quickly and efficiently from one place to another. Marching, except for these two purposes has little value in this program. The descriptions given in the following paragraphs are taken from the War Department *Basic Field Manual FM 22-5, Infantry Drill Regulations*, August 4, 1941.

Position of attention. Command, ATTENTION!

- (a) Heels on the same line and as near each other as the conformation of the man permits.
- (b) Feet turned out equally and forming an angle of 45 degrees.
- (c) Knees straight without stiffness.
- (d) Hips level and drawn back slightly; body erect and resting equally on hips, chest lifted

and arched; shoulders square and falling equally.

- (e) Arms hanging straight down without stiffness so that the thumbs are along the seams of the trousers; backs of hands out; fingers held naturally.
- (f) Head erect and squarely to the front; chin drawn in so that axis of the head and neck is vertical; eyes straight to the front.
- (g) Weight of the body resting equally on the heels and the balls of the feet.
- (h) In assuming the position of attention, the heels are brought together smartly and audibly.

At ease.

- (a) At the command, "AT EASE," the right foot is kept in place. Silence but not immobility is required.

Facings.

- (a) To the flank—(1) The commands are:
1. Right (Left), 2. FACE. At the command FACE, slightly raise the left heel and the right toe; face to the right, turning on the right heel, assisted by a slight pressure on the ball of the left foot. Hold the left

leg straight without stiffness. (TWO) Place the left foot beside the right. (2) Execute LEFT FACE on the left heel in a corresponding manner.

- (b) To the rear—The commands are: 1. About, 2. FACE. At the command FACE, carry the toe of the right foot a half-foot length to the rear and slightly to the left of the left heel without changing the position of the left foot; weight of the body mainly on the heel of the left foot; right leg straight without stiffness. (TWO) Face to the rear, turning to the right on the left heel and on the ball of the right foot; place the right heel beside the left.

Dress—(Alignment)

- (a) If in line, the commands are: 1. Right (Left). 2. DRESS. 3. Ready. 4. FRONT. At the command DRESS each man, except the one on the left, places his left hand on his hip, and turns his head to the right (left) and aligns himself. At the command 1. Ready, 2. FRONT, the arms are dropped quietly and smartly to the side and heads are turned to the front.



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Steps and marchings—

General

- (a) All steps and marchings executed from the halt, except the right step, begin with the left foot.
- (b) The instructor indicates the proper cadence when necessary by calling, "One," "Two," "Three," "Four," as the left and right foot, respectively, strike the ground.

Quick time

Being at a halt, to march forward in quick time, the commands are: 1. Forward, 2. MARCH. At the command Forward, shift the weight of the body to the right leg without perceptible movement. At the command MARCH, step off smartly with the left foot and continue the march with 30-inch steps taken straight forward without stiffness or exaggeration of movements. Swing the arms easily in their natural arcs, 6 inches to the front and 3 inches to the rear of the body. The cadence of quick time is 120 steps per minute.

Double time

- (a) Being at a halt or in march in quick time, to march in double time the commands are: 1. Doubletime, 2. MARCH. (1) If at a halt, at the command Double Time, shift the weight of the body to the right leg without perceptible movement. At the command MARCH, raise the forearms, fingers closed, knuckles out, to a horizontal position along the waistline, take up an easy run with the step and cadence of double time, allowing a natural swinging motion to the arms. Cadence of double time is 180 steps per minute. The length of step in double time is 36 inches.
(2) If marching in quick time, at the command MARCH, given as either foot strikes the ground, take one more step in quick time and then step off in double time.
- (b) To resume the quick time from double time, the commands are: 1. Quick Time, 2. MARCH. At the command MARCH, given as either foot strikes the ground, advance and plant the other foot in double time; resume the quick time, dropping the hands by the side.

Halt

- (a) To halt when marching in quick time, the commands are: 1. Squad, 2. HALT.

At the command of HALT, given as either foot strikes the ground, execute the halt in two counts by advancing and planting the other foot and then bringing up the foot in rear.

- (b) To halt when marching in double time, the commands are: 1. Squad, 2. HALT. At the command HALT, given as either foot strikes the ground, advance and plant the other foot as in double time, then halt in two counts as in quick time.
- (c) To halt from side step the commands are: 1. Squad, 2. HALT. At the command HALT, given as the heels are together, plant the foot next in cadence and come to the halt when the heels are next brought together.

Mark time

The commands are: 1. Mark Time, 2. MARCH.

- (a) Being in march, at the command MARCH, given as either foot strikes the ground, advance and plant the other foot; bring up the foot in rear, placing it so that both heels are on line, and continue the cadence by alternately raising and planting each foot. The feet are raised 2 inches from the ground.
- (b) Being at a halt, at the command MARCH, raise and plant first the left foot, then the right as prescribed above.
- (c) Mark time may be executed in either quick time or double time.
- (d) The halt is executed from mark time as from quick time or double time by taking 2-inch vertical in place of 30-inch horizontal steps. Forward, halt, and mark time may be executed in either quick time or double time.

Side step

Being at a halt the commands are: 1. Right (Left) step, 2. MARCH. At the command MARCH, carry the right foot 12 inches to the right; place the left foot beside the right, left knee straight. Continue in the cadence of quick time. (The side step is executed in quick time from a halt and for short distances only).

Face in marching

- (a) To face to the right in marching and advance from a halt, at the command of execution of the movement, turn to the right on the ball of the right foot and

- at the same time step off in a new direction with the left foot with a half step, full step, or in double time, as the case may be.
- (b) To face to the right in marching and advance, being in march, at the command of execution, given as the right foot strikes ground, advance and plant the left foot, then face to the right in marching and step off in the new direction with the right foot with a half step, full step, or in double time, as the case may be.
- (c) To face to the rear in marching, being in march, the commands are: 1. To the Rear, 2. MARCH. At the command MARCH, given as the right foot strikes the ground, advance and plant the left foot; turn to the right about on the balls of both feet and immediately step off with the left foot.

Being in Column of Threes (or Fours), Change direction

The commands are: 1. Column Right (Left), 2. MARCH. The right flank man of the leading rank is the pivot of this movement. At the command MARCH, given as the right foot strikes the ground, the right flank man of the leading rank faces to the right in marching as prescribed in paragraphs dealing with "Face in Marching" and takes up the half step until the other men of his rank are abreast of him, then he resumes the full step. The other men of the leading rank oblique to the right in marching without changing interval, place themselves abreast of the pivot man, and conform to his step. The ranks in rear of the leading rank execute the movement on the same ground and in the same manner as the leading rank.

Running.—Running develops endurance, and some forms given here develop agility and specific skills in getting over or around obstacles. Where pupils are required to run 100 yards or more, special care must be exercised. Before permitting pupils to run any of the longer distances, several weeks of preliminary training should be demanded.

Training in long-distance running should be preceded by a medical examination by a properly qualified physician. Where such an examination is impractical, the teacher should administer the Pulse Rate of Recovery Test

before the training period begins. After 1 week of training, the test should be given again. Unless the second test shows the pupil's pulse returns to normal more quickly than at the time of the first test, serious consideration should be given to the failure of the cardio-vascular system to respond to training before permitting the pupil to continue with the training program. Advice of a qualified physician should be secured if possible. No boy in the ninth grade should be permitted to train for or attempt to run distances greater than 220 yards. The younger boys in grade 10 as well as those who appear to be less mature physically should either be barred from running 440 yards or longer distances or be given more careful attention than the older more mature pupils.

In general, the training program should be characterized by starts, short bursts of speed, and jogging on the grass during the preliminary training period. In no instances should pupils be permitted to run 100 yards at top speed before the end of the second week. In the 440-yard run and 880-yard run, if the full distance is covered, only the first half should be run at top speed and the second half jogged.

Road work.—Road work is a combination of hiking and running to develop the ability to cover long distances in the shortest possible time. The starting distance should be from 3 to 5 miles. This hike is a brisk walk, interspersed with running (not jogging). At each practice the distance should be covered in less time, and gradually increased until boys are able to cover 8 to 10 miles in fast time.

Suggestions.

There should be no rest periods. When beginning road work the period of hiking will be long and of running short. With increased practice, the running time will increase as the hiking decreases.

Cross country.—The course may be over hills, through woods, across brooks, over open fields, or parks and golf courses. It is *not* run-

ning on city streets or highways.

Suggestions.

1. Warm up before the practice jaunt.
2. Wear full-length sweat clothing on cool days.
3. Shorten the stride going up hill.
4. Breathe through mouth and nose.
5. Use an easy relaxed stride.
6. After the run continue to walk a short distance in the fresh air before using the shower.

Steeple chase.—Steeple chase is a set form of obstacle racing using hurdles and water jumps. The National Collegiate Athletic Association and the Amateur Athletic Union publish rule books that describe these events and give the rules for them.

Obstacle.—Obstacle running may be done either indoors or outdoors. Each school may set up its own course using any available obstacle. Indoors, the horse, parallel bars, buck, benches, ropes, and ladders are usable. Outdoors, the obstacles may be hurdles, fences, ditches, walls, and posts. (See appendix for diagram of courses.)

Suggestions.

1. Common sense and caution must be used in selecting obstacles.
2. Boys must be skilled in surmounting each obstacle before starting the entire course.
3. The course may be used for conditioning and for competition.
4. Competition may be against time, individual against individual, or group against group.

Relays.—Relay races add interest and competition to the program as well as vigorous exercises. Teams should not number more than eight members so that few will be standing idle. The distances in the relays should be long enough to require the players to put forth sustained and vigorous effort. The distances involved in the different relays may be progressively increased as the boys improve in physical condition.

Rather than disqualify a team when infractions occur, such as running out to meet the next runner, it is better to charge a foul and

then add the number of fouls to the team's order of finish.

1. Shuttle Relay

Formation

- (a) Divide class into groups of not more than eight in each group.
- (b) Establish starting lines at opposite ends of the running space.
- (c) Place half of each group (ones) behind the opposite starting line. Players in each group stand one behind the other.

Description

At the signal "Go," the first runner of the "ones" runs forward, crosses the starting line at the opposite end, touching off the first of the "twos." He runs forward, crosses the starting line and touches off the second of the "ones." Each runner does the same in turn. The team finishing first wins.

2. Jump Stick Relay

Formation

- (a) Divide class into groups of not more than 8 in each group.
- (b) Station runner number 1 about 10 yards in front of his team, holding a wand or broomstick (about 3 feet long).

Description

At the signal "Go," number 1 runs toward his team, holding one end of the stick. When he reaches his team, number 2 takes hold of the other end of the stick. Together they run toward the end of their team, holding the stick about a foot from the ground so that each player jumps over it as it moves along. Number 1 now stays at the end of the line. Number 2 takes the stick and runs to the starting point (10 yards in front). He repeats number 1's action. Each player does the same until number 1 is back at the starting line.

3. Duck Waddle

Formation

- (a) Divide class into groups of not more than 8 in each group.
- (b) Establish a turning point about 5 yards in front of a starting line.

Description

The first player assumes a knees-bent position. In this position on the signal "Go," he waddles to the turning point and returns, crossing the starting line. He touches off the next player who does the same. This continues until each one has had a turn. The team finishing first wins.



4. Bouncing

Formation

Same as for Duck Waddle

Description

The first player assumes knees-bent position. At the signal "Go," he travels in short bouncing jumps to the turning point and returns, crossing the starting line. He touches off the next player, who does the same. Continue until each one has had a turn. The team finishing first wins.

5. Crab-walk

Formation

Same as for Duck Waddle.

Description

The first player sits down supporting himself on his hands and feet, facing upward, feet on the starting line and toward the turning point. At the signal, "Go," he moves i. e., feet first, to the turning point and returns, crossing the starting line. He touches off the next player who does the same. Continue until each one has had a turn. The team finishing first, wins.

Variation: The same, but with hands leading instead of feet.

6. Wheelbarrow

Formation

Same as for Duck Waddle.

Description

At signal "Go," the first player places his hands on the floor, extends his legs backward in straddle position. The second player walks between number 1's legs, grasping number 1 at the thighs. In this position they travel to the turning point and return. The first player is walking on his hands. His legs (handles of the wheelbarrow) are carried by the player. They cross the starting line. The second player becomes the wheelbarrow, and the third player becomes the pusher. Continue until each player has had his turn. The team finishing first wins.

7. Horse and Rider

Formation

Same as for Duck Waddle.

Description

The first player is the horse. The second is the rider. The rider mounts the hips of the horse and places his hands on the shoulders of the horse. The horse travels to the

turning point and returns. They cross the starting line and rider becomes the horse, and third player becomes the rider. Continue until each player has had his turn. The team finishing first, wins.

Conditioning Exercises

Three types of conditioning drills are given here: A general conditioning drill, a grass drill, and ranger activities. They can be adapted to indoor or outdoor use in limited space and require no equipment. Strength and endurance are developed quickly through regular use of these drills, especially if there is a steady increase in the number of times each exercise is performed.

General Conditioning Drill

To be most effective and to reach the objectives for which the drill is designed it is imperative:

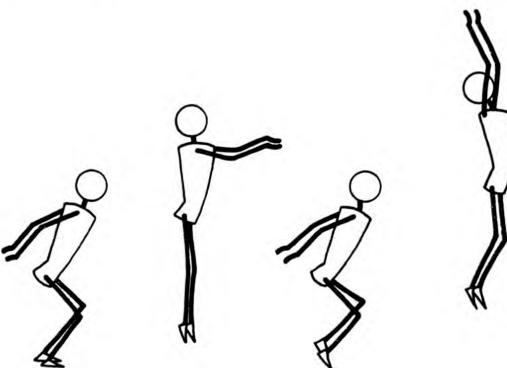
1. To do the exercises in good form, i. e., exactly as described, and with energy in each movement.
2. To increase the number of times each exercise is performed, as the capacities of the individuals develop.
3. To maintain sustained effort without rest or pause between exercises. Each exercise must be thoroughly learned before going on to the next one. When the drill is memorized, then all the exercises should be done without stopping.
4. To master unit number one before going on to unit number two, and likewise units one and two, before going on to unit number three.
5. Finally, to perform each exercise the maximum number of times indicated.

Formation:

Open order. From closed order in a column of 3's or 4's. On the command, 1. Extend to the left, 2. MARCH, all raise arms sideward and run to the left until there are at least 12 inches between finger tips. The boys on the right flank stand fast. "COVER" (i. e., straighten lines from front to back) and lower arms to sides. This is one of many ways of opening order. See War Department Basic Field Manual, FM 21-20, Physical Training, March 6, 1941, p. 24 for another method.

Unit One

Exercise 1.



Starting position: Stand with feet about a foot apart, knees slightly bent, arms raised backward.

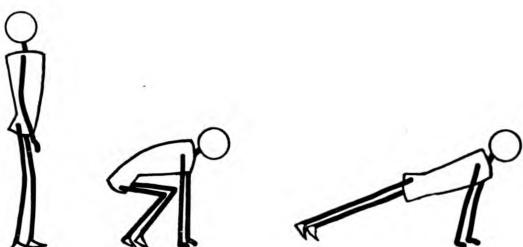
Count 1—Swing arms forward and jump upward.

Count 2—Swing arms backward and jump upward.

Count 3—Swing arms forward, upward and jump upward about 1 foot.

Count 4—Swing arms backward and jump upward. 5 to 12 times.

Exercise 2.



Starting position: Position of attention.

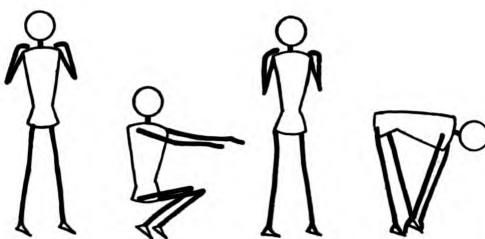
Count 1—Squat rest, (a squat rest is a deep-knee bend with hands on floor in front of feet).

Count 2—Extend legs backward to front leaning rest, (the body is straight from shoulders to feet, weight supported on hands and toes).

Count 3—Return to squat rest.

Count 4—Return to attention. 12 to 25 times.

Exercise 3.



Starting position: Feet slightly apart, and elbows bent with fists at shoulders.

Count 1—Bend knees deeply and thrust arms forward, keeping body erect.

Count 2—Return to starting position.

Count 3—Bend trunk forward, and thrust arms downward, touching toes, keeping knees straight.

Count 4—Return to starting position. 10 to 20 times.

Exercise 4.



Starting position: Lie on back, arms stretched sideways.

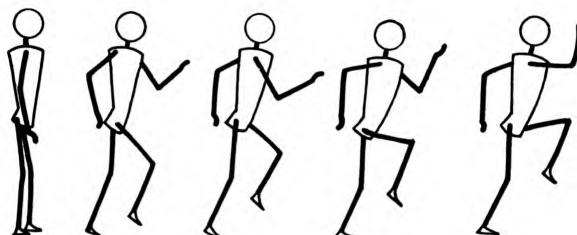
Count 1—Raise legs slowly swinging them over

head and touching toes to ground above head.

Count 2—Lower legs slowly to starting position. The count is slow. 10 to 20 times.

Unit Two

Exercise 5.

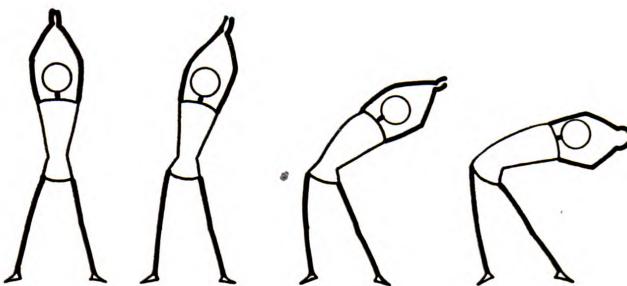


Starting position: Stand erect, arms in running position.

Exercise: Run in place. Begin slowly and run about 10 steps (count only step of left foot).

Speed up for another 10 steps, raising knees hip high. Then run 10 to 25 steps at full speed, raising knees hard. Then run slowly 10 steps.

Exercise 6.



Starting position: Feet about 30 inches apart, arms extended overhead, hands clasped.
 Count 1—Bend sideward left.
 Counts 2 and 3—Continue bend to the left trying to go deeper on each count.
 Count 4—Return to starting position. Same right. 10 to 20 times.

Exercise 7.

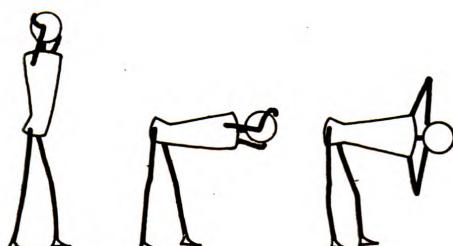
Starting position: Lie on back, arms extended overhead. Keep feet flat on the ground, legs straight.
 Count 1—Sit up, and at the same time, draw knees to chest, leaning forward and swinging arms forward to a "rowing position."
 Count 2—Return to starting position. 10 to 20 times.

Exercise 8.

Starting position: Position of attention.
 Count 1—Squat rest (see exercise number 2).
 Count 2—Front leaning rest (see exercise number 2).
 Count 3—Bend elbows, touching chest to floor.
 Count 4—Straighten elbows.
 Counts 5 and 6—Repeat counts 3 and 4.
 Count 7—Return to squat rest.
 Count 8—Return to position of attention. 5 to 12 times.

Unit Three

Exercise 9.



Starting position: Feet about 24 inches apart, hands clasped behind head, elbows well back, chin in.

Count 1—Bend trunk forward.
 Count 2—"Bounce" trunk downward and at the same time rotate trunk to the left.
 Count 3—"Bounce" trunk downward and rotate trunk to the right.
 Count 4—Return to starting position. 10 to 20 times.

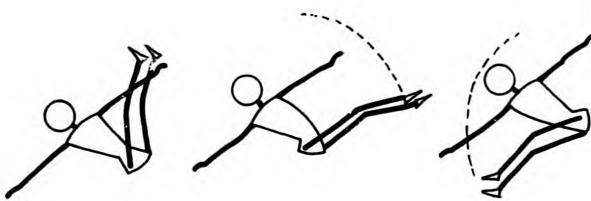
Exercise 10.



Starting position: Left foot about 8 inches forward, hands clasped on top of head.

Count 1—Sit on the right heel.
 Count 2—Bounce from this position and spring upward, knees straight. Change position of feet.
 Count 3—Drop to squat on left heel.
 Count 4—Spring and change position of feet.
 Add two a week until able to do 25.

Exercise 11.



Starting position: Lie on back, arms sideward, palms down, legs raised straight up with feet together.

Count 1—Swing legs vigorously to left touching ground on the left side.

Count 2—Same to the right. Begin slowly and increase the tempo gradually.

2 the dosage indicated is 12 to 25. This means to begin with 12 times and gradually increase to 25 as the condition of the boys improves.

2. "To master unit one," means that the class is able to do better than the minimum set for each exercise before unit two is begun. Continue to increase the number of times in unit one as unit two is added. The same procedure is to be followed in adding unit three.

3. To overcome stopping between exercises the teacher must anticipate the next one, by saying just before the last execution of any exercise, "Ready for the second exercise."

4. In teaching the exercises:

(a) Demonstrate each before asking the class to do it. Correct demonstration is more valuable than a lengthy explanation.

(b) Give commands clearly and concisely. The tone of voice can help materially in stimulating the class to action.

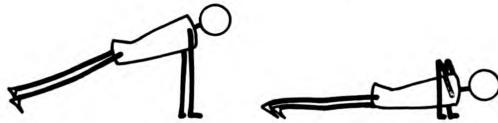
(c) Keep the class working together by counting. Exercises may vary in number of counts.

"1-2-3-4, 1-2-3-4," or "1-2, 1-2," may be used. Directions may be indicated by "up"—"down"—"left"—"right." Clapping the hands, beating time with the heel on the floor, or using the tom-tom or drum may be substituted for the voice.

(d) The teacher should not perform with the class at all times because he must be free to observe and correct faults. He should observe from front, side, and rear, commenting on the good performance, correcting the faulty ones, urging all to better performance.

(e) The boys should be encouraged to improve their performance by individual practice at home.

Exercise 12.



Starting position: Front leaning rest. See exercise number 2.

Count 1—Bend elbows and touch chest to floor.

Count 2—Straighten elbows. Repeat 8 to 20 times.

NOTE: Many will be unable to continue this exercise and keep the rhythm. These individuals may change to the "knee-rest position," i. e., hand and knees on floor, feet raised from it. If they are still unable to continue, they may relax the whole body and simply push up the shoulders. But they should NOT STOP TRYING.

Suggestions:

1. The numbers given after each exercise indicate the minimum and maximum number of times the exercises are to be performed, e. g., in exercise

Grass Drill

The grass drill was originally used as part of the training for football squads to develop agility and endurance. The exercises are given in varied order, at the will of the instructor, and upon his command.

Formation: Open order. See description under conditioning drill.

Front—Up—Back

At the command "Front," the boys fall to the ground quickly, face down, breaking the fall with the hands. On the command, "Up," they leap to their feet and run vigorously in place. On the command, "Back," they bend forward and fall back, breaking the fall by rolling to a seat, then lie on their backs. On the command, "Front," they change to a position of face down, hands toward the front of the class. If the command, "Back," is given when boys are face down, they squat through (i. e., support the weight on the hands and extend the legs through the arms and lie down). Vary the order of the commands so that the boys cannot anticipate the next movement. 2 to 5 minutes.

In order to round out the grass drill, additional exercises to develop the shoulders and abdominal muscles should be inserted at the will of the instructor. Some of these exercises are:

Sit up: Lie on back, hands behind the head, raise the trunk and twist so that the left elbow touches the right knee. Return to lying position. Repeat with right elbow touching left knee. Continue.

Push up: Lie face downward, place hands on floor, shoulder width apart. Push up, keeping back straight so that weight is supported on hands and feet, arms straight, return to starting position. Continue.

Bicycling: Lie on back, raise legs and hips high. Imitate movements of riding a bicycle.

Deep-knee bending: Place hands on hips, bend knees deeply, back straight, until sitting on heels. Return to standing position. Continue.

Legs overhead: Lie on back, raise legs upward and touch toes to floor behind the head. Return to position. Keep legs straight. Continue.

Legs right and left: Lie on back, arms sideward, palms down, legs raised straight up. Swing legs vigorously sideward right until legs practically touch the ground. Same to left.

Front leaning rest: Place hands on the floor in front of feet, bending knees. Thrust feet backward to front leaning rest position. Return in reverse order. Do slowly at first, and gradually speed up.

These exercises are of such value that they may be practiced individually or in groups.

Suggestions.—The grass drill does not demand the same precise performance which is required in the conditioning drill. It may be modified for use indoors. The teacher must change the exercise or stop the drill before the class is unduly fatigued. Care must be used in adding exercises to the grass drill. Select only a few, in order not to make the drill too strenuous.

Response Drills

Response drills are valuable in the practice of skills which are needed in combat. They develop an ability to respond accurately and quickly to commands.

Go—Stop

At the command, "Go," the boys spring forward as a football team does in running signals. At the command, "Stop," they drop to the lineman's crouch. At "Go," they again sprint forward. This may be varied by the command, "Drop," (i. e., fall to the ground face down as in grass drill). At the com-

mand, "Right," they turn and spring to the right at an angle of about 45 degrees. If the command is "Left," they run to the left at a 45 degree angle. "Go," in each case means sprint straight forward. "To the rear," means reverse the direction. Whistle signals may be substituted. 2-5 minutes.

Zigzag Run and Drop

Upon the signal to go, the boys run fast at an angle of about 45 degrees to the right, and at the whistle signal, zigzag to the left at about 45 degrees, and on the whistle signal, drop to the ground. At the next whistle, spring to the feet and repeat the zigzag run and drop. Continue until signal is given to halt. 2-5 minutes.

This is similar to the manner in which men advance under fire.

Suggestions

1. Teach the boys how to "drop," first by breaking the fall with the hands and then without the use of the hands.
2. The boys must know exactly what is expected of them.
3. The time between signals must be varied to develop the quick reactions desired.

Ranger Exercises

Ranger exercises are so named because they are patterned after movements which ranger troops use.

Formation:

Single circle, if less than 30 boys.
Double circle, if between 30 and 60 boys.
Each boy 8 feet behind the one in front.

Procedure:

The instructor directs the boys to walk forward at a slow relaxed pace, 80 to 90 short steps per minute, keeping the circle forma-

tion. The class does not walk in step. The instructor, standing in the center of the circle, calls the name of an exercise, demonstrates it, and then commands, "Start." Immediately, each boy starts to perform the exercise, continuing to move around the circle. After performing the exercise for about 10 to 30 seconds, the instructor commands, "Relax," upon which all resume the original slow walk. After 5 to 15 seconds, the instructor names and demonstrates a new exercise, and at the signal, "Start," the class performs it. The time between exercises should vary with the nature of the exercise, and the condition of the boys.

Description:

1. *All fours.* Face down, on hands and feet. Walk forward.
2. *Bear walk.* Face down on hands and feet, travel forward by moving the right arm and right leg simultaneously, and then the left arm and left leg simultaneously.
3. *Leap frog.* Count off by twos. At whistle, the evens leap over the odd numbers. At the next whistle, the odds leap over the even numbers. Repeat continuously raising the backs higher and higher.
4. *Duck waddle.* Assume the full knees-bent position, hands on hips. Retain this position and waddle forward.
5. *Squat jump.* Assume the full knees-bent position. Retain this position and travel forward by short bouncing jumps.
6. *Indian walk.* Bend knees slightly, bend trunk forward, arms hanging down until back of hands touch ground. Retain this position and walk forward.
7. *Crouch run.* Lean forward at the waist until the trunk is parallel with the ground. Retain this position and run forward at a jogging pace.
8. *Straddle run.* Run forward, leaping obliquely to the right as the right foot advances, leaping obliquely to the left as the left foot advances.
9. *Knee-raise run.* Run forward, raising the knees as high as possible on each step. Swing arms vigorously.

10. *Hop.* Travel forward by hopping on the left foot. Take long steps. Change to right foot and repeat.

Carries

Before starting these exercises, have the group count off in twos, then place them in pairs (side by side). In all cases the "Ones" carry the "Twos" at the signal "Start." At the signal "Change," the men reverse positions, "Twos" carry "Ones," and continue the same exercise. On the signal "Relax," both resume their original positions and walk forward.

11. *Fireman's carry.* "One" places his left arm between the legs of "Two," so that the crotch of "Two" is at shoulder of "One." "Two" leans forward until he is lying across "One's" shoulders. "One" straightens up, lifting "Two" off the ground. "One," using the hand of the arm through "Two's" crotch, grasps the wrist of "Two's" arm which is hanging over his shoulder. Retaining this position, "One" runs forward.
12. *Cross carry.* "One" standing in front of "Two," leans forward. "Two" bends forward until he is lying across the middle of "One's" back. "One" then places one arm around "Two's" shoulders, and straightens up, lifting "Two" from ground. Retaining this position, "One" runs forward.
13. *Single shoulder carry.* "One," standing in front of and facing "Two" assumes a semi-squatting position. "Two" leans forward until he is lying across "One's" left shoulder. "One" clasps his arms around "Two's" legs and straightens up, lifting "Two" from the ground. Retaining this position, "One" runs forward.
14. *Arm carry.* "One" standing beside "Two," bends his knees and lifts up "Two," by placing one arm below his thighs, and the other around the small of his back, "Two" places his near arm around "One's" shoulders and clasps his other hand. Retaining this position, "One" runs forward.

Suggestions:

1. Use variety in choice of exercises.
2. Use a maximum of six exercises in a 10-minute period.
3. Choose the easy exercises first.

Apparatus

Exercise on apparatus is especially valuable in developing strength, agility, and endurance. Only a few of the many exercises which contribute to these objectives on some types of apparatus have been selected. Extreme care should be exercised in the construction, maintenance, and use of apparatus to prevent accidents.

Formation

The class arrangement is dependent upon the size of the class, of the gymnasium, and upon the apparatus available. Divide the class into groups according to facilities. Keep the group small to provide maximum participation. Arrange the class and apparatus so that: (a) Those waiting their turns may see the performer; (b) so that there is safe and easy access to and from the apparatus.

Apparatus and Activities

Climbing ropes and poles

(a) Climbing

1. Ordinary climb (hand over hand).
2. Climb without aid of feet (legs dangling).
3. Climb without aid of feet (knee kick in each step).
4. Swing on two ropes, vaulting for height. (Pendulum vault)
5. Swing on one rope, vaulting over obstacles.

(b) Oblique and horizontal ropes or poles

1. Travel, using hands and legs.
2. Travel, using hands only.

NOTE: It is important that boys learn to descend the rope hand under hand. Caution them to save enough energy to climb down. In developing climbing ability, it may first be necessary to develop leg and arm strength on other pieces of apparatus.

Parallel bars (low or high)

From end of bars:

1. Dip while supported on hands.
2. Dip while swinging.
3. Travel forward on hands in support.
4. Side vault left (right).
5. Rear vault left (right).
6. Swing with upper arm hang.

From side of bars:

7. Side vault left (right) over both bars.
8. Front vault over both bars.
9. Elephant vault. Cover both bars with a gymnasium mat. From a run, vault over

elephant. A spring board may be used to increase height.

Horizontal bar (chinning bar)

High bar (beyond reach)

1. Chin from a hang. Any grip.
2. Hang. Raise knees.
3. Hang. Raise legs.
4. Hang. Swing feet forward and upward over the bar to a support.

Low bar (shoulder high)

1. Side vault.
2. Front vault.
3. Bar vault for height.

Horse and buck

1. Straddle vault.
2. Side vault, left (right).
3. Front vault, left (right).
4. Raise apparatus and vault for height.
5. Cover the horse or buck with a gymnasium mat and use as an obstacle.

Stall bars

1. From a hang, facing bars—chinning.
2. From a hang, back to bars—knee raising leg raising
3. Sitting on the floor or on a bench, feet fixed between rungs, trunk lowering and raising. (sit-ups).

Flying rings

1. Hang and chin.
2. Swing and pull up at end of swings.
3. Hang or swing—raise knees.
4. Hang or swing—raise legs.

Horizontal ladders

- Grip rounds or beams.
1. Chin (pull ups).
 2. Travel forward.
 3. Travel sideward.
 4. Hang—raise knees.
 5. Hang—raise legs.

Suggestions

1. Mats should be used as a safety precaution.
2. Boys should be taught correct grips.
3. Assistance should be provided during practice periods.
4. The height of the apparatus is dependent upon the height of the boys and the type of activity.
5. Exercise may be made more difficult by raising the apparatus; by increasing the distance between the take-off and the apparatus; by adding obstacles (such as placing a medicine ball on the end of the horse for vaulting).

Tumbling

The tumbling here given aims to teach boys how to jump and fall without being hurt; to give them sufficient practice so that they will have a sense of "whereaboutness," and an ability to carry one another without injury. Tumbling develops the ability to control the body in flight.

Care should be taken to follow proper safety measures such as adequate rests, sufficient assistance, definite instruction during the training period, and the use of mats when the events are conducted on floors or other hard surfaces.

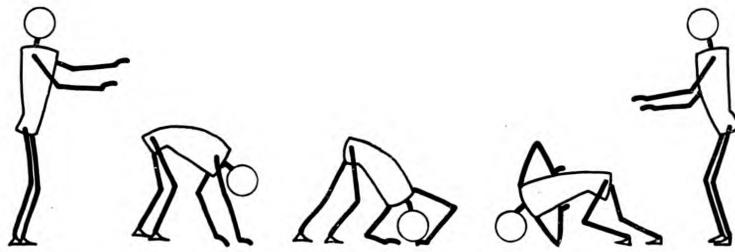
Formation

Divide the class into small squads to increase participation. Place each squad either sitting or standing along the side of the mat.

1. Forward Roll

From a stand, bend forward, bend knees, and place hands on mat. Duck head between legs, roll forward on back of neck and shoulders, grasping knees. Come to a stand.

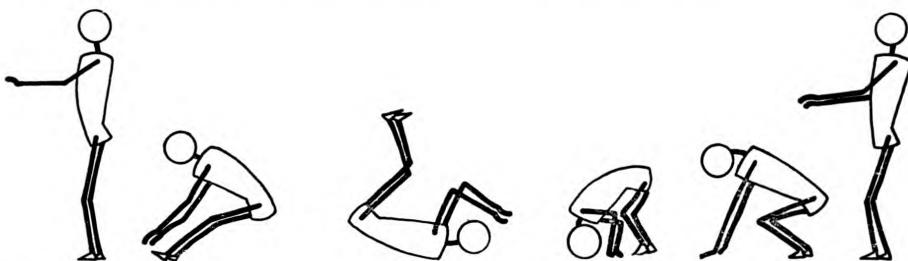




2. Shoulder Roll

Turn slightly to the right, place hands on the mat to left. Roll forward on the left shoulder,

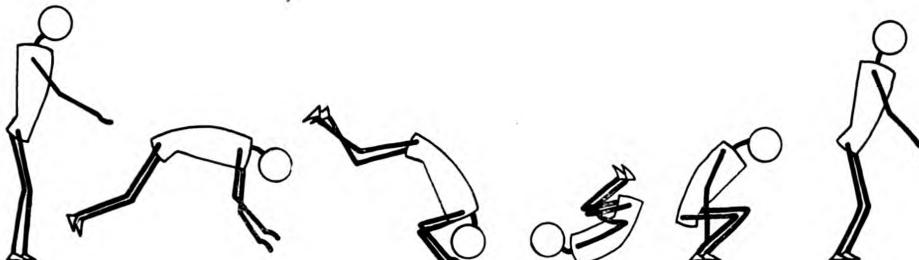
pulling the left arm in to the chest, rolling on the back and up to the feet.



3. Backward Roll

From a stand, lean forward, fall backward to a seat, roll backward, placing hands on the mat

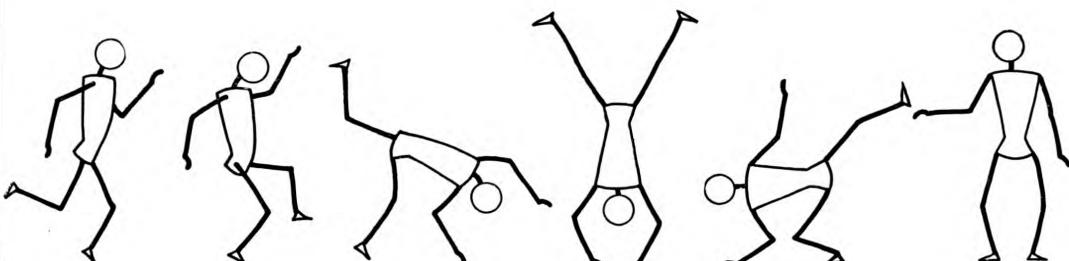
over the shoulders, and at the same time drawing the knees to the chest. Push off with the hands, and roll to a stand.



4. Dive Roll

Same as forward roll, preceded by a short dive, from a stand. Take off from both feet, stretch-

ing arms forward, dive and roll. Do the same from a running start.



5. Cartwheel

From a run, make a quarter turn left, placing right foot sideward, right arm upward, throw the weight on the right foot, placing the right hand on the mat. Raise the left leg up, at the

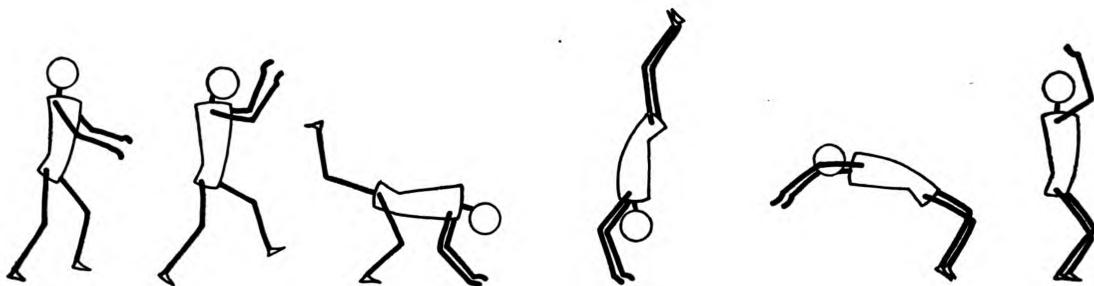
same time placing the left hand on the mat, arms and legs spread. Bring the left foot to the mat as the right hand is raised. Follow through to a stand.



6. Head Spring

From a run, shift weight onto right foot, raise left leg forward and arms overhead. Swing the left foot down, bend at the waist, swing hands

to the mat, placing head on mat between hands. Follow through, swinging right leg overhead, push up with the hands, arch the back, snapping to a stand.



7. Hand Spring

Same as head spring except that the head does not touch the mat.

8. Supplementary Activities

(a) Jump from heights.

Use any available apparatus or platform.

Begin at a height of about 4 feet; increase the height gradually as skill improves.

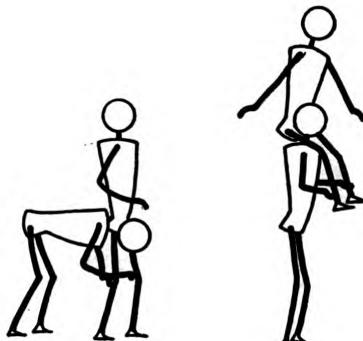
Break the fall by landing on the balls of the feet.

(b) Jump from heights and roll to a stand, using a forward roll.

(c) Jump from heights and roll to a stand, using the shoulder roll.

(d) Dive over obstacle and roll to a stand. See dive and roll description.

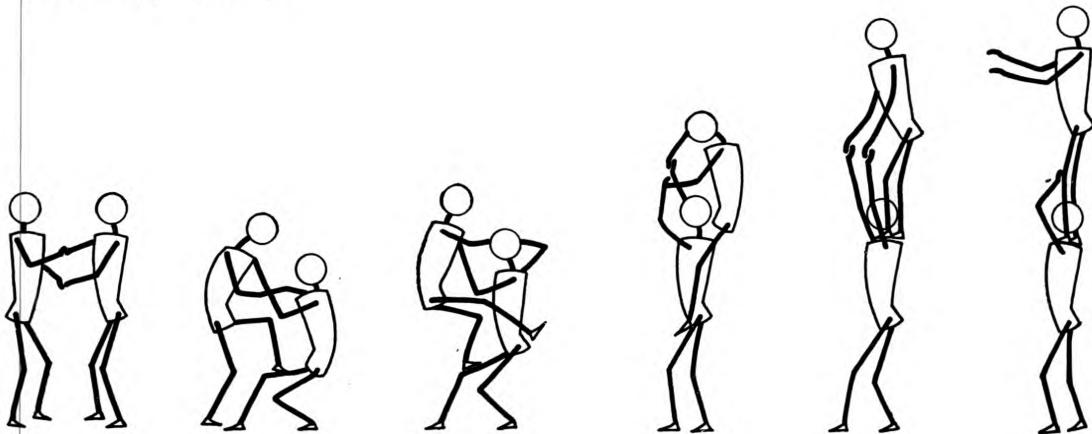
(e) Companion stunts. (Two high.)



(1) Sitting on shoulders.

The top man spreads his legs and stands with his back to the bottom man. The bottom man places his head between the legs of the top man, who springs upward as the bottom man rises to a stand.

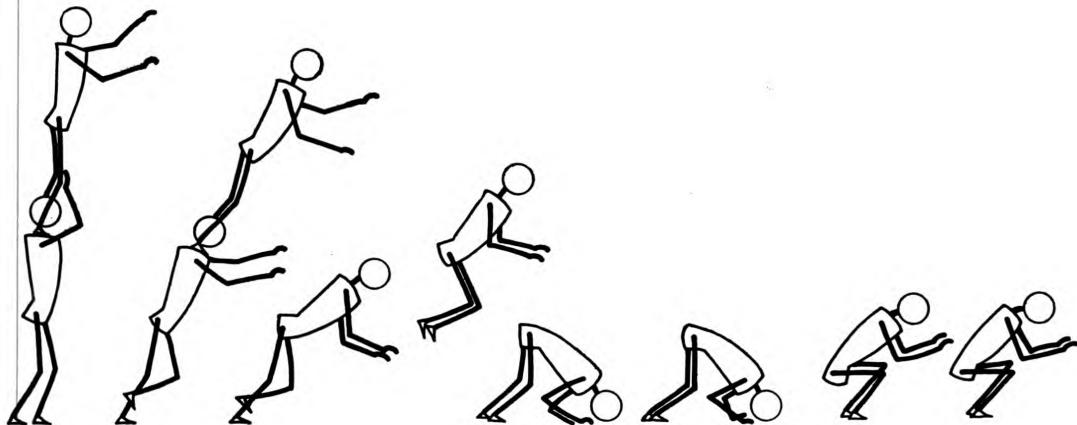
(2) Standing on shoulders.



Men face each other with hands joined and arms crossed. The bottom man places his left leg forward and bends his knees. The top man places his left foot on the left thigh of the bottom man, and steps up, placing the

right foot on the right shoulder of the bottom man and the left foot on the left shoulder. The bottom man releases hands and places his hands behind the knees of the top man.

(3) Fall and roll.

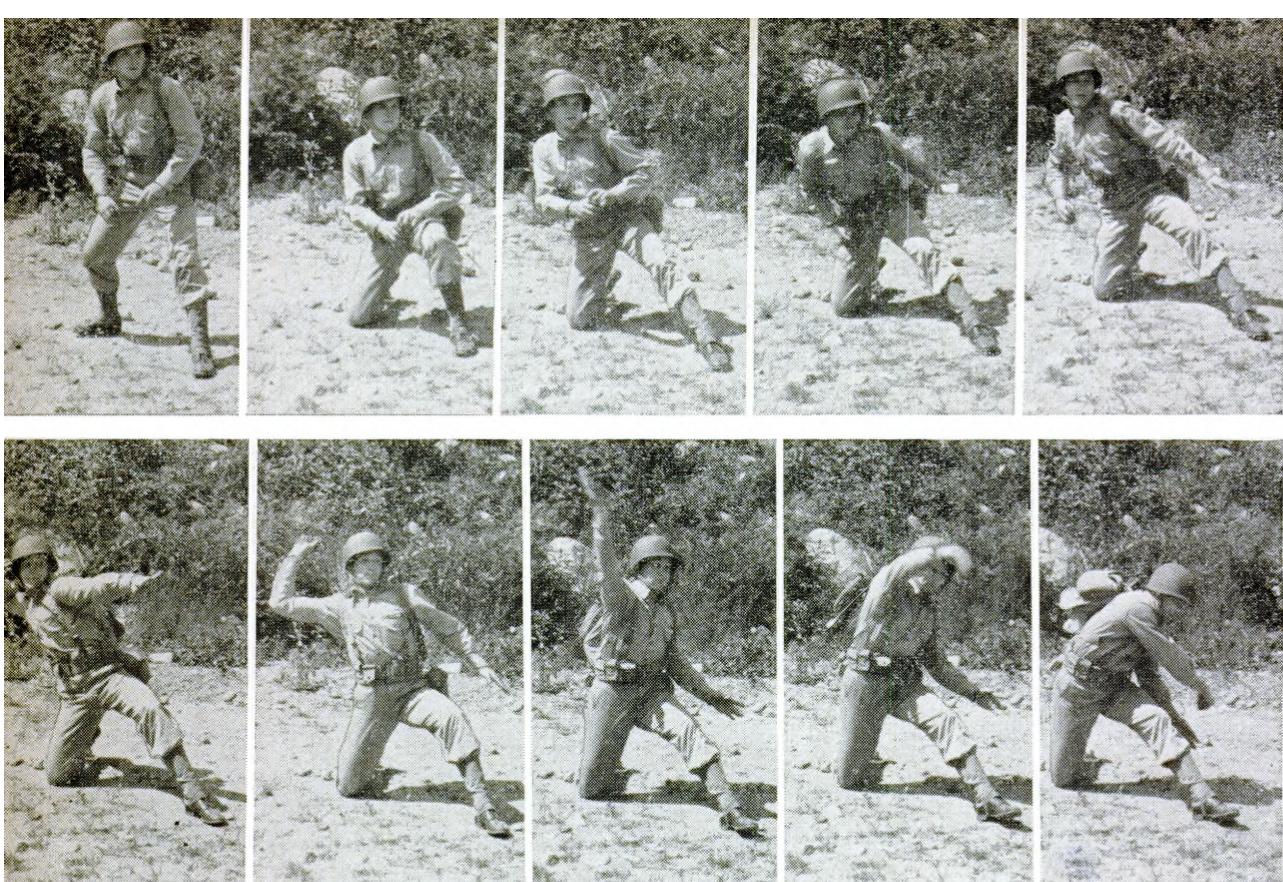


From two-high (sitting or standing on shoulders) at a signal both men lean forward, disengage, and roll forward to a stand.

Suggestions

1. Use several thicknesses of mats for safety.

2. Place mats end to end to increase distance and difficulty as class progresses.
3. Use an assistant on the difficult exercises such as the head spring and hand spring.



Grenade Throwing

The grenade throw is a combination of a shot-put and a catcher's peg. Before the grenade is thrown the safety pin must be pulled out with a pulling twisting motion. The pulling of the safety pin arms the grenade, but it will not fire until the thrower releases the lever.

The throw is executed by bringing the right arm up until the elbow is on a line with the shoulder. The palm of the hand is up near or touching the shoulder. At the same time, the left arm is extended, palm down, and pointing toward the target. The weight is on the right foot with the eyes sighting along the left arm. The right arm is then thrown upwards, as in shot-putting, but straightens out and follows through as in a catcher's throw.¹

There should be no muscle strain or pull at any point. The accompanying illustrations show the successive steps in throwing a grenade.

Rocks of approximately 20 ounces in weight can be used for practice in grenade throwing. Rocks or other objects may be wrapped with friction tape if a more realistically shaped article is desired.

Combative Activities

The activities listed under this title consist of individual and group contests of a rough and strenuous nature. They are valuable in developing the ability to react instantly with a maximum of energy for the purpose of overcoming an opponent.

Objectives

1. To develop aggressiveness in personal combat.
2. To develop initiative in personal combat.
3. To develop resourcefulness in personal combat.

Activities

Hand to hand.

In hand to hand combat in war, victory if

¹ How to Throw a Grenade. Scholastic Coach, 12: 26 (September 1942).

achieved, usually comes in the first few seconds. Defeats suffered in early practice will be compensated for by habits of aggressiveness and by the quick and adaptive thinking which will grow from such practices. The activities described below are developmental and not the ones of actual warfare.

Formation

Arrange the class in pairs, according to size.

1. Hand Pull

Contestants grasp hands (one or both) and each attempts to pull the opponent over to his own position. In grasping hands, each individual should grasp the wrist of the opponent so that there is a double grasp with heels of hands in contact and with each hand grasping the other's wrist. This can be varied by hopping.

2. Neck Pull

Grasp the back of opponent's neck with one hand; for example, each contestant grasps the back of opponent's neck with right hand. In this case the right foot would be forward. Attempt to pull opponent out of position.

3. Rooster Fight

Hop on left foot with arms folded across the chest. Use the right shoulder and right side of chest to butt opponent. The object is to make the opponent lose his balance and fall, or to unfold his arms or to touch his free foot to the ground.

4. Hand Wrestling

Opponents grasp right (or left) hands. Right foot is forward, and each attempts by pulling, pushing, by a sideward movement or other maneuvering to force opponent to move one or both feet from original position. Change hands after each bout.

5. Mounted Wrestling

Men fight in pairs. The "rider" sits astride the neck of the "horse" with his lower legs under the "horse's" arms and his feet clasped behind the "horse's" back. Two pairs of such horses and riders then wrestle, the object being to unseat the rider or to cause the rider to touch the ground anyway. If both pairs fall at the same time, the rider touching the ground first is the loser.

6. Indian Wrestling

Contestants lie on the ground, side by side, with heads in opposite directions. Link right elbows. Upon signal of instructor or by mutual agreement, raise right leg far enough to engage the heel of the opponent. In order to time the contest, individuals usually raise the leg three times rhythmically and the third time engage opponent's heel, attempting to roll him over backwards. After each three bouts, change legs.

Boxing²

The fundamentals of boxing are very valuable, especially the foot work and thrusts. Competitive boxing should not be encouraged, except under expert supervision and control. The following skills are of value and should be practiced.

1. On guard
2. Footwork
 - Advance and retreat
 - Side stepping
3. Thrusts
 - Straight right or left
4. Hooks
 - Right or left

Wrestling³

Wrestling is one of the most valuable forms of combative activity. It is particularly valuable in the present emergency in teaching

² See any standard boxing guide for detailed descriptions.

³ See any standard wrestling guide for detailed description of wrestling holds.

boys how to secure bodily advantage over an adversary quickly. In all forms of wrestling, both during the training period and in matches, the emphasis should be upon overcoming one's opponent instantly. Competitive wrestling should not be encouraged except under expert supervision. Some of the wrestling positions lend themselves to hand to hand combat.

1. Pulled from locked position

Contestants assume the standing position and each grasps the back of opponent's neck with the left hand and opponent's left elbow with right hand. In this position, attempt to pull opponent across a line.

2. Tackling opponent

A dives forward suddenly, grabs B with both arms around the knees and draws his knees toward him, pushes with the shoulders and throws B backward to the ground.

3. Head and hip throw

A grabs B's right wrist with his left hand and pulls him forward, stepping forward and to the left with his right foot. A then places right arm around B's head, turning his back to B and pulling with left hand and right arm, throws B forward over his hip.

To block this, B pushes A's right hip as he starts to turn, keeping A away from him.

4. Arm Drag

A grasps B's right wrist with left hand and quickly seizes B's upper arm with right hand. A moves quickly to left by putting out his left leg and pulls forward and down upon B's arm. A drops quickly to B's right knee, still pulling B's arm down by A's right side. This will put B down to his chest temporarily. A then climbs upon B's back by pivoting on right knee and reaching over with left arm.

5. Chest to Chest

Opponents standing, chests together, left

arm over opponent's right shoulder, right arm under opponent's left arm, grasping hands behind the back. Attempt to lift opponent from the ground and/or throw him to the ground. Holds may be changed after the bout has started.

Suggestions

Demonstrate each activity.

Encourage boys to secure advantage of opponent instantly.

Train boys to exert minimum effort.

Train boys to keep cool headed because emotional and mental control may be the difference between success and failure in personal combat.

Guard against conduct which might result in injury.

Use hand to hand combat activities two or three times a week. Begin with less strenuous and progress to the more difficult ones.

Use the dual activities in team competition wherever possible.

Sports and Games

Sports and games contribute to the development of endurance and skill and are of value in developing the combative spirit and the *will to win*. In order to derive the maximum benefits from the game program there must be more participation by more people, i. e., more games, longer periods, and more boys in the games.

Objectives

1. To develop cooperation (subordination of the individual for the good of the group).
2. To develop leadership and followership.
3. To develop aggressiveness.
4. To develop initiative.

Activities

Group Games

Many group games can be made more vigorous and rugged to meet the objectives of this program.

1. Broncho Tag. (Developed from Three Deep)

The players are scattered about in pairs. The boy standing behind wraps his arms around the waist of the one in front. One chaser and one runner are selected. The chaser attempts to tag the runner. The runner may escape by clasping the waist of the rear boy of any pair. If he succeeds, the front boy in the pair becomes the runner and the chaser pursues him. If the chaser tags the runner before he escapes, the runner becomes the chaser and the chaser becomes the runner. To prevent a runner from escaping the pairs twist and turn. The front boy is permitted to ward off the runner by using his hands. The game may be intensified by increasing the number of chasers and runners.

2. Circle Bombing. (Developed from Circle Dodge Ball)

Divide the class into two teams. Team A forms a circle around team B. The object is for Team A to hit, with a volley ball, soccer ball, or basket ball, as many players of Team B as is possible in a given time. Team B may run, jump, and dodge to avoid being hit, but must stay within the circle. At the end of a given time the teams change places. A point is scored each time a man is hit. This game should be played with 2 or more balls and 15 to 20 players on a team. The game may be intensified by increasing the number of balls.

3. Bull Dozing. (Developed from King of the Mountain)

Teams A and B form inside a plainly marked circle. The size of the circle depends on the number of players. Each team should be so marked or clothed as to be readily identified from the opponents. The object is to eject an opponent from the ring by pushing, pulling, throwing, or charging. When any part of a player touches the ground on or outside the circle, he is out of the game. At the

end of a given period of time, the team with the most players remaining in the circle is the winner. To intensify the game call time when most of the boys have been eliminated.

4. Pull Away

Establish a goal line at each end of the playing space. Team A lines up along one goal line and Team B lines up across the center of the field facing Team A. At a signal, the players of Team A try to cross safely to the opposite goal. Players of Team B attempt to tag as many players of Team A as possible. When a player is tagged, he becomes a member of the opponent's team. The players who reach the opposite goal attempt to return to their original goal when another signal is given. The games continue until all the players are caught. Intensify the game by designating the method of tagging or by naming the part of the body to be touched in tagging.

Suggestions

1. The teacher can adapt additional group games to make them more vigorous.
2. Rugged games such as shinny can be used.

Individual Sports

Track and Field

The variety of events in track and field provide an opportunity for boys to participate in dashes which develop speed; distance races which develop endurance; and field events which improve skill and agility.

For events and rules see the official track and field publications. Abridged rules are found in War Department *Technical Manual, TM 21-220, Sports and Games*, May 13, 1942.

Care should be exercised in starting the training program so that the boy does not overdo. The training program should provide for gradual development until the maximum performance is attained. The *Physical Training Manual*, U. S. Naval Academy, published by the U. S. Naval Institute, Annapolis,

Md., gives techniques for performing the various events.

Skating (Ice and Roller), Skiing, Snow Shoeing

In communities where it is possible to participate in these activities they should be included in the program. In order to develop physical fitness these activities must be engaged in repeatedly and with maximum effort.

Rope Skipping

Rope skipping, in various forms, is used as a conditioner for many sports and games, especially boxing and wrestling. It may be done individually, in pairs, or by groups. It develops agility and coordination, and when practiced beyond the onset of fatigue it develops endurance.

Hiking

Hiking is brisk walking for long distances. Three to five miles are recommended for beginners. Rest periods should be few and brief.

Camping

Camping provides many valuable experiences. It teaches one to live successfully out of doors. It provides the opportunity to learn how to live off the land. It gives an opportunity for urban boys to do things which are not ordinarily possible in a city, such as hiking, fishing, boating, trailing, and cooking. Camping in groups teaches boys to live successfully together. Camping must be properly supervised and sanitary provisions maintained.

Cycling

Cycling is valuable in a conditioning program when it is done rapidly over long distances. It develops endurance and is especially beneficial in strengthening the muscles of the legs.

Other individual sports such as rowing and weight lifting are valuable in developing fitness.

Team Games

Some excellent team games which have definite recreational value and spectator interest have been omitted from this list because they do not contribute sufficiently to the major objectives set up for this program. If time permits such activities may be included.

Basketball

Basketball is played by 2 teams of 5 players each. The ball is passed or dribbled from one player to another. The purpose of the game is for one team to get the ball into its own basket and at the same time to prevent the other team from gaining possession of it and scoring. The game may be played either indoors or outdoors.

Court.	Played on any size court. It is recommended that a court 50 feet wide by 84 feet long be used.
Players.	5 players on each team.
Length of game.	8 minutes per quarter; 2 minutes between quarters; 10 minutes between halves.
Equipment.	2 goals fastened to backboards and a basketball.
Rules.	<i>See War Department Technical Manual TM 21-220, Sports and Games, May 13, 1942, p. 34. See National Federation of High School Athletic Associations. Rules.</i>

Field Hockey

Field hockey is played by 2 teams of 11 players each. The ball is propelled toward the goal by a curved stick. The purpose of the game is to get the ball through the opponent's goal and at the same time prevent the opponents from doing likewise.

Field.	50 to 60 yards wide by 90 to 100 yards long.
Players.	11 players on each team.
Length of game.	15 to 30 minute halves; 10 minutes between halves.
Equipment.	Field hockey sticks and ball, and goals at each end of the field, with the cross bar 7 feet high supported by uprights 12 feet apart. It is recommended that shin guards be used.
Rules.	<i>See Official Field Hockey Guide.</i>

Football

Football is played by 2 teams of 11 members each. The object of the game is to advance the ball over the opponent's goal by running, passing, or kicking, and preventing the opponents from advancing in like manner over your own goal.

Field.	160 feet wide by 360 feet long.
Players.	11 players on each team.
Length of game.	12-minute quarters; 2 minutes between quarters; 15 minutes between halves.
Equipment.	A goal at each end of field 10 feet high, 18 feet 6 inches between uprights which must extend 10 feet above the crossbar, and a football. The players should be protected adequately by means of head gear, shoulder and hip pads, and pants. Football shoes are recommended.
Rules.	<i>See rules of National Federation of State High School Athletic Associations and also Rules of National Collegiate Athletic Association.</i>

Six-man football

This is a game developed from football for use in small high schools. Special rules have been developed for this game. *See rules of National Federation of State High School Athletic Associations.*

Touch football

Touch football is similar in most ways to regulation football. The ball carrier is stopped by touching with both hands rather than tackling. Blocking as found in regular football is eliminated. Forward passing is the principal offensive weapon, with all players eligible to receive the pass.

Field.	Regulation football field is preferable, but a smaller one may be used.
Players.	11 players on each team. By mutual agreement more or less players may be used on a team.
Length of game.	10-minute quarters; 2 minutes between quarters; 10 minutes between halves.

Equipment. A football. Football goal posts may or may not be used.

Rules. Rules vary with different localities. *See War Department Technical Manual, TM 21-220, Sports and Games, May 13, 1942.*

Soccer

In soccer a team of 11 men seeks to advance a round inflated ball toward and through its opponent's goal posts and under the crossbar of the goal by dribbling, kicking, and striking or pushing it with any part of the body except the hands and arms.

Field. 55 to 75 yards wide by 100 to 120 yards long.

Players. 11 players on each team. Length of game. 15-minute quarters; 1 minute between quarters; 10 minutes between halves.

Equipment. A goal at each end of field 8 feet high and 24 feet between uprights, and a soccer ball.

Rules. *See War Department Technical Manual, TM 21-220, Sports and Games, May 13, 1942, p. 98. See also official Soccer Guide.*

Speed Ball

Speed ball is a game offering vigorous and varied action with plenty of scoring opportunities. It is easy to learn and provides spontaneous fun. Little equipment is needed—a ball and old clothes will do. Speed ball combines the kicking, trapping, and intercepting elements of soccer with the passing game of basketball, and the punting, drop kicking, and scoring pass of football. The teams of 11 men each play the game under official rules, but any number of players may successfully constitute a team. An inflated leather ball, usually a soccer ball or small basketball is used. The playing field contains football goal posts at each end. The game starts with a football kick-off, the receiving team then advancing the ball toward the opposite goal by passing, kicking, or bouncing it off the body. Running with

the ball is not allowed so that there is no tackling or interference. When the ball touches the ground, it cannot be picked up with the hands or caught on the bounce, but must be played as in soccer until it is raised into the air directly from a kick; then the hands are again eligible for use. When the ball goes out of bounds over the end line without a score, it is given to a player of the opposing team who may either pass or kick it onto the field. When two opposing players are contesting the possession of a held ball, the official tosses the ball up between them as in basketball. Points are scored either by kicking the ball under the crossbar of the goal posts, drop kicking the ball over the crossbar, completing a forward pass into the end zone for a touchdown, or kicking the ball from within the end zone for a touchdown, or kicking the ball from within the end zone over the end line.

Field. Can be played on any football or soccer field.
Players. 11 players on each team.
Length of game. 10-minute quarters; 2 minutes between quarters; 15 minutes between halves.
Equipment. No metal cleats. Football or soccer

shoes are recommended. No special clothing is needed. The ball is usually a soccer or small basketball. See War Department Technical Manual, TM 21-220, Sports and Games, May 13, 1942, p. 123.

Volley Ball

In the game of volley ball an inflated leather ball somewhat smaller and lighter than a basketball is struck with the hands over a net stretched across a rectangular court, the players consisting of two teams of six men each stationed on opposite sides of the net, the object being to hit the ball over the net so that it falls to the floor before the opposition can return it.

Court.	30 feet wide by 60 feet long.
Players.	Two teams of 6 players each. By mutual agreement this number may be increased or decreased.
Length of game.	A game is won when either team scores a 2-point lead with 15 or more points.
Equipment.	A net 8 feet high across the center of the court and a volley ball.
Rules.	See War Department Technical Manual, TM 21-220, Sports and Games, May 13, 1942, p. 171. See also Official Volley Ball Guide.

CHAPTER V

Activities for Girls

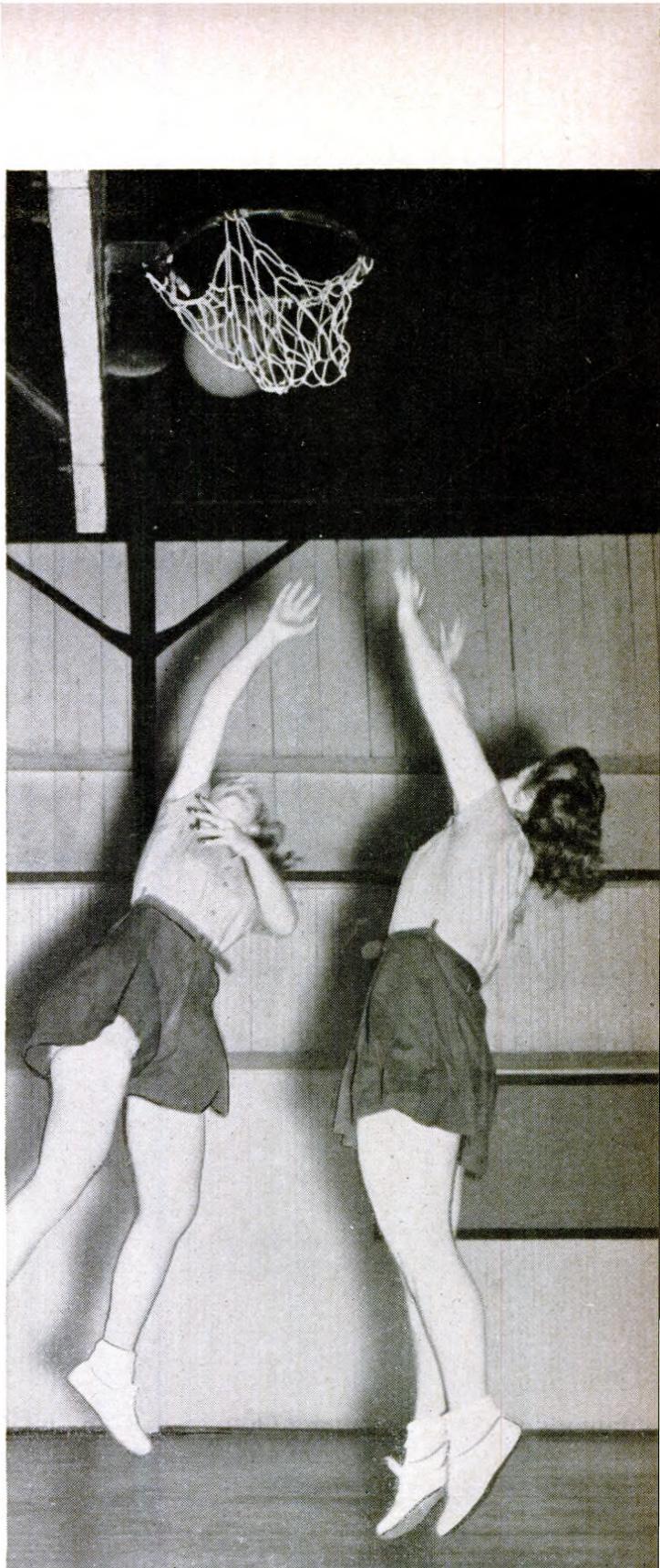
PHYSICAL FITNESS is as important for girls and women as for boys and men. Boys must be made ready to serve with the armed forces. Girls must be prepared to carry on work which is directly related to the winning of the war, even though not on the fighting front.

Many women are now at work in defense industry and farming and this number will materially increase in the future. Many are serving as nurses, medical social workers, and recreation leaders with the American Red Cross, with the USO, and other organizations. The recently organized service units, the WAACS and the WAVES have enlisted others. Many are busy on the home front. The care of children, the management of homes, civilian defense, and other types of volunteer service, are among women's responsibilities.

High-school girls must be ready to assume the responsibilities which the times place upon them. The educational program for girls must be changed to prepare them to meet these responsibilities just as the program for boys is being changed to meet their needs. Since the needs of girls are so different from the needs of boys, it follows naturally that the programs must be different.

The program here offered is a guide to teachers of physical education whose responsibility it is to carry on activities which contribute to the physical fitness of girls. The program recommends vigorous participation. It stresses activities which develop endurance, stamina, and skill.

The development of skill brings with it a sense of achievement. Achievement builds morale. The program for girls must give opportunity to achieve, to succeed, to increase morale. With large numbers of boys and



men leaving their homes and communities for military service, the responsibility for maintaining morale both in the home and in the community is, therefore, placed largely upon the shoulders of the girls and women of America. Education must prepare them to face this task.

Guiding Standards for the Girls' Program

1. All normal girls should participate in the program here outlined in preparation for war service.

2. Women should teach the girls' program.

3. Restrictions upon participation during the menstrual period should be determined by individual differences with conservatism the guide in the absence of final evidence.¹ Girls suffering from infections, including minor respiratory infections, should be excused temporarily from participation.

4. Endurance is developed only as the result of vigorous activity carried beyond the first onset of fatigue. Effort should be sustained, therefore, even though the girls are somewhat tired. It is imperative, however, that the teacher watch her students carefully so that they do not become overtired. Such signals as falling frequently, dropping objects, bumping into others, and awkward gait should warn the teacher that the individual should cease activity.

5. Intramural sports should be organized so that a maximum number of girls are included. The round-robin tournament provides the greatest amount of participation and should be used in preference to other forms. If interscholastic sports are organized, the intramural program should not be sacrificed. The desirable practice is to make the interscholastic program an outgrowth of the intramural program.

¹ Bell, Margaret. The doctor answers some practical questions on menstruation. Washington, D. C., National Section on Women's Athletics, American Association for Health, Physical Education, and Recreation, National Education Association, 1201 Sixteenth Street, NW.

6. The element of competition present in team play and dual sports should be used as a desirable, constructive force in character development.

7. Appropriate costume should be worn. Shorts, rompers, play suits, and the like are suitable for the gymnasium and playfield. Slacks or ski suits are suggested for outdoor participation in cold weather.

8. All resources of the community should be studied for their possible use in this program.

Aquatics

Women in the American Red Cross, in the USO, and in other branches of the service which may be sent overseas must be completely at home in the sea while fully clothed. They must be able to stay afloat for a long period of time and be ready to give assistance to others when necessary. These needs, therefore, should be emphasized at the present time rather than recreational aspects of swimming.

While it is true that many women will not be sent abroad, the program outlined below represents a minimum which is useful to all girls and women. In making them better able to handle themselves in the water and to help others in emergencies a service of inestimable value is rendered to the Nation.

Objectives

1. To stay afloat for a long period of time.
2. To swim long distances without exhaustion.
3. To swim under water.
4. To enter the water without submerging.
5. To be at home in the water fully clothed.
6. To render assistance to another person in the water.

Organization

1. The size of the class should be determined by the available space, the length of the class period, and the ability of the group. When able assistants are available to the instructor in charge, the class size may be increased without risking the safety of the participants.
2. Classes should be subdivided into small units.

3. The buddy system should be used. (Each girl is paired with another whose whereabouts she knows at all times).
4. An adequate check-in and check-out system should be established.

Activities

1. Staying Afloat

All girls should be taught to stay afloat by:

- (a) *Floating*. See American Red Cross. Swimming and diving. Philadelphia, P. Blakiston's Son and Co., 1938. p. 59.
- (b) *Sculling*. Ibid., p. 69.
- (c) *Treading water*. Ibid., p. 149.

2. Fundamental Strokes

The most valuable strokes in emergency situations are:

- (a) *Side stroke*: Valuable in lifesaving and swimming with equipment.
War Department. Basic Field Manual, FM 201-20, Physical Training. Washington, U. S. Government Printing Office, March 6, 1941. p. 102.
American Red Cross. Op. cit., p. 117.
- (b) *Breast stroke*: Useful in lifesaving.
War Department. Op. cit., p. 111.
American Red Cross. Op. cit., pp. 85, 104, 113.
- (c) *Back stroke*: Excellent for a tired swimmer, for swimming with equipment and for lifesaving.
War Department. Op. cit., p. 103.
American Red Cross. Op. cit., p. 100.
- (d) *Trudgen stroke*: Powerful and valuable for distance swimming.
War Department. Op. cit., p. 107.
American Red Cross. Op. cit., p. 127.

3. Endurance Swimming

This may be developed by the use of fundamental strokes over long distances.

American Red Cross. Op. cit., p. 133.

4. Swimming Under Water.

This is valuable in escaping hazards. Girls should be able to swim at least 20 feet under water.

5. Swimming Fully Clothed.

All of the above should be practiced fully clothed.

6. Entering the Water.

This term is used, rather than the term diving, to meet the needs of the war situation. While diving does develop skill and coordination, emphasis now should be placed upon jumping into the water with and without clothing.

- (a) Jump feet first.
- (b) Jump without submerging: Useful in keeping equipment dry.
- (c) Dive head first.

7. Lifesaving

See American Red Cross. Op. cit.

War Department. Op. cit., p. 119.

8. Suggestions to Teachers

- (a) The teacher of swimming must be familiar with lifesaving practices.
- (b) Safety precautions should be observed at all times.
- (c) The teaching practices suggested by the American Red Cross and the War Department should be observed.
- (d) For practice in swimming fully clothed, skirts, jackets, and shoes are advised. These should be white or fast-dye, and shed as little lint as possible. Clothing should be laundered before being used in a pool.

Gymnastics

Man struggles against gravity continually to maintain an erect posture. Good muscle tone contributes toward success in this struggle. Stretching, hanging, balancing, running, and jumping are some of the activities used to achieve the erect position. Efficiency in these skills may be reached by participation in sports as well as in gymnastics. The great value of gymnastics is that movement can be directed towards specific parts of the body. The direction and the intensity of the activity can be controlled.

Objectives

1. To develop endurance.
2. To develop strength of—
 - (a) The arms and shoulders.
 - (b) The back and abdominal wall.
 - (c) The legs and feet.
3. To assist in the maintenance of erect carriage.
4. To develop agility.
5. To develop specific skills applicable to the war situation.

Conditioning Activities

1. Running

Running develops endurance (Objective 1). Some forms given here also develop agility

and such specific skills as getting over or around obstacles (Objective 5).

(a) *Combination hiking and running*

This develops the ability to cover long distances in the shortest possible time. The starting distance should be 1 to 2 miles. The hike is a brisk walk interspersed with running (not jogging). At each practice the distance should be covered in less time and gradually increased to 5 miles in fast time. At first the period of hiking will be long and the running short. With increased practice the running time will be increased as the hiking decreases.

(b) *Cross country*

The course may be over hills, through woods, across brooks, over open fields or parks and golf courses. It is *not* running on city streets or highways. (Objectives 1, 2, 4, 5).

Suggestions for teachers

Girls should—

- (1) Warm up before the practice jaunt.
- (2) Wear slacks and light-weight sweaters on cool days.
- (3) Shorten the stride going uphill.
- (4) Breathe through mouth and nose.
- (5) Use an easy relaxed stride.
- (6) Walk a short distance in the fresh air after the run before using the shower.

(c) *Obstacle run (Objectives 1, 2, 4, 5)*

Obstacle running may be done either indoors or outdoors. Each school may set up its own course using any available obstacles. Indoors, the horse, parallel bars, box, benches, ropes, and ladders are usable. Outdoors, the obstacles may be hurdles, fences, ditches, walls, and posts. The obstacle course given in the appendix should be modified as follows for girls:

- (1) Use hurdling wall for vaulting.
- (2) Make scaling wall 6 feet in height.
- (3) Make climbing ladder 10 feet in height.
- (4) Build inclined wall at 30° angle to a height of 6 feet.
- (5) Make broad jump 6 feet in width.

Suggestions for teachers

- (1) Common sense and caution must be the guides in selection of obstacles.
- (2) Girls must be skilled in overcoming each obstacle before attempting the course as a whole.
- (3) The course may be used for both conditioning and competition.

- (4) Competition may be against time, individual against individual, or group against group.
- (5) When jumping from a height, soft landing surfaces or pits should always be provided.
- (6) When jumping from a height the beginner should be started at approximately 3 feet.
- (7) When skill in running the course is acquired each girl should practice carrying a pack weighing from 15 to 20 pounds to represent an infant or young child. This will give experience in a skill which the disasters of war may place upon girls and women, i. e., carrying infants and young children to safety. Each girl should learn to carry the pack in her arms as an infant is carried and on her back as a small child might be carried.

(d) *Relay racing (Objectives 1, 2c, 4)*

Relay races add interest and competition to the program, as well as vigorous exercise. Teams should number not more than eight so that few will be standing idle. The distances in the relays should be long enough so that the players get a real workout. The distances involved in the different relays may be progressively increased as the girls improve their physical condition.

Rather than disqualify a team when infractions occur, such as running out to meet the next runner, as players unintentionally will in the excitement of the race, it is better to charge a foul and add the number of fouls to the team's order of finish.

Shuttle Relay

Formation

1. Divide class into groups of not more than 8 in each group.
2. Establish starting lines at opposite ends of the running space, not less than 10 yards apart.
3. Half of each group (ones) stands behind one starting line, and the other half (twos) stands behind the opposite starting line. Players in each group stand one behind the other.

Description

At the signal, "Go," the first runner of the "ones" runs forward, crosses the starting line at the opposite end, touching off the first of the "twos." This player runs forward, crosses the starting line and touches off the second of the "ones." Each runner does the same in turn.

Jump Stick Relay

Formation

1. Divide class into groups of not more than 8 in each group.
2. Station runner number 1, 10 to 15 yards in front of her team, holding a wand or broomstick (about 3 feet long).

Description

At the signal, "Go," number 1 runs toward her team, holding one end of the stick. When she reaches her team, number 2 takes hold of the other end of the stick. Together they run toward the end of their team, holding the stick about a foot from the ground so that each player jumps over it as it moves along. Number 1 now stays at the end of the line. Number 2 takes the stick and runs to the starting point (10 yards in front). She repeats the first player's action. Each player does the same until number 1 is back at the starting line.

Duck Waddle

Formation

1. Divide class into groups of not more than 8 in each group.

2. Establish a turning point 5 to 10 yards in front of a starting line.

Description

The first player assumes a knees-bent position. In this position on the signal, "Go," she waddles to the turning point and returns, crossing the starting line. She touches off the next player who does the same. This continues until each one has had a turn. The team finishing first wins.

Hopping Relay

Formation

Same as for Duck waddle.

Description

The first player hops forward on one foot to a point 5 to 10 yards in front of starting line. She then turns and runs back to her team touching off the second runner. Each player repeats in turn.

See-Saw Relay

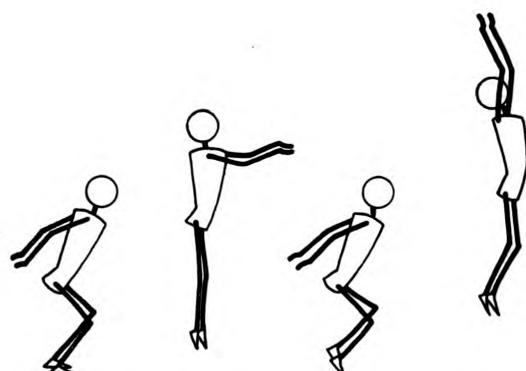
Formation

Same as for Duck waddle.



Description

Players 1 and 2 face each other, grasp hands, and sit on each other's feet, knees bent. In this position they travel to turning point and return, crossing the starting line. (The travel is accomplished by extending and bending knees). 1 goes to rear of team, 2 repeats with 3. Continue until each player has had a turn. The team which finishes first wins.



In-and-Out Relay

Formation

Same as for duck waddle.

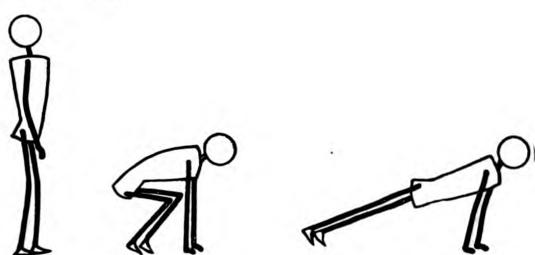
Description

Four objects (benches, Indian clubs, or the like) are placed in line and 3 feet apart in front of each team. The first object is at the turning point.

The first player runs to the turning point, zigzags through the objects, and returns, crossing the starting line. She touches off the next player who does the same. Each player in succession repeats the activity until all have had a turn. The team finishing first wins.

place. Swing arms hard and jump with vigor.
Continue 5 to 12 times.

Exercise 2



Starting position: Position of attention.

- Count 1: Squat rest (a squat rest is a deep-knee bend with hands on floor in front of feet).
- Count 2: Extend legs backward to front leaning rest (the body is straight from shoulders to feet, weight supported on hands and toes).
- Count 3: Return to squat rest.
- Count 4: Return to attention. 8 to 12 times.

Exercise 3



Starting position: Feet slightly apart, and elbows bent with fists at shoulders.

- Count 1: Bend knees deeply and thrust arms forward, keeping body erect.
- Count 2: Return to starting position.
- Count 3: Bend trunk forward, and thrust arms downward, touching toes, keeping knees straight.
- Count 4: Return to starting position. 8 to 12 times.

Unit A

Exercise 1

Starting position: Stand with feet about a foot apart, knees slightly bent, arms raised backward.

Count 1: Swing arms forward and jump in place.

Count 2: Swing arms backward and jump in place.

Count 3: Swing arms forward, upward, and jump upward at least a foot from the ground.

Count 4: Swing arms backward and jump in

Exercise 4



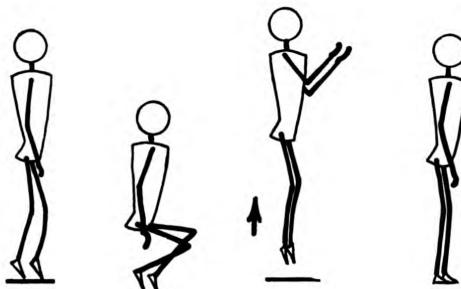
Starting position: Lie on back.

Count 1: Raise legs slowly swinging them over head and touching toes to ground above head.

Count 2: Lower legs slowly to starting position.
The count is slow. 4 to 8 times.

Unit B

Exercise 5



Starting position: Attention.

Counts 1-4: Walk forward on toes.
Count 5: Drop to full knee bend.

Counts 6-8: In deep-knee bend position, spring in place 3 times. 4 to 8 times.

Exercise 6



Starting position: Feet about 30 inches apart, arms fully extended over head, hands clasped.

Count 1: Bend sideward left.

Counts 2 and 3: Continue to bend to the left

trying to go deeper on each count.

Count 4: Return to starting position. Same right 8 to 12 times.

Exercise 7



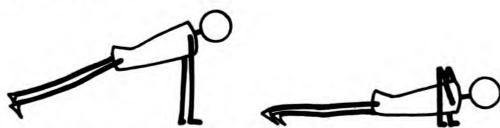
Starting position: Lie on back with arms folded on chest.

Count 1: Sit up, keeping heels on floor and legs straight.

Count 2: Reach forward and touch toes.

Counts 3 and 4: Return to starting position. 4 to 8 times.

Exercise 8

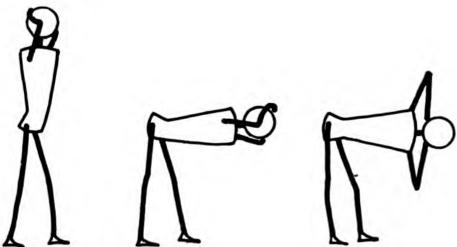


Starting position: Position of attention.

- Count 1: Squat rest (see exercise 2).
- Count 2: Front leaning rest (see exercise 2).
- Count 3: Bend elbows, touching chest to floor.
- Count 4: Straighten elbows.
- Counts 5 and 6: Repeat counts 3 and 4.
- Count 7: Return to squat rest.
- Count 8: Return to position of attention. 4 to 8 times.

Unit C

Exercise 9



Starting position: Feet about 24 inches apart, hands clasped behind head, elbows well back, chin in.

- Count 1: Bend trunk forward.
- Count 2: "Bounce" downward and at the same time rotate trunk to the left.
- Count 3: "Bounce" downward and rotate trunk to the right.
- Count 4: Return to starting position. 8 to 12 times.

Exercise 10



Starting position: Left foot about 8 inches forward, hands clasped on top of head.

- Count 1: Sit on the right heel.
- Count 2: Bounce from this position and spring upward, knees straight, change position of feet.
- Count 3: Drop to squat on left heel.
- Count 4: Spring and change position of feet. 4 to 16 times.

Exercise 11



Starting position: Lie on back, arms stretched sideward, palms up.

- Count 1: Swing left leg upward and over to touch floor near right hand.
- Count 2: Return to starting position.
- Counts 3 and 4: Same with right leg. 16 to 24 times.

Exercise 12

Starting position: Arms raised sideward to shoulder height and feet about 24 inches apart.

- Count 1: Bend and twist trunk to left, touching right hand to outside of left foot. Look up at left hand.
- Count 2: Return to starting position.
- Count 3: Repeat 1 to the right.
- Count 4: Return to starting position. 16 to 24 times.

Suggestions for teachers

1. Insist on good form, i. e., exactly as described, and with energy in each movement.
2. Increase the number of times each exercise is performed, as the capacities of the individuals develop.

3. Sustained effort without rest or pause between exercises must be maintained. Each exercise must be thoroughly learned before going on to the next one. When the drill is memorized, then all the exercises should be done without stopping.

4. The class must master "unit A" before progressing to "unit B" and likewise "units A" and "B" before progressing to "unit C."

5. To master "unit A" means that the class is able to do better than the minimum set for each exercise before "unit B" is begun. Continue to increase the number of times in "unit A" as "unit B" is added. The same procedure is to be followed in adding "unit C."

6. Demonstrate each exercise before asking the class to do it. Correct demonstration is more valuable than a lengthy explanation.

7. Give commands clearly and concisely. The tone of voice can help materially in stimulating the class to action.

8. Observe the class from all angles, commenting on the good performance, correcting the faulty one. Urge all to better performance.

9. Encourage the improvement of performance by individual practice at home.

3. Apparatus

Exercise on apparatus is especially valuable in developing strength, agility, and endurance. Extreme care should be taken in the construction, maintenance, and use of apparatus to prevent accidents.

Formation

Keep the groups small to provide maximum participation.

Arrange the class and the apparatus so that—

- (a) Those waiting their turns may see the performer.
- (b) There is safe and easy access to and from the apparatus for the performer.

Apparatus and activities

(a) Climbing ropes and poles.

Climbing—

Ordinary climbing.

Swinging—

1. Swing on one rope.
2. Swing on two ropes vaulting for height over a rope stretched between jump standards.

(b) Horizontal bar (chinning bar)—

High bar (beyond reach).

1. Chin. Any grip.
2. Hang. Raise knees.

(c) Horse and buck—

1. Straddle vault over buck.
2. Side vault, left and right.
3. Front vault, left and right.

(d) Stall bars—

1. From a hang, facing bars—chin.
2. From a hang, back to bars.
 - (a) Knee raising.
 - (b) Leg raising.
3. Sitting on the floor or on a bench, feet fixed, lowering and raising trunk (sit ups).

(e) Flying rings—

1. Hang and chin.
2. Swing.
3. Swing and pull up at end of swing.
4. Swing and turn at end of swing.
5. Hang or swing—raise knees.

(f) Horizontal ladders—

Grip rounds or beams—

1. Chin (pull ups).
2. Travel forward.
3. Travel sideward.
4. Hang—raise knees.

Suggestions for teachers—

1. Mats should be used as a safety precaution.
2. Girls should be taught correct grips.
3. Assistance should be provided during practice periods.
4. The height of the apparatus should be dependent upon the height of the girls and the type of activity.

4. Locomotor and Axial Gymnastics

Acquiring skill in any activity is dependent largely upon timing and upon judging space relationships. As skill improves, harder and longer periods of work can be sustained if a rhythm of work is established.

Locomotor and axial gymnastics are of value in contributing this particular training to wartime efficiency. In addition they contribute to a marked degree in the development of endurance and strength.

Objectives:

1. To increase skill, endurance, strength, and agility.
2. To develop space judgment.
3. To develop timing.

Organization:

1. Size of classes should depend upon facilities, equipment, and experience of teachers.
2. Falls should be done only if the floor is of wood and in good condition.
3. If floor is constructed on concrete, elevations and jumps should be used very little.
4. A great deal of the program can be carried on outdoors.
5. If piano or pianist is not available, drum beat, victrola, or singing may be used.

Activities

The following program is in no way complete. The teacher is encouraged to use her own initiative in adapting and supplementing this material in relation to her own situation and the needs of her group.

In teaching locomotor and axial gymnastics, it is ordinarily advisable to have each individual in the class try the exercise first at her own speed. Then the teacher should set a common tempo which meets the average of the group. To provide greater training in skill and agility, certain exercises may be practiced at increased or reduced speeds rather than at optimum tempo.

Accompaniment

Various forms of accompaniment are suitable for locomotor and axial gymnastics. Among these are the piano, phonograph recordings, and percussion instruments such as the drum and tom-tom. The piano, with a skillful accompanist is the most desirable. Satisfactory results can be obtained, however, through the use of recordings or percussion instruments.

In the selection of music—

- (a) Good collections of musical materials are available for the piano. (See bibliography for suggestions.)
- (b) Commercial recordings are numerous and acceptable.
- (c) There is a growing practice of making one's own recordings from original material.

In the use of accompaniment the teacher is cautioned to (1) avoid undue stress of accent in measure and phrase, and (2) avoid using the same selection again and again.

Anyone with ordinary sense of rhythm can use percussion instruments successfully and technique can be developed to a high degree. Excellent results are obtained if the accompanist swings into the movement as she beats the instrument. The teacher inexperienced in percussion technique should start by using a single drum, which provides basic rhythm, but no melody. As skill develops, several drums tuned differently may be used, as well as gongs and wooden blocks to provide rudimentary melody. The rhythmic pattern should be varied to avoid monotony.

Conditioning¹

- (a) Stretching and general conditioning (Objective 1).
 1. Standing stride position bend at waist, body hanging loosely from hips, knees bent, bounce trunk forward several times. Repeat sideward, rotating trunk.
 2. Standing stride, circle trunk.



3. Sitting, knees bent outward, feet together, bounce down, then stretch body from base of spine to neck.
4. Sitting, legs forward, knees extended, do 3.
5. Repeat with arm in various raised positions.
6. Sitting wide stride, do 3 forward and sideward.

¹ See appendix for a glossary of terms.



7. Lie on back, one leg raised vertically. Flex both knees slightly and flex both ankles as much as possible. The sole of the raised foot should be parallel with the ceiling. On Count 1, extend both knees and both ankles without moving the heel that is on the floor. On Count 2, return to the flexed position. Do exercise 8 times, alternating legs, and then gradually increase until the exercise can be done 16 times in good form.

8. Lunge bounce.



In a long lunge position with the right foot forward, right knee well forward and left knee extended, hands on the floor, bounce 8 times. With a jump of legs, hands still on floor, change position so that left foot is forward and repeat 8 bounces. Continue the series with 4 bounces right and left, 2 bounces right and left, and then single changes of feet—right, left, right, left. The hands remain on the floor throughout the exercise. Progression: After this exercise is executed easily in good form, do the same exercise with the same position of the body, but do not touch the floor with hands. This greatly increases the difficulty because of the addition of the balance factor. Accompaniment: 2/4, 4/4, or 6/8 march time.

9. Jack-knife lift.



Lie on the floor on back, body fully extended, arms close to sides. With strong abdominal pull and lift of legs, come to a jack-knife position. Legs are straight, back is straight and neither flexed nor overextended. Arms move forward at the same time until the hands touch

the thighs. Elbows are extended. Return to lying position. Timing: 1-2 Lift, 3-4 Lie. Accompaniment: 4/4 time.

(b) Locomotor movements, (Objectives 1, 2, and 3).

1. Walk, run, leap, skip, slide, gallop, hop, jump. Marching is one style of locomotor movement. (Marching tactics are described in Chapter IV).

(c) Non-locomotor movements. (Objectives 1, 3, 4)

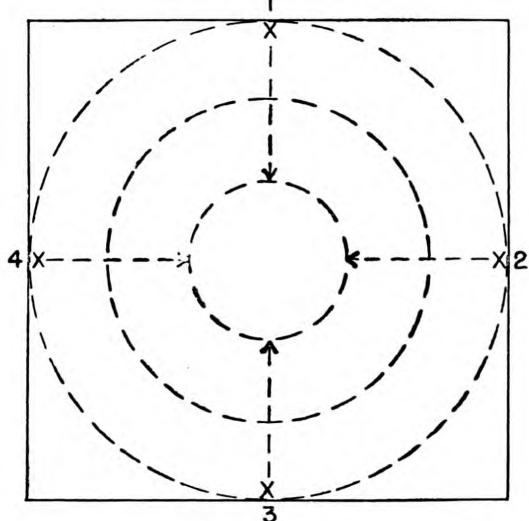
Push, pull, lift, dodge, kick, strike, pendulum swing of body sideward, trunk completely relaxed and bent at waist.

KEEP MOVING

TIMING PLAN

4 Girls	○	○
Others	♪ ♪ ♪ ♪ ♪ ♪	♪ ♪ ♪ ♪ ♪ ♪

SPACE PLAN



(d) Keep moving. (Objective 2)

Four girls stand, one at the center of each wall of the room. The other girls are in scattered formation, facing different directions, spread over the entire floor. The 4 girls walk slowly forward toward the center of the room. They de-

fine the circumference of an imaginary circle which gradually diminishes in size and within which the other girls must continue to move. The other girls run with quick steps within the defined space, dodging and turning to escape touching anyone else. This exercise should be practiced to the beat of a drum or piano, using a whole note for each step of the 4 girls and eighth notes for the steps of the others. The teacher gives a signal for the completion of the exercise when the space becomes too small for further movement.

(e) Follow the leader. (Objective 2)

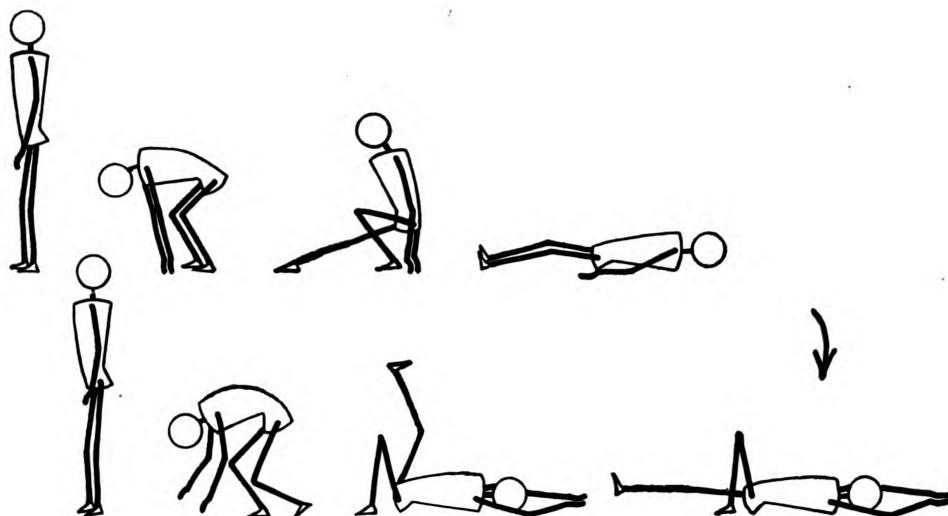
The class is divided into a number of files of 4 to 12 girls; 6 girls is a good average length of file. Hands may be joined or not dependent upon movement used. The first girl in each file is a leader. Each leader leads her file, using forward, diagonal, sideward, zigzag, and turning directions. The others in her file do as she does at the same time. The leader should use simple steps of walking, running, sliding, skipping, galloping. She must adapt her direction to the other groups in the room. One of the objectives of the exercise should be that the leaders learn to use the space efficiently in a collaborative way. The teacher will set a different tempo each time the exercise is repeated, varying slows and fasts. As the students become more expert, the leaders will make the movements more difficult in space, in rhythm and in coordination of movement. *Caution to the teacher:* This exercise should be rhythmically disciplined and the game element involved should not lead to a lack of control.

Sit fall and rise. (Objectives 2, 3, 1)

(1) Sit fall. Class faces front, scattered formation with at least 6 feet clear floor space behind each girl. Little space is needed sideways. *First* let head relax and fall forward, shoulders forward, whole body flexed until hands touch floor at feet. *Second*, let right foot slide forward and sit. *Third*, lie back letting the whole body extend from hips up and from hips down. Arms spread sideward with the extension of upper trunk. Timing: Use counts 1-4 for *first* part; count 5 for *second* part; and counts 6-8 for *third* part. Thus, the fall can be done to 2 measures of 4/4 time.

(2) Rise from back. *First*, bend left knee keeping left foot in contact with the floor and as knee is bent, kick right leg in the air as a movement preparatory to sitting up. *Second*, swing the right leg and arms down forcefully, reach forward with head, shoulders, and arms. *Third*, step forward onto the right foot, body still in crouched position. *Fourth*, continue to rise to an erect position and bring left foot up to meet right. Timing: Kick up on Count 1, kick down on Count 2, step on Count 3, rise on Counts 4-8. Thus the rise can be done to 2 measures of 4/4 time.

Teaching note: If girls are not strong enough to do exercise as described, have them place hands on floor at hips on the *second* part of the rising movement and push off floor with hands. If any girls have had knee injuries that make extreme flexion of knee inadvisable, teach roll to one and rise from that position. (See Exercise 9 b). Repeat above fall (8 counts), rise (8 counts), and then repeat to 6, 4 and 2 counts, alternating feet and legs on slide out and kick, as follows:



8 counts	1-4 touch floor with hands 5-8 foot forward, sit and lie 1-2 kick up and down 3- step 4-8 rise to position
6 counts	1-3 touch floor with hands 4-6 foot forward, sit and lie 1-2 kick up and down 3- step 4-6 rise to position
4 counts	1-2 touch floor with hands. 3-4 foot forward, sit and lie 1-2 kick up and down 3-4 step and rise to position
2 counts	1-2 touch floor with hands, foot forward, sit and lie 1-2 kick up and down, step and rise to position

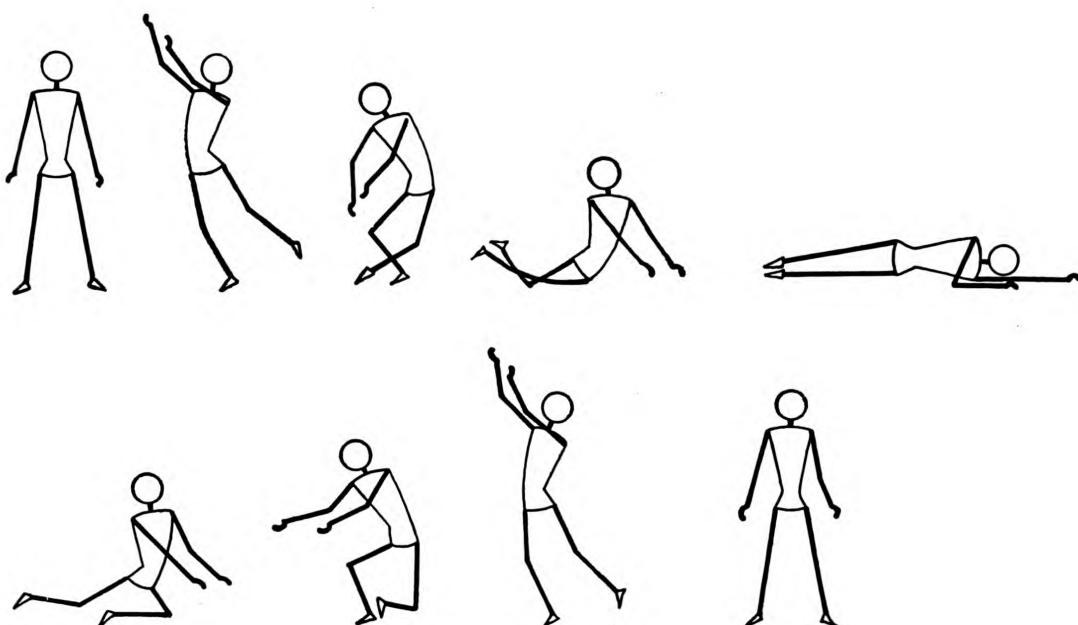
Progression: Do exercise first at 8 count speed only, then add gradually other speeds until the group can do a series twice through at each speed with no stop.

(g) Side fall and rise. (Objectives 2, 1, 3, 3)

(1) Side fall I. Class faces front in scattered formation with at least 6 feet clear floor space on side toward which fall is to be done. Little space is needed forward or backward. Class stands stride, weight even, arms at sides. *First*, swing weight onto right foot raising left leg diagonally backward left and swinging both arms

diagonally upward right. This is a preparatory movement. *Second*, keeping left foot off floor, bend right knee and lower body to floor as the arms sweep down in an arc from diagonally upward right to diagonally downward left going through a point in front of right foot and continuing to slide out on floor to left, as the outside of the left leg is lowered to the floor. The left foot stays behind the right. The second part of the movement is continuous with no break and at the completion of the movement, the body is lying on the left side on the floor in an extended position, left arm stretched beyond the head, right hand on floor in front of chest. It is important that the body strike the floor along the outside of the left thigh and leg to avoid bumping the left knee. When the fall is executed to left, body weight is used to right as a brake to control fall.

(2) Rise from side. *First*, push off from the floor pulling with right trunk muscles and pushing with hands only if necessary. Step sideward to right as body crouches ready to rise. Do not step on left foot, but pushing down with right foot extend the body upward, swinging the arms diagonally upward right. The weight is on the right foot at finish of rise. The first part of the rise is continuous with no break. *Second*, step on left foot finishing in stride position with arms at sides.



Timing:

- 1-2 *First* part of side fall
- 3-4 *Second* part of side fall
- 5-6 *First* part of rise from side
- 7-8 *Second* part of rise from side

(3) Repeat exercise to right.

(4) Repeat exercise in a series alternating left and right, starting with 4 falls and adding units of 2 until 12 falls can be executed in good form.

(5) Add hop to *first* part of side fall.

(6) Use different timings for fall and rise.

(7) Do (5) and add roll to back and onto other side in *second* part of side fall before executing rise from side. This roll should be continuous with the fall.

(8) Precede the fall and rise exercise with other exercises such as sideward pendulum swing.

(9) Side fall II. *First*, do first part of side fall I, as in above, weight is now on right foot. *Second*, stretch body and arms as high as possible diagonally upward right, then swing body and arms in a full circle high across to left, down left and under and out to right, as the left foot steps across in front of the right and body slides to the floor on the right side. The arms and body weight are used to the left as a brake when falling to the right. Timing: As for side fall I. Rise: As for side fall I.

(h) Roll over fall and rise. (Objectives 2b, 1, 3, 4).

(1) This exercise progresses in a diagonal zigzag pattern, forward on the walking, sideward on the roll. Assume half knee-bend position. *First*, low walk forward left, right, left, right. *Second*, with the right foot in advance the roll over will be to the left. Flex body forward and twist slightly to right, tucking both elbows into abdomen. Roll over to left striking the floor on left shoulder, rolling onto back. To rise, push flexed right arm against the floor accompanied by a sharp extension of left leg. Finish on right knee with left foot free to start *first* part of movement again.

Timing:

- 1-4 walk left, right, left, right.
- 5-6 roll over to left.

Repeat to same side.

(2) Vary level and direction of walk and timing.

(3) Spring roll fall and rise. Stand with feet about 12 inches apart, arms at sides. *First*, step hop diagonally sideward right swinging both arms diagonally upward right. *Second*, flex body, tucking both elbows into abdomen, and execute roll over as described in the second part of (1) above pushing off floor in the same fashion. *Third*, with no stop between *second* and *third* parts of the movement, step on left foot and extend body to erect position lifting both arms diagonally upward left.

Timing:

- 1 ah—step hop right
- 2—roll over
- 3—rise on left foot
- 4—precede (3) with a run on the diagonal

Timing:

- 1 and 2 and—Run right, left, right, left.
- 3 ah—step, hop right
- 4—roll over
- 5—rise on left foot.

Repeat and reverse.

5. Combine (3) with other movements and vary timing.

(i) Large and small. (Objective 2)

(1) Walk 4 very long reaching steps using a vigorous swing of the arms and immediately walk 4 very small steps using a little swing of the arms.

Timing:

- | | |
|--------------------------------|------------|
| Counts 1, 2, 3, 4, long steps | } 4/4 time |
| Counts 5, 6, 7, 8, small steps | |
| Counts 1, 2, 3, 4, long steps | } 6/4 time |
| Counts 5 and 6, small steps | |

(2) Apply the above principle of large and small movement to other locomotor movements such as run, skip, slide, and to non-locomotor movements such as push, pull, circling of trunk.

(3) Mark off a space of about 20 feet in width. Move across this space in 15 steps; in 10 steps; in 8 steps; in the fewest possible steps using leaps. Then increase the width of the space and add to the number of steps as the space demands. Do this exercise with each girl establishing her own timing. Later the teacher establishes a common timing derived from the average of the group.

(j) Strong and light. (Objectives 1, 3)

(1) Stand stride position. Strike forcefully forward with right arm, left arm, and repeat right and left. Rotate the trunk somewhat with the force of the striking movement and keep the legs and trunk taut throughout. Now reach forward lightly with the right arm, left arm, and repeat right and left. Rotate the trunk, letting the shoulder follow through into the reaching movement. The head should also follow through. In both strong and light units of this exercise keep the weight centered.

Timing:

Counts 1, 2, 3, 4, strike right, left, right, left.
Counts 5, 6, reach right
Counts 7, 8, reach left
Counts 9, 10, reach right
Counts 11, 12, reach left

Accompaniment:

If using music, ask the accompanist to improvise 4/4 time in 3-measure phrases. If using music already written, do 8 instead of 4 striking movements which will lengthen the exercise to 16 counts or 4 measures of 4/4 time thus fitting into the usual 4-measure phrase of music.

(2) Do this exercise using the timing principles suggested in i (1) above.

(3) Devise patterns of strong and light locomotor movements as well as other non-locomotor movements.

(4) Experiment with strong, small movements and light, large movements and the reverse of this. Vary the timings of these movements.

(5) Develop a strong, vertical jump from a light, easy bounce, gradually making the bounce stronger and larger until the body is propelled into a low vertical jump; continue to increase the strength of the movement until the jump is as high and strong as possible for each girl in the class. Let each girl set her own speed for this exercise.

(k) Fast and slow. (Objectives 1 and 3)

(1) Using walking and running steps, travel around the room in a circle starting slowly, gradually increasing speed, then gradually decreasing speed. Follow either the beat of a drum

or music played by an accompanist. Take each beat of the drum or each note of the music as a step.

(2) Using an exercise which the class has already mastered, execute it at speeds faster than normal; at speeds slower than normal; at gradually increasing speed; at gradually decreasing speed.

(l) Large-small, strong-light, fast-slow. (Objectives 1, 2, 3, 4)

These factors are inter-related. For instance, in natural movement, as a walk becomes a run and then a leap, each movement becomes larger in space and stronger in dynamics or force. Changing the natural degree of one or more of these factors leads to the discovery of a much broader field of movement. Certain elements of style will also develop from such experimentation.

(1) Do a large, strong, slow movement. Now do a large, strong, fast movement.

(2) Do a small, light, fast movement. Now do a small, strong, slow movement.

(3) Running diagonally across the room

Run gradually faster and lighter.

Run gradually faster and stronger.

Run gradually slower and stronger.

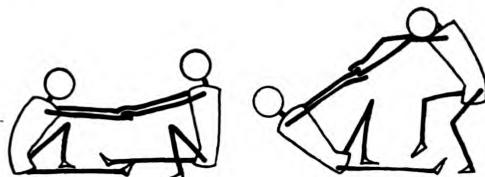
Run gradually slower and lighter.

(m) Meter. (Synonymous with time). (Objective 3)

(1) As far as possible experience should be given in moving to the following meters: 2/4. 3/4. 4/4. 5/4; 6/8. 9/8. 12/8.

(2) Changing meter. Circling the room, walk forward 4 steps starting with the right foot. Turn in place to the right with 3 steps starting with the right foot. Repeat all of this continuing in the line of direction, starting with the left foot and executing the turn to the left. Use one measure of 4/4 time and one measure of 3/4 and repeat. Experiment with other locomotor and nonlocomotor patterns of movement using various kinds of changing meters. Experiments of this kind should *emphasize movement* and should not become mathematical exercises. Too often manipulation of rhythmic devices becomes an end in itself rather than taking its rightful place as a means to better and more functional movement.

(n) See-saw. (Objectives 1 and 3)



The group is divided in couples scattered over the floor. The partners sit facing each other, hands joined, left side to left side. The left knee is fully bent with the left foot on the floor. The right leg is extended forward. Number one rocks back giving a steady pressure upward with hands and arms to rock and lift 2 forward. 2 rises on the left foot, with the right foot lifted off the floor, trunk flexed forward and head forward, right hip flexed close to body and knee and ankle slightly flexed. Now 2 rocks back

to the floor, lifting 1. In rising from the floor a strong pull of the abdominal muscles should be used instead of depending upon the pull of the partner's arm.

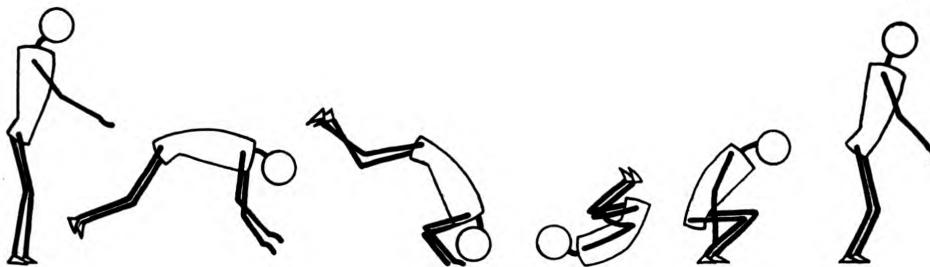
Timing: Use slow 4/4 time with 2 counts for each rock or slow 6/8 time with one measure for each rock.

The group may make new exercises of their own in couples.

4. **Self-testing activities**

Many of the activities given here teach girls to:

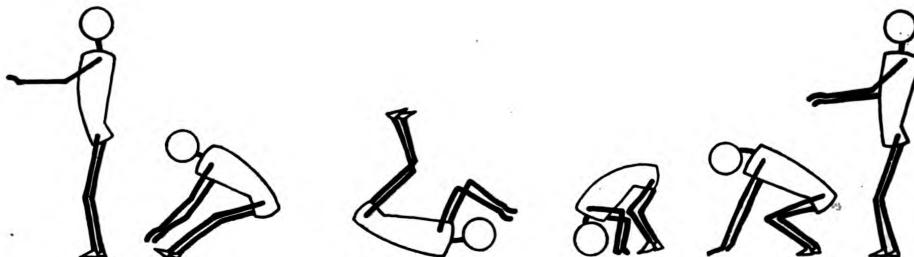
- (1) jump and fall without being hurt.
- (2) have a sense of position in space.
- (3) develop an ability to carry another without injury to self.
- (4) control the body in flight.



(a) Forward roll.

From a stand, bend forward, bend knees, and place hands on mat. Duck head between legs,

roll forward on back of neck and shoulders, grasping the knees. Come to a stand.



(b) Backward roll.

From a stand, lean forward, fall backward to a seat, roll backward placing hands on the mat

over the shoulders, and at the same time drawing the knees to the chest. Push off with hands, and roll to a stand.



(c) Cartwheel.

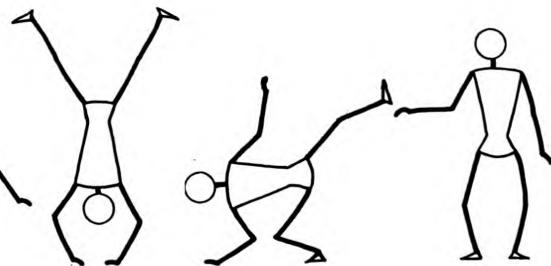
From a run, make a quarter turn left, placing right foot sideward, right arm upward, throw the weight on the right foot, placing the right hand on the mat. Raise the left leg, at the same time placing the left hand on the mat, arms and legs spread. Bring the left foot to the mat as the right hand is raised. Follow through to a stand.

(d) Jump from heights.

Use any available apparatus or platform. Begin at 3 feet and gradually increase the height to 6 feet. Break the fall by landing on the balls of the feet, and bending the knees. A landing pit or mats should be used.

(e) Elephant walk.

Starting position: Partners face each other; with number 2 in a stride position. Number 1 places her hands on number 2's shoulders, jumps and wraps her legs around number 2's legs high under number 1's arms. Number 1 lowers her body backward, places her hands and head between number 2's legs, and grasps number 2's ankles. Number 2 bends forward, places her hands on the mat and walks forward. Keep arms straight. Number 1 locks her feet to keep from slipping.



(f) Rocking chair.

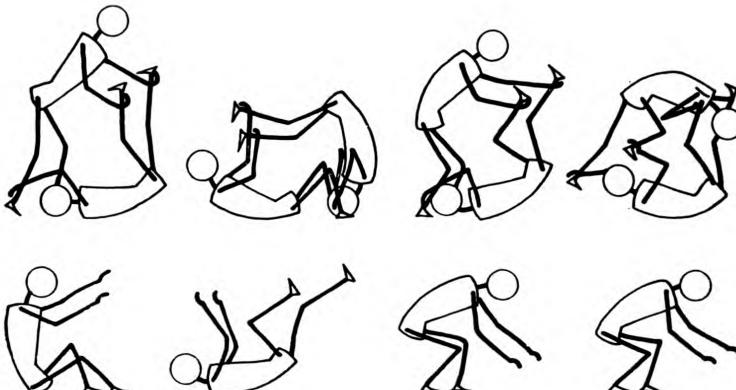
Starting position: Partners sit facing each other, knees bent slightly. 1's legs are on the outside of 2's. Sit on partner's feet and grasp partner's shoulders. 1 rocks back and pulls 2 up, at the same time keeping her own feet in contact with 2's body. 1 then rocks forward, while 2 rocks backward pulling 1 up. Continue rocking as high as possible.

(g) Tandem walk.

Starting position: 1 stands close behind 2. 1 jumps on 2's back and locks her legs high under 2's arms. 2 bends forward placing her hands on the mat. 1 reaches over 2's head placing her hands on the mat in front of 2's hands. Both walk forward, 1 using hands and feet, 2 using hands.

(h) Double roll.

Starting position: 1 lies on her back, legs raised upward, feet apart; 2 stands astride 1's head, and grasps 1's ankles. 1 grasps 2's ankles (her arms between 2's legs). In this position 2 springs, tucks her head under, and does a forward roll, close to 1's body. As 2 rolls, she pulls 1 to standing position. 1 then does a forward roll, pulling 2 to a stand. Continue. Make the roll quick and powerful to bring partner to a stand.



(i) Bicycling.

Starting position: Lie on back with hands under the hips and legs raised upward. Imitate bicycling, stretching high on each push of the imaginary pedal. Continue as long as possible.

(j) Rope skipping.

Single rope

Jump on both feet—alternate left and right hop, left foot, right held forward

Jump turning to the right in a circle

Jump circling the rope backward

Sports and Games

Sports and games are an important part of the general conditioning program. They provide opportunity for strenuous big-muscle activity and contribute to the development of speed and endurance. In addition to these obvious values, sports and games afford wide opportunity for the practice of desirable character traits. Only those sports and games have been selected which contribute to the development of strength and endurance. Many well-loved games have been omitted. Tennis, for example, is not included because considerable skill is required before maximum value is secured.

Objectives

1. To develop speed, strength, and endurance.
2. To provide opportunity for the practice of desirable character traits.
3. To develop skills useful in leisure time.

Organization

1. All girls should participate.
2. Girls' rules should be used.
3. Women teachers should be in charge of the program.
4. The standards of the National Section on Women's Athletics should govern the program.¹

¹ National Section on Women's Athletics. *Standards in Athletics for Girls and Women*. Washington, D. C., 1201 16th Street, NW.

Teaching procedures for all team games

1. Explain in general the idea of the game and the terms most often used.
2. Group students according to similar ability.
3. Use explanation, demonstration, and other teaching aids in presenting techniques.
4. Practice skills in groups with trained student leaders in charge.
5. Keep each student busy practicing some skill. The skill should be chosen with respect to her level of achievement.
6. Give student sufficient time to practice skill so that she may improve her performance.
7. Use skills in real game situations as soon as possible.
8. Devote a part of every period to improving old or learning new skills.
9. Concentrate on essentials for beginners.
10. Present more advanced skills and strategy of playing as soon as players acquire elementary skills.
11. Train students to officiate as they learn the game.
12. Emphasize the importance of safety. It is the teacher's responsibility to keep equipment in good condition. It is the players' responsibility to keep play areas clear of hazards and to discipline those members of the class who frequently cause accidents.

Fundamental game skills

- A. Passing
 1. Chest pass
 2. Double underhand pass
 3. Single underhand pass
 4. Shoulder pass
 5. Double overhead pass
 6. Sidearm pass
 7. Hook pass
 8. Bounce pass
- B. Turning
 1. Reverse turn
 2. Pivot
- C. Kicking
 1. Dribbling
 2. Punt
 3. Drop kick
 4. With instep
 5. With outside of foot
 6. With heel
 7. With inside of foot

- D. Strategy and Tactics
 - 1. Passing
 - 2. Evading
 - 3. Shooting
 - 4. Tackling
 - 5. Guarding
 - 6. Interchanging
 - 7. Intercepting
 - 8. Offensive and defensive playing as a team
 - 9. Duties of defensive players
 - 10. Duties of offensive players
 - 11. Duties of each position on the team.

E. Trapping

- 1. With foot
- 2. With leg
- 3. With body

F. Volleying

- 1. Knee
- 2. Head
- 3. Shoulder
- 4. Inside of foot

G. Catching

- 1. Low balls
- 2. High balls
- 3. Fast balls

Points in Common Between Fieldball; Field Hockey; Soccer, and Speedball

- 1. There are 11 players on a team.
- 2. The tactics and strategy are similar.
- 3. Officiating is similar.
- 4. A throw-in is used when the ball goes out of bounds.
- 5. The ball is put into play in the center of the field.
- 6. The scoring area is somewhat the same.
- 7. The basic formation is the same.

Lead-up Games

Lead-up games are used primarily to improve the player's skill level in a definite technique. More specifically, these games may be used effectively to practice isolated techniques prior to their application in the more highly organized game, and to practice the skill in groups while the regular game is in progress. The choice of the lead-up game depends upon: (1) space available to practice with safety, (2) the level of skill of

the performer, (3) the number of students practicing, and (4) the amount of equipment on hand.

In the discussion of each game a list of lead-up games is included. It is suggested that the teacher improvise her own lead-up games based upon the needs of her pupils and the available facilities. Pupils may be encouraged to create methods of practicing skills and techniques.

Field-ball

This game can be used as an excellent lead-up game for either basketball or speedball. For description of field ball, *see bibliography*.

Presentation of skills and techniques

A. Skill activities

- 1. Passes. *See fundamental game skills.*
- 2. Turning. *See fundamental game skills.*
- 3. Strategy and tactics. *See fundamental game skills.*
- 4. Catching. *See fundamental game skills.*

Lead-up Games

- 1. Field ball defense game. To give goalers and fullbacks practice in defending goal.
- 2. Endball. To give forwards practice in passing; to give guards practice in guarding.
- 3. *See lead-up games for basketball.*

Soccer

For a full description of soccer *see bibliography*.

Presentation of Skills and Techniques

A. Skill activities

- 1. Kicking. *See fundamental game skills.*
- 2. Volleying. *See fundamental game skills.*
- 3. Trapping. *See fundamental game skills.*
- 4. Strategy and tactics. *See fundamental game skills.*

Lead-up Games

- 1. Kick ball. To give practice in kicking for goal and blocking.
- 2. Line kick. To give practice in kicking and blocking.
- 3. Versatile soccer. To give practice in kicking and trapping.
- 4. Block soccer. To give practice in blocking, trapping, and tackling.

5. Throw-in soccer. To give practice in correct throwing-in and dodging.
6. Block kick soccer. To give practice in recovering ball, passing, kicking, and defending goal.

Speedball

Speedball is a highly organized team game combining the skills of basketball, fieldball, and soccer. It is a fast, vigorous game which develops the muscles of the arm and shoulder girdle, trunk, and legs. It can be played in a modified form by younger players also, or those whose skill has not been developed.

For a description of speedball see bibliography.

Presentation of Skills and Techniques

A. Skill activities

1. Passing. See fundamental game skills.
2. Kicking. See fundamental game skills.
3. Strategy and tactics. See fundamental game skills.
4. Turning. See fundamental game skills, Section B.
5. Trapping. See fundamental game skills, Section E.
6. Catching. See fundamental game skills, Section G.
7. The kicking skills of punting and drop kicking should be practiced so that all members of the class are proficient in their use.
8. The kick-up to oneself or to another player should also be practiced by the whole class.

Lead-up games¹

Refer to *Official Basketball Guide* and *Official Soccer, Speedball, and Fieldball Guides*. New York, N. Y., A. S. Barnes and Co.

1. Speedball technique game. To give practice in playing techniques of speedball.
2. Speedball reaction game. To give practice in quick reaction to speedball playing situations.
3. Forward pass speedball. To give practice in the skill of lifting ball to oneself or lifting it to another player.

¹ Hillas, Marjorie and Knighton, Marion. *An Athletic Program for High-School and College Women*. New York, A. S. Barnes and Company, 1929.

Field hockey

Field hockey is a highly organized team game. It affords much satisfaction and enjoyment to the players. The cost of equipment is high but with proper care it lasts a long time. The game demands skillful stick-work on the part of the players. Many of the skills found in other sports are carried over into field hockey, but are done with the stick instead of the body. For a complete description of field hockey see bibliography.

Presentation of Skills and Techniques

A. Skill activities

1. Strategy and tactics. See fundamental game skills, Section D.
2. Stick work. Since much of the game is dependent on skillful stick-work, there must be frequent drill for the practice of the following skills.
 - (a) Drive
 - (b) Dribble
 - (c) Push pass
 - (d) Flick
 - (e) Scoop
 - (f) Right out
 - (g) Left-hand lunge
 - (h) Right-hand lunge
 - (i) Job
 - (j) Reverse stroke
 - (k) Bully

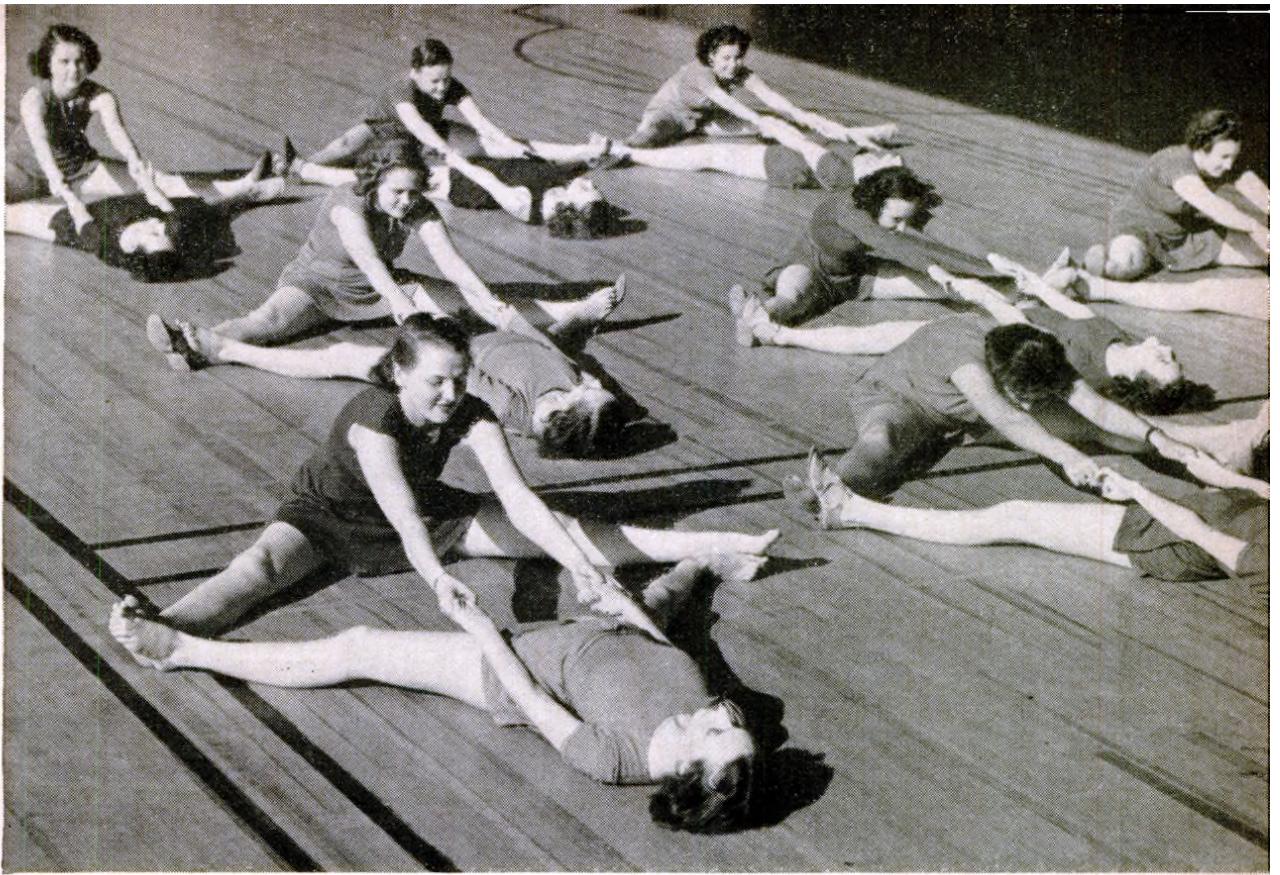
Basketball

Basketball is essentially an indoor game and requires little equipment and comparatively small space. Though the number on a team is few, properly supervised mass games can be used to engage more players. Since basketball is a game of ball handling and fast change of direction, the player must learn to control her body effectively and easily.

Presentation of Skills and Techniques

A. Skill activities

1. Catching. See fundamental game skills, Section G, 1, 2, 3.
2. Passing. See fundamental game skills, Section A.



3. Turning. *See* fundamental game skills, Section B.

4. Strategy and tactics. *See* fundamental game skills, Section D.

5. Shooting

- (a) Overhead loop shot
- (b) Underhand loop shot
- (c) Chest shot
- (d) One-hand push shot
- (e) Hook shot
- (f) Two-hand shoulder shot

B. Teaching procedures

1. Special attention should be given to the development of skill in shooting as it is an important part of the game. This particular skill is of a different nature than the scoring skills of the team games discussed up to this point.

2. The practice of shooting may be done in combination with other skills like passing and running.

*Lead-up games*¹

1. Count passes. To give practice in passing.

2. Six passes and shoot. To give practice in passing.

3. Six-section basketball. To give practice in the rudiments of basketball to a large number of players.

4. Four forward shoot. To give practice in accurate attack which eliminates unnecessary passing.

5. Circle goal ball. To give practice in the rudiments of shooting, passing, position plays, and guarding.

6. Tri pass. To give practice in triangular type of passing which is effective in basketball.

Volleyball

Volleyball is an excellent game for a girls' activity program. It can take care of large numbers in a comparatively small space. Though the game varies throughout the country, official rules compiled by the National Section on Women's Athletics are available.

¹ Hillas and Knighton. *Op. cit.*

Presentation of Skills and Techniques

A. Skill activities

1. Strategy and tactics. See fundamental game skills.
2. Striking the ball with the hands
 - (a) Serve, underhand and overhand
 - (b) Return high balls, low balls, net balls, and spiked balls.
3. Rotation—circle type.
4. Set up, attack, relaying.

B. Teaching procedures

1. Class must be drilled on serving skill. Use wall as well as net.
2. Give training in the use of the body in returning high and low balls.
3. Stress the importance of direction in controlling accuracy.
4. Advanced players may be taught the set-up and attack, interchange, overhand serve, and spiking.
5. Use lead-up games with beginners to teach them skills and to keep them active.

Lead-up Games

1. Practice drills for volleying technique. To give practice in volleying.
2. Volleyball clock.¹ To give practice in serving and direction.
3. Volleyball keep over.¹ To give practice in handling of volleyball.

Individual sports for use in the out-of-school program

The out-of-school program offers opportunity for girls to participate in many individual sports which are not included in the class program because of the nature of the sport. The organization of clubs for hiking, riding, and bicycling is a responsibility of the physical education teacher and will promote interest and participation. These activities are desirable for week ends, after school, and holidays. The sports suggested here have been selected because they contribute directly to the objectives of the entire program. The inference must not be drawn that this is the complete field of individual sports.

Hiking

Hiking, to be of immediate value in a program of physical fitness must be brisk and reasonably long. Rests should be few and brief.

Camping

There are experiences in camping which are unmatched in any other situation. To live off the land, to take care of oneself against the onslaught of the elements, to live peaceably with fellow campers under primitive conditions are challenges every girl should have the opportunity to meet. Successful camping requires careful supervision of program, site, and sanitation.

Skating—Ice and roller

Skating is an enjoyable and inexpensive sport and if practiced regularly is a fine developer of endurance and speed.

Bicycling

Bicycling is of value in developing strength of legs and ankles.

Skiing and snowshoeing

Skiing and snowshoeing are exhilarating sports for girls living in snow areas. Proper equipment is necessary for safety. Both sports can be enjoyed through adult life if reasonable skill is acquired.

Horseback riding

Horseback riding is an increasingly popular sport. Expensive riding habits are not essential. The cost of hiring horses may limit participation but costs may be cut by riding in groups.

Skeet shooting

This sport develops a skill which may prove to be of value to girls in possible war service—the skill of shooting at moving objects.

¹ Bancroft, Jessie. *Games*. New York, The MacMillan Company, 1937.

CHAPTER VI

Standards and Tests

Use of Standards

THE ACHIEVEMENT standards listed in this chapter have been taken from the best available sources. The present standards probably will soon become obsolete and need revision. In the broad program of physical education, the attainment of specific standards is a part of the total program. In the program of training for physical fitness, teachers should stress the daily performance of special activities with ever-increasing frequency and duration of participation. As this procedure is followed, improvement in ability will be rapid and new standards will evolve. There are no suitable standards available for some activities. Pending the publication of needed standards, teachers should make use of class averages for guidance.

The standards published here constitute the best available evidence of satisfactory performance. They do not constitute valid criteria of optimum performance. Standards of optimum performance must be determined through experimentation and then published for the guidance of teachers. For the present, pupils able to secure "superior" ratings in any test items should be encouraged to spend more time in the items of the program in which their ratings are below the level of "superior."

The Pulse Rate Recovery Test

Many teachers of physical education have used and found helpful one or more of the Pulse Rate Recovery Tests that have appeared in the literature of the field. Studies of these

tests have indicated that some of them do not give a valid or reliable indication of athletic condition or circulatory efficiency. In Chapter III of this bulletin, recommendations are made concerning the use that should be made of pulse rate recovery tests by teachers.

A description of measuring instruments of this kind may be found in several publications on tests and measurements in physical education.¹

Achievement Tests

To conserve time in testing, detailed standards are given for several tests from which the instructor should choose 10 as a battery. The tests have been grouped into three categories according to the general muscle groups primarily tested, namely, (1) arm and shoulder girdle, (2) abdomen and back, and (3) legs. It is recommended that in any battery of 10 tests that no fewer than 3 tests be chosen from each category and that the first test listed in each category be included. In a battery of 5 tests or any other number always include the first test listed in each category. Until data are available for the tests under Category II use the average performance of a classified group as "good," and locate the other ratings at the 10, 25, 75, and 90 percentiles.

Category I (Arm and Shoulder Girdle)

1. Push-ups
2. Pull-ups

¹ Bovard, John F. and Cozens, Frederick W. *Tests and Measurements in Physical Education*. Philadelphia, W. B. Saunders Company, 1938. Pp. 44-103.

McCloy, Charles Harold. *Tests and Measurements in Health and Physical Education*. New York, F. S. Crofts and Company, 1939. Pp. 238-255.

3. Dips on parallel bars*
4. 15-foot rope climb
5. Bar vault

Category II (Abdomen and Back)

There are no accepted standards available for these events.

6. Sit-ups
7. Hanging half lever
8. Leg lift
9. Forward bend
10. Bank Twist

Category III (Legs)

11. Potato race
12. Jump and reach
13. Standing broad jump
14. Running broad jump
15. Running high jump
16. 100-yard dash
17. 440-yard run*
18. 880-yard run*

Description of Tests and Standards

Boys to meet all standards
(Legend: S=Standard)

I. Aquatics

The ability to:

- S-1 float for 2 minutes either without clothes or with bathing suit.
- S-2 remain afloat for 5 minutes or more by sculling (with clothing).
- S-3 remain afloat for 5 minutes or more by treading water (with clothing).
- S-4 swim the side stroke 50 yards (with clothing).
- S-5 swim the breast stroke 100 yards (with clothing).
- S-6 swim the back stroke 50 yards immediately after swimming the side stroke 50 yards (with clothing).
- S-7 swim 250 yards with any overarm stroke (with clothing).
- S-8 swim any style for one-half mile (with clothing).
- S-9 swim 20 feet under water (with clothing).
- S-10 remain under water for 1 minute.
- S-11 meet the standards of the American Red Cross for Lifesaving.

II. Gymnastics

The ability to:

- S-12 march 1 mile in 12 minutes.
- S-13 walk and run 2 miles in 20 minutes.
- S-14 walk and run 10 miles in 2 hours.
- S-15 shoulder another person, using the firemen's carry, who is within 5 lbs. of his own weight, from a position of lying on the floor, and carry him 20 yards in 8 seconds.
- S-16 do exercise No. 2 15 times in 30 seconds.
This exercise is described in Chapter IV on Activities for Boys.
- S-17 hop on either right or left leg 20 yards in 7 seconds.

Classification for Achievement Testing

Boys in high school differ greatly in age, height, and weight. These factors tend to favor or handicap them in athletic performance. To classify boys according to only one of these factors is less fair than to take all three factors into consideration. Therefore, the following classification plan should be used for a classification of the boys before the achievement tests are given:

Determine for each boy his age in years and months (to the nearest month), his height (to the nearest half-inch), and his weight (to the nearest pound). In doing this, use any method that will save time and give fairly accurate measurements. After these measurements have been secured, refer to the table for classification. For example, a boy's age is 14 years and 10 months, his height 61½ inches, and his weight 136 pounds. The exponent for 14 years and 10 months is 30, the exponent for 61½ inches is 29, and the exponent for 136 pounds is 22. The sum of these exponents, 30, 29, 22, total 81. We find from the table that the boy is in class C and is expected to meet the standards listed for his class.

*These activities should not be attempted below the 10th grade or in classes E and F.

Classification plan for secondary school boys¹

<i>Exponent</i>	<i>Age</i>	<i>Height</i>	<i>Weight</i>	<i>Exponent</i>	<i>Age</i>	<i>Height</i>	<i>Weight</i>
9.....			53- 59	24.....	11:9-12:2	49½-51½	147-153
10.....			60- 65	25.....	12:3-12:8	52-53½	154-159
11.....			66- 71	26.....	12:9-13:2	54-55½	160-165
12.....			72- 78	27.....	13:3-13:8	56-57½	166-171
13.....			79- 84	28.....	13:9-14:2	58-59½	172-178
14.....			85- 90	29.....	14:3-14:8	60-62	179-184
15.....			91- 96	30.....	14:9-15:2	62½-64	185-190
16.....			97-103	31.....	15:3-15:8	64½-66	191 up
17.....			104-109	32.....	15:9-16:2	66½-68	
18.....			110-115	33.....	16:3-16:8	68½-70½	
19.....			116-121	34.....	16:9-17:2	71-72½	
20.....			122-128	35.....	17:3-17:8	73-74½	
21.....			129-134	36.....	17:9-18:2	75 up	
22.....	10:9-11:2	47 down	135-140	37.....	18:3-18:8		
23.....	11:3-11:8	47½-49	141-146	38.....	18:9-19:2		

¹ Cozens, Frederick W.; Trieb, Martin H.; and Neilson, N. P. *Physical Education Achievement Scales for Boys in Secondary Schools*, New York, A. S. Barnes and Company, 1936. p. 13.

Grades 7 to 12, inclusive

For purposes of competition in inter-school athletics and in individual events—derived from the formula 2A (years) + .475 H (inches) + .16 W (lbs.).

NOTE: Height is measured in half-inches. The boy must have attained the height listed before the exponent value changes. For example, he remains at 49 until he reaches 49½.

<i>Class</i>	<i>Exponent Value (Sum of exponents)</i>
F-----	69 and below
E-----	70-74
D-----	75-78
C-----	79-82
B-----	83-87
A-----	88 and over

Test I—Push-Ups

From standing position place hands on floor and extend legs backwards, feet together, back and arms straight with weight supported on hands and toes only. This is the starting position. Lower the body by flexing the arms until the chest nearly touches the floor. Then raise body to the starting position. This counts as one push up. The head, trunk, and legs should remain in a straight line throughout the movement. The dips shall be done without rest between and shall not count if any part of the body other than toes and hands touches the floor.

Test II—Pull Ups

Hang on a horizontal bar with arms and legs fully extended, grip of hands optional. From this position, flex the arms, keeping knees straight, until the

chin touches the bar; then lower the body to the original position. This is scored as one pull up.

Test III—Dip on Parallel Bars

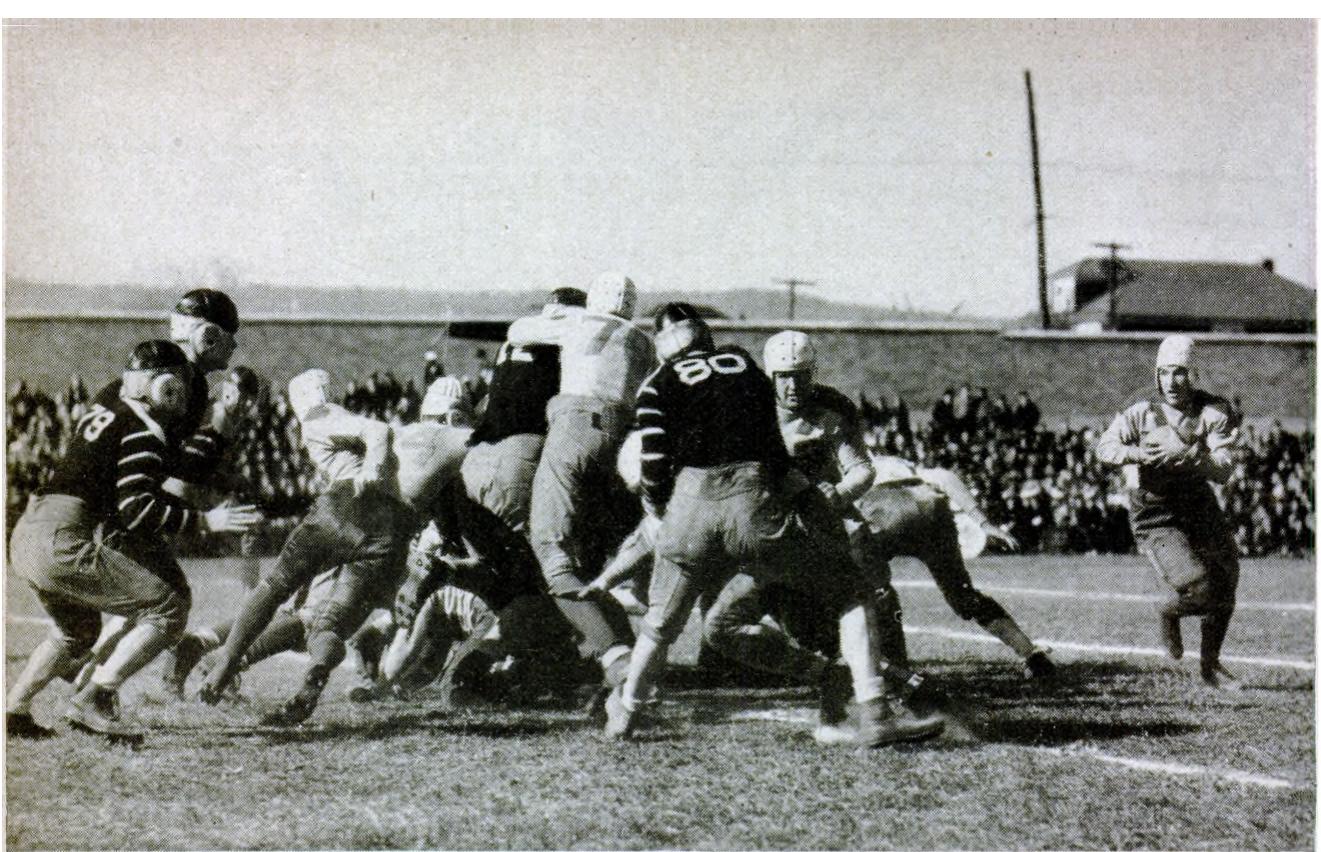
Adjust the parallel bars to the width of the pupil's chest and above shoulder height. Have pupil jump to a support position, arms straight. From this position flex arms lowering body until the arms are fully bent; then extend arms to original position. This constitutes one dip. The body should be kept in a slightly arched position throughout the exercise.

Test IV—Rope Climb (15 feet)

Pupil stands grasping a suspended rope 1½ inches to 2 inches in diameter. At the word "Go," pupil climbs rope in any manner. The time in seconds and in tenths of seconds elapsing between the starting signal and the time the pupil reaches the proper mark is the performance to be recorded. *Caution:* Pupils should be cautioned about returning to the floor. Unless care is exercised, burned hands or other injuries may result.

Test V—The Bar Vault

Pupil stands close to and facing the bar grasping same with both hands, knuckles up, shoulder-width apart. Without crow hopping and with combined spring from both feet and pull with both arms the body is vaulted to the side over the bar. Only the hands should touch the bar on an accepted performance. Bar may be raised as much as 3 inches at a



time until the abilities of pupils begin to be taxed; then amount should be reduced. The bar should not be over 1½ inches in diameter and should be long enough so that the upright supports will not interfere with the legs of the vaulters. The maximum height over which a pupil can vault with only the hands touching the bar constitutes the record.

Test VI—Sit Ups (Army Method)

Lying with back on the floor, fingers of both hands interlaced behind the neck, feet held by another class member, the trunk is raised forward and moved downward, rotating so that the right elbow touches the left knee. Return body to starting position. Next raise trunk as before, excepting that the left elbow touches the right knee. Continue raising the trunk alternately touching left knee with right elbow and right knee with left elbow. Each completed exercise, i. e., touching right knee with left elbow and vice versa is one count. The observer, holding the subject's feet, counts aloud as the exercise progresses.

The exercise should proceed without appreciable rest periods between each erection of the trunk.

Test VII—Hanging Half Lever

From the high horizontal bar in the fully extended hang position, grip optional, the legs are raised to the front horizontal position. To secure a count of

accomplishment towards a score, the legs must be brought to a position, feet together, toes pointed at right angles to the body parallel with the floor. Once the subject begins the exercise, he should continue without resting between leg liftings until exhaustion prevents further counts.

Test VIII—Leg Lift

Pupil lies on back, arms at sides, palms pressing on the floor, legs extended completely, knees straight, toes pointed. Legs are raised through a 90-degree arc and then replaced on the floor. This is a completed exercise. Legs must be under muscular control at all times, that is, they are to be lowered to the floor under control, noiselessly, not suddenly dropped.

Test IX—Forward Bend

Starting position—Standing with feet together, body erect, hands together, arms extended overhead. The count of one is accomplished by lowering trunk and arms forward and downward until fingers touch the floor, and returning trunk and arms to starting position. Knees to be kept straight at all times.

Test X—Bank Twist

Pupil lies on back, arms extended sideward, palms of hands on floor, legs perpendicular position, knees

straight, toes pointed, as in Leg Lift. From this beginning position rotate legs, first left, then right, through 90-degree arc to the floor. An exercise is completed by lowering the legs sideward to the floor and returning them to the starting position. Shoulders should be kept on the floor and compensation for leg rotation made in the trunk.

Test XI—Potato Race

A cube of wood $1\frac{1}{8}$ inches on each side is placed in circle number 2 and another placed in circle number 3. Contestant standing behind the starting circle (number 1) runs to circle number 2, picks up the block, returns and places the block in circle number 1; runs to circle number 3, picks the block, returns and places it in circle number 1. Contestant then picks up the first block, returns it to circle number 2 and in the same way returns the second block to circle number 3, after which he returns to his starting point behind circle number 1. The elapsed time in seconds and tenths of seconds is the record for the contestant.

Cautions: Blocks must be carried one at a time.

Blocks must be placed and remain clearly in designated circles or the contestant must be stopped and permitted to repeat the test.

Test XII—Jump and Reach

Pupil stands facing the wall, toes against same, feet flat on the floor. With a short piece of chalk in his right hand, and with forearm and hand against wall, pupil reaches as high up as he can and makes a short horizontal chalk mark. Turning through a 90-degree angle with his right side to the wall, the pupil now jumps as high into the air as possible, at the same time reaching up and making a second horizontal chalk mark on the wall as high as possible above the first mark. The vertical distance to the nearest half inch between these two marks constitutes the record. The best of three trials is recorded.

Test XIII—Standing Broad Jump

Indoors: A take-off or beat board the same height above the floor as the upper surface of the mat upon which the pupil is to jump should be provided in order to prevent injuries. The pupil stands with toes even with the take-off mark or edge of the board. Free swinging of the hands and arms is permitted. The pupil then propels the body as far forward as possible with a two-footed take-off. The perpendicular distance from the take-off to the mark made on the

mat nearest the take-off by any portion of the pupil's body is measured. The distance in feet and inches to the nearest half inch is recorded.

Outdoors: The same procedure as indoors, excepting that the pupil jumps into a pit of well-spaded earth, shavings, or sand at the same level as the take off board.

Test XIV—Running Broad Jump

Indoors: Unless a suitable place is available, the running broad jump indoors should not be attempted. Suitable facilities consist of a place where the pupils can get a good run, not less than 50 feet, and have a safe place into which to jump. Jumping on mats on a gymnasium floor is seldom safe. If running broad jump is attempted indoors, it should be conducted under same general rules as for outdoor jumping.

Outdoors: A level space, free from obstacles, of at least 8 feet by 100 feet should be provided with a take-off board at least 8 inches wide and 4 feet long sunk flush with the ground surface and clearly marked. The pit into which the pupils jump should be 6 feet wide, 18 feet long, and 18 inches deep. Its nearest edge should be 6 feet from the take-off board. This pit must be filled with well-spaded loam, sand, or shavings and have its surface level with the take-off board. The contestant is allowed unlimited run, and jumps from one foot. The horizontal distance between the front edge of the take-off board and the nearest imprint made by any portion of the contestant's body in the pit is measured to the nearest inch and the record is made. In case any portion of the contestant's foot extends beyond the take-off board, the jump is not allowed.

Test XV—Running High Jump

Any style of jumping may be used providing the contestant takes off from one foot only. The standards should be at least 10 feet apart provided with standard pegs and cross bar. A contestant continues to jump until he displaces the bar twice at the same height. When this occurs, the last height jumped is taken as the pupil's record. Measurements of height are taken perpendicular to the ground from the top of the cross bar at the point of the greatest sag. This is recorded in feet and inches to the nearest inch. A good firm take-off area clear of all obstructions including loose sand or cinders should be provided. The pit into which the contestant jumps should be 8 feet wide and extend 1 foot beyond each standard. The pit must be filled with well-spaded loam, sand, or shavings.

Test XVI—100-Yard Dash
Test XVII—440-Yard Dash
Test XVIII—880-Yard Dash

The procedure in all running events is the same. A suitable course carefully measured and properly marked must be provided. The contestants are then lined up a yard behind the starting line. Each contestant may assume any position he desires on the starting line so long as no portion of his body extends beyond it. They are given the following commands at intervals of about 2 seconds:

Go to your marks

Get set

Either a pistol shot or command "Go" is given

Upon the starting signal, the contestants leave their marks. The record achieved is the time in minutes, seconds, and tenths of seconds it takes for the contestant to cover the entire course. To achieve a record a contestant must complete the entire course and cross the finish line without interfering or being aided by any other person or contestant.

Competitors may be permitted to run these events in groups to conserve time. With a single stop watch reasonably accurate records can be secured. When this is done the following markings on the track at the finish line should be provided:

An observer should be designated to watch each lane. At the time the first contestant crosses the finish line each observer records the position in the zone which the contestant in his lane has reached. By adding the following corrections to the time of the contestant who finished first the approximate time of the contestants finishing in the various zones can be secured.

Zone	100 yards	440 yards	880 yards
	Seconds	Seconds	Seconds
1.....	.2	.3	.3
2.....	.4	.5	.6
3.....	.6	.8	.9
4.....	.8	1.0	1.2
5.....	1.0	1.3	1.5

The use of the above table permits the timing of at least five contestants with one watch.

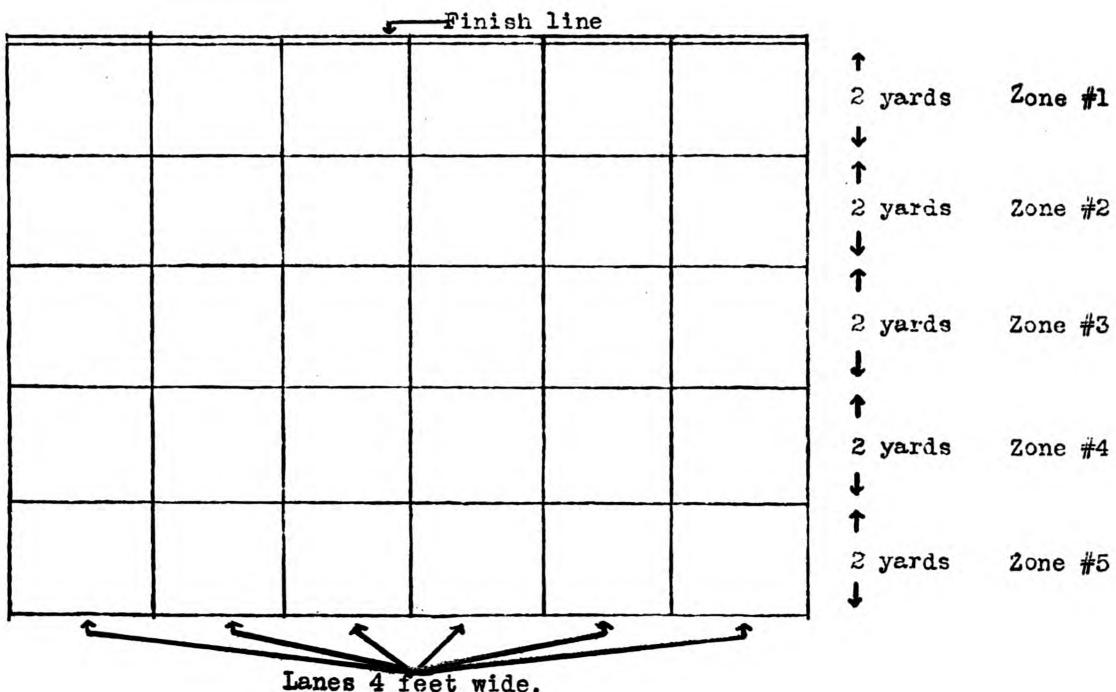


Table of standards for boys

Rating by class		I. Push-ups	II. Pull-ups	III. Dip parallel bars	IV. Rope climb 15'	V. Bar vault	VI, VII, VIII, IX, X, No standards available	XI. Potato race	XII. Jump and reach	XIII. Standing broad jump	XIV. Running broad jump	XV. Running high jump	XVI. 100-yard dash	XVII. 440-yard run	XVIII. No standards available
A	Superior ..	44	21	21	3. 3	6. 6	6-6	20. 9	22. 5	9-8	20-9	5-6	10. 7	54. 7
	Excellent ..	35	17	16	4. 7	8. 9	5-11	22. 8	20	8-11	18-8	5-1	11. 4	59. 6
	Good	20	9	8	7. 1	12. 6	4-10	25. 9	16	7-7½	15-1	4-6	12. 5	67. 7
	Fair	13	5	4	11. 2	16. 4	3-10	29. 1	12	6-4½	11-7	3-10	13. 7	75. 8
	Poor	8	3	1	13. 7	18. 6	3-2	30. 9	9. 5	5-7	9-5	3-5	14. 3	80. 7
B	Superior ..	42	20	19	4. 0	7. 6	6-2	21. 6	21. 5	8-10½	19-5	5-4	10. 9	56. 5
	Excellent ..	33	16	14	5. 5	9. 9	5-7	23. 5	19	8-2½	17-6	4-11	11. 6	61. 3
	Good	18	8	7	8. 2	13. 8	4-7	26. 6	15	7-0½	14-2	4-4	12. 7	69. 5
	Fair	11	4	3	12. 5	17. 7	3-7	29. 7	11	5-11	10-11	3-8	13. 8	77. 6
	Poor	7	2	0	15. 2	20. 0	3-0	31. 6	8. 5	5-2½	8-11	3-3	14. 5	82. 5
C	Superior ..	40	19	16	4. 5	8. 4	5-8	22. 3	21	8-4½	18-0	5-2	11. 1	58. 2
	Excellent ..	31	14	12	6. 2	10. 9	5-2	24. 1	18. 5	7-9	16-2	4-9	11. 8	63. 0
	Good	16	7	5	9. 1	14. 9	4-4	27. 3	14	6-8½	13-1	4-2	12. 9	71. 2
	Fair	9	3	1	13. 7	19. 0	3-5	30. 4	10	5-8	10-0	3-6	14. 1	79. 3
	Poor	5	1	0	16. 5	21. 4	2-11	32. 3	7. 5	5-0½	8-2	3-2	14. 7	84. 2
D	Superior ..	39	17	14	5. 0	8. 9	5-5	22. 8	20. 5	8-2	16-10	5-0	11. 5	60. 3
	Excellent ..	30	13	10	6. 9	11. 4	4-11	24. 7	18	7-6½	15-2	4-7	12. 2	65. 1
	Good	15	6	3	10. 0	15. 6	4-1	27. 8	13. 5	6-6	12-4	4-0	13. 3	73. 3
	Fair	8	2	0	14. 9	19. 8	3-3	30. 9	9. 5	5-5½	9-6	3-4	14. 4	81. 4
	Poor	4	0	0	17. 8	22. 3	2-9	32.	7	4-10	7-10	3-0	15. 1	86. 3
E	Superior ..	38	16	5. 2	9. 2	5-3	23. 2	20	8-0½	16-0	4-10	11. 9	62. 4
	Excellent ..	29	12	7. 2	11. 9	4. 9	25. 1	17. 5	7-5	14-5	4-5	12. 6	67. 3
	Good	14	5	10. 7	16. 2	3-1	28. 2	13	6-4½	11-9	3-10	13. 7	75. 4
	Fair	7	1	15. 8	20. 6	3-1	31. 4	9	5-4	9-1	3-2	14. 9	83. 5
	Poor	3	0	18. 9	23. 2	2-7	33. 2	6. 5	4-8½	7-6	2-10	15. 5	88. 4
F	Superior ..	38	14	5. 4	9. 8	5-0	23. 5	19. 5	7-11	15-3	4-8	12. 5	64. 5
	Excellent ..	29	10	7. 6	12. 5	4-6	25. 4	17	7-3½	13-9	4-3	13. 2	69. 4
	Good	14	4	11. 3	17. 0	3-8	28. 5	12. 5	6-3	11-3	3-8	14. 3	77. 5
	Fair	7	0	16. 7	21. 5	2-10	31. 7	8. 5	5-2½	8-9	3-0	15. 5	85. 7
	Poor	3	0	19. 9	24. 2	2-4	33. 5	6	4-7	7-3	2-8	16. 1	90. 5

Individual Records

To assist physical education instructors, a sample individual record card is printed here. It provides for three separate testings, one at the beginning of the school year, one in the middle, and one at the end. A comparison of the records, scores, and ratings for the three testings will indicate the progress being made.

By consulting the Classification Chart, the exponents for age, height, and weight may

be found. These are added and the "Class" recorded. The events (a decathlon) are listed on the card. Records, achievement scores found by consulting existing achievement scales, and ratings are recorded in the appropriate columns. There being no standards as yet for events 4, 5, and 6, scores have been entered arbitrarily in order to illustrate the total score of 699. With 10 events, place the decimal and one can read the average score of 69.9 which has considerable value in terms of total achievement.

Sample individual record card

Name				Date of birth	Aug. 15, 1927				
School				City					
Test	I		2		3				
Record-Exponent	R	Exp.	R	Exp.	R	Exp.			
Age	15-2	30							
Height	67	32							
Weight	143	23							
Sum of exponents	85								
Class	B								
Date of test	Oct. 1942		Feb. 1943		May 1943				
Events	Rec.	Score	r	Rec.	Score	r	Rec.	Score	r
1. Push-ups	14	36	F						
2. Pull-ups	9	52	G						
3. Bar vault	5-6	73	G						
4. Sit-ups		64							
5. Hanging half-lever		72							
6. Bank twist		84							
7. Potato race	22.2	85	E						
8. Standing broad jump	8-1	73	E						
9. 100-yard dash	11.2	82	E						
10. 440-yard run	60.4	78	E						
Total Score		699							
Average Score		69.9							

Table of standards for girls tests

<i>Rating</i>	<i>Jump and reach</i>	<i>Potato Race</i>	<i>Soccer throw-in</i>	<i>40-yard free style</i>	<i>20-yard free style</i>
Superior	18½'' or more	23.3 or less	48' or more	25.9 or less	11.5 or less
Excellent	18'' to 16½''	23.2 to 25.4	47' to 42'	26 to 31.2	11.6 to 13.9
Good	16'' to 9''	25.3 to 32.2	41' to 24'	31.3 to 47.9	14.0 to 21.6
Fair	8½'' to 7½''	32.1 to 34.0	23' to 19'	48 to 52.9	21.7 to 23.9
Poor	6½'' or less	34.1 or more	18' or less	53 or more	24 or more

Where achievement scales are not available they may be constructed according to accepted methods or the score column can be omitted from the card. The letters recorded in the column marked r (rating) refer to Fair, Good, and Excellent as found in the Chart on Standards.

Tests for Girls

There is a scarcity of authentic, scientific data available on tests for high-school girls. The standards published here represent the best available evidence of satisfactory performance. They may serve as guides to teachers and as incentives to pupils.

In the broad program of physical education, the attainment of standards is but one part. In this program of training for physical fitness, teachers should stress a continuous increase in intensity and duration of participation. As this procedure is followed, improvement in ability will be rapid and new standards will necessarily evolve.

Jump and Reach

Pupil stands facing the wall, toes against same, feet flat on the floor. With a short piece of chalk

in his right hand, and with forearm and hand against wall, pupil reaches as high up as he can and makes a short horizontal chalk mark. Turning through a 90-degree angle with his right side to the wall, the pupil now jumps as high into the air as possible, at the same time reaching up and making a second horizontal chalk mark on the wall as high as possible above the first mark. The vertical distance to the nearest half inch between these two marks constitutes the record. The best of three trials is recorded.

Potato Race

A cube of wood 1½ inches on each side is placed in circle number 2 and another placed in circle number 3. Contestant standing behind the starting circle (number 1), runs to circle number 2, picks up the block, returns and places the block in circle number 1, runs to circle number 3, picks up the block, returns and places it in circle number 1. Contestant then picks up the first block, returns it to circle number 2 and in the same way, returns the second block to circle number 3, after which he returns to his starting point behind circle number 1. The elapsed time in seconds and tenths of seconds is the record for the contestant.

Cautions: Blocks must be carried one at a time. Blocks must be placed and remain clearly in designated circles or the contestant must be stopped and permitted to repeat the test.

Soccer Throw In

Contestant stands with both feet behind a 2-foot starting line with one foot each side of the mid-point of the line.

Holding ball over head with both hands, contestant throws it as far as possible.

The straight line distance from the mid-point of

the starting line to the spot where the ball lands is measured and recorded.

Swimming—20 yds. and 40 yds. free style

(In bathing suits only)

Contestants swim the designated distance at the command, "Go." The time in seconds and tenths of seconds is recorded.

CHAPTER VII

Other Parts of the School Program Which Help in the Development of Physical Fitness

IT IS appropriate to include in this manual of physical education a brief statement concerning some other aspects of the school program which are generally agreed upon as essential for the maintenance of health and therefore for the building of physical fitness.

Control of Communicable Disease

Due to the depletion of available health workers, increased attention should be given to such acute, infectious diseases as scarlet fever, diphtheria, and smallpox as well as to the common cold, tuberculosis, malaria, hookworm, and other diseases.

School procedures important in the control of disease include:

1. Daily observation of pupils, by all teachers for signs of communicable disease.
2. Isolation and exclusion of pupils suspected of having a communicable disease.
3. Cooperation with departments of public health in the control of disease through immunization and other procedures.

Nutrition

In a program of physical fitness nutrition is a basic consideration. Boys and girls must understand the importance of food to health and at the same time realize that in time of war food supplies are uncertain and continuous readjustments have to be made in food practices. Students must be helped to plan for the best diets possible when food supply is limited.

A total school nutrition program will include:

1. Instruction in nutrition for all pupils planned by teachers of different school subjects such as agriculture, health, home economics, physical education, science and social studies working together so that each instructor makes his appropriate contribution to the total program.
2. An adequate mid-day meal for all pupils with provision for supplementary food for pupils who need it.
3. Use of the educational possibilities of the school lunch to give pupils the opportunities and help needed to develop better understandings of the relation of food to physical fitness.
4. Adult education so that parents and other adults will understand the program and close home-school cooperation will be possible.
5. Provision for coordinating all phases of the program.

Healthful Environment

A few illustrations of environmental conditions at school affecting health which need periodic checking are:

1. Proper lighting, heating, ventilating, and screening.
2. Provision of sanitary and adequate drinking, washing, and toilet facilities.
3. Proper adjustments and arrangements of desks and seats.
4. Safety provisions in building and equipment.

Health Guidance

Health guidance involves:

1. Continuous observation of students by teachers to detect changes in physical or mental conditions which may require attention. Whenever necessary, making recommendations for medical consultation.
2. Interviews with individual students and their parents regarding the student's health.
3. Health examinations.

4. Correction of defects.
5. Readjustments in the school and home program to meet health needs of students.
6. Cooperation with public health authorities and the medical profession in securing medical care of the needy.

The combined efforts of parents, school administrators, teachers, physicians, and nurses are necessary for the recognition of student health needs and for adequate assistance in the maintenance and improvement of health.

Health Teaching

There never was a time when students were more teachable in matters of health than at the present. Today they are particularly interested in problems connected with their own fitness for service in the armed forces

and war production. They also are concerned with school and community problems which they may help to solve in war service activities. These interests may form the basis for much worth-while health teaching.

Special teaching possibilities exist in such classes as agriculture, English, home economics, physical education, science, and social studies as well as in regular health classes or in homeroom and other school programs. The more closely this teaching is related to the daily life of the students, the more vital and effective it will become.

* * * * *

Details concerning these aspects of the program will be dealt with in subsequent publications of the U. S. Office of Education.

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GLOSSARY

Dimension

The amplitude or size of a movement, e. g., a large circular sweep of the arm; a circular twist of the wrist. Dimension, direction, and level are the basic space factors of movement.

Direction

The line or course upon which one moves or to which one is pointing or looking, e. g., (1) walking forward, sideward, backward show simple direction of movement. (2) Looking sideward as one walks forward shows direction of gaze as well as movement.

Dynamics

The amount of force or stress used in a movement. A series of movements may be constant in dynamics and located at any point on a scale or it may be changing from very light to very strong.

Level

Altitude. Movement can be performed at various levels such as crawling on the floor, ordinary walking, and leaping. The boundaries of level may be extended by one person lifting another. Level, direction, and dimension comprise the basic factors of movement.

Meter

The division of a musical composition into measures according to a uniform grouping of rhythmical beats or time units. Also called *time*, 4/4, 3/4, 6/8. Music may change meter within a single composition according to any plan the composer devises, e. g., 3 measures of 3/4 meter followed by 1 measure of 4/4 time. Movement may follow this same principle.

Phrase

A short clause or portion of a musical composition embracing two or more measures terminated by a cadence and forming a separate group or idea. Technically a phrase is 4 measures in length but may vary greatly. Movement phrases also vary in length. Phrase lengths in movement should be established by the requirements of the movement and not be forced to coincide with the set phrases of the classic period of music.

Tempo

Rate of speed. The rate may be constant or gradually moving faster or slower.

Time

See *meter* above. Used synonymously with meter. Not to be confused with tempo. Teachers frequently ask accompanists "to play in a faster time" when they really mean tempo.

APPENDIX A

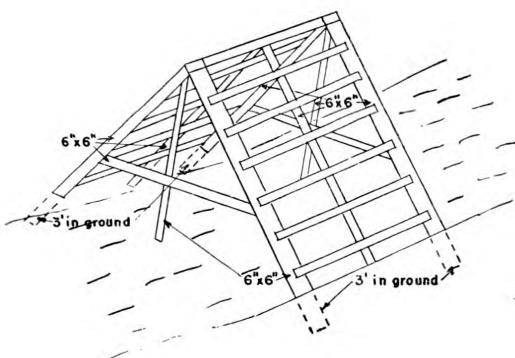
Military Obstacle Courses

LADDER
Inverted "V"

Width — 10 feet
Height at apex — 7 feet
Length of base — 14 feet

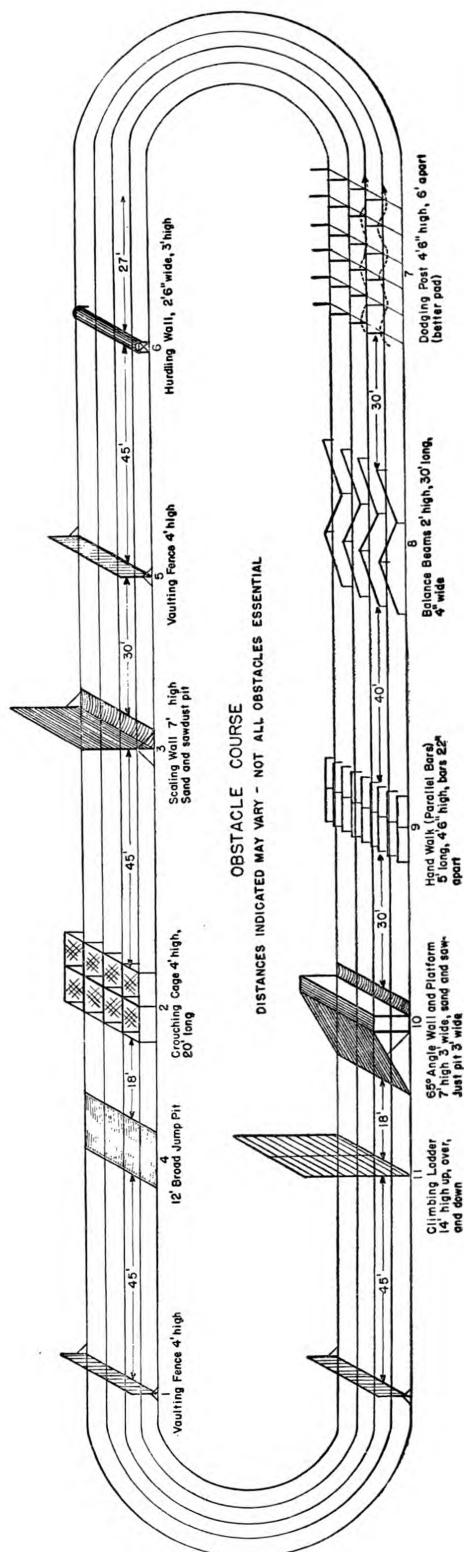
This obstacle has the shape of a roof with the apex approximately a right angle.

The rungs, made of 2"x4" pieces should be eighteen (18) to twenty-four (24) inches apart.

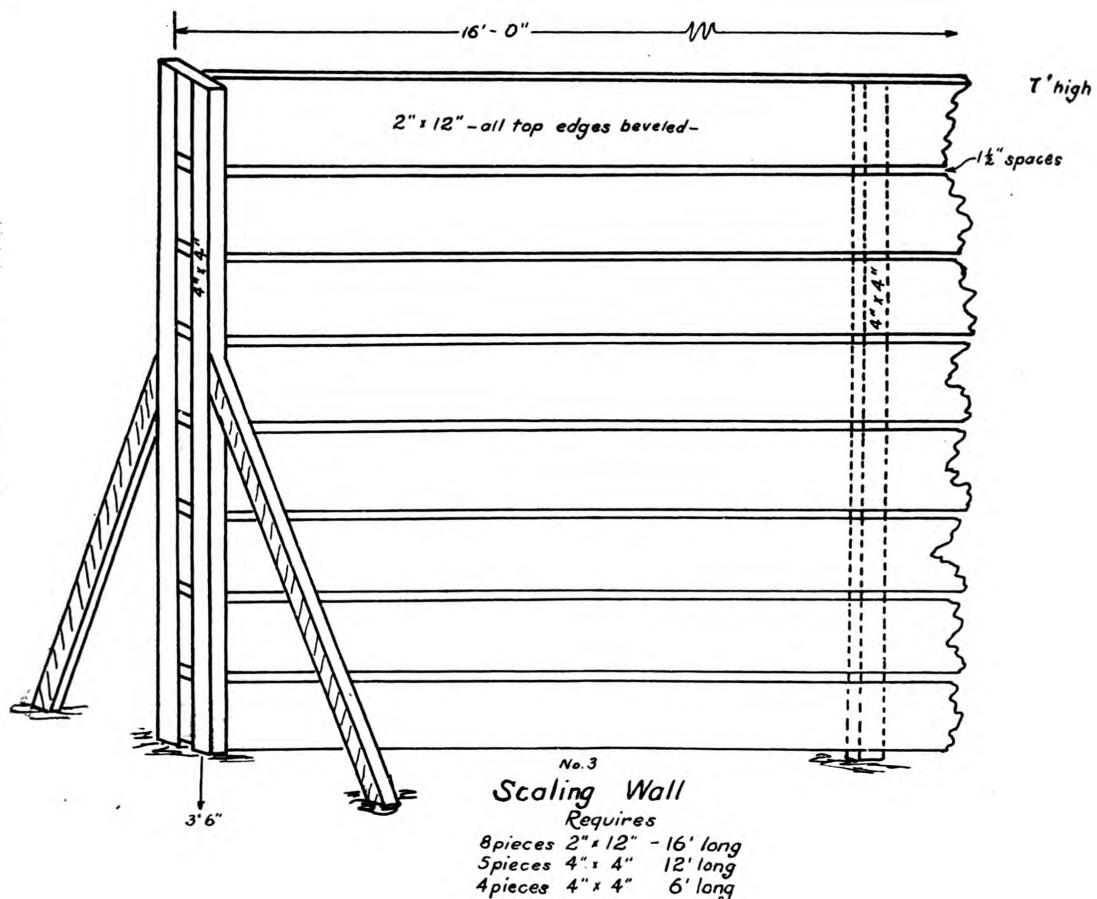
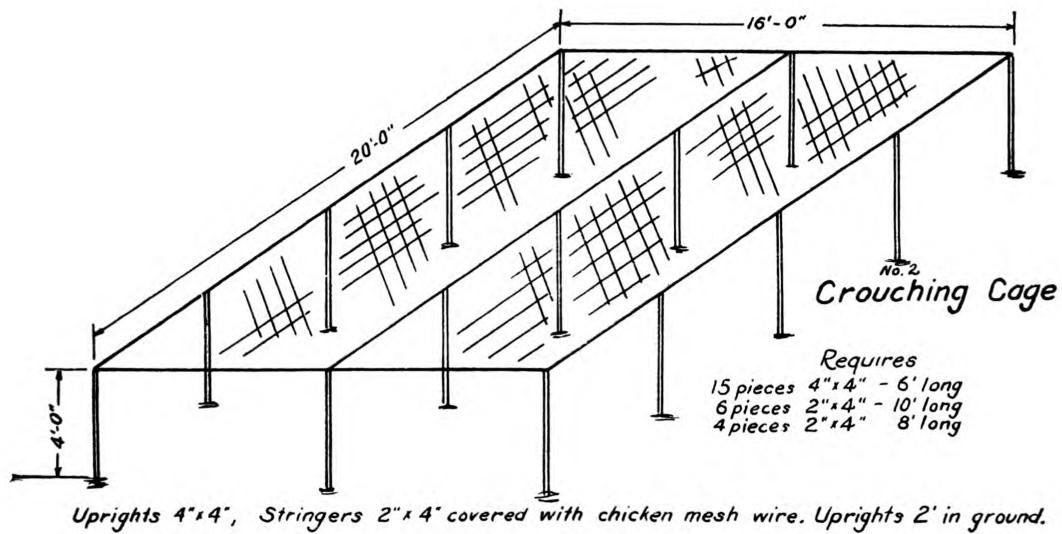


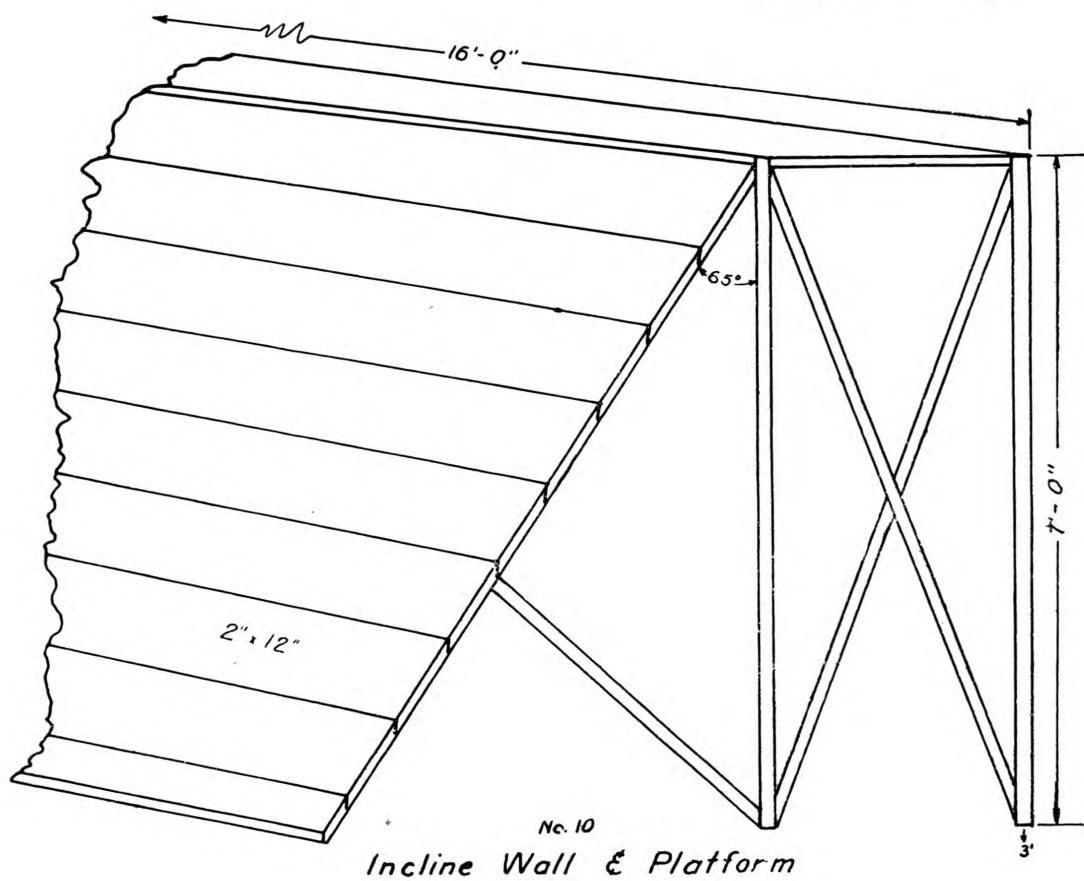
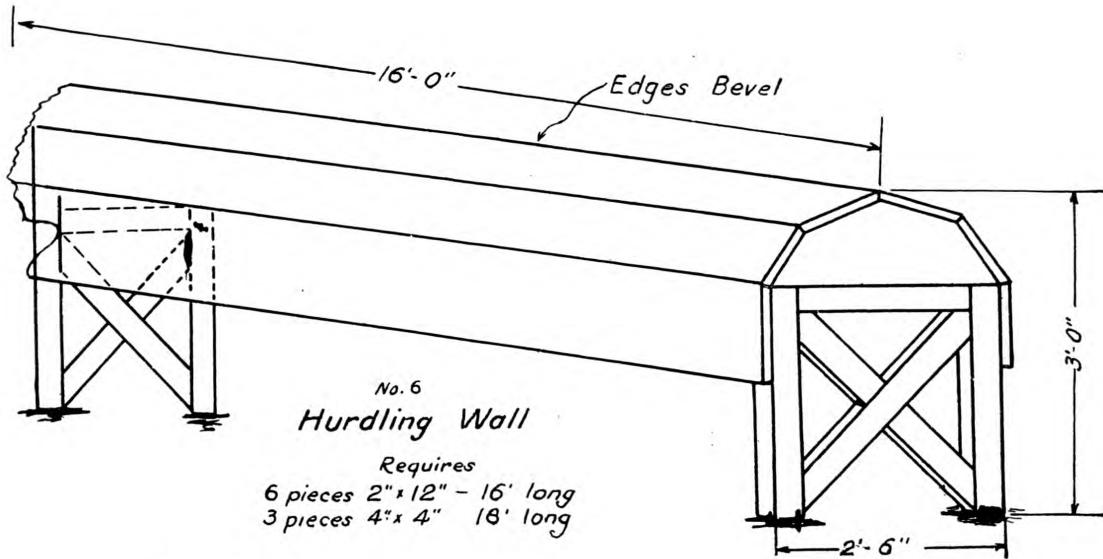
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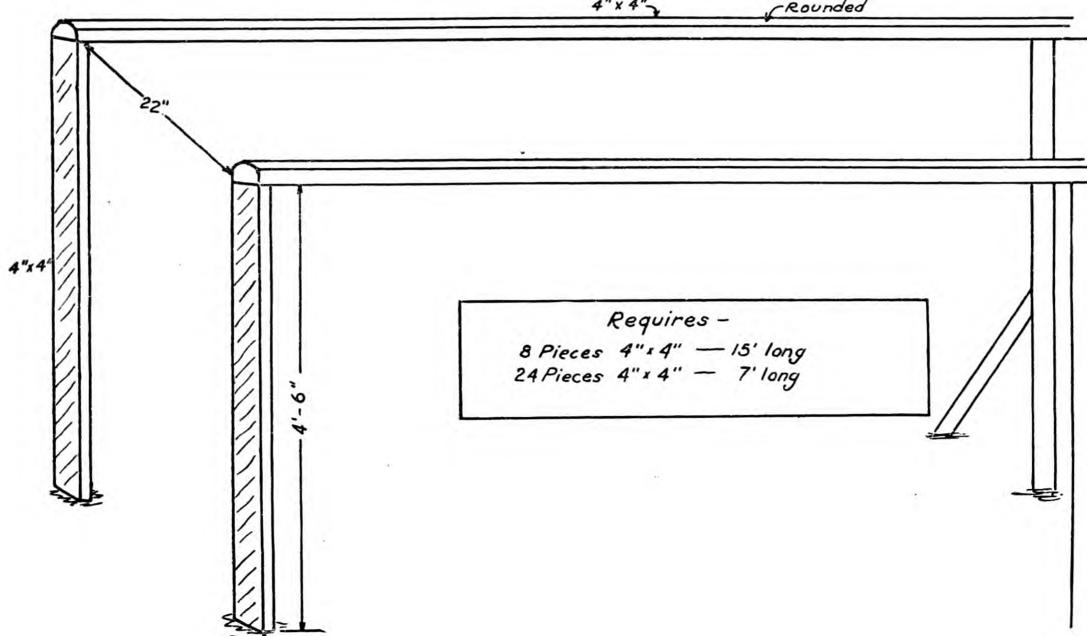
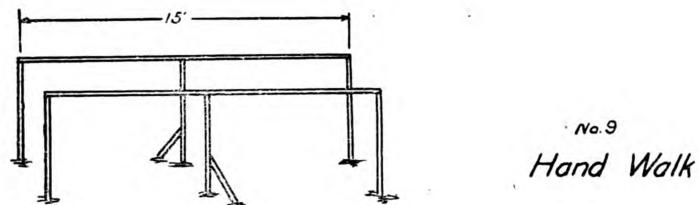
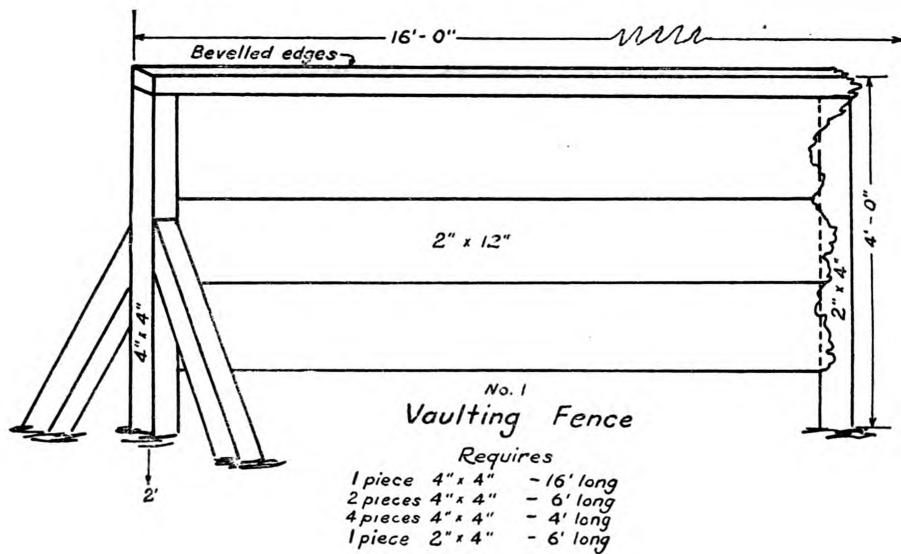


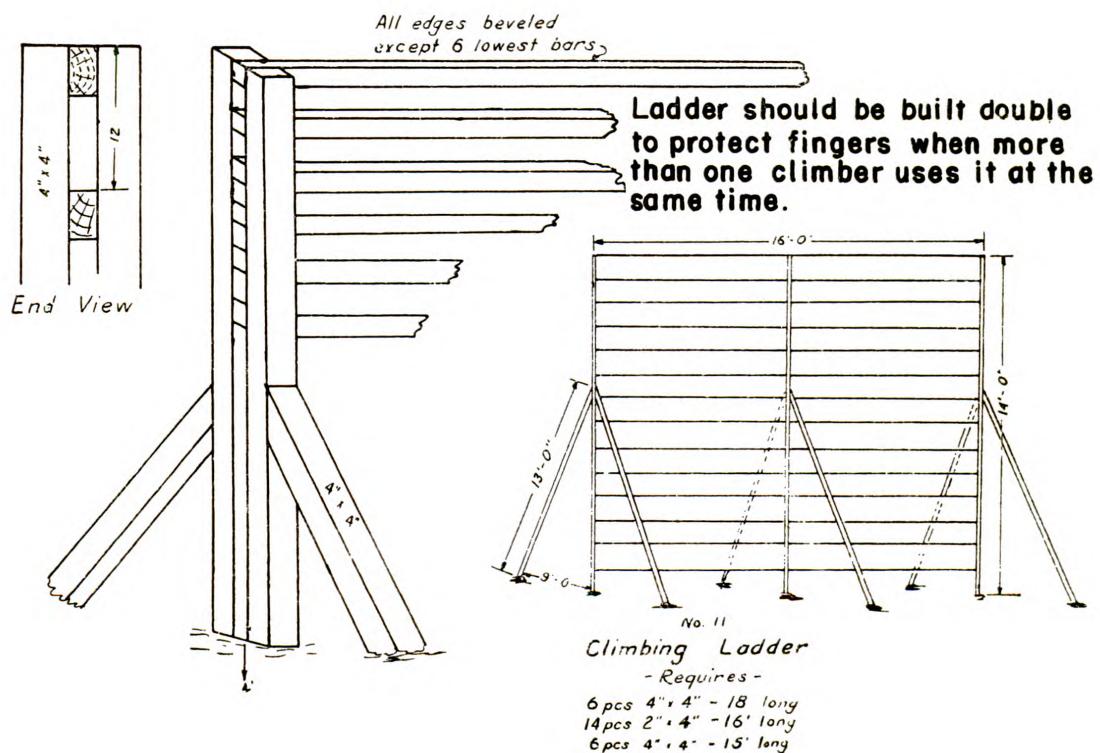
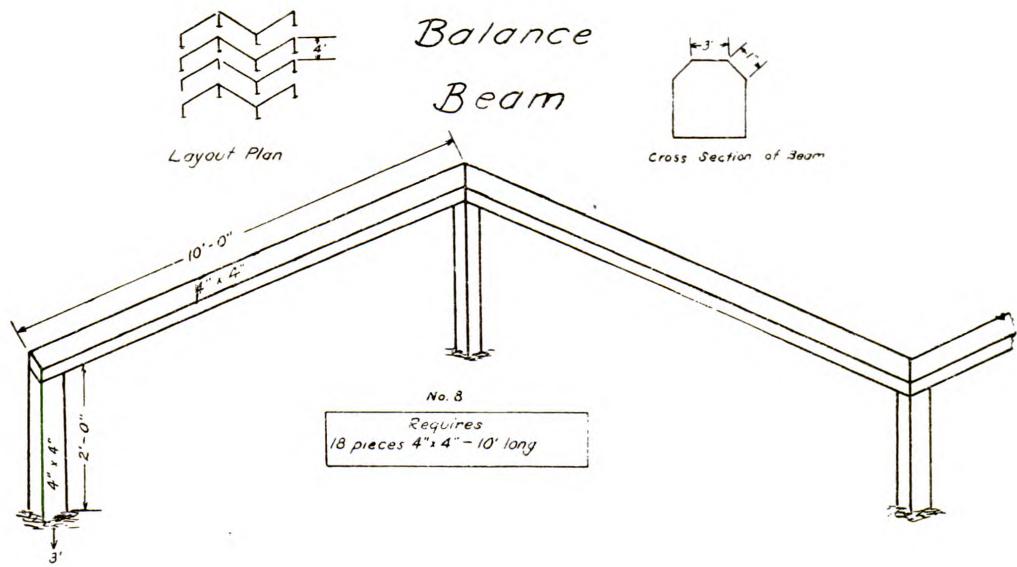
DEPARTMENT OF PHYSICAL TRAINING
SOUTH EASTERN AIR CORPS TRAINING CENTER





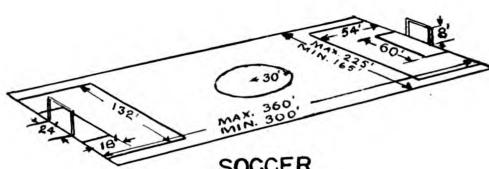
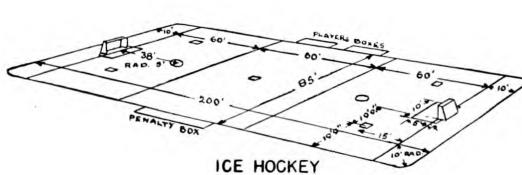
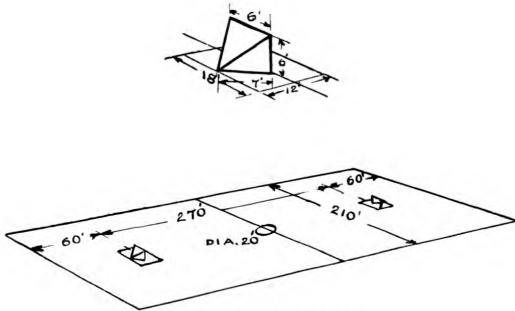
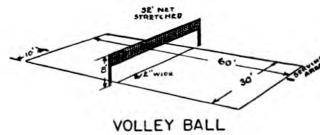
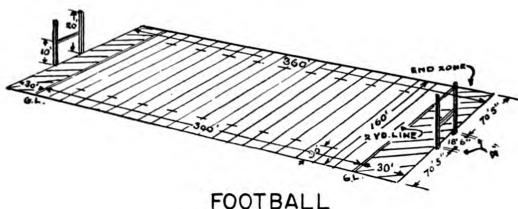
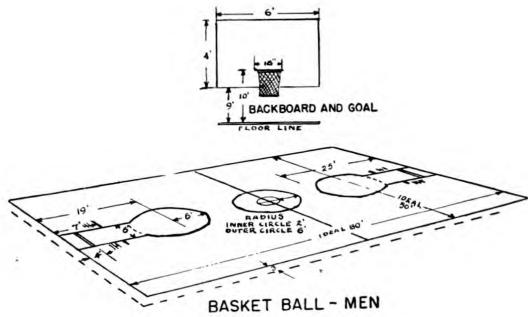
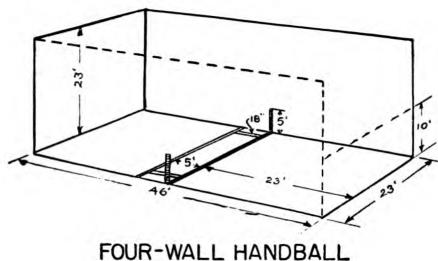
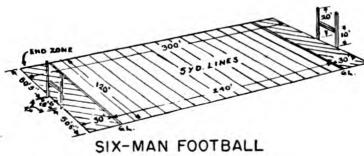
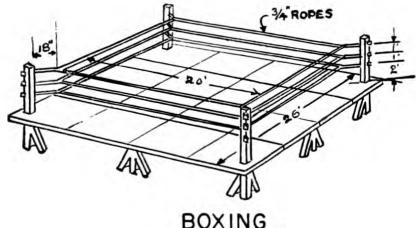
- Requires -
 12 pieces - 2"x12"- 16' long , 2 pieces 4"x 4"- 16' long
 13 pieces 2"x 4"- 10' long , 4 pieces 4"x 4"- 12' long
 6 pieces 4"x 4"- 8' long

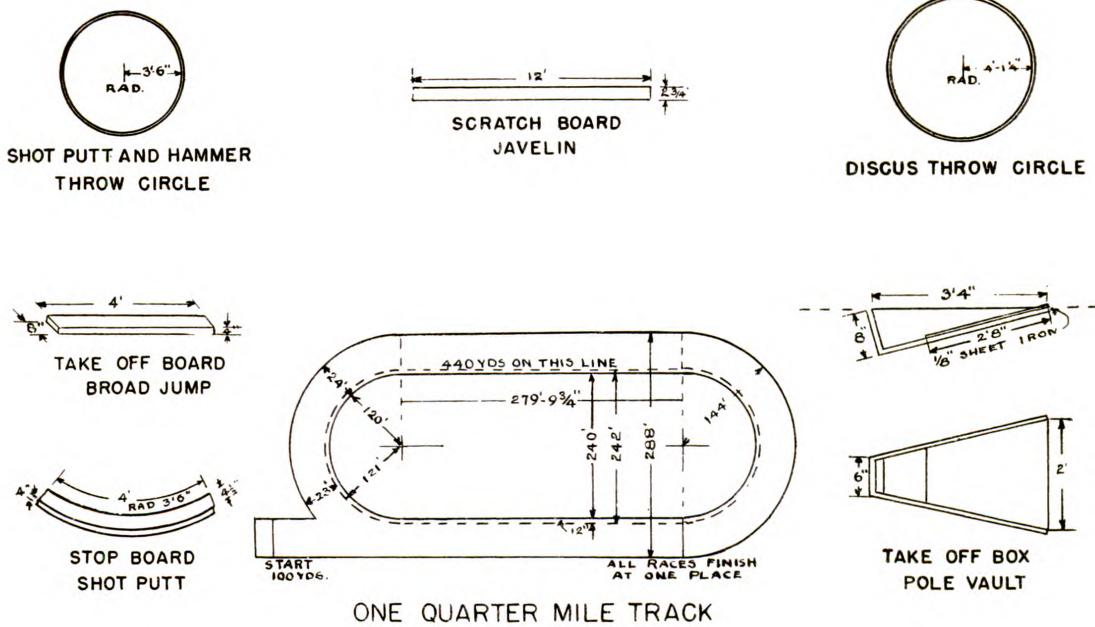




APPENDIX B

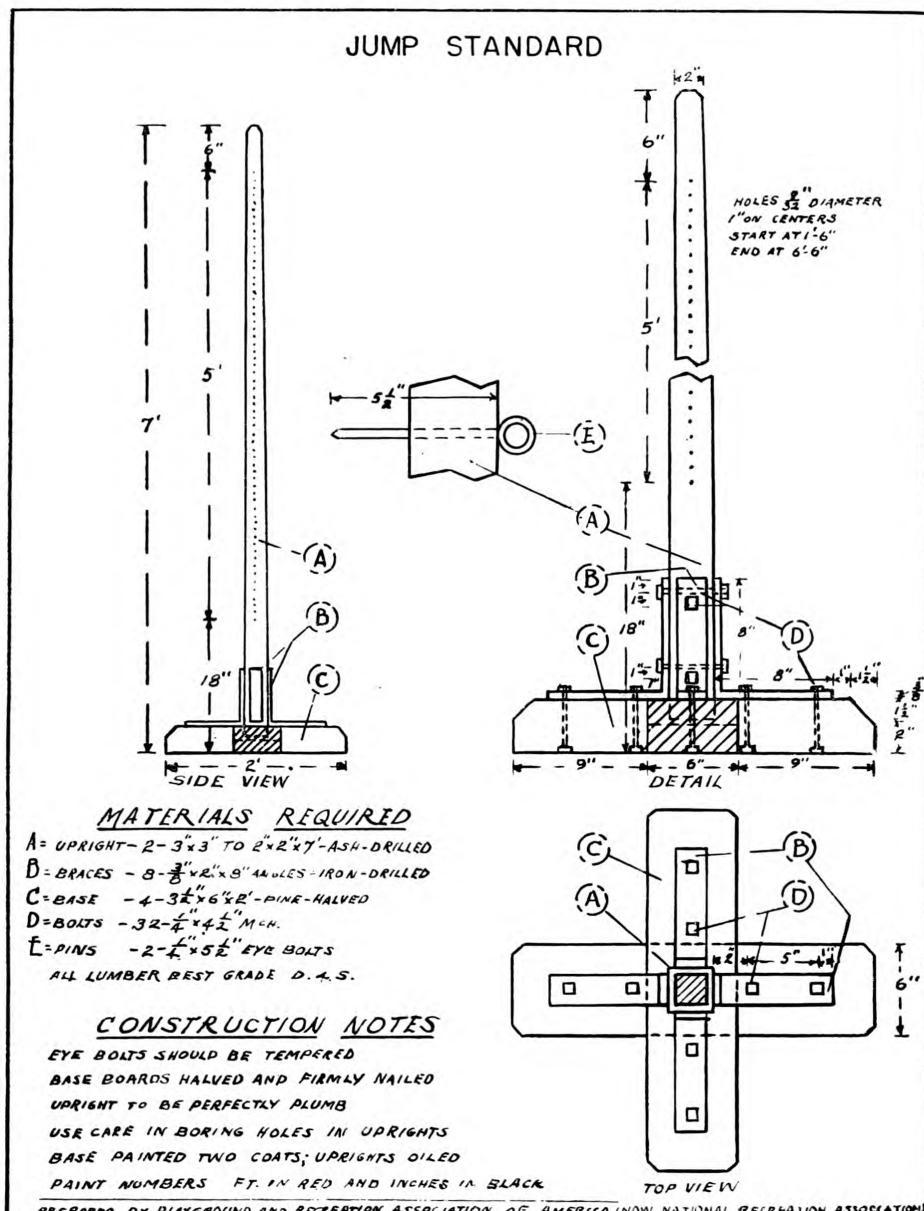
Plans for Athletic Fields and Courts



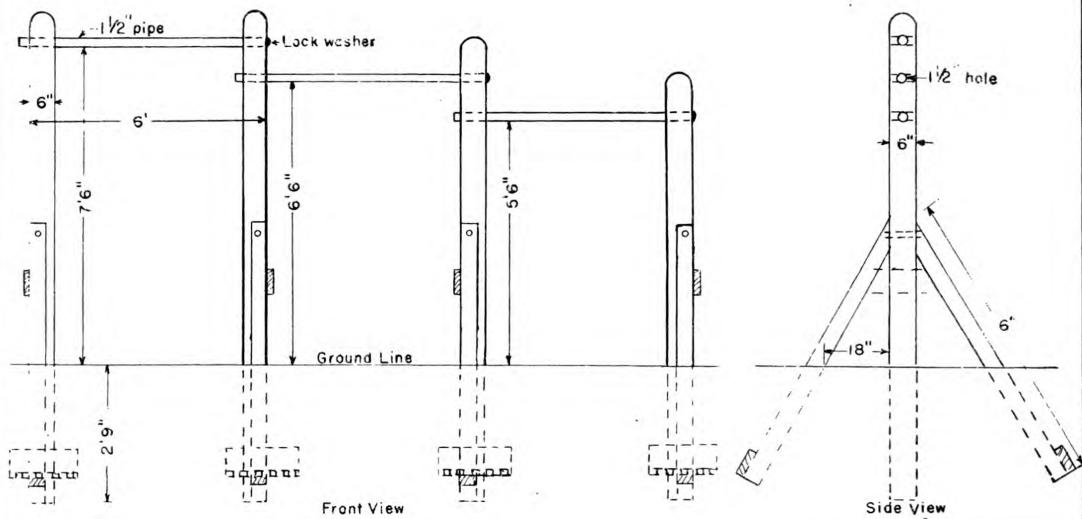


APPENDIX C

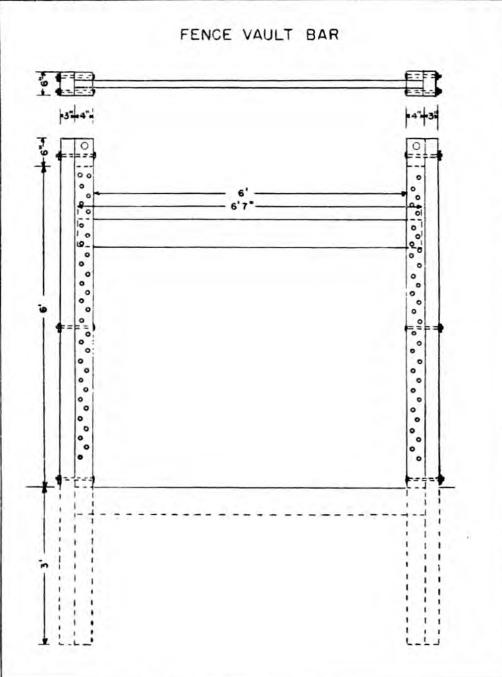
Home-made Apparatus



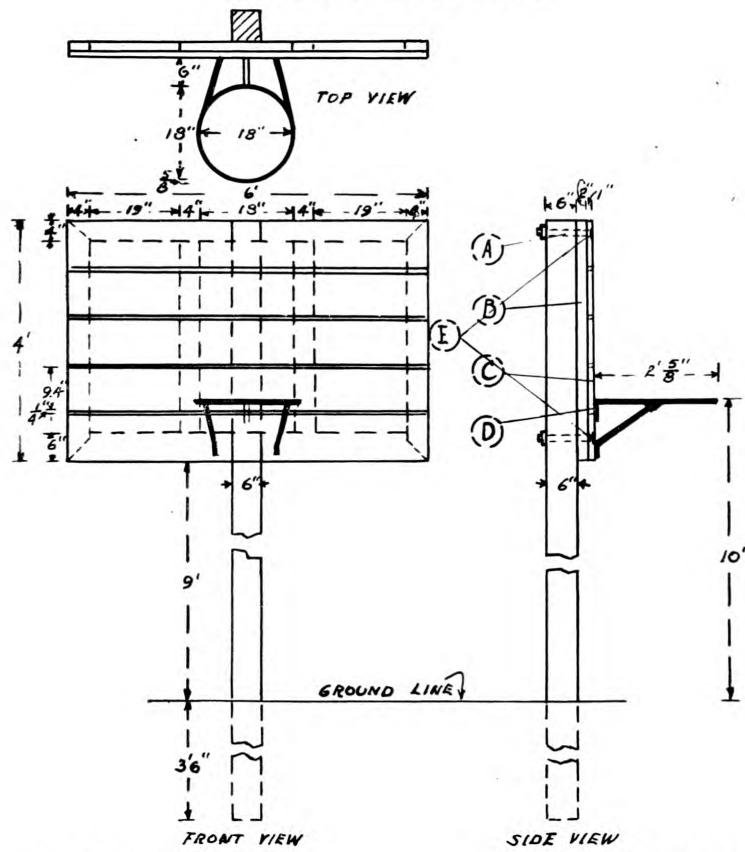
HORIZONTAL BAR



FENCE VAULT BAR



BASKET BALL GOAL



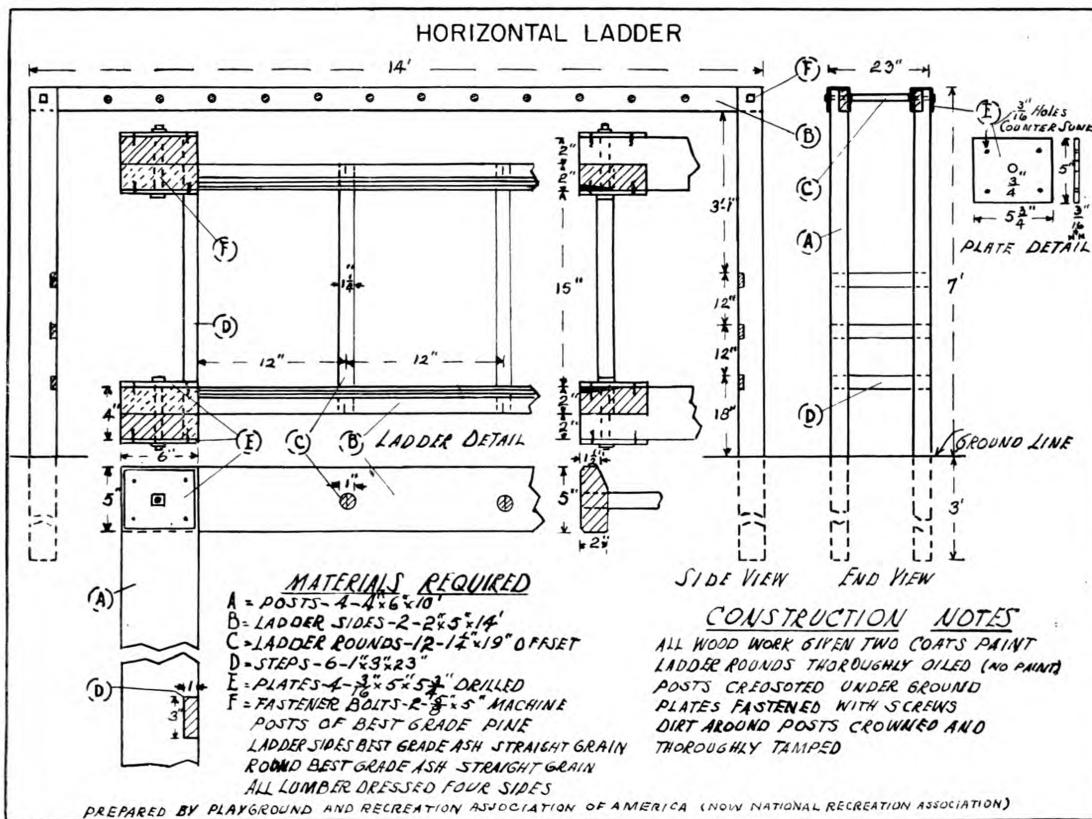
MATERIALS REQUIRED

A=POSTS-2-6"x6"x16'6"
 B=FRAME BOARDS-2-2"x4"x6'
 4-2"x4"x4'
 4-2"x4"x3'2"
 2-2"x6"x6'
 C=FACE BOARDS-10-1"x9.9"x6'
 D=GOAL RINGS-2-REGULATION
 E=FASTRNER BOLTS-4-3/8"x9 1/2" MCH. COUNTER SUNK
 LUMBER BEST GRADE PINE D.A.S.

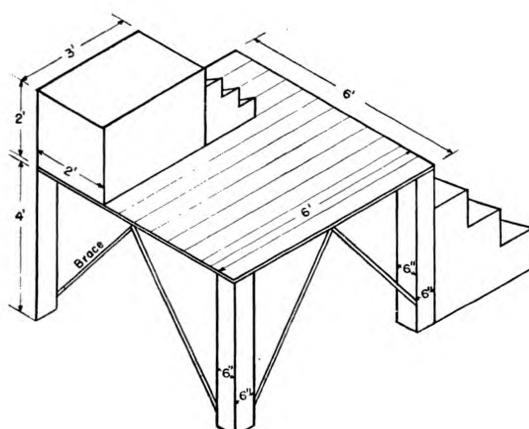
CONSTRUCTION NOTES

LUMBER ABOVE GROUND TWO COATS PAINT
 POSTS UNDER GROUND CRROSSOTED
 OPEN JOINT BETWEEN FACE BOARDS $\frac{1}{8}$ "
 CORNERS AND EDGES SLIGHTLY BEVELED
 FACE BOARDS FASTENED WITH LARGE SCREWS
 RINGS FASTENED WITH $\frac{1}{4}$ " CARRIAGE BOLTS
 USE $\frac{3}{8}$ " IRON PLATES FOR WASHERS
 2 HEAVY LARGE WASHERS EACH FASTRNER BOLT

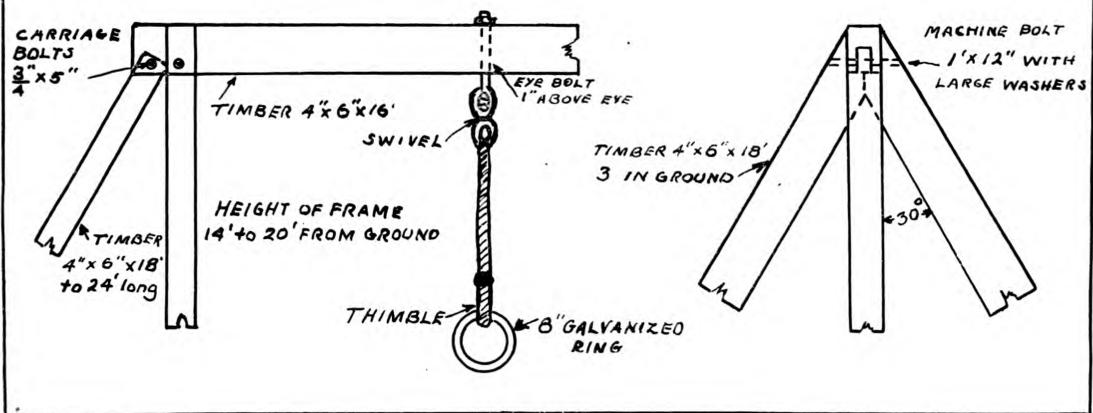
PREPARED BY PLAYGROUND AND RECREATION ASSOCIATION OF AMERICA (NOW NATIONAL RECREATION ASSOCIATION)



PLATFORM FOR USE BY LEADER OF EXERCISES AND
FOR PRACTICE JUMPING FROM SIX-FOOT HEIGHT



FRAME FOR TRAVELING AND FLYING RINGS, CLIMBING
AND SWINGING ROPE, CLIMBING POLE



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