DOCUMENT RESUME

ED 131 638 EC 091 851

TITLE	Testing for Impaired, Disabled, and Handicapped Individuals.
INSTITUTION	American Alliance for Health, Physical Education, and Recreation, Washington, D.C.
SPONS AGENCY	Office of Education (DHEW), Washington, D.C.
PUB DATE	[75]
GRANT	OEG-0-72-5454-233563
NOTE	106p.
AVAILABLE FROM	American Alliance for Health, Physical Education and Recreation, 1201 Sixteenth Street, N.W., Washington, D.C. 20036 ($3.95)
EDRS PRICE	MF-$0.83 Plus Postage. HC Not Available from EDRS.
DESCRIPTORS	*Developmental Tasks; Elementary Secondary Education; *Handicapped Children; *Mentally Handicapped; *Perceptual Motor Coordination; *Physical Fitness; Preschool Education; *Testing; Test Interpretation; *Test Reviews; Test Selection

ABSTRACT

Intended for individuals working with the handicapped, the guide provides information about physical fitness tests, perceptual-motor scales, and developmental profiles. Covered in an introductory section are the rationale and relevance of testing, basic concepts about tests, interpretation of test results, adapted physical education programs, and ways to stimulate performance improvement. Testing information is divided into four main sections: physical fitness concepts, considerations, and tests; motor ability, perceptual-motor development, and psychomotor tests; developmental profiles; and locally developed assessment devices. Brief summaries are provided for each test which include information about where the test is available, specific characteristics of the test in terms of what is measured and how it is measured, administrative considerations, and general comments. Among the tests examined are the following: Kraus-Weber Tests of Minimum Muscular Fitness, Basic Motor Abilities Test for Retardates, Physical Ability Rating Scale, Kindergarten Auditory Screening Test, Denver Developmental Screening Test, Sensory-Motor Training of the Profoundly Retarded, Psychomotor Function in the Mentally Retarded. Also provided are summary charts for evaluating specific strengths and weaknesses of individuals. (SBH)

TESTING FOR IMPAIRED, DISABLED AND HANDICAPPED INDIVIDUALS

The project presented or reported herein was performed pursuant to a Grant from the U.S. Office of Education, Department of Health, Education and Welfare. However, the opinions expressed herein do not necessarily reflect the position or policy of the U.S. Office of Education, and no official endorsement by the U.S. Office of Education should be inferred.

Project No. OEG-0-72-5454-233563

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ACKNOWLEDGEMENTS

Individual commitment to a group effort—That is what makes a team work, a company work, a society work, civilization work.
Vince Lombardi

Wholehearted cooperation and contributions of many talented people went into planning, development, and realization of this guide on *Testing for Impaired, Disabled, and Handicapped Individuals*. Willingness of many individuals who gave of themselves unselfishly and shared ideas and information about locally developed assessment scales was vital to this effort. Individuals in a variety of positions, from different program settings identified needs, problems, and priorities to provide guidance and direction for those who worked on this publication. Each member of the Information and Research Utilization Center in Physical Education and Recreation for the Handicapped (IRUC) staff contributed in terms of specific duties and responsibilities—Dolores M. Geddes, Program-Research Associate; Wanda L. Burnette, Administrative Program Assistant; Mary Jane Freeman and Terry Ames, staff secretaries. Special thanks and appreciation are extended to Claudia McQueeney who waded through draft hieroglyphics and typed the final manuscript. Bill Cooper, Director of AAHPER Publications, and his staff assisted with certain technical tasks in producing the final document.

Very special thanks, gratitude, and a sincere well done are reserved for the two individuals who did the lion's share of work in developing this guide:

- Howard Sorrell, Physical Education Teacher, Barrett Elementary School, Arlington, Virginia, planned and developed most of the projects, did a great deal of the initial research, collected data, organized materials, and wrote preliminary summaries about tests and related instruments.
- Lowell Klappholz, Editor, *Physical Education Newsletter*, Old Saybrook, Connecticut, completed preliminary stages of the project, wrote and edited the final manuscript, and saw the project through to its successful conclusion.

Teamwork displayed by each person involved in this project is indicative and exemplary of the type of cooperation being shown in physical education, recreation, and related areas for impaired, disabled, and handicapped persons all over the country.

With this kind of giving of one's self and abilities, countless individuals with various handicapping conditions are being afforded new and exciting programs and opportunities in these areas that promote a high quality of life worth living. These then are the ones who gain the most and are real winners from this venture. To each who made this possible, thanks, Godspeed, and well done.

Julian U. Stein
Director

PREFACE

A difference is a difference
only when it makes a difference

This guide is designed to provide information about physical fitness tests, perceptual-motor scales, and developmental profiles for use with impaired, disabled, and handicapped persons so that valid and informed decisions can be made in selecting instruments for prescriptive and diagnostic purposes. In this guide *you* will find:

- A general introduction to a philosophy of and rationale for testing.
- Background information to help in selecting tests and in devising instruments based on the best individual components of standardized batteries.
- Brief summaries of various *physical fitness tests, psychomotor (perceptual-motor) scales,* and *developmental profiles*; each summary contains information about where the test is available, specific characteristics of the test in terms of what is measured and how it is measured, administrative considerations, and general comments.
- Representative ways that school districts, state education departments, residential facilities, and hospitals have devised to score, record, and tabulate both individual and group results of various measuring devices.

This guide does not include information about sports skills tests since they are beyond its stated purpose. However, skills tests can be used effectively by persons teaching, coaching, and working with impaired, disabled, and handicapped individuals and groups. The American Alliance for Health, Physical Education, and Recreation (AAHPER), other interested organizations, and publishers have prepared manuals, guides, and tests dealing with skills in sports and games such as football, basketball, baseball, softball, volleyball, swimming, tennis, golf, and track and field.

This guide is designed to help *you* select tests, scales, or profiles that accurately assess levels of physical fitness, perceptual motor function, and overall develop-

ment of individuals *you* teach and help. Selective use of summary charts can be helpful as you devise items and batteries to evaluate specific strengths and weaknesses of persons entrusted to your care. This guide should aid *you* in obtaining information for diagnosing and prescribing activities and programs for individuals with a variety of handicapping conditions.

TESTING—AN INTRODUCTION TO ITS VALUES AND USES

No equation can define the quality of life,
No instrument record it, no computer conceive it—
Only bit by bit can feeling man's love retrieve it.

Many physical educators, special educators, and others who work with impaired, disabled, or handicapped persons use tests as a drunk uses a lampost—for support rather than illumination. Too many educators in every sphere of every discipline fail to realize that a test in itself is not important—how it is used is all that really counts. It does no good and makes no sense to administer a physical fitness test, perceptual-motor scale, or developmental profile and then stick results in a drawer until the next year or until the test is administered again. A testing program can only be effective when:

- Teachers, directors, volunteers, parents, and others who work with students in a variety of school and residential facility situations use test results for remedial purposes, grouping, diagnosis, prescription, and to plan overall educational programs for each individual with whom they work.
- Educators know exactly what each test item measures, what results mean in general, and what they mean for specific youngsters.
- Educators, volunteers, and staff members know where each youngster started in addition to his present status.
- Results are used as a guide in planning program revisions for a school or residential facility as well as for classes or individual youngsters on the basis of strengths and weaknesses revealed by test scores.

- Performance on standardized tests is used as a guide for assigning boys and girls to corrective, remedial, and developmental programs and activities as needed.

- Test results are used to motivate and challenge youngsters to improve their levels of performance. This is one of the most important—and often overlooked—uses of tests and standardized instruments.

- Personnel involved in the testing process discuss results with others who know and work with youngsters in a variety of situations—*test results cannot and should not be used in a vacuum*. When knowledge, information, and data about each youngster's functional ability, developmental level, and life style are pooled, effective use of test results and relevant diagnostic and prescriptive teaching are more likely to occur.

- Educators and administrators supplement formal testing techniques with informal procedures and observation of youngsters in a variety of situations—in school, out of school, on the athletic field, and in informal play situations.

- Professional and nonprofessional personnel working with youngsters of all ages recognize the effect of each individual's total experience and outlook-motivation, social pressures, previous experiences, understanding of test items, self-confidence, competitiveness, cooperativeness, pride, and self-image—on motor proficiency, physical fitness, and perceptual-motor development as reflected by test scores and screening instruments. Research and empirical evidence indicate that these factors can contribute as much as 50 or 60 percent to these scores.

- Persons responsible for the overall program know and understand the significance of test results. Analysis of each fitness, motor skill, or perceptual-motor test item provides information about an individual's ability to perform a specific task at a given time under one set of circumstances. When a teacher or other responsible individual finds weaknesses in a youngster's ability to performing similar motor tasks or physical activities, he has a better idea of functional problems and developmental levels. An individual who does poorly on pull-ups, push-ups, resistance activities involving lifting, pushing, and pulling movements shows signs of weak arm and shoulder strength and endurance. When the instructor observes that the same youngster seldom swings or hangs on playground apparatus and cannot throw a ball far, he has additional information to guide him in providing suitable activities and exercises to strengthen arms and shoulders.

- Teachers combine test results and overall knowledge of a youngster's physical, mental, and emotional condition to understand more fully cause and effect relationships. Often different youngsters with identical symptoms and similar test results only appear to have identical problems. Consider these two examples:

  Johnny can't hit a softball. Is it because he does not understand the mechanics of holding a bat? Could his problem be that he has poor visual acuity, or cannot track the ball from the pitcher to home plate, or has difficulty distinguishing an object from the ground when the object changes positions rapidly? Could it be an emotional problem—he doesn't like to hit anything, even a ball with a bat? Could it be social—he doesn't want to be on a team away from his friends? Could Johnny simply dislike softball?

Mary can't read. Is it because she can't distinguish shapes? Does she have laterality or directionality problems that show up in an inability to distinguish sides of the body, relationships between body and objects in space? Could acuity, tracking, reversals, or other visual problems be a cause? Or is interest (or lack of interest) in the reading materials themselves the culprit?

Johnny and Mary need help and individual attention based on the cause of their learning problems. Effective individualized instruction must deal with the characteristics of the learner, his learning style, reasons he is having problems, and the material itself.

Testing and Relevance

Evaluation of performance, achievement, and progress must be part of every relevant physical education program regardless of age, overall ability, or physical fitness level of each participant. Testing and evaluation are important motivational devices that can challenge youngsters; they can be keys for assessing and diagnosing individuals strengths and weaknesses. Diagnostic and prescriptive teaching requires a variety of approaches and techniques. This process can only be as good as the testing instruments themselves and ways in which instruments are used and results interpreted. Each youngster's needs and benefits of participating in physical education activities and programs can be evaluated efficiently by an overall assessment approach which includes:

Informal techniques—observation of student performance, self-testing activities, exploration activities; discussions with students, professionals, and volunteers who work with students; use of rating scales, checklists, inventories, questionnaires, and screening activities.

Formal techniques—tests of perceptual-motor functions, coordination, gross motor ability, fine motor ability, fine motor skills, physical fitness, cardiorespiratory function, anthropometric characteristics, and specific sport skills.

Developmental measures—tests for intelligence, learning ability, academic achievement, social-emotional behavior, speech, perception, adaptive behavior.

Tests, examinations, and assessments by experts—results of evaluations and assessments of specialists, made available to those who teach physical education.

Individual records—data collected about each child organized for use by personnel involved in physical education programs. Time should be allotted for specialists who have evaluated youngsters to meet together and with teachers to discuss appropriate activities and approaches that will meet individual student needs.

A testing program that puts it all together incorporates devices from each of the categories listed above. Teachers should be aware of weaknesses of formal test batteries. They should therefore test and interpret results in terms of student needs.

In planning a new testing program or in revising an existing one, do not overlook the importance of visual evaluation (20/20 assessment) based upon critical observation, knowledge of the youngsters, and professional judgment. This is particularly true at lower age levels where evaluation of specific aspects of physical education programs can be determined from observing activities and by checking the ability of boys and girls to perform specific tasks. A carefully developed progressive sequence of activ-

ities provides built-in indications of student needs, achievement, progress, strengths, and weaknesses.

Instructors should also recognize that:

- Some youngsters do well on skills, fitness, and motor ability tests but perform poorly in games and activities in which these skills are applied. Others do poorly on tests and perform well in games and in real life situations.
- Formal tests and evaluative situations affect youngsters differently, causing some to exceed their true capabilities and others to score below their potential. Attention must be given to assessing, diagnosing, and evaluating student needs and achievement in situations that are significant and important to youngsters themselves.

Basic Concepts About Tests

Virtually all physical education tests are administered on the premise that specific items reflect general characteristics and results of performances on these motor tasks can be generalized to other physical activities. Yet, research in physical education and psychology over the past 50 years reveals little relationship among fine motor acts and between gross and fine motor activities. Furthermore, evidence indicates that:

- Little correlation exists between test items designed to measure gross motor coordination and performance of gross motor tasks. Findings consistently support the thesis that motor acts and tasks are specific and transfer from one act or task to another occurs only when muscles and muscle groups are used identically in two or more tasks.
- Even basic physical fitness characteristics and traits such as strength, endurance, and power transfer only in terms of similarity among tasks. Muscular strength and endurance developed through weight lifting contribute to performance in specific physical activities to the degree that training promotes movements at the same angle and through the same range of motion as the activity for which training is designed. Since a shot putter puts the shot at a 45-degree angle, weight training programs that emphasize press movements at that angle are more effective than more conventional press movements.
- Psychological and social factors associated with programs, activities, and people influence transfer from one physical or motor task to another more than the mechanics of activities, physical patterns, or the movements themselves. Success, personal satisfaction, progress, and *fun* are all contagious and promote positive attitudes from one situation to another.

Obviously it is difficult—if not impossible—to come up with valid conclusions regarding a youngster's arm and shoulder strength and endurance based on a single test item such as pull-ups or push-ups. However, there is just cause for concern regarding deficiency in arm and shoulder strength and endurance if a youngster performs poorly on push-ups, pull-ups, bar hangs, bar dips, a variety of climbing and swinging activities, and is unable to throw a ball a reasonable distance. The same overall comments might be made in terms of other fitness components such as balance, flexibility, power, abdominal endurance, coordination, and cardiorespiratory endurance. Some school districts now give two or three test batteries every year to obtain a better overall picture of each youngster's proficiencies and deficiencies in all physical fitness components. Also, even though little transfer is apparent in perceptual-motor

activities, basic motor skills and sport skills, there is still some validity in administering single physical fitness and/or perceptual-motor test batteries if teachers:

- Combine test results with overall knowledge of each youngster.
- Validate test findings by asking each student to perform various activities related to specific test components to determine if performances on related activities correlate with performances on specific test items.
- Set up remedial, corrective, and developmental programs that include activities and exercises designed to overcome deficiencies noted on tests and observed when validating test findings or checking hunches.
- Recognize the importance of non physical/motor factors that influence test results.
- Remember that children perform differently. They not only have different learning rates but master various materials and concepts at different rates of speed. Each grows at his own pace. Averages, norms, and percentiles should be used as guides and not as absolutes.
- Know exactly what various tests and specific test items purport to measure and how to use along with other instructional devices to assess student ability, prescribe procedures for improvement, and provide each child with learning experiences most appropriate for him.

Translating Test Results To Instruction

The real value of a testing program is determined by what it tells teachers about students—confirms suspicions or opinions, proves hunches, affirms previous assessments, validates diagnoses, identifies deficiencies and problem areas, and offers clues to preventive action—and instructional strategies. Some ways in which teachers and others who work with impaired, disabled, and handicapped youngsters can use test results to plan instructional programs are:

- Set up teams or squads so that youngsters can be grouped for various physical activities according to test results—each child's assignment is based on his performance on specific tests or test items; groups are changed as activities change. These groups can be homogeneous or heterogeneous with teachers and other responsible adult instructors selecting youngsters with specific proficiencies to serve as group leaders or peer teachers.
- Use nongraded techniques in which youngsters are grouped according to achievement and proficiency regardless of age or grade—a youngster might be at level six for tumbling, nine for ball skills, and eleven for archery. Obviously, youngsters can work at different levels in various physical fitness or perceptual-motor activities.
- Introduce station or circuit approaches in which a variety of centers emphasize different activities involving special components of physical fitness or perceptual-motor development. In circuit training youngsters rotate from station to station at set intervals based on factors such as time or number of repetitions. In station training youngsters spend more time at each station and may take several class periods to complete all activities. In either case, each individual is challenged according to his ability level, has a chance to succeed, improve, and achieve, and knows the joy of accomplishment.

- Experiment with approaches in which impaired, disabled, and handicapped youngsters have opportunities to serve as squad leaders, students assistants, and peer teachers in activities in which they excel or are especially skilled.
- Utilize paired teaching techniques where a youngster with a specific impairment, disability, or deficiency revealed by a physical fitness or perceptual-motor screening test works on a one-to-one basis with a so-called normal youngster.
- Assign impaired, disabled, and handicapped youngsters to regular physical education classes when they can function successfully, safely, and with personal satisfaction in such groups. In many situations, boys and girls with specific physical, mental, emotional, or social impairments, disabilities, or handicaps can be rotated in and out of regular and special classes on the basis of their ability to participate and compete in specific activities.
- Set up special adapted classes to combat deficiencies in various components of physical fitness or perceptual-motor development for youngsters who need them because of the effects of specific handicapping conditions. *No youngster should be in a special class or adapted program any longer than is absolutely necessary.*
- Recognize that youngsters with deep-seated problems may need the attention of specialists in special programs. However, they too should participate in regular programs when they can successfully, safely, and with personal satisfaction do so.

Simply put, *test results should be used to guide teachers in individualizing instruction through devices such as:*

- Grouping youngsters according to achievement in each specific area of physical education—movement exploration, track and field, softball skills, physical fitness levels, perceptual-motor development.
- Varying the scope of offerings within each area of physical education to fit the ability, interest, and knowledge of individual students. Not every individual has to study, learn, and perform each activity in depth.
- Accelerating the pace of learning for talented students so that they can be continually challenged.
- Decelerating the pace of learning and curricular offerings for less talented students so that they can experience success.
- Providing adapted physical education programs for impaired, disabled, and handicapped youngsters, and for those temporarily unable to participate in regular activities.
- Establishing *contract* learning experiences in which youngsters participate outside the formal class program. This approach provides in-depth experiences and makes youngsters responsible for some of their own learning. It is important to show impaired, disabled, and handicapped persons that you have confidence in their ability to assume responsibility for their own learning. Such an approach gives students experience in making choices and selecting activities in which they wish to participate.
- Individualized instruction is based on diagnostic and prescriptive teaching. It is not enough to say a child is physically unfit or perceptually impaired. Physical educators must know through tests and other evaluative criteria where each

youngster's strengths and weaknesses lie. A youngster may, for example, lack eye-hand coordination or balance, but have no other perceptual problems. In remedial perceptual work, he could be assigned to a group of four or five other children who need special help in this specific area, not in all aspects of perceptual-motor development.

While teachers can and should use tests, rating scales, profiles, and other evaluative instruments to determine individual needs of youngsters, the importance of observing children in a variety of situations cannot be overemphasized as a means of acquiring information about functional ability and developmental levels. When observation is tempered with knowledge of children, good judgment and professional experience, it becomes an important vehicle for understanding the behavior and actions of a youngster. For example:

- Chris was a mature, mentally retarded 10-year-old girl. In her first venture into a recreation program she stood in the corner, head bowed, and wouldn't speak when spoken to by staff members and student assistants. She hardly even spoke with other children. The staff accepted Chris as an individual and did not force her to participate in activities. She was given the opportunity to observe, get the feel of activities and the program. In a week she was guided into structured movement activities and simple rhythms. Later a volunteer noticed that she enjoyed these activities, and introduced her to simple ballet movements and baton twirling. Attention from staff members and volunteers made Chris a new girl. She smiled, kept her head and chin high, became socially aware and alert, and assumed leadership responsibility during the program.
- A group of moderately retarded youngsters became deep water swimmers by learning the butterfly stroke. During the swimming class this group was watching other students learn and practice the breast stroke. When the retarded youngsters got into the water, and tried to reproduce breast stroke movements, the result was a corrupted breast stroke or butterfly. The instructor was alert and flexible and individualized the instructional program by teaching this group the butterfly stroke. The teacher capitalized on the situation and taught the stroke when youngsters were ready for it although they were not yet scheduled to learn it.

Adapting Activities to Various Conditions

A prime goal of personnel conducting adapted physical education programs is to adapt, modify, or adjust activities and exercises to meet individual needs of students with various handicapping conditions. In many cases this has resulted in these teachers revising rules of games and conditions for tests. Resourceful teachers and testers have always modified activities and test requirements to make them applicable, appropriate, and relevant for impaired, disabled, and handicapped persons. Consider two examples:

- After World War II, paraplegics, amputees, and thousands of other impaired veterans returned home and created a vital need for rehabilitation centers around the globe. From these centers evolved adapted rules and international competition in a variety of wheelchair sports and games such as basketball, lawn bowling, table tennis, fencing, swimming, weight lifting, archery, track and field—shot put, javelin, discus, dashes, distance runs, and relays. Since 1960 International Wheelchair Games Paralympics have been held about the same time as the Olympic Games. Physical educators can use activity modifications of this type

as a basis for formal and informal test items to evaluate levels of physical fitness and overall developme[illegible] individuals confined to wheelchairs.

- Visually impaired youngsters have performed well on the American Alliance for Health, Physical Education, and Recreation Youth Fitness Test and in a variety of sports such as wrestling, swimming, bowling, and track and field with special rules and equipment used only as needed. Visually impaired children can be expected to meet norms for all children in activities such as pull-ups, flexed arm hang, squat-thrusts, standing long jump, standing high jump, and standing triple jump; blind children should not be expected to meet norms for children with normal vision in running and throwing events. Blind youngsters should be able to meet regular norms in all events on the American Alliance for Health, Physical Education, and Recreation Youth Fitness Test except for actual running events designed to measure speed, endurance, and agility. Special norms have been created for youngsters 10 through 17 in these two running events. [1]Dr. Charles Buell has developed achievement scales for visually impaired youngsters in activities such as swimming, rope jumping, and rope climbing.[2]

Similar approaches have been used with mildly and moderately mentally retarded children as well as with those having other handicapping conditions.

Motivating Performance

One way to improve performances on physical fitness, perceptual-motor, and physical activity tests is to use results to stimulate improvement. Among specific approaches teachers and leaders can use to get youngsters to strive hard are:

- Award cardboard crests or red, white, or blue ribbons or patches for achievement, effort, or improvement.
- Let youngsters wear different color shirts, shorts, armbands, or other identifying devices as performances improve.
- Establish projects in which the miles an individual, group, or class runs, jogs, cycles, or swims over a stated period of time are recorded on charts or graphs. Set goals such as swim 100 miles, run or jog from New York to Chicago, or cycle from your town to Disneyland; a map in a prominent place is marked with colored chalk, ink, or string to indicate progress. This approach can be applied to physical fitness or perceptual-motor activity.
- Post an *Honor Roll* of youngsters who have run, cycled, or swam a specific number of laps or miles; done a prescribed number of push-ups, sit-ups, or pull-ups; improved significantly in a variety of motor skills; thrown a softball substantially farther than ever before.
- Set up a *Hall of Fame* to recognize particularly outstanding performances including those by impaired, disabled, and handicapped youngsters.

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[1]Buell, Charles E. *Physical Education and Recreation for the Visually Handicapped*. Washington, D.C.: American Alliance for Health, Physical Education, and Recreation, 1973.

[2]Buell, Charles E. *Physical Education for Blind Children*. Springfield, Ill.: Charles E. Thomas Publisher, 1966.

Testing In Perspective—A Summary

As physical education, recreation, and related programs are planned and implemented, recognize that:

- Testing can be an important factor in assessing needs, diagnosing weaknesses, and prescribing activities for each youngster.
- Test results alone seldom, if ever, provide complete answers or real understanding of individual problems, deficiencies, and weaknesses.
- Teacher observation, understanding of child growth and development, and knowledge of each youngster along with results from a variety of informal and formal screening instrument tests, rating scales, and profiles are among the ingredients required to make valid judgments about each individual's needs.
- The only real values of testing are in determining strengths and weaknesses for utilizing strengths, and for devising programs, approaches, and techniques to help individuals overcome or cope with identified problems and deficiencies.
- Motivational techniques and strategies are vital to helping youngsters improve.
- Selective and judicious use of tests is an important and integral part of teaching.
- Testing is teaching but there is more to teaching than testing.
- Testing simply to get results for records is a complete waste of time!

PHYSICAL FITNESS CONCEPTS, CONSIDERATIONS AND TESTS

Preservation of health is a duty.
Few people seem to be conscious of such
things as physical mortality.

Hippocrates

Physical fitness is a term that has a variety of meanings and interpretations. Concepts range from considering fitness as an end result to regarding it as a means to an end. Development of appropriate and adequate levels of physical fitness is a unique contribution of physical education programs and should be an integral part of comprehensive recreation programs. However, physical fitness is not the sole objective of either program—both are more far-reaching, have much greater potential, and have tremendous impact in educating and training individuals having various handicapping conditions.

Among many definitions of physical fitness, the following has been functional and practical, and is applicable to impaired, disabled, and handicapped persons: ***physical fitness is a state in which an individual possesses qualities of strength, power, agility, flexibility, endurance, balance, speed, and general coordination to the extent that he is able to meet his everyday needs and emergency situations adequately. This implies that functioning of the cardiovascular system is attuned to meet these same everyday needs and emergency situations.***

Physical fitness can be developed in many ways. Some activities contribute more to fitness than others; certain approaches are more beneficial in promoting some fitness traits, while different techniques are more effective in stimulating and maintaining others. Unfortunately, some activities purported to develop fitness contribute little, if anything, to these traits! Therefore, it is incumbent upon teachers/leaders to know and understand what constitutes good physical fitness and to select activities that make positive contributions to fitness. No single activity, approach, or magic

formula guarantees that an individual will reach desired levels of physical fitness—a varied and diversified program is obligatory. In selecting activities, each individual participant must be considered in terms of chronological age; mental age; degree, severity, and nature of handicapping condition; previous experience; functional abilities; and motivation. Other important considerations are contributions of the activities themselves to attaining specific and overall fitness objectives, and use of techniques and approaches built upon a sound educational, psychological, physiological, and scientific foundation.

Basic Components of Physical Fitness

For purposes of this guide, basic components of physical fitness are considered to be *strength*, *power*, *agility*, *flexibility*, *muscular and cardiorespiratory endurance*, *balance*, *speed*, and *general coordination*. A brief discussion of each of the fitness components follows along with general suggestions on how to help individuals overcome deficiencies in each of the fitness components.

Strength is developed by working against resistance so that the *overload principle* is applied. Resistance can be provided by working with partners, weights, bars, dumbbells, medicine balls, apparatus, logs, ropes, or other kinds of weighted objects.

Power is developed in activities of an explosive nature where maximum force is released at a specified moment. Jumping, certain types of throwing activities, and activities requiring quick, forceful movements encourage development of power.

Agility is developed in activities requiring the body to be maneuvered in space; twisting, turning, side-stepping, and sudden starting and stopping require agility.

Flexibility is developed in activities that provide maximum range of movement in any given joint; stretching, swinging, swaying, and other similar body movements promote flexibility.

Endurance is of two distinct types—*muscular* and *cardiorespiratory*. *Muscular endurance* is closely related to the strength of a muscle and is developed in activities where a maximum number of repetitions is performed against a fixed resistance. Almost all activities that promote strength can be adapted to develop muscular endurance. Circuit training and the interval system applied to a variety of activities are excellent for promoting muscular endurance. *Cardiorespiratory endurance* is influenced by the ability of body cells to obtain and use oxygen and by the ability of the body to rid itself of carbon dioxide. Cardiorespiratory endurance is improved by prolonged rhythmical activity, interval running and swimming, cross-country running, hiking, bicycle riding, and running games. Some cardiologists have stated that a *minimum* of two to three minutes of continuous and sustained activity is necessary to develop sufficient cardiac stress to promote development of cardiorespiratory endurance. Other cardiologists feel that even longer periods—twenty to thirty minutes of continuous activity—are necessary if improvement in cardiorespiratory endurance is to result from participation in these activities.

Balance consists of three distinct types—*static*, *dynamic*, and that involving *handling of an object*. *Static balance* is developed in activities where the postural orientation of the body remains motionless. *Dynamic balance* is developed in activities where equilibrium is maintained while the body is in motion. Balance board, balance beam, and trampoline activities promote development of balance, as do many simple activ-

ities in which an individual is forced to make changes in his center of gravity in response to postural or environmental changes. Whether eyes are opened or closed makes a substantial difference when performing balance activities. When eyes are closed, balance is maintained solely through functioning of certain internal mechanisms—vestibular pressures of the inner ear, proprioceptive feedback, and kinesthetic awareness—while visual cues play a major and equally important role when eyes are opened. Many balance activities can be performed with eyes either opened or closed.

Balance activities often focus upon the individual, with no consideration given the environment. Is it immobile or mobile? While it is important to provide opportunities for the individuals to develop static and dynamic balance in an immobile environment, it is equally important to help him develop balance in a moving medium. Consequently four levels—not the traditional two—are used in balance progressions: 1) immobile medium—static balance; 2) immobile medium—dynamic balance; 3) moving medium—static balance; and 4) moving medium—dynamic balance.

Many progressions and approaches can be used to provide opportunities to help even a very inept individual develop balance in each of these categories. Creative and original teachers/leaders can develop many activities to prepare an individual to meet safely, successfully, and with personal satisfaction many of the challenges of daily life which require balance in a moving medium—taking an escalator, riding on an elevator, standing on a moving bus, walking up the aisle of a train or airplane. Activities which promote balance begin with very simple motions—any time an individual moves a part of his body, adjustments in balance must be made because of changes in his center of gravity—and extend to very complex movements.

Speed is dependent upon muscular contraction and is developed in activities which emphasize quick movements. In addition to certain running (sprint) events, activities that are performed as rapidly as possible in a specific time interval serve to promote speed in all parts of the body.

General coordination is the ability to integrate several different kinds of movements into a single effective pattern. This ability is developed in a wide variety of activities and with diverse approaches that range from simple to complex. Some of the most effective coordination activities have been developed and devised by individual teachers/leaders to meet specific needs of their students.

Approaches to Develop Physical Fitness

Some general considerations that teachers/leaders can keep in mind when devising programs to help youngsters with various handicapping conditions improve overall levels of physical fitness are:

- Devote sufficient time *daily* to vigorous physical activity to assure progress and improvement in specific components of physical fitness.
- Recognize that many types of play, games, rhythmic activities, and general movement experiences contribute to development of physical fitness. Calisthenics and other formal fitness approaches have a place in the program for some individuals, under given conditions, and help achieve certain results. Judicious choice must govern selection of activities to ensure that those appropriate for development of physical fitness are chosen when this is the objective of major concern.

- Provide enjoyable fitness activity through use of small equipment: ropes, jump ropes, balls, hoops, logs, inner tubes, chairs, barrels, parachutes, ladders, boxes, and beanbags. Improvising, using one's creative abilities, and being resourceful are important to the success of the fitness portion of any program. Some of the most enjoyable and beneficial activities come from simple, inexpensive, and ingenious devices motivated by need and developed because of concern for variety in the program.
- Develop fitness activities for use on a number of kinds of large equipment: horizontal ladders, jungle gyms, climbing ropes, gymnasium apparatus, trees, turning bars, cargo nets, specialized pieces—e.g., Swedish Gym, confidence or obstacle courses, large logs, mazes of various types, large pipes, and concrete blocks. Creative thought can lead to imaginative uses of existing equipment, innovations, and development of new pieces to meet specific and special fitness needs of all youngsters.
- Design special supplementary and remedial programs to help alleviate specific physical problems that affect fitness development: posture, foot conditions, locomotor problems, inadequate range of motion in given joints, joint weakness, and instability. Specific causes for low levels of physical fitness must be astutely and definitely determined and appropriate remediation planned and implemented.
- Select and structure activities according to the fitness objective and goals for the individual at any given time.
- Provide self-testing activities that contribute to fitness and learning.
- Use partner activities as an effective means for improving fitness; such activities include dual stunts and tumbling, combative games and combatants, carrying relays, and partner calisthenics.
- Include swimming and aquatic activities as means of realizing specific fitness goals and objectives.
- Use circuit training and station approaches to focus on specific elements of fitness in an efficient and meaningful way.
- Consider less formal activities—e.g., hiking, walking, cycling—for their contributions to fitness.

In addition to using these kinds of activities as a basis for developing and maintaining high levels of physical fitness, recognize that they can provide important information about an individual's level, application, and use of specific fitness components. Often a more accurate assessment of *functional abilities* and *developmental levels* can be made by observing the quality and quantity of a youngster's play and participation on the playground, in the gymnasium, in the backyard, on the corner lot, in the street, and in the swimming pool. Observations of performance in these environments cannot be underestimated or overemphasized as a means of obtaining important input about an individual's real levels of physical fitness.

Factors discussed about specific components of physical fitness must be kept in mind as tests summarized in this section are reviewed and used. As important as

appropriate and adequate levels of physical fitness are for everyone regardless of age or status, it is even more essential to individuals possessing various handicapping conditions. In addition to psychological factors that contribute to an individual's feeling of success, achievement, progress, and self-confidence, many impaired and disabled individuals need high levels of fitness to get around in the environment whether accessible and barrier free or not. Mobility of visually impaired persons and of those in wheelchairs, in braces, or on crutches requires high energy levels and attainment of specific components of fitness. For others such as individuals with cerebral palsy, muscular dystrophy, multiple sclerosis, or certain muscular disorders, higher energy-fitness needs are necessary for participating in normal community activities. Often individuals with various conditions and high vocational potential have problems in holding productive employment because they lack sufficient staying power or endurance to put in a full work day. Still others need higher levels of fitness and skill to participate in a variety of recreational activities to attain greater balance and diversity for a life worth living. Many impaired, disabled and handicapped persons *need higher*—not lower—levels of fitness *through more*—not less—opportunities to take part in physical activity and recreation programs that promote appropriate and adequate levels of physical fitness. Intelligent use of fitness tests and batteries can be important in the process of illuminating specific needs in this vital area for everyone including impaired, disabled, and handicapped individuals.

Summary Chart

PHYSICAL FITNESS TESTS

	Cardiorespiratory Endurance	Agility	Flexibility	Balance	Muscular Endurance—Arms/Shoulders	Muscular Endurance—Abdominal	Strength	Leg Power/Speed	Explosive Power Arms/Shoulders	Coordination
Centennial Athletic Programme Testing Program	X			X		X		X		
Fitness Screening Test		X	X		X	X				
Kraus-Weber Test of Minimum Muscular Fitness			X			X				
Physical Fitness for the Mentally Retarded	X		X		X			X	X	
Physical Fitness Test Battery for Mentally Retarded Children	X	X		X	X	X		X		
Elementary School Physical Fitness Test for Boys and Girls Ages 6 to 12					X	X		X		
Mr. Peanut's Guide to Physical Fitness	X		X		X	X		X	X	
Special Fitness Test for the Mentally Retarded	X	X			X	X		X	X	
Youth Fitness Test	X	X			X	X		X	X	
Texas Physical Fitness-Motor Ability Test	X	X			X	X		X		
Peabody Test of Physical Fitness	X	X							X	
Basic Motor Abilities Test for Retardates			X	X			X	X		
AAU Physical Fitness and Proficiency Test	X	X			X	X		X	X	X
The following batteries classified primarily as psychomotor (perceptual-motor) contain indicated physical fitness components:										
Movigenic Curriculum			X	X	X					
Move-Grow-Learn	X	X	X	X	X	X		X		
Teaching Research Motor Development Scale for Moderately and Severely Retarded Children	X			X	X	X		X		
Purdue Perceptual-Motor Survey			X	X		X				
Basic Motor Fitness	X	X	X	X		X	X	X	X	X
Florida State University Diagnostic Battery of Perceptive Functioning of Trainable Mentally Retarded			X	X		X				

Summary Chart

PHYSICAL FITNESS TEST ITEMS[1]

Listed items and activities can be incorporated into formal or informal approaches for assessing each of these physical fitness components. Items and activities that are a part of the physical fitness test batteries found in this publication are listed.

Agility

Leg Thrusts
Shuttle Run
Side Step
Squat Thrusts/Burpee
Zig-Zag Run

Balance

Balance Board Activities
Bass Stick Series
Beam/Rail/Bench Walks
Object Balance Activities

Cardiorespiratory Endurance

Bench Step
Cycling
Hiking
Ice Skating
Rope Jumping
300 Yard Run
600 Yard Run/Walk
6-9-12-Minute Run
1/2-1-1 1/2 Mile Runs
Swimming Activities

Explosive Power Arms/Shoulders

Medicine Ball Throw
Softball Throw
Vollyball Throw

Flexibility

Back Extension Activities
Back Lifts
Bend, Twist, and Touch
Bob
Floor Touch
Head, Chest Raise (Prone Position)
Lateral Bend
Leg Raise (Prone Position)
Trunk-Flexion Activities
Windmill

General Coordination

Ball Bounce
Roll Progression
Rotor Pursuit Tracking
Softball Throw
Standing Long Jump
Standing/Running High Jump

Leg Power

Mountain Climber
Squat Jump
Standing High Jump
Standing Long Jump
Vertical Jump

Muscular Endurance Abdominal

Curls
Isokinetic Activities
Leg Lifts
Sit-Ups
V-Sit

Physique

Classification Indexes
Height
Somatotyping
Weight
Wetzel Grid

Speed

Dashes (25 to 100 yard)
8-second Dash
Flying 20-30 yards

Strength

Dynamometer Items
Hand Grip
Isometric Activities
Isokinetic Activities
Tensiometer

[1]Refer to Special Olympics Instructional Manual (AAHPER Publication Sales, 1201 16th Street, N.W., Washington, D.C., 20036, Stock Number 245-25322, $2.25) or any good text on physical fitness tests and measurements in physical education, or curriculum guide in physical education for clarification of listed test items and for additional ideas for developing innovative approaches for assessing physical fitness.

CENTENNIAL ATHLETIC PROGRAMME TESTING PROGRAM
Canadian Association for Retarded Children
4700 Keele Street, Downsview, Toronto, Canada

WHAT IS MEASURED	HOW MEASURED
Abdominal strength and endurance	Speed sit-ups—30 seconds
Explosive power of legs	Vertical jump
Cardiorespiratory endurance	300-yard run
Cardiorespiratory endurance and speed through swimming	Swim specified distances; standards are provided for different age groups from 8-9 to 18 and over
Cardiorespiratory endurance and speed through ice skating	Skate specific distances; standards are provided for different age groups from 6-7 to 18 and over
Cardiorespiratory endurance through hiking	Walk specified distances in prescribed times and/or walk for specified lengths of time; standards are provided for different age groups from 4-5 through 16 and over
Balance	Walk forward along bench, jump and land on both feet; walk across balance beam at various heights, jump off, and land in controlled manner
Coordination	Standing broad jump
Back Extension Trunk Exercises	Back extension, log roll, curl-up, knee walk, rock and roll, and somersault

Administration of Test: Test items are designed to stimulate participation, fitness, and skill. Different combinations of tests have been established for various age groups:

4-5	6-7	8 and Up
Compulsory Test Items: Balance (jumping off bench on to mat); Standing broad jump; Back extension trunk exercises; Hiking	Compulsory Test Items: Balance (walking board); Standing broad jump; Back extension trunk exercises Choice Test Items: Ice skating Hiking	Compulsory Test Items: Speed sit-ups (30 seconds); Vertical jump; 300-yard run; Choice Test Items: Swimming; Ice skating; Hiking

An awards system has been set up to motivate participation and performance. Prescribed standards have been established for different age groups which must be met for youngsters to receive Participation, Bronze, Silver, or Gold Awards. Compulsory items other than hiking for the 4-5 age group can be conducted in a school gymnasium;

hiking can be performed by having youngsters walk in a gymnasium a certain number of laps. Tests can be administered by classroom teachers working with mildly or moderately retarded students. One or more periods may be necessary to administer each test item to a class; a minimum of equipment is needed. The test manual is clearly written and easy to follow.

Comments: This test and award program is designed to provide teachers/leaders with a way to evaluate and determine student progress, provide criteria for presenting awards, and to build in a method of motivating youngsters to want to attain and maintain high levels of physical fitness through active participation in a variety of activities.

FITNESS SCREENING TESTS
Croft Teacher's Service
Croft Educational Service, Inc.
Models for Teaching Physical Education
100 Garfield Avenue, New London, Connecticut 06320
February 1972

WHAT IS MEASURED	HOW MEASURED
Arm and shoulder strength and endurance	Pull-ups (boys); modified pull-ups; flexed arm hand (girls)
Flexibility and abdominal strength	Sit-ups
Agility	Squat thrust (Burpee)

Administration of Test: Test can be administered in a small area in less than a minute; the only equipment needed is a horizontal bar, horizontal ladder, or step ladder. Classroom for physical education teachers, recreation personnel, and paraprofessionals can administer the test. Norms are available since this is recommended by the President's Council on Physical Fitness and Sports as a screening test. Performance objectives and remedial exercises to help overcome deficiences in each area are included.

Comments: Test is ideal for *screening* purposes and can readily be given at the beginning of each school year. Students who are deficient can be given the test at six-week intervals to determine improvement and progress. The test identifies those who need special or additional emphasis on fitness; specific exercises that can be performed in school or used for homework with parental cooperation are suggested. This test is also available from the President's Council on Physical Fitness and Sports, Youth Physical Fitness—Suggested Elements of a School-Centered Program, Washington, D.C.

KRAUS-WEBER TESTS OF MINIMUM MUSCULAR FITNESS
Hans Kraus and Ruth Hirschland
"Minimum Muscular Fitness Test in School Children"
Research Quarterly 25: 178-188; May 1955
American Alliance for Health, Physical Education, and Recreation
1201 Sixteenth Street, N.W., Washington, D.C. 20036

WHAT IS MEASURED	HOW MEASURED
Abdominal and hip flexor muscular strength	From a supine-lying position with feet held by examiner, subject rolls up into a sitting position
Abdominal muscular strength	From a supine-lying position with knees flexed and feet held by examiner, subject rolls up into a sitting position
Hip flexor and lower abdominal muscular strength	From a supine-lying position, subject flexes both hips to raise heels 10 inches for 10 seconds
Upper back muscular strength	From prone-lying position with pillow under hips and lower abdomen and with examiner holding the feet, subject raises chest, head and shoulders for 10 seconds
Lower back muscular strength	From prone-lying position, arms on table with head resting on them and with examiner holding chest down, subject raises legs off table with knees straight for 10 seconds
Back and hamstring muscular strength	From erect standing position, subject bends slowly down to touch floor with finger tips, holding contact point for three seconds

Administration of Test: Test can be administered in two minutes per individual with minimum equipment by classroom physical education teachers, recreation personnel, volunteers, high school students, and other interested persons. Scoring and norms are based on pass-fail performances.

Comments: Test is designed to determine whether an individual has sufficient strength and flexibility to meet the demands of normal daily living. Validity of the test is often questioned because of pass/fail scoring.

PHYSICAL FITNESS FOR THE MENTALLY RETARDED
Metropolitan Toronto Association for Retarded Children
186 Beverley Street, Toronto 2B, Ontario, Canada

WHAT IS MEASURED	HOW MEASURED
Muscular fitness—arms and shoulders	Bar hang for time; medicine ball throw
Back—flexibility	Back extension flexibility; speed back lifts
Leg power	Vertical jump
Abdominal endurance	Sit-ups
Hamstring flexibility	Floor touch flexibility
Cardiorespiratory endurance	300-yard run—walk
Physique	Height and weight measurement

Administration of Test: Test can be administered during two regular physical education periods by physical education or classroom teachers, and volunteers. Required equipment includes a horizontal or adjustable bar or rod, medicine ball, yardstick and six-inch rule, gym mat, stop watch, scale marked at half-inch intervals and mounted on the wall, block of wood ten inches long, an area for the 300 yard run, a scale for weighing youngsters, and equipment for measuring height. The manual contains sample score sheets and norms for each test item for boys and girls 8 through 17 years of age.

Comments: Test manual contains supplementary information on free running, stunt activities, obstacle courses and mazes, interval training, relays, high interest games, exercises, apparatus activities, and swimming. The manual is a highly useful publication and the test practical and applicable in assessing the physical condition of moderately retarded trainable individuals. Clues and hints are included to help evaluate fitness levels of individual children; results can be useful in diagnosing and prescribing activities for individual students with specific needs.

PHYSICAL FITNESS TEST BATTERY FOR MENTALLY RETARDED CHILDREN
Hollis Fait
School of Physical Education
University of Connecticut, Storrs, Connecticut 06268

WHAT IS MEASURED	HOW MEASURED
Speed	25-yard dash
Static muscular endurance of arm and shoulder girdle	Bent arm hang
Muscular endurance of leg and abdominal muscles	Leg lift
Static balance	Static balance test
Agility	Thrust
Cardiorespiratory endurance	300-yard run-walk

Administration of Test: Test can be administered in one day in order listed above; if sp. d over several days, a test item can be given each child on a different day with a setup using six testing stations. All test items can be administered indoors or outdoors with the exception of the 300-yard run-walk which can be run indoors if a non-confusing system of counting laps is established. Equipment and/or facilities needed for test items are: *25-yard dash*—35 yard straightaway, a wall or board for starting blocks; *bent arm hang*—horizontal bar or doorway bar and a stool; *leg lift*—mat or mat substitute (i.e., mattress with clean cover or several layers of blankets); *300-yard run walk*—sufficient indoor or outdoor area for running laps or a straightaway; stop watches and scoring cards are also needed. Test can be given by physical education or classroom teacher with a trained volunteer at each testing station. Norms have been established for moderately (trainable) and mildly (educable) mentally retarded individuals in 9-12, 13-16, and 17-20 age groups for both males and females; low, average, and good performance scales have been established for each sex for each age level grouping for each event.

Comments: Test is appropriate for both moderately and mildly retarded persons. It is designed to measure accurately the physical fitness levels of mentally retarded subjects and to eliminate intelligence or IQ factors. The test is characterized by minimal memorization of movement patterns and contains few detailed directions.

ELEMENTARY SCHOOL PHYSICAL FITNESS TEST FOR BOYS AND GIRLS AGES SIX TO TWELVE
State Department of Public Instruction
Olympia, Washington 98501

WHAT IS MEASURED	HOW MEASURED
Leg power	Standing broad (long) jump
Strength and endurance of forearm, arm, and shoulder girdle	Bench push-ups
Strength and endurance of trunk flexor muscles	Curl-ups
Strength and endurance of trunk and leg extensor muscles	Squat jump
Speed	30-yard dash

Administration of Test: Test can be administered by classroom teachers or physical education instructors with help from older students, parents, and other volunteers. Needed equipment includes stop watches, measuring tape, several mats and chairs, yardstick, and a class or group score sheet. All test items other than the 30-yard dash can be given in a gymnasium or regular classroom. The 30-yard dash should be administered in a gymnasium, corridor, or outdoors. The test can be given in one testing period or be spread over several periods in the order listed above. Norms and scoring information by age and sex for both boys and girls between the ages of six and twelve are available.

Comments: Test norms do not include scores from special education populations. However, these norms have been used with mildly mentally retarded children. Manual

contains complete directions for administering the test, is well illustrated, has class and individual scoring sheets, and provides exercises to help teachers/leaders prescribe activities for youngsters to improve in each of the measured fitness components. A sample physical fitness report and covering letter to parents are also included in the manual.

MR. PEANUT'S GUIDE TO PHYSICAL FITNESS
Standard Brands Education Service
P.O. Box 2695, Grand Central Station, New York, New York 10017

WHAT IS MEASURED	HOW MEASURED
Arm and shoulder strength and endurance	Flexed arm hang
Flexibility	Trunk flexion
Abdominal strength and endurance	Sit-ups—60 seconds
Explosive leg power	Standing broad (long) jump
Speed	50-yard dash
Coordination	Softball throw
Cardiorespiratory endurance	600-yard run-walk

Administration of Test: Test manual is easy to read and well illustrated. Norms for youngsters between the ages of seven and nine were developed to supplement Youth Fitness Test (see page 00) for persons between 10 and 17 years of age. Ratings and awards are provided for each test item for boys and girls at each age level—*champ*—excellent; *gold*—good; *silver*—satisfactory; *bronze*—needs improvement. Test can be easily administered by classroom teachers, volunteers, special educators, and parents who may wish to work with individual children at home. Administration can be to individuals or groups during two physical education periods. Equipment and facilities needed include: *flexed arm hang*—bench and horizontal bar; *trunk flexion*—chair or bench with 20-inch ruler; *standing broad jump*—level surface, tape measure or yardstick; *50-yard dash*—stop watch and place to run; *softball throw*—softballs, tape measures or yardsticks, and stakes for markers or pre-measured area; *600-yard run-walk*—stopwatch, tape measure, and place to run 600 yards (i.e., baseball diamond, football field, playground, around the block).

Comments: Sufficient test manuals can be obtained free of charge to provide each youngster with his own manual which can be taken home to provide parental motivation to work with children. Manual contains recommended warm-up exercises and supplementary activities.

SPECIAL FITNESS TEST MANUAL FOR THE MENTALLY RETARDED
American Alliance for Health, Physical Education, and Recreation
1201 Sixteenth Street, N.W., Washington, D.C. 20036
Price: $1.50

WHAT IS MEASURED	HOW MEASURED
Arm-shoulder endurance	Flexed arm hang
Abdominal endurance	Sit-ups
Agility	Shuttle run
Leg Power	Standing broad (long) jump
Speed	50-yard dash
Coordination	Softball throw for distance
Cardiorespiratory endurance	300-yard run-walk

Administration of Test: Group test recommended to be administered during two regular physical education periods. Can be administered by classroom, physical education or special education teachers, volunteers, ward attendants, cottage and residential facility personnel. Equipment needed includes: *flexed arm hang*—horizontal bar, horizontal ladder, doorway, gym ladder, and stop watch; *sit-ups*—mat and stop watch; *shuttle run*—two wooden blocks or erasers for each youngster tested simultaneously and stop watch; *standing broad jump*—mat, floor, or outdoor jumping pit and tape measure; *50-yard dash*—stop watch and area marked for distance; *softball throw*—softball and premeasured area; *300-yard run-walk*—marked area and stop watch. Percentile scores, based on a random sample of 4200 mildly retarded subjects from public schools in the United States, are available for boys and girls between the ages of 8 and 18 for each test item. Procedures for testing a class of 15 divided into three squads are suggested. The test items parallel standard American Alliance for Health, Physical Education, and Recreation Youth Fitness Test (see page 00) except for the softball throw for distance which was eliminated in the 1975 revision of the Youth Fitness Test. Awards are available for youngsters who attain the 50th percentile (Silver Award) and 75th percentile (Gold Award) on five of the seven test items for their age and sex; the CHAMP award is available for those who score at the 85th percentile or higher on all seven test items for their age and sex.

Comments: Score cards, profile records, and recommendations for improving physical fitness are contained in the test manual. Test results provide an assessment of each child's progress and can be used for diagnostic purposes to determine individual strengths and weaknesses.

YOUTH FITNESS TEST
American Alliance for Health, Physical Education, and Recreation
1201 Sixteenth Street, N.W., Washington, D.C. 20036
Price: $2.00

WHAT IS MEASURED	HOW MEASURED
Arm-shoulder endurance	Pull-ups (boys), flexed arm hang (girls)
Abdominal endurance	Sit-ups (100 maximum boys; 50 maximum girls)
Agility	Shuttle run
Speed	50-yard dash
Leg power	Standing broad (long) jump
Cardiorespiratory endurance	600-yard run-walk—two alternative options are provided as follows: age 10-12—one mile or nine minute run; 13 and over—2 miles or 12 minute run

Administration of Test: Group test designed to be administered during two regular physical education periods. Can be administered by classroom and/or physical education teachers. Equipment needed includes: *pull-ups or flexed arm hang*—horizontal bar, horizontal ladder, or step ladder; *shuttle run*—two wooden blocks or erasers for each student tested simultaneously and stop watch; *50-yard dash*—stop watch; *standing broad jump*—measuring tape; *600-yard run-walk and alternative options*—stop watch and marked area. Norms are provided for both boys and girls according to a classification index including age, height, and weight. Percentile scores are available for boys and girls between the ages of 10 and 17 for each test item. Awards are available for individuals who attain the 50th (Achievement), 80th (Merit), or 85th (Presidential) percentiles on all six test items.

Comments: Factor analytic studies indicate that only four elements of fitness are accurately differentiated. Recent trends and reports indicate that this test battery can be used effectively with mildly retarded youngsters who have participated in planned, regular, systematic, and progressive physical education programs. Prior to 1975, the test contained a softball throw for distance.

PHYSICAL FITNESS—MOTOR ABILITY TEST
The Governor's Commission on Physical Fitness
4200 North Lamar, Suite 101, Austin, Texas 78756

WHAT IS MEASURED	HOW MEASURED
Physical Fitness	
Muscular strength and endurance of arms and shoulders	Chin-ups, dips, flexed arm hang (90 seconds)
Muscular strength and endurance of abdominal region	Bent leg sit-ups
Cardiorespiratory endurance	12-minute run-walk for distance (grades 7-12) and 9 minute run-walk for distance (grades 4-6); 1.5 mile run-walk for time (grades 7-12) and 1. mile run-walk for time (grades 4-6)
Motor Ability	
Running speed	50-yard dash or 8 second dash for distance
Running agility	Shuttle run for distance or zigzag run
Explosive power (jumping ability)	Vertical jump or standing broad jump

Administration of Test: Test is designed for students in Grades 4-12 and can be administered by classroom and physical education teachers with teacher aides, paraprofessionals, squad leaders, and peer teachers assisting in the testing process. One trained tester with or without help can administer chin-up, dips, or flexed arm hang (one of the three) to a class of 50 in 45 minutes. The bent leg sit-up can be administered in ten minutes, with half a class taking the test and the other half serving as leg holders and counters. The 12 minute run-walk (9 minutes for grades 4-6) can be administered in 30 minutes, with half the students running and the other half counting laps and spotting for partners. Same procedure can be used in the 1.5 mile run-walk for time (1 mile for grades 4-6). Fifty students can be tested in the 50-yard dash or eight-second dash to 20 minutes with two students running simultaneously. An entire class can be tested rapidly in the shuttle run and zigzag run. Large numbers of students can be tested simultaneously in the standing broad jump (use several stations) and the vertical jump. Needed equipment includes a horizontal bar, two parallel bars, a mat, running track or running area, stop watch, five chairs, Indian clubs or rubber pylons, smooth wall, yardstick, piece of chalk, tape measure, and masking tape. Norms based on body weight, age, and sex are available. Awards for demonstrated performance on the physical fitness test are available.

Comments: Test manual is easy to read, contains precise directions for each item, and explains the purpose of the testing program—to diagnose physical weaknesses of students, identify students with acceptable levels of physical fitness, and motivate students to achieve excellence in physical fitness and motor ability as they strive for self-improvement. Tests may be used to: diagnose or identify student weaknesses and provide individualized physical fitness programs to help each student achieve an acceptable level of performance—remedial or developmental activities can be offered as needed; determine if students have achieved an acceptable level of physical fitness or motor ability as measured by the tests; motivate students to achieve excellence in

physical fitness and motor activities; evaluate the overall effectiveness of physical education programs in helping students achieve acceptable levels of fitness and motor ability. Two or more options are provided in each component of both test batteries except for muscular strength and endurance of abdominal region. This gives teachers opportunities to provide variety in actual testing situations, offers more latitude in test construction, and reduces possibility of student boredom associated with repeated exposure to identical test items.

THE PEABODY TEST OF PHYSICAL FITNESS
Institute on School Learning and Individual Differences
George Peabody College for Teachers
Nashville, Tennessee 37203

WHAT IS MEASURED	HOW MEASURED
Strength and speed	Shuttle run, volleyball throw
Body build and growth	Height and weight
Hand-eye coordination	Ball bounce
Cardiovascular endurance	Maximum pulse increase (step test)
Muscular power	Burpee (squat thrust)

Administration of Test: Test can be administered by classroom and physical education teachers to assess the physical fitness of elementary school children between five and nine. Teachers and other test administers are urged to build rapport with youngsters so as to properly motivate them. Test should be given in height, weight, pulse rate, ball bounce, Burpee, shuttle run, volleyball throw. Equipment needed includes test manual, individual data and profile sheets, two rubber volleyballs, 50-foot steel tape, masking tape, chalk, wooden pegs, and stop watch. Test can be administered during the course of one or two periods. Percentile norms indicate each child's relative standing in comparison with other children the same age, sex, and height. Norms are provided for each component.

Comments: Test is easy to administer, yields a continuous point score, and results can be objectively recorded. Manual is well illustrated and easy to understand. Test directions and scoring procedures are clearly explained. Individual data and profile sheets are provided as well as suggestions for making optimum use of test results.

BASIC MOTOR ABILITIES TEST FOR RETARDATES
JFRC Monograph No. 67-1; AIR-AOR-86-2/67-FR
February 1967, Final Report
American Institute for Research
8555 Sixteenth Street, Silver Spring, Maryland 20910, and
National Children's Center, Jewish Foundation for Retarded Children
6200 Second Street, N.W., Washington, D.C. 20011

WHAT IS MEASURED	HOW MEASURED
Static strength	Hand grip
Explosive strength	Standing broad jump
Extent flexibility	Twist and touch
Gross body equilibrium	Rail balance
Dynamic flexibility	Bend, twist, and touch
Manual dexterity	Minnesota manipulation
Reaction time	Simple visual reaction time
Arm-hand steadiness	Track tracking

Administration of Test: Test can be administered to an individual or group in one hour, with two 30-minute sessions recommended. Hand grip, standing broad jump, twist and touch, rail balance, and bend, twist, and touch should be administered in the listed order. Minnesota Manipulation, simple visual reaction time, and track tracking should be administered in listed order during second testing period. The two segments can be administered during morning and afternoon sessions on the same day or on different days.

Comments: The feasibility study indicated that ability measures might be useful in assigning mentally retarded subjects to training programs as a function of skills for which their abilities suit them, that motor abilities of mentally retarded persons might be assessed by modifying existing tests of basic motor abilities and administering them to such populations, and that ability tests may serve as indices of development of retarded persons and might eventually provide basis for assigning them to skill training programs specifically geared to their underlying abilities.

AMATEUR ATHLETIC ASSOCIATION (AAU) PHYSICAL FITNESS AND PROFICIENCY TEST

National A.A.U. Office, Attention: Physical Fitness Program
3400 West 86th Street, Indianapolis, Indiana 46268

WHAT IS MEASURED	HOW MEASURED
Abdominal endurance	Bent-knee sit-ups
Arm-shoulder endurance	Push-ups (modified for girls)
Leg power	Standing long jump
Cardiorespiratory endurance	Walk-run ranging from one-eighth of a mile to one mile depending upon age on an indoor short course or from one one-quarter mile to one mile on an outdoor course

The above events are required. In addition, each youngster must choose one of four activities listed below as an optional event.

Arm-shoulder endurance	Pull-ups (modified for girls)
Speed	Sprinting distances ranging from 40 to 100 yards depending upon age
Coordination and leg power	Running high jump
Agility	Shuttle run

Administration of Test: Test should not be administered until youngsters have had several days of practice; youngsters should be given two or three minutes warm-up prior to starting the test. Standards have been established for boys and girls on the basis of age group classification for each sex according to the following groupings: 6-7, 8-9, 10-11, 12-13, 14-15, 16-17. Modification of standards is recommended when youngsters' body weight is above or below stated poundage at each level. Equipment needed for required events includes stopwatch and tape measure; blocks or erasers, chinning bar, and high jump standards and soft landing area are needed for optional events. Youngsters achieving standards established for their age groups may receive a Certificate of Achievement. Those whose performance is superior may receive an Outstanding Achievement Award based on total scores equaling or exceeding a specified number of points.

Comments: Primary purpose of test is to offer a planned schedule of exercises in which youngsters can participate and to motivate them to achieve proficiency in overall physical fitness. Test is designed to measure current physical capabilities and progress when youngsters are retested periodically.

MOTOR ABILITY, PERCEPTUAL-MOTOR DEVELOPMENT AND PSYCHOMOTOR TESTS

Our challenge is to reach the unhandicapped mind behind the handicapped senses. To know is more important than to see. To understand is more important than to hear.

Richard Kinney

There is no clear dichotomy between physical fitness and motor function. However, evidence indicates that minimum levels of specific components of physical fitness—strength, speed, agility, balance, power, flexibility, and coordination—are essential if satisfactory performance is to be achieved in various motor skills. Teachers/leaders must clearly understand traits and components of motor ability—the developed capacity of an individual, which can improve with training and instruction—if programs are to consist of meaningful activities to meet the needs of each individual participant.[1]

[1]The reader is referred to the following sources for in-depth treatment of perceptual-motor development/learning: *Annotated Bibliography on Perceptual-Motor Development*. Washington, D.C.: American Alliance for Health, Physical Education, and Recreation, 1973; Barbara Philbrick. "Selected Readings on Perceptual-Motor Learning: An Annotated Bibliography." *Journal of Health, Physical Education, Recreation*, Vol. 39, No. 2 (February 1968), pp. 34-35; Newell C. Kephart. *The Slow Learner in the Classroom*, Columbus, Ohio: Charles E. Merrill Books, 1971; Bryant J. Cratty, *Movement Behavior and Motor Learning*, Philadelphia: Lea & Febiger, 1967; Robert N. Singer, *Motor Learning and Human Performance: An Application to Physical Education Skills*, New York: Macmillan Co., 1968.

More attention must be given to developing simple and fundamental movements and basic motor patterns in programs for impaired, disabled, and handicapped persons. The individual as a complete person cannot be overlooked in considering motor development; motor learning is not achieved in isolation as every individual is involved in many situations which influence and affect motor patterns and skills. Dividing a person into convenient physical, mental, emotional, and social compartments is purely an academic expedience; the human organism functions as an integrated whole not as individual parts. Sensory mechanisms, perceptual interpretations, social interaction, emotional overlays, and mental attitude *all* affect motor performance, just as motor function forms the base for perceptual and conceptual function and influences intellectual performance. Professionals from many disciplines recognize interrelationships among sensory, motor, and perceptual development. Some investigators suggest that changes take place in the nervous system as sensory, motor, and perceptual functions become more complex and refined. Ability to perform complex activities requires control from higher centers of the nervous system and more complicated neuromuscular patterns. Many new terms have found their way into the literature because of this emphasis—perceptual-motor training, sensory-motor activities, visual-motor perception, psychomotor function, mobility training, reflex therapy, neurological organization, movigenic curriculum, force methods, Doman-Delacato approach, Kephart technique, Frostig Methods, Ayers System, ad infinitum.

Patterning and controlling the output are terms that mean essentially the same thing as kinesthesis and assistive therapy, which have been used by physical educators and physical therapists for years. However, thrust and emphasis on these techniques give new dimensions to physical education and recreation; they are being recognized for their potential and impact upon individuals with learning problems as well as brain injured, neurologically impaired, and mentally retarded children. Physical education and physical recreation programs can no longer focus solely on motor skills involved in games, relays, and dances. Motor activities must also be selected on the basis of the developmental level and readiness of each individual; one must move from skill to skill, activity to activity, and level to level in a sequential and progressive manner. Too often, impaired, disabled, and handicapped youngsters are expected to perform motor skills on the basis of their type or level of deficiency. However, past experience, motivation, determination and drive, understanding of activities themselves, pride and self-confidence have great influence upon one's skill in performing motor activities; often these factors are more important than the impairment, disability, or handicap itself. Important factors in the integrated development of motor ability include:

- *Neurological organization* which refers to the sequential pattern of neurological growth from birth to maturity; each level of development serves as a base for further development in the next stage. As a child takes part in a variety of activities, coordinated development of the neuromotor (neuromuscular) system is promoted through integration of kinesthetic, tactile, visual, and auditory stimuli. Motor performance and perceptual development are, in turn, improved. Information, skills, and awareness gained at one level are building blocks for success at the next level. A variety of motor activities can contribute to orderly development of the nervous system, especially at the most fundamental level, where activities like moving arms and legs without forward movement, crawling, creeping, walking, running, jumping, hopping, and skipping contribute much. Some authorities feel that consideration should be given to dominance of each individual's hands, feet, eyes, and ears, in an effort to encourage youngsters to

acquire unilateral control—i.e., all controlled by same side of brain. Body scheme, self-image, and ego-consciousness all are stimulated and have, in some cases, improved with better neurological organization.

- *Motor generalizations*[2] which involve (a) balance and postural orientation, as an individual manipulates and controls his body against gravity, (b) locomotion, as an individual controls the body in space in relation to other objects in the environment, (c) contact with an external object, as an individual controls it in relation to himself and the external environment, and (d) receipt and propulsion of an object, as it is received or propelled in relation to an individual in the environment.

Motor generalizations are different from motor skills in that they enable an individual to perform motor activities in different environments and under a variety of conditions. Motor skills are rather rigid and specific. One who develops a motor skill may have difficulty in transferring, applying, or performing it except in the way it was learned. This is consistent with research showing low correlations among motor skills except when muscles and muscle groups are used in exactly the same way, with identical movement through the same angle and range of motion. Motor generalizations serve as a foundation for developing specific motor skills needed for successful participation in games, sports, dances, and recreational activities. Activities focusing on important motor generalizations must be planned for and structured in physical education and recreation programs for many impaired, disabled, and handicapped persons to be sure they receive adequate emphasis. Physical education teachers, recreation leaders, and other persons involved in these programs can, after adequate assessment and evaluation, consider activities designed to develop both motor generalizations and skills. For example:

- *Infant stimulation and reflex training* encourage development of the most primitive and fundamental functions.
- *Mobility training* promotes basic stages of neurological organization; certain coordination activities are important in aiding neurological organization.
- *Balance activities* of all types—static, dynamic, object—enhance motor development.
- *Fundamental movement activities* improve basic motor functions—i.e., walking, running, stair-climbing, jumping, hopping, skipping, climbing, throwing, catching, dodging.
- *Movement exploration or a discovery approach* improve both motor ability and physical fitness.
- *Rhythmical activities and dances* improve motor ability.
- *Gymnastic activities*[3]—i.e., tumbling, apparatus, dual and group stunts, balancing stunts, trampoline participation—improve motor skills.
- *Recreational and sports activities* improve motor skills—i.e., swimming, ice skating, roller skating, bicycling.

[2]Based on theories of Newell C. Kephart.

- *Small and large apparatus activities* promote both motor ability and physical fitness.

In many instances careful observation of individuals in specific activities provides important information about status, achievement, and progress of each participant. This information can be valuable in guiding teachers and leaders to the next appropriate sequential step for a particular participant. In addition to using the following instruments as formal evaluative tools, consider incorporating specific items into ongoing activities to assess individual development.

	Visual Tracking	Visual Discrimination and Copying of Forms	Visual Discrimination and Copying of Rhythmic Patterns	Dynamic Balance	Static Balance	Spatial Body Perception	Agility	Fundamental Movements	Gross Motor Coordination Eye-Foot	Gross Motor Coordination Eye-Hand	Fine Motor Coordination	Tactile Discrimination	Auditory
Perceptual Test Battery			X										X
Physical Ability Rating Scale	X	X		X	X	X		X		X	X		
Motor Developmental Activities for the Mentally Retarded	X			X	X		X	X	X	X			
A Psychoeducational Inventory of Basic Learning	X	X	X	X	X	X	X	X	X	X	X	X	X
Individual Motor Achievement Guided Education			X		X	X		X	X		X		
Kindergarten Auditory Screening Test													X
A Movigenic Curriculum	X	X	X	X		X	X	X	X	X	X	X	X
Movement Pattern Checklist								X					
Move—Grow—Learn	X			X	X	X	X	X	X	X	X		
Teaching Research-Motor Development Scale for Moderately/Severely Retarded Children	X				X	X		X		X	X		
MVP Motor-Free Visual Perception Test	X	X				X							
Perceptual Motor Attributes of Mentally Retarded Children and Youth	X				X	X	X	X		X			
3-D Test for Visualization Skill	X	X								X			

MOTOR ABILITY, PERCEPTUAL-MOTOR DEVELOPMENT AND PSYCHOMOTOR TESTS

	Visual Tracking	Visual Discrimination and Copying of Forms	Visual Discrimination and Copying of Rhythmic Patterns	Dynamic Balance	Static Balance	Spatial Body Perception	Agility	Fundamental Movements	Gross Motor Coordination Eye-Foot	Gross Motor Coordination Eye-hand	Fine Motor Coordination	Tactile Discrimination	Auditory
Perceptual Motor Survey	X			X	X	X		X		X			
Frostig Developmental Test of Visual Perception	X	X				X				X			
Oseretsky Tests of Motor Proficiency	X				X			X	X	X	X		
Purdue Perceptual Motor Survey	X	X	X	X		X		X					
Early Detection Inventory	X	X				X		X	X	X	X		X
Dornan-Delacato Developmental Mobility Scale								X					
Basic Motor Fitness	X		X	X	X			X	X	X			
Basic Concept Inventory		X				X							
Evansfon Early Identification Scale		X				X							
Developmental Tests of Visual-Motor Integration		X											
Rail Walking Test				X									
Florida State University Diagnostic Battery of Recreative Functioning for Trainable Mentally Retarded	X	X	X	X	X			X	X	X	X		
Hughes Basic Gross Motor Assessment				X	X			X	X	X			
Functional Neurological Evaluation	X	X	X	X				X	X	X	X	X	X

Summary Chart

MOTOR ABILITY, PERCEPTUAL-MOTOR DEVELOPMENT, AND PSYCHOMOTOR TEST ITEMS

Listed items and activities can be incorporated into formal or informal approaches for assessing each of these motor, perceptual-motor, and psychomotor functions. Only items and activities that are part of test batteries and rating scales found in this publication are listed.

Auditory Development

- Acuity
- Association
- Audition
- Decoding
- Differentiation
- Discrimination
- Memory
- Reception
- Sequencing
- Span

Balance Dynamic

- Balance Board Activities
- Beam/Rail/Bench Walks
- Bounce Board Activities
- Locomotor Activities
- Stepping Stones
- Stunts/Self-Testing Activities
- Trampoline Activities

Balance Static

- Balance Board Activities
- Beam/Rail/Bench Walks
- Stork Stand Series
- Stunts/Self-Testing Activities

Balance Object

- Carry object
- Finger/Band Activities
- Stick activities

Fine Motor Coordination

- Building
- Coloring
- Copying
- Cutting
- Doing Puzzles/Mazes
- Drawing
- Eating
- Fitting Forms/Shapes
- Grasping
- Gripping
- Hammering
- Lacing
- Manipulating
- Stacking
- Tapping
- Tracing
- Typing
- Winding
- Writing

Gross Motor Coordination Eye-Foot

- Climbing Stairs
- Kicking Activities
- Motor Planning/ Sequencing
- Rope Jumping

Gross Motor Coordination Eye-Hand

- Ball Activities
- Catching Activities
- Manipulative/Manual Activities
- Motor Planning/ Sequencing
- Tapping Activities
- Target Activities
- Throwing Activities

Gross Motor Coordination General

- Calisthentic Activities
- Exercise
- Motor/Planning/ Sequencing
- Simultaneous Activities
- Trampoline Activities
- Tumbling/Apparatus Activities

Gross/Motor Fundamental Movements

- Balancing
- Batting
- Bouncing
- Catching
- Climbing
- Crawling
- Creeping
- Dancing
- Galloping
- Hanging
- Hitting
- Hopping
- Imitative Movements
- Jumping
- Kicking
- Landing
- Leaping
- Lifting

Marching
Placing
Pulling
Pushing
Rolling
Running
Shifting
Sitting
Sliding
Skipping
Standing
Striking
Swinging
Throwing
Tossing
Walking

Miscellaneous

Agility
Conceptual Activities
Emotional Development
Endurance
Language Development
Rhythm
Social Development
Speed
Strength

Spatial-Body Perception

Bilateral Activities
Body Abstraction
Body Awareness
Body Localization
Directionality Activities
Identification of Body Parts
Imitation of Body Movements
Homolateral Activities
Homologus Activities
Laterality Activities
Self-Identification
Sensory-Motor Integration
Shape/Size/Form Differentiation/ Discrimination
Unilateral Activities

Tactile Development

Active Touch
Discrimination of Textures, Size, Shape, Form, Coins, Materials
Passive Touch

Visual

Acuity
Binocular
Closure
Constancy
Copying
Differentiation
Discrimination
Equilibrium
Figure-Ground Relationships
Imagery
Matching
Memory
Monocular
Ocular Control
Ocular Pursuit
Patterning
Sequencing
Shifting
Spatial Relationships
Steering
Tracking
Transformation

A PERCEPTUAL TEST BATTERY: DEVELOPMENT AND STANDARDIZATION
University of Chicago Press with the Department of Education of the
University of Chicago 5801 Ellis Ave., Chicago, Illinois 60637

WHAT IS MEASURED	HOW MEASURED
Auditory discrimination	Differentiation as to whether word pairs read aloud are the same or different
Auditory memory span	Repetition of words beginning with a set of two and progressing through a series of six
Auditory sentence memory	Repetition of sentences varying in length from four to 15 words
Auditory sequencing span	Recall of digits in form of familiar digit span forward test; recall of digits is used to assess sequencing ability rather than simple recall
Visual form discrimination	Differentiation of relatively gross differences in visually presented forms
Visual form memory	Recall of free forms not easily identifiable by name

Administration of Test: Test is designed to explore auditory and visual perceptual processing abilities of children from five through eight.

PHYSICAL ABILITY RATING SCALE
University Hospital School
Iowa City, Iowa 52240

WHAT IS MEASURED	HOW MEASURED
Includes 230 specific test items administered to children of varying ages. Items range from toilet habits, ability to lift glass, grip, dressing one's self, feeding one's self, to a variety of physical and motor skills including building towers, copying, drawing, jumping, hopping, skipping, running, galloping, balancing, walking, climbing, throwing, catching, etc.	Skills are measured by periodic tests given during the youngster's stay at the hospital.

Administration of Test: Test rates child on how many tasks can be performed successfully; comparisons are made of results from test administered when child first enters hospital with repeated administrations every three months. Tasks are divided into those from birth through 72 months and broken down by age level so that expectations and performances can be realistically compared. Items related to activities of daily living are rated by occupational therapy and nursing departments; remaining activities are rated by physical education department. Test can be spread over many sessions and given informally with teachers and other personnel keeping a rating check list form and noting periodically how the youngster is doing. Norms are available and a youngster's performances can be compared with those of other children his own age.

Comments: Test can provide a variety of clues for preparing a shorter test battery for physically handicapped children in differing educational and residential settings.

MOTOR DEVELOPMENTAL ACTIVITIES FOR THE MENTALLY RETARDED
Louis Bowers, Division of Physical Education
College of Education, University of South Florida
Tampa, Florida 33620

WHAT IS MEASURED	HOW MEASURED
Neuromuscular development	Contains complete developmental sequences for balance, movement exploration, trampoline, perceptual-motor activities, catching, throwing, bouncing, and kicking.

Administration of Test: Not really a test but a listing of developmental sequences. Provides a discussion of developmental sequences and approaches and suggests activities to evaluate neurological fitness.

Comments: Also available from the author are:

- A modified Perceptual-Motor Survey which permits the teacher/leader to evaluate a youngster's ability to identify body parts, imitate movements made by the examiner, and demonstrate awareness of body in space.
- A test of locomotor development with heavy emphasis on ability to move the total body while shifting weight from one foot to another, to jump and land with control, and to move the limbs across the midline.

A PSYCHOEDUCATIONAL INVENTORY OF BASIC LEARNING
Fearon Publishers
6 Davis Drive, Belmont, California 94002

WHAT IS MEASURED	HOW MEASURED
Gross-motor development	Rolling, sitting, crawling, walking, running, throwing, jumping, skipping, dancing, self-identification, body localization, body abstraction, muscular strength, general physical health
Sensory-motor integration	Balance and rhythm, body-spatial organization, reaction-speed-dexterity, tactile discrimination, directionality, laterality, orientation
Perceptual-motor skills	Auditory acuity, auditory decoding, auditory-vocal association, auditory memory, auditory sequencing, visual acuity, visual coordination and pursuit, visual form discrimination, visual figure-ground differentiation, visual memory, visual-motor memory, visual-motor fine muscle coordination, visual-motor and spatial-form manipulations, visual-motor speed of learning, visual-motor integration
Language development	Vocabulary, fluency and encoding, articulation, word attack skills, reading comprehension, writing, spelling
Conceptual skills	Number concepts, arithmetic processes, arithmetic reasoning, general information, classification, comprehension
Social skills	Social acceptance, anticipatory response, value judgments, social maturity

Administration of Test: In the six major classifications of the Inventory, 53 major items are evaluated as shown in the column at the right. There are three task levels for each item. Levels are: B—generally accomplished by primary level youngsters; M—generally accomplished by middle elementary age groups; A—advanced tasks that are generally accomplished by older elementary pupils. Inventory can be admin-

istered by special education teachers, remedial specialists, educational therapists and consultants, psychologists, and others concerned with learning problems of children. Major use is with exceptional children for whom highly specific instructions must be devised. Inventory should always be administered on an individual basis and take as long as necessary to provide valid information and make the subject comfortable. Inventory is not a standardized instrument and relies entirely on examiner's subjective judgment and experience with respect to rating to be employed and the nature of the remedial program required. The examiner's kit, in addition to the accompanying workbook, includes a teaspoon, beads, texture ball, old newspapers, softball, jump rope, records and record player, hand mirror, brick, playing cards, books, paper bag, nail; stick, and pencils, sticks (of two, four, and six inch lengths), letters (wood, cardboard, or plastic), square wood blocks, scissors, cardboard, paper towel roll, yardstick, wristwatch, thumbtacks, pictures, six coins, half inch bolts, washers, and nuts. A pupil's response to each educational task is evaluated and noted by placing an X in the appropriate column—VW—very weak performance; W—weak performance; A—average performance; S—strong performance; VS—very strong performance. An overall rating for each learning ability should be made and checked on the appropriate form. Overall ratings of weak or very weak in any category indicate a disability and youngsters should be programmed accordingly.

Comments: Inventory was developed as an aid in the initial evaluation of elementary and junior high pupils with suspected learning disabilities. Inventory can be used for pupil placement in, or recommendation for, some type of special education class or educational therapy. The basic assumption is that the teacher of children with learning disabilities must begin with an evaluation of major educational tasks as a prerequisite to any meaningful curriculum development or remedial plan. Inventory should prove most helpful when used by the teacher in conjunction with a psychoeducational consultant such as a school psychologist who follows up with more specialized examinations.

INDIVIDUAL MOTOR ACHIEVEMENT GUIDED EDUCATION
The Devereu Foundation Press
Devon, Pennsylvania 19333

WHAT IS MEASURED	HOW MEASURED
Sequential motor activity	Pronation-supronation heel-toe tapping, finger wiggle
Fine motor ability	Opposition patting, foot patting, finger tapping
Static balance	Modified station, one-leg stand
Perceptual-motor activity	Alternate finger to nose, alternate heel-to-knee, heel-to-toe, heel-toe walking

Administration of Test: Test, known as IMAGE, is primarily for emotionally handicapped and/or neurologically impaired children between the ages of four and ten. It can be administered individually to a child by a teacher in 20 minutes. A youngster

showing a marked deficit in any of the four primary areas can be placed in an appropriate primary program designed to remediate a particular deficit. If a child's scores are consistent in all four areas, his total score may indicate placement in one of three general programs—basic, remedial, or skill development. Part of the program beyond the test involves use of the IMAGE kit which weighs 44 pounds and utilizes standardized equipment to remediate deficiencies in performing sequential movement tasks, spatial orientation, fine motor control, and perceptual-motor activity through the use of 373 suggested activities.

Comments: IMAGE program offers a method of measuring a child's present level of motor functioning and remediating his major motor deficits through an individualized exercise program. Fundamental premise of IMAGE centers on the direct relationship between a child's level of motor performance and his social, emotional, and academic abilities. Program utilizes a specially designed IMAGE kit, an instructional manual, a booklet of DTEC (Deveroux Test of Extremity Coordination) score sheets, and a set of IMAGE profiles from which the teacher can implement individual activities programs for each child. The IMAGE manual offers an easy step-by-step approach to the program and defines each activity. It also includes appropriate exercise activities divided into sequential developmental phases according to levels of difficulty and examples of weekly programs.

KINDERGARTEN AUDITORY SCREENING TEST
Follett Educational Corporation
1018 West Washington Boulevard, Chicago, Illinois 60607

WHAT IS MEASURED	HOW MEASURED
Auditory perceptual skills	Discrimination of same and different word pairs, analysis and synthesis of words, figure-ground distinction

Administration of Test: Test can be administered by classroom teacher or specialist to students in groups of six to ten in about 20 minutes. Children listen for speech against a noisy background, synthesize phonemes into words—sound blending—and tell whether words are the same or different—auditory discrimination. Scoring of each of three subtests takes one to two minutes. Students mark answers in picture response books.

Comments: Test identifies children with auditory perceptual problems that may lead to learning disability, particularly in reading. Children who fail one or more of the subtests should be referred to specialists for further evaluation. Teacher's Guide provides instruction on administration of test, scoring, and background information about the process of auditory perception and its importance to early education. Test results provide clues or offer guidelines for developmental training in auditory perception.

A MOVIGENIC CURRICULUM
Bureau for Handicapped Children
State Department of Public Instruction
Madison, Wisconsin 53706

WHAT IS MEASURED

Muscular strength (pulling, lifting, pushing)

Dynamic balance (recovery, maintain alignment, sustain transport patterns)

Spatial awareness (rotation in space, labeling directions in space, basic lateral patterning, visualization of space, reorganization of space, reproduction of design in space, rolling in space, variable transport in space)

Body awareness (body image, function of body parts)

Visual dynamics (visual steering, visual tracking, sustained attention, visual shifting, visual memory)

Auditory dynamics (expressive audition, receptive audition, listening games)

Kinesthesia (gross movement patterning, fine movement patterning)

Tactual dynamics (active touch, passive touch)

Bilaterality

Rhythm

Flexibility

Motor planning

HOW MEASURED

Many items are provided to help teachers and other personnel evaluate specific characteristics noted and to plan activities, curricula, and approaches to help boys and girls with specific deficiencies

Administration of Test: Not really a formal test but rather a detailed curriculum for children with learning problems; approaches are included that can be used for identification and remediation.

Comments: Guide provides analysis of curriculum planning and activities for children with special learning problems. It explains concept of movigenics and offers information on rationale, research findings, planning, practical activities and approaches, and placement factors. Guide contains sample planning forms for specific movigenic learning in specified areas.

MOVEMENT PATTERN CHECKLIST
Margaret M. Thompson, Department of Physical Education
University of Illinois
Urbana, Illinois 61801

WHAT IS MEASURED	HOW MEASURED
Walking, running, jumping, hopping, skipping, sliding, crawling, climbing, rolling, standing, throwing, catching, hitting, kicking, pushing, pulling	Youngsters are evaluated on ability to perform movements as directed on specific checklist patterns for each movement.

Administration of Test: Checklists are used to evaluate basic movement patterns and provide status assessment of patterns fundamental to human performances which form foundation for human movement behavior. Checklist can be used by either trained or untrained persons in varying situations according to need. Classroom teachers, special education teachers, physical education teachers, counselors, clinicians, and parents can administer test in one or two physical education periods. As many evaluations as possible should be performed during the same session, but administrators of tests should try not to combine evaluations concurrently from the same activity; try to complete evaluation of one pattern before moving to another. Evaluations should be made on specific checklists provided for each activity. Applicable comments should be made on the child's checklist for each movement. Checklists are adaptable for use either on file cards (4 by 6 size) or on paper for inclusion in a record folder. In addition, there is a Movement Pattern Profile Sheet for use in summarizing information from checklists for each child. There is also a Movement Pattern Checklist—Short Form for use in evaluating general elements and deviations on all patterns on a single sheet. This can serve as a screening device and provide a picture of fundamental pattern characteristics.

Comments: Requires a minimum of equipment, space, or special instructions for the child. Test provides educators with much useful data on movement patterns of individual children.

MOVE-GROW-LEARN: MOVEMENT SKILLS SURVEY
Follett Educational Corporation
1018 West Washington Boulevard, Chicago, Illinois 60607

WHAT IS MEASURED	HOW MEASURED
Coordination and rhythm	
Gross motor	Tumbling, running, skipping, hopping, rope jumping, throwing
Fine motor	Drawing, coloring, writing, cutting
Eye motor	Bead stringing, beanbag catching, ball catching and kicking, ball bouncing games, tetherball

Agility	Dodgeball, shuttle runs, sitting to standing exercises
Flexibility	Toe touching exercises, back bends
Strength	Trunk and shoulder girdle: sit-ups, leg lifts, and push-ups; limbs (hands, arms, legs): pull-ups, jungle gum activities, broad jump, rope climbing
Speed	Running (games and races)
Balance	
Static	Standing on tiptoe, standing on one foot with eyes opened and/or closed
Dynamic	Walking (different directions and movements) on a balance beam
Object	Carrying beanbag on head
Endurance	Distance running, basketball, soccer (similar games)
Body awareness	Relaxing, discriminating right and left

Administration of Test: Survey is not a standardized psychometric instrument in which developmental norms are provided for each age level. Assessment is based on examiner's observations of the child in classroom, playground, and gymnasium activities. Ratings are from 1 through 5: 1—severely impaired; 2—mildly impaired; 3—adequate; 4—good; 5—excellent. Ratings of 1 and 2 indicate that considerable training is needed in the particular skill; a rating of 3 shows that some additional training is needed in the particular skill. Children who receive ratings of 4 and 5 in particular skills can benefit from challenging movement education experiences centering around the specific skills.

Comments: This survey was developed to assist classroom teachers, movement education supervisors, school psychologists, and other professional school personnel in evaluating selected aspects of a child's motor development. The survey is intended for use with the Frostig-Maslow *Move-Grow-Learn* program and with *Movement Education: Theory and Practice*. Move-Grow-Learn Movement Skills Survey Form should be prepared for each child. The form sheet contains references to the Move-Grow-Learn Training Activities in each of the eight movement areas. Children under eight should not be rated on endurance.

THE TEACHING RESEARCH MOTOR-DEVELOPMENT SCALE FOR MODERATELY AND SEVERELY RETARDED CHILDREN
Charles C. Thomas Publisher
Springfield, Illinois 62717
1972

WHAT IS MEASURED

Motor coordination—17 types of motor test activities are used with built-in interest and motivational features; test items reflect specific motor and fitness aspects tested

HOW MEASURED

Tests of varying degrees of difficulty in each category are used to evaluate a child's ability to:

Stand and crouch on tiptoes

Stand heel to toe, stand on one foot

Jump on toes rapidly; jump a bar at gradually increasing heights

Perform a sequence of walking tasks of gradually increasing difficulty

Imitate movements

Touch nose and fingertips, close and open hands alternately, tap rhythmically with feet and fingers

Step over a knee-high obstacle, duck under a shoulder-high obstacle, pass between obstacle and wall

Place matchsticks and coins in a box

Wind thread and wind thread while walking

Tap paper with pencil so as to make dots, draw lines, trace large and small mazes

Cut paper with scissors, cut a straight line, cut a circle

Catch tossed ball with two hands, bounce ball and catch with one hand, bounce ball with one hand five times, catch tossed ball with one hand

Throw a ball six feet, throw a ball six feet inside a six-foot arc, throw tennis ball at target

Hang from a pull-up bar, pull-up to eye level, pull-up

Lift head and shoulders off floor, do sit-ups

Push-up head and shoulders, do knee push-ups, do regular push-ups

Run 50 feet, run 100 yards, run 220 yards

Administration of Test: Test may be administered at one sitting or conducted during several testing periods by a teacher or other professional. Needed materials include wooden boxes, wooden spools, thread, matchsticks, balls, wooden targets, poles, mazes, pencils, scissors, sponge mats, pull-up bars, chalk, tape, or paint. An overall motor development score is provided by adding points earned in each of 17 test categories. Range of scores, sequence of tasks in each category, and divergence of ability and skill permits adaptation for children of preschool age through high school. No norms are used. Each child is treated as an individual.

Comments: This motor development scale can form the basis of a comprehensive physical education program for impaired, disabled, or handicapped persons.

MVPT MOTOR-FREE VISUAL PERCEPTION TEST
Academic Therapy Publications
1539 Fourth Street, San Rafael, California 94901

WHAT IS MEASURED	HOW MEASURED
Spatial relationships Visual discrimination Figure ground Visual closure Visual memory	These five major aspects of visual perception are stressed in the 36-item multiple choice test in which children are asked to answer questions regarding which one of four drawings is correct in terms of requested relationship to a master drawing

Administration of Test: MVPT is a 36-item individually administered multiple choice test that can be given by a teacher or other professional educator to children between the ages of five and seven in less than 10 minutes. The only required response is that the subject point to the one of four alternatives that he thinks is correct. The examiner records subject's response by marking the appropriate space on the accompanying scoring sheet. Generally accepted administrative procedures for standardized testing should be followed. A youngster's perceptual age is determined by his raw score or number of correct answers.

Comments: MVPT is a test of visual perception that can be used by teachers, psychologists, educational specialists, and others who need a quick, highly reliable, and valid measure of overall visual perceptual processing ability. The MVPT avoids motor involvement and is practical for screening, diagnostic, and research purposes.

THE PERCEPTUAL-MOTOR ATTRIBUTES OF MENTALLY RETARDED CHILDREN AND YOUTH

The Los Angeles County Department of Parks and Recreation, and the Special Education Branch, Los Angeles City Schools
450 N. Grand Avenue, Los Angeles, California 90012

WHAT IS MEASURED	HOW MEASURED
Body perception	Level I—youngster imitates tester in lying on back, stomach, and sides with legs in position demonstrated and explained by examiner; Level II—youngster demonstrates knowledge of left and right and of body parts such as arms, elbows, knees, and hands by raising specific body parts and by touching body parts to other body parts
Gross agility	Level I—youngster rises up from position on mat and faces tester; Level II—youngster kneels down on one leg at a time and then stands up on one leg at a time
Balance	Level I—youngster balances on left foot using arms to assist him; youngster balances on one foot with arms folded across chest; Level II—youngster demonstrates ability to perform a series of balancing activities standing on one foot with arms in various positions and eyes opened or closed
Locomotor agility	Level I—youngster demonstrates ability in cross-pattern crawling and walking, jumping forward and backward on two-feet, and hopping; Level II—youngster demonstrates ability to jump straight ahead, in empty squares on a mat, backwards down mat and land in six squares; hop down mat and land in six squares, hop in empty or unmarked squares
Ball throwing	Level I—youngster imitates examiner in throwing a playground ball using a one-hand overhand throw; Level II—youngster tries to hit target painted on mat using playground ball
Ball tracking	Level I—youngster tries to catch playground ball bounced to him by examiner; Level II—youngster tries to touch a softball hung on a string and swung by tester

Administration of Test: Test is divided into two levels in each category and should be administered individually by a teacher or qualified tester in a room approximately 30 by 30 feet, with a ceiling about nine-feet high. Test should take about 30 minutes, depending on whether part or all of the second level is administered. Tester should describe each test item and demonstrate as often as necessary to create understanding exactly the way movement is to be executed. Tester should follow explicit directions provided for each item and positively reinforce and encourage children who may ask how they are doing. Instructions as to order of administering tests and scoring are provided as is guidance on when to administer Level II. To establish rapport between tester and child, the youngster should be introduced to the tester who should say that "we will be playing some games for a few minutes." The word *test* should not be used. Required equipment includes playground balls, rubber softball, standards for holding the swinging softball, foam-plastic canvas covered mat 4 feet by 6 feet which should be marked with 12-one-foot squares and a two-foot by two-foot target should be on the reverse side of the mat (black oil cloth square is recommended), clip board and scoring sheet, and stop watch or watch with a second hand is needed. Decile rankings by age are provided for: trainables (5-24 years of age); educables (5-20 years of age); educationally handicapped (5-16 years of age); Down's Syndrome (5-22 years of age). Norms are provided for each test for youngsters of each category in each age group.

Comments: Manual includes complete rationale and explanation of test.

THE 3-D TEST FOR VISUALIZATION SKILL
Academic Therapy Publications
1539 Fourth Street, San Rafael, California 94901

WHAT IS MEASURED	HOW MEASURED
Level I	
Test I—shape identification	Identification of a sphere placed in hands held behind back; subject then draws any color that will help him remember what he felt; repeat process using a pyramid, and then a cube
Test II—size perception	Large and small forms are put on table; children are asked about them, including picking similar forms, describing differences, and drawing the forms
Test III—visual equilibrium	Look at all pictures child has drawn and ask series of questions relating to whether drawings are in middle of paper, how they are standing (straight up, circular, etc.)
Level II	
Test I—visual memory	Use either three or six forms and build something with child; then ask child to draw what was seen or built

Test II—operational-imagery	Ask youngster whether what he has made or drawn (what he did in visual memory test) reminds him of anything he has seen or done; ask him what it reminds him of and if he can add anything to make it look more like the object, etc.
Level III	
Test I—transformation	Put six geometric shapes on table and have child place them in two separate lines with a space down the middle that looks like a street; have youngsters select one shape to be a friend and place him at end of street; ask series of imaginary questions about clothes, size, shape, etc. as friend starts walking closer to child; idea is to describe whether friend is bigger, colors are brighter, etc., as he is closer to child

Administration of Test: Test may be given individually or in groups to children between ages of three and eight. Administered individually, the test for children between three and five can be given by a teacher in 20 minutes. An individually administered test for six to eight year olds takes about 25 minutes since they are more apt to complete the test and younger children would probably not do so. Giving test to a group of 10 to 15 children takes about 35 minutes, but this will vary depending on age and number of skilled aides available. For over 30 children, 40 minutes are needed. Required materials are: set of six three-dimensional geometric forms for each child; four 9" x 15" sheets of white drawing paper and a box of colored chalk for each youngster; small table with a chair for child and tester or aide; pencil and check sheet; box with lid to hold testing materials out of sight until they are used. Complete directions for scoring and administering test are provided but no specific norms have been established.

Comments: Test booklet contains detailed instructions and illustrations for administering test including sample scoring sheets, sample dialogue, and much detail to help the teacher evaluate results and elicit responses and actions from the child. The three levels and subtests in each level place the visualization skills in sequence. Children should not be tested beyond their ability. A whole section is devoted to activities to help overcome specific deficiencies.

Notes:

PERCEPTUAL-MOTOR SURVEY

Matthew E. Sullivan, Physical Education Consultant
Special School District of St. Louis County
12100 Clayton Road, Town and Country, Missouri 63125

WHAT IS MEASURED	HOW MEASURED
Balance (static and dynamic)	Crouching on tiptoes; standing on one foot then the other; walking forward, backward, sideward (step-close, cross step) on balance beam; turning on balance beam; picking up objects; balancing on seat, abdomen
Awareness of self	Location of body parts; busy bee activities; basic movement skills (crawling forward and backward, arm movements, arm and leg coordination); locomotion skills (walking, running, sliding, leaping, hopping, galloping, and skipping); mimetics; stunts on the mat (log roll, cradle, rocking horse, bridge, forward roll, backward roll) and apparatus (climb stairs, climb ladder, front arm support, front turn, skin the cat, bird nest)
Spatial orientation	Location of self still and moving; stepping stones; ball skills (bouncing, kicking, throwing and catching, beachball self-volley); rope skills (jump the shot, long rope jumping, short rope jumping)

Administration of Test: Teacher can score or evaluate during group activity. Test activities can be used to measure changes and improvement of participants in specific activities any time during the year but the whole test battery should be given twice a year. Test can be given to a group or individual and be administered at the convenience of the teacher as part of a class routine. Specific and simple directions for administering the test and for scoring are provided. Required equipment includes a stop watch, balance beam, erasers, fiber barrel, pictures of animals or objects, mats, ordinary stairs, rung ladder, horizontal bar, large area (circle, half a basketball or volleyball court), foot prints, several playground balls, several beachballs, string, safety pins, rubber bands, crayons, and ropes.

Comments: Survey is a complete screening test which classroom teachers can easily administer. Best results occur when survey is administered by two teachers with classes working together with one teacher serving as leader while the other scores the test for each child. While it is recommended that the test be given twice a year—in the early fall and late spring—teachers can constantly work on areas of weakness and continuously evaluate progress made by the whole group and/or individual children.

FROSTIG DEVELOPMENTAL TEST OF VISUAL PERCEPTION
Consulting Psychologist Press, Inc.
577 College Avenue, Palo Alto, California 94360

WHAT IS MEASURED	HOW MEASURED
Eye-motor coordination Figure-ground Constancy of shape Perception of position in space Perception of spatial relations	A paper and pencil test using figures and requiring youngsters to exhibit understanding and perceptual competency in these areas

Administration of Test: Test, which should be administered by a psychologist, testing specialist, reading specialist, or trained teacher, can be given to a group in about 50 minutes and to an individual in 30 to 45 minutes. Norms are available from preschool through grade 3 (4 years through 7 years 11 months). Overall results may be recorded in perceptual quotients which readily reveal a child's deviation from the expected perceptual development for his age.

Comments: Identifies children with visual perceptual problems that may cause learning problems and serves as basis for diagnostic and remedial planning. Remediation with Frostig Remediation Program or Frostig Pictures and Patterns is recommended. An accompanying Teacher's Guide (*The Frostig Program for the Development of Visual Perception* by Marianne Frostig and David Horne, available from Follett Educational Corporation, 1010 West Washington Boulevard, Chicago, Illinois, 60607) provides rationale and exercises and lesson plans for each area covered by the test.

OSERETSKY TESTS OF MOTOR PROFICIENCY
American Guidance Service, Inc.
Publishers' Building, Circle Pines, Minnesota 55014

WHAT IS MEASURED	HOW MEASURED
Static coordination	Static balance tests requiring youngsters to remain standing, to stand on tip toes, to stand on one leg, to maintain crouched position on tip toes, to remain standing with weight on one leg, to stand motionless with weight on one foot
Dynamic manual coordination of hands	Subjects touch point of nose with index fingers, roll up square of silk, throw a ball at target, trace through two mazes with pencil, touch all finger tips of same hand to thumb simultaneously, cut out a circle, catch a ball, balance a rod on index finger, touch thumbs to index fingers of opposite hands

General dynamic coordination	Subjects jump up and down without losing balance, hop, walk a line with eyes open, push a matchbook using preferred foot, jump over rope and land without losing balance, jump as high as possible while clapping hands, jump onto a chair seat without losing balance, jump and strike heels with hands at same time
Motor speed	Youngsters put coins in a box, roll a thread on spool, draw perpendicular lines, distribute playing cards into piles, run and pick up match sticks and place them in piles as well as performing other tasks using match sticks, leaf through a book page by page for 15 seconds, make piles of match sticks, punch a pin through design of perforations, make dots with a pencil point, run and interchange small items on table followed by drawing three crosses. Time limits are provided for tasks assigned to each age group.
Simultaneous movement	Subjects describe circles in air using index finger of each hand, put matchsticks in box, walk around room holding spool of thread in one hand which is rolled onto index finger of other hand, tap floor with feet in alternating pattern using any rhythm, tap feet in alternate pattern in any rhythm while tapping top of table with index fingers of same hand, perform tapping tasks combining foot and finger movements, make dot with two pencils—one in each hand—on two different sheets of paper, place coins in one box and match sticks in another box simultaneously, draw vertical lines on one sheet of paper and crosses on another simultaneously
Synkinesia	Youngsters clasp examiner's hands in specified sequences, clench teeth and show them by parting lips, strike a table top forcefully several times with mallet, knit eyebrows without making other movements, wrinkle the forehead without making other movements, raise legs and alternately extend and flex each foot starting from reclining position in chair, close and open the right eye and after five seconds the left eye, close and open hands alternately, close right and left eyes alternately for ten seconds, open and close hands alternately while simultaneously bending open hand toward closed one

Administration of Test: Test, which takes 45 minutes, is administered individually by an examiner and resembles Binet Intelligence Test in construction. It is scored on a pass-fail basis with different components of each major test category provided for each age level from four through 16. Test distinguishes four grades of motor proficiency. Specific directions are given for each test item at each age level. A complete set of test equipment, including manual and 25 individual record blanks, is available for $32.00.

Comments: Pantomime demonstrations of instructions reduce the intellectual factor with respect to performance on test. Six basic types of tests are provided for each group. Several revisions have been made in test by American Investigators: R. L. Berk, *A Comparison of Performance of Subnormal, Normal, and Gifted Children on the Oseretsky Tests of Motor Proficiency* (Doctoral Dissertation, Boston University School of Education, 1957); R. H. Cassel, "The Vineland Adaptation of the Oseretsky Tests," *Training School Bulletin* (1949, 46: 3 and 4. Monograph supplement, series number 1); William Sloan, "The Lincoln-Oseretsky Motor Development Scale," *Genetic Psychology Monograph* (1955, 51:183-252); Keith M. Kershner, Russell A. Dusewicz; and John R. Kershner, "The KDK Adaptation of the Vineland Oseretsky Motor Development Tests: A Group Testing Technique" in John R. Kershner's, *An Investigation of the Doman-Delacato Theory of Neuropsychology as it Applies to Trainable Mentally Retarded Children in Public Schools* (Harrisburg, Pennsylvania, Department of Public Instruction, May 1967, pp. 63-103). There appears to be some question as to just what motor traits these test items do measure.

EARLY DETECTION INVENTORY (EDI)
Follett Educational Corporation
1018 West Washington Boulevard, Chicago, Illinois 60607

WHAT IS MEASURED	HOW MEASURED
Social-emotional behavior responses	Assesses child's self-control, independence, pleasantness, feeling of comfort, responsiveness, attention span, ability to follow directions, cooperativeness, confidence, enthusiasm
School readiness tasks	Determines whether child knows name, address, phone number, birth date, colors; can count to 13; knows right from left; can tie shoestring or bow; recognizes penny, nickel, dime, quarter, can make picture of a person; can reproduce circle, cross, square, triangle, rectangle, diamond, divided rectangle
Motor performance	Includes gross motor coordination, fine motor coordination, hand preference and eye perference; gross motor abilities tested include walking a straight line, jumping, hopping, skipping, galloping; fine motor factors considered are posture, position or grip on pencil and crayon, reproduction of geometric forms

Physical information	Eye, dental, hearing, and speech examination; histories are compiled
Family and social history	Questionnaire on pertinent socio-economic factors included
Medical history	Questionnaire relating prenatal care, birth, child's history, and family history

Administration of Test: The inventory is simple and does not require intensive training to administer. Children are evaluated individually. School readiness tasks can be administered by a teacher in about 20 minutes. Physical examination and history taken by other professionals requires about 45 minutes. Parent accompanies child. In addition to EDI, following materials are needed: eight crayons (red, yellow, blue, green, orange, purple, black, brown); thirteen pennies; one nickel, dime, and quarter; child's lace-up shoe; two pencils; pictures to be colored; and six-inch cardboard square with one-inch hole in center. A three-point scale is used to rate the three major areas—social-emotional behavior responses, school readiness tasks, and motor performance.

Comments: Test identifies children with potential problems, i.e., social, emotional, or physical. Results offer guidelines for curriculum planning. The Early Detection Inventory helps school personnel evaluate a child's strengths and weaknesses in skills essential to successful school experiences. It is a basic screening inventory designed for use with children entering kindergarten, first grade, nursery school, Head Start, transitional, or ungraded primary classes. Among identifiable areas that may relate to learning difficulties are (1) lack of gross motor coordination; (2) lack of fine motor coordination; (3) poor adjustment to basic life experiences; (4) marked language disorder symptoms; and (5) excessive anxiety or fear. The manual for the early detection inventory is well-written, explicit, and clear. It contains much information on organizing clinics and programs to overcome deficiencies.

Notes:

THE PURDUE PERCEPTUAL-MOTOR SURVEY
Charles E. Merrill Publishing Company
1300 Alum Creek Drive, Columbus, Ohio 43216
1966

WHAT IS MEASURED	HOW MEASURED
Balance and posture	Walking forward, backward, sideways on walking board; performing a series of eight tasks evaluating ability to jump, hop, and skip while maintaining balance
Body image and differentiation	Identification of body parts, imitation of movement, obstacle course activities, Kraus-Weber Test, angels-in-the-snow
Perceptual-motor match	Making circle, double circle, lateral line, and vertical line on chalkboard; performing eight rhythmic writing tasks

Ocular control	Ocular pursuits of both eyes, right eye, left eye, and convergence are tested
Form perception	Seven geometric forms—circle, cross, square, triangle, horizontal diamond, vertical diamond, and divided rectangle—are drawn on sheet of paper

Administration of Test: *The Purdue Perceptual-Motor Survey* is not a test. It is a survey which allows teachers, psychologists, therapists, etc. to observe a broad spectrum of behavior within a structured, but not stereotyped, set of circumstances. The book contains procedures for administering and scoring the survey which includes a variety of specific perceptual-motor test items. Rationale and development, standardization statistics, and practical use and application of the survey are also included. Clear and precise instructions for scoring and administering each test item are included, with illustrations to clarify exactly what the youngster is expected to do. Forms for recording performance for each youngster are provided.

Comments: The main purpose of the manual is to provide the teacher with a tool which can be used to identify children who do not possess perceptual-motor abilities necessary for acquiring academic skills. Much of this same information can be found in N. C. Kephart, *The Slow Learner in the Classroom* (Columbus, Ohio: Charles E. Merrill Books, Inc., 1971). *Winter Haven's Perceptual Testing and Training Handbook for First Grade Teachers*, Genevieve I. Curry, Winter Haven Lions Research Foundation, Inc., P. O. Box 111, Winter Haven, Florida, 33880, also utilizes much of the materials used in the *Purdue Perceptual-Motor Survey*.

THE DOMAN-DELACATO DEVELOPMENTAL MOBILITY SCALE
The Rehabilitation Center at Philadelphia
8801 Stenton Avenue, Philadelphia, Pennsylvania 19063

WHAT IS MEASURED	HOW MEASURED
Movement without mobility	Rolling over, rolling in a circle or backward
Crawling	Crawling without pattern, homologously, homolaterally, cross pattern
Creeping	Creeping without pattern, homologously, homolaterally, cross pattern
Walking	Cruising (pulling self erect and walking holding furniture), walking without help and without pattern, walking cross pattern

Administration of Test: Test is a reproduction of stages and levels of mobility development through which normal children progress from birth to achievement of perfect

walking. Scale is designed to provide a comparative mobility measure for brain-injured children. Manual contains information on how infants move arms and legs in stages of development through walking. Four stages—movement without mobility, crawling, creeping, and walking—are outlined with 13 levels. For each level there is a description of age range and brain level for normal infants. Each activity is illustrated and clearly explained with instructions for parents and others working with the child.

Comments: Scale was developed as a result of several years of research, observation, and experimentation relating to how infants move consecutively through stages and levels of development. Each stage and level is defined and represented pictorally. A developmental chart on which progress for brain injured and other youngsters in need of help can be plotted is contained in the manual.

BASIC MOTOR FITNESS
Donald A. Hilsendager, Department of Physical Education
Temple University, Philadelphia, Pennsylvania 19122

WHAT IS MEASURED	HOW MEASURED
Walking	Coordinated opposites (left arm-right foot)
Balance	Walk across balance beam 12 feet long and four inches wide
Crawling	Coordinated opposites (left arm-right leg, etc.) across mat a distance of four feet keeping abdominal area in contact with mat
Creeping	Creep across mat on hands and knees using principle of coordinated opposites
Balance	Stand stable for 15 seconds with eye closed
Lateral balance	Stand on one foot for five seconds and then the other—eyes open
Coordination	Jump off bench 18 inches high and land on left foot, then right foot, then both feet simultaneously
Climbing steps	Climb any available steps using alternate foot sequence
Hopping	Hop on each foot three times and both feet three times
Skipping	Skip smoothly for six feet without holding on to anyone else or taking an extra step or hop

Marching	March in place for 15 seconds while maintaining an unbroken cadence
Ball handling	Using a soft cloth ball, youngster will catch a ball thrown from six feet, throw a ball six feet with right hand and six feet with left hand, kick ball rolled to him, pick up ball from ground
Ball bounce and catch	Bounce an eight-inch playground ball on ground and catch it

These first 13 items are considered qualitative. If a youngster fails to pass three of them on a pass-fail basis, he does not participate in the 13 quantitative activities.

Flexibility	Using a special flexibility tester (The Wells-Dixon Sit and Reach Test may be substituted)
Explosive leg power	Standing broad jump
Balance	Two balance beams are tapered down and youngsters walk heel-toe fashion down the beams as far as they can before falling off
Abdominal strength and endurance	Sit-ups
Upper arm and shoulder strength and endurance	Medicine ball put, using five pound medicine ball
Hand grip strength	Right and left grip strength is measured using the Jamar Manuometer
Pushing	The Manuometer push and pull attachment is used
Pulling	The Manuometer push and pull attachment is used
Speed	35-yard dash
Agility	Agility run
Cardiorespiratory endurance	300-yard run-walk
Overall endurance	Endurance index combining scores on 35-yard dash, agility run, and 300-yard run-walk

Administration of Test: Test contains 13 qualitative—i.e. pass-fail—and 13 quantitative items—i.e. measured items. Qualitative measures are concerned with fundamental motor skills and quantitative items measure more specific motor skills.Equipment needs are noted under "How Measured." Test is individually administered. Permission to use is required.

THE BASIC CONCEPT INVENTORY
Follett Educational Corporation
1018 West Washington Boulevard, Chicago, Illinois 60607

WHAT IS MEASURED	HOW MEASURED
Identification of concepts often used in verbal directions; find various types of persons, animals, objects; identify what they can do; identify colors and size; identify specific actions; identify and differentiate between such things as not more than, between, next to, tallest, biggest, body parts, sex, and names	Use of pictures on a multiple choice, yes/no, or pass/fail basis
Repetition of statements regarding specific facts and concepts and the ability to answer questions regarding statements	Repeat statements and ability to answer questions regarding them
Ability to perform specific acts, repeat numbers in sequence, and identify objects	Youngsters clap, slap table, and clap in various sequences; repeat numbers in groups of two, three, and four; identify flowers, milk, table

Administration of Test: Test can be used effectively for youngsters at preschool level through third grade (up to age 10). Test should be administered individually by teacher if results are to be used for remediation and by a clinician if results are to be used for diagnosis. Test takes 30 to 60 minutes to administer.

Comments: Test is a broad checklist of basic concepts that are involved in new learning situations in the primary classroom. It indicates whether a child is familiar with basic concepts, has knowledge of plurals and pronouns that are frequently used in explanations and instructions. Test also shows whether a child is familiar with conventional statements and can understand them and whether he can perceive the familiarity of elements sequenced in a pattern. Test is particularly useful with experientially deprived preschool and kindergarten children, slow learners, emotionally disturbed, and mentally retarded youngsters.

EVANSTON EARLY IDENTIFICATION SCALE
Follett Educational Corporation
1018 West Washington Boulevard, Chicago, Illinois 60607

WHAT IS MEASURED	HOW MEASURED
Body awareness	Ability to draw a picture of a person
Emotional-social development	Ability to draw a picture of a person

Administration of Test: Test can be administered individually or to a group by a teacher in 15 to 20 minutes. A ten-item weighted scale is used for scoring. Test is recommended for use with children between ages of five through six years and three months to help identify children who can be expected to have learning disabilities.

Comments: Test serves as a simple check on body awareness and indicates whether additional classroom work is necessary to teach and/or reinforce knowledge of body parts. Children with marginal scores are identified and should be watched closely for onset of specific difficulties. Test should help identify children with failing scores who should be referred to the school psychologist for diagnosis and special treatment. Potential difficulties that may be identified include perceptual, emotional, or developmental problems that might otherwise be attributed to low intelligence or poor conduct.

DEVELOPMENTAL TEST OF VISUAL-MOTOR INTEGRATION (VMI)
Follett Educational Corporation
1018 West Washington Boulevard, Chicago, Illinois 60607

WHAT IS MEASURED	HOW MEASURED
Ability to imitate drawings of various forms—visual-motor integration	Copying vertical lines, horizontal lines, circles, vertical horizontal cross, right oblique line, square, left oblique line, oblique cross, triangle, open square and circle, three-line cross, directional arrows, two dimensional rings, six-circle triangle, circle and tilted square, vertical diamond, tilted triangles, eight-dot circle, Wertheimer's Hexagons, horizontal diamond, three dimensional rings, necker cube, tapered box, three dimensional star

Administration of Test: Test may be group or individually administered in 15 to 20 minutes. Thorough teacher orientation is required. Experience is important in valid scoring of results. Norms for children between the ages of two and 15 are provided.

Comments: Test identifies child with visual-motor integration deficiencies and serves as a basis for further assessment of specific area of difficulty. It also suggests use of the following sources in follow-up procedures: (1) further assessment of the difficulty with the VMI Assessment Sheets, (2) remediation using the Frostig Remediation Program and Frostig Pictures and Patterns, (3) Resources listed in accompanying Administration and Scoring Manual, (4) assessment and teaching strategies designed to help youngsters improve motor proficiency, tactual-kinesthetic sense, tracing, visual perception, and visual-motor integration, and (5) provides actual plans for accomplishing these objectives in the accompanying Administration and Scoring Manual. There is an excellent accompanying monograph which provides a superb explanation of origin, construction, and correlations of the test with useful conclusions for test usage. Administration and Scoring Manual contains brief and direct recommendations for remediation. VMI correlates with mental age, chronological age; correlations with MA and CA are higher in first-grade children than with other children. VMI is primarily interested in child's information processing system.

THE RAIL-WALKING TEST FOR BOYS AND GIRLS
Motor Skills Research Exchange, 1:4:34-36;1949

WHAT IS MEASURED	HOW MEASURED
Locomotor ability—balance	Walk across three wooden rails that are six and nine feet long with varying widths from four inches down to one inch

Administration of Test: Scoring is inversely weighted on basis of widths of respective rails. Certain minimum scores must be attained before subject is allowed to attempt to walk a narrower rail. Maturational norms are available for boys and girls.

THE FLORIDA STATE UNIVERSITY DIAGNOSTIC BATTERY OF RECREATIVE FUNCTIONING FOR THE TRAINABLE MENTALLY RETARDED
Jean Mundy, Department of Recreation
Florida State University, Tallahassee, Florida 32306

WHAT IS MEASURED	HOW MEASURED
Object identification	Ability to identify box, pencil, bead, ball, stick, circle, table, chair, block
Action concepts	Ability and understanding related to pointing, giving, taking, pulling, pushing, picking-up, putting down, looking at, putting in, going, stopping, walking slowly, walking fast, turning right and left, turning all the way around
Position and quantity concepts	Demonstrate ability and understanding related to amount, position, direction, place, and space as reflected by knowledge of top, bottom, front, back, in, out, on, between, over, under, up, down, right, left, drop, pick-up, center, inside, outside, circle, opposite, hand, foot, one, three, four, five, two; subjects are to perform specific acts demonstrating understanding of these terms
Color	Ability to show blue, red, green, white, black, brown, orange, yellow cards as directed
Rhythm	Clap to slow and fast 3/4 and 4/4 beat; march to fast and slow 4/4 beat
Manipulative skills	Trace, color, and cut out shapes; thread beads; and follow these four directions: stand-up, pick-up ball, walk around chair, sit down

Motor skills	Ability to catch ball thrown to certain prescribed area (below waist, right quadrant, left quadrant, directly in front and slightly over head, slightly below waist, slightly past arm, reach to right and to left); throw ball to examiner, kick ball rolled by examiner when ball is slightly to right and slightly to left

The second half of *The Florida State University Diagnostic Battery of Recreative Functioning for the Trainable Mentally Retarded* is the *Kephart Perceptual Rating Scale Survey* which is almost identical to *The Purdue Perceptual-Motor Survey* which is previously discussed and thus not repeated here.

Administration of Test: Test can be administered by a recreation specialist or teacher on an individual or group basis. Entire test need not be given at one sitting. Major emphasis is on subjective analysis rather than on objective evaluation. Importance of visual evaluation based on experience and professional judgment is stressed. Clear directions are offered for each test item and a simple record sheet for each major category is provided with space to check whether each task is performed correctly or incorrectly. Scoring instructions are provided. No norms are given. Equipment needed for each test is noted and none of the equipment is expensive or hard to obtain.

Comments: This profile identifies skills, abilities, and competencies needed by an individual to participate in recreational activities. A brief view of a child's profile permits a teacher or recreation leader to guide the child into activities consistent with his level of ability with opportunities to achieve immediate success. Testers should consider the impact of motivation, social pressures, previous experiences, understanding of test items and what is expected, self-confidence, competitiveness, cooperativeness, pride, and self-concept on the child's motor proficiency and physical fitness scores. It should be noted that no program should become enslaved to testing and evaluation.

HUGHES BASIC GROSS MOTOR ASSESSMENT (BGMA)
Jeanne Hughes, Adaptive Physical Education Consultant
Office of Special Education, Denver Public Schools
Denver, Colorado 80203

WHAT IS MEASURED	HOW MEASURED
Static balance	Stand on left foot for ten seconds; then on right foot for ten seconds
Gross motor coordination	Stride jumps—ten with feet about 12 inches apart
Dynamic balance	Tandem walking in which youngster walks forward and backward on lines on floor; hopping on each foot for ten hops while staying between taped lines

Fundamental movement—locomotor skill	Skipping between taped lines on floor
Eye-hand coordination	Tossing a beanbag underhand at an 18-inch square target taped to the wall six times; distance thrown varies with age; yo-yo in which subject swings ball like a pendulum, gives it a short toss and catches it in a bottle; youngsters get six tries; throwing, catching, and dribbling a ball

Administration of Test: Test was developed for physical educators, special educators, physical therapists, and other health services personnel to use in evaluating children six to twelve who appear to have gross motor deficiencies. Test should be administered on an individual basis, where possible, but as many as five can be tested at one time. Testing time is approximately 15 minutes. Test should be administered in a room which is large enough for free, safe movement; testing area should be marked with masking tape or floor-marking tape following carefully prescribed directions. Required equipment includes masking or floor-marking tape, a stop watch (optional), six commercial colored beanbags with slick covering, one six-inch and one seven-inch rubber playground ball, two one-gallon bleach bottles, heavy string, one whiffle ball, and one tennis-size rubber ball. Carefully prescribed directions for administering and scoring test are included as is a worksheet for recording scores and information.

Comments: Test is designed as an instrument to evaluate gross motor competencies basic to development of higher level motor skills and can provide information about a child which may indicate he should be referred for medical attention. Test should be used in conjunction with observations of child's motor performances in spontaneous play, in physical education class, and in the classroom. It is not appropriate for use with children having serious, diagnosed physical disability but is useful in detecting strengths and weaknesses of children having minimal motor dysfunction. Test may be used as an aid in planning activity programs but it will not prove that a child does not have a perceptual-motor problem or a learning disability. Tasks are modified slightly for different age groups.

FUNCTIONAL NEUROLOGICAL EVALUATION
Dallas Academy
Oak Lawn Avenue, Dallas, Texas 75219

WHAT IS MEASURED	HOW MEASURED
Sensory development	By a series of tests in these categories: *Vision*—basic light reflex, binocularity, visual tracking, convergence, visual perception, reading, laterality preference, and visual survey; *Audition*—Startle reflex, auditory perception, laterality preference, and abstract concepts; *Tactility*—vital sensation, gnostic sensation, laterality preference, and tactile perception

Motor development	By a series of tests in these categories: *Mobility*—crawling, creeping, brachiation, laterality preference, walking, hopping, skipping, rolling, somersaults, balancing, jumping rope; *Language*—tonality, articulation, organization; *Hand use*—cortical opposition, bimanual function, laterality preference, handwriting, and pencil grasp

Administration of Test: Evaluation is on individual basis with different functions evaluated during separate testing periods. A comment is made after each function is evaluated; comments refer to performance as compared with normal function for subject's age. Summary of each subject's evaluation is prepared and individual programs prescribed for subjects based on test results. Evaluation is repeated periodically to determine what improvement has been made and individual programs revised accordingly.

Comments: *Functional Neurological Evaluation* is similar to *Doman-Delecato Developmental Profile* originally developed at the Institutes for the Achievement of Human Potential, Philadelphia.

DEVELOPMENTAL PROFILES

If you can look into the seeds of time and
say which grain will grow and
which will not—then speak ye to me.

MacBeth

In recent years developmental profiles devised by pediatricians, psychologists, and educators have been widely used for screening, diagnostic, and prescriptive purposes. Teachers, other professionals, paraprofessionals, and parents have found interpretations of these profiles valuable in understanding children during different developmental stages. When administered by qualified persons, developmental profiles can also provide useful information for assessing needs and planning health, educational, and recreational programs and activities to meet needs of children two weeks to six or seven years of age. Developmental profiles can be valuable to:

- Provide information for use (1) in developing progressive and sequential programs for all children, and (2) in early detection of high risk children with developmental delays of various types and severities.
- Present information about current developmental status of a child (1) to help teachers, other professionals, paraprofessionals, and parents assess growth and progress of that child, (2) to aid concerned personnel in evaluating existing needs so that each is better able to plan for that child, and (3) to provide a systematic means for recording developmental changes of the child at periodic intervals. In recent years great strides have been made in interpreting results, explaining needs, and presenting remedial approaches for use by parents and others with various amounts of formal training.
- Measure skills, abilities, and competencies possessed and needed by an individual child so that he can participate successfully, safely, and with personal satisfaction in a variety of educational and recreational activities. This type of infor-

mation is important to all who deal with a child and are responsible for guiding his future destiny.

Generally, developmental screening inventories are concerned with assessments of:

- *Gross motor abilities* emphasizing integration of movements, patterns, and tasks controlled by central nervous and musculo-skeletal systems.
- *Communications skills* including reception, comprehension, expressing, hearing, and speech.
- *Fine motor skills* emphasizing eye-foot, eye-hand, and related coordination activities from basic and simple to complex and sophisticated tasks.
- *Personal-social behavior* including ability to take care of one's self and interact with others.

Summary Chart

Developmental Profiles	Gross Motor	Fine Motor	Personal-Social	Self Care	Communication-Language	Basic Knowledge	Practical Skills	Adaptive Behavior	Visual Perception
Denver Developmental Screening Test	X	X	X		X			X	
Developmental Screening Inventory from 4 weeks to 18 months	X	X	X		X			X	
Meeting Street School Screening Test	X	X			X				
TMR Performance Profile	X	X	X	X	X	X	X		
Thorpe Developmental Inventory	X	X	X	X	X				
Evaluation Test for Trainable Mentally Retarded Children	X	X	X	X	X	X	X	X	
Sensory-Motor Training of the Profoundly Retarded	X	X						X	
Peabody Developmental Motor Scales	X	X							
Carolina Developmental Profile	X	X			X	X			X

For a detailed comparison and analysis of the practical and technical aspects of (1) the Denver Developmental Screening Test, (2) the Head Start Developmental Screening Test and Behavior Rating Scale, (3) the Cooperative Preschool Inventory, (4) the School Readiness Survey, and (5) the Thorpe Developmental Inventory, refer to "Developmental Screening of Preschool Children: A Critical Review of Inventories Used in Health and Educational Programs," by Helen S. Thorpe and Emmy E. Werner in *Pediatrics*, March 1974 (Vol. 53, No. 3), pp. 362-370.

Summary Chart

DEVELOPMENTAL PROFILE ITEMS

Listed items and activities can be incorporated into formal or informal approaches for assessing each of these developmental characteristics to show growth and maturation of a child. Only items and activities part of developmental profiles found in this publication are listed.

Adaptive Behavior

- Avoidance Reactions
- Awareness of Environment
- Community
- Discrimination of Stimuli
- Family
- Home
- Leisure/Recreation
- Manipulate Environment
- Peers/Playmates
- Personal Actions
- School
- Social Relationships

Basic Knowledge

- Analogies
- Arithmetic
- Body Awareness
- Colors
- General Information
- Holidays
- Letters
- Names
- Numbers
- Signs/Symbols
- Social Studies
- Spatial Relationships
- Time
- Vocabulary
- Weather

Communication

- Answer Questions
- Articulation
- Expressive Language
- Follow Directions
- Hearing Ability
- Listening Activities
- Nonverbal
- Reauditorization of Nonsense Words/ Phrases/Sentences
- Receptive Language
- Sequencing
- Serialization Forward/ Backward
- Talking
- Use Words
- Verbal Activities
- Voice Quality

Fine Motor

- Building Towers
- Copying Activities
- Drawing
- Grasping
- Placing Objects in Containers with One/ Both Hands
- Stacking Blocks
- Stringing Beads
- Tracing Activities
- Turning Pages of Book
- Twisting Paper
- Unwrapping Pieces of Paper
- Using Scissors
- Using Small Muscles of Hands/Fingers
- Writing

Gross Motor

- Balancing
- Ball Handling
- Catching
- Climbing
- Climbing Stairs
- Crawling
- Creeppng
- Hand Clapping
- Hitting Objects
- Holding Up Head
- Hopping
- Jumping
- Kicking Objects
- Maintaining Good Posture
- Physical Fitness Activities
- Reaching for Object
- Riding Tricycle
- Rocking Activities
- Rolling Activities
- Running
- Sitting with/without Support
- Skipping
- Standing with/without Support
- Swinging
- Throwing Objects
- Tossing Objects
- Walking

Practical Skills*

- Community Living
- Daily Living
- Family Chores
- Personal Living
- Use of Tools/Household Items
- Vocational Readiness

* See also items and activities listed under *Self-Care.*

Psych-Social	Self-Care	Visual Perception
Attention Span	Bathing	Arranging Objects
Emotional Maturity	Dressing	Classifying Objects
Group Participation	Eating	Completing Designs/ Pictures
Personality	Grooming	Copying Activities
Relationships with Others	Health Habits	Differentiation Activities
Self Control	Personal Hygiene	Drawing Activities
Social Independence	Safety Habits	Grouping Objects
Social Interaction		Identification Activities
Social Maturity		Making Sentences
Reasoning**		Matching Activities
Choosing		Naming Objects
Counting		Shape/Size Perception Activities
Discriminating		Spatial Orientation Relationships
Naming Objects/ Concepts/Terms		Stacking Objects
Solving Problems		Visual Memory
Using Objects/Concepts/ Terms		

** See also items and activities listed under *Visual-Perception*.

DENVER DEVELOPMENTAL SCREENING TEST
University of Colorado Medical Center
Denver, Colorado 80220

WHAT IS MEASURED	HOW MEASURED
Gross Motor	Contains 31 tasks on a sequential scale for children between two weeks and six years of age; items range from ability of baby to lift his chin through a series of walking, balancing, and ball handling tasks
Fine motor-adaptive	Includes 30 tasks on a progressive scale to assess a child's ability to use his hands and as he grows older ability to solve non-verbal problems
Language	Provides 21 tasks relating to ability to hear and talk
Personal-social	Contains 21 items related to ability to perform tasks of self-care and to relate to others

Administration of Test: Test can be administered by individuals with no training in psychological testing since it is simple to administer and interpret. Entire test is never given. Ideally, tester should begin with three or four questions or tasks a youngster can complete and continue three or four questions beyond his ability to respond. Test is designed for youngsters between ages of two weeks and six years. During tests

mothers may be present to provide needed information. Statistical information from 1043 Denver children is used to support charts showing at what age level 10%, 25%, 50%, 75%, and 90% of children can perform specific tasks. Required material include: small skein of red wool, small box of raisins, simple rattle with a narrow handle, eight one-inch colored (red, blue, yellow, green) cubical blocks, small clear glass bottle with a 5/8 inch opening, small picture book which includes some pictures of common objects and geometrical figures, red pencil, small brass bell, tennis ball, shaving kit bag to hold above articles, and test forms.

Comments: Test does not give a developmental, mental, or IQ age. It is designed to call attention to the possibility of developmental delays so that appropriate diagnostic studies may be pursued. Test provides a simple, clinically useful tool to assist in the early detection of children with serious developmental delays.

A DEVELOPMENTAL SCREENING INVENTORY FROM 4 WEEKS TO 18 MONTHS
Division of Child Development
Department of Pediatrics and Department of Psychiatry
The Ohio State University College of Medicine and the Children's Hospital
Columbus, Ohio 43210

WHAT IS MEASURED	HOW MEASURED
Adaptive Gross motor Fine motor Language Personal-social	By asking parents questions and observing infants between ages of four weeks and 18 months; history and observation should be made at four-week intervals from four weeks through 15 months and then again at 18 months; questions and expectations vary as the infant grows older

Administration of Test: Answer and observation forms are available on the test record form for each youngster. There is a place to record answers and observations pertaining to each specific question asked during examination periods, which are held at four-week intervals. Test instrument and instructions are complete on one large four-page form which contains all information needed to complete profile as well as helpful resource information.

Comments: There is positive correlation with maturity age assigned on the basis of a complete Gesell Developmental and Neurological Examination. Test items were adapted from the Gesell Developmental and Neurological Examination. A useful reference text is Gesell, A. L., and Amatruda, C. S., *Developmental Diagnosis*, Hoeber, 1954. Three instructional films available from Division of Motion Picture Photography, The Ohio State University, Columbus, Ohio, 43210, are: (1) *Developmental Evaluation in Infancy*, (2) *The Gesell Developmental and Neurological Examination at 16, 18, 40, and 52 Weeks*, and (3) *Normal and Abnormal Neurological Function in Infancy*.

MEETING STREET SCHOOL SCREENING TEST (MSSST)
Meeting Street School
333 Grotto Avenue, Providence, Rhode Island 02906

WHAT IS MEASURED	HOW MEASURED
Motor patterning	Bilateral motor skills such as hopping and skipping, repeating hand clapping and hand signals demonstrated by the examiner, moving the body in space on verbal command, and fine finger dexterity
Visual-perceptual-motor skills	Visual matching and visual memory, copying geometric and letter forms, drawing with a pencil in various spatial coordinates on command, and tapping block patterns in spatial sequences
Language	Reauditorization of nonsense words, short phrases and sentences, serial counting forward and backward, sequencing time concepts, and free verbal description of an abstract picture

Administration of Test: MSSST is an individually administered 20-minute test designed to screen kindergarten and first grade children who do not have requisite language and visual-perceptual-motor control to absorb symbolic information of traditional school curriculum. It is designed for use by teachers, psychologists, and physicians who wish to identify these children as early and efficiently as possible to minimize subsequent learning failures and behavioral upset through use of early intervention techniques. A test manual, complete with directions for administering, scoring, and interpreting test, is available and contains all material needed. Normative tables for the three tests and total MSSST are provided at half-year intervals for children between 5 and 7.5 years of age.

Comments: A 5 by 8 spiral-bound volume provides an in-depth discussion of purposes, methods, and implications of early identification programs. The manual and simple record form is all that is needed to test an individual child. A set of four-page record forms is available.

T.M.R. PERFORMANCE PROFILE
Reporting Service for Exceptional Children
563 Westview Avenue, Ridgefield, New Jersey 07657

WHAT IS MEASURED	HOW MEASURED
Social behavior	Categories are, self-control, personality, group participation, and social amenities; each item contains 10 factors
Self-care	Categories include bathroom and grooming, dealing with food, clothing, and safety; each item contains 10 factors
Communication	Categories are modes of communication, listening, language activities, and language skills; each item contains 10 factors
Basic knowledge	Categories include information, numbers, awareness, social studies; each item contains 10 factors
Practical skills	Categories are tools, household items, family chores, vocational readiness; each item contains 10 factors
Body usage	Categories include coordination, health habits, fitness, and eye-hand coordination; each item contains 10 factors

Administration of Test: Evaluation is based on teacher observation with specific criteria for each component spelled out clearly in an accompanying teacher's manual. For each of ten factors in the four categories of six characteristics, teachers rate a child on a scale of 0 to 4. Evaluation scale presents graphically current status of an individual child and permits recoding to reflect developmental changes. Various indices make it possible to evaluate one major area against another and assess progress in various areas from year to year.

Comments: Six major areas evaluated are those most frequently referred to in curriculum guides for severely and moderately mentally retarded children. Evaluation scale enables teachers to identify existing needs of children and the profile permits teachers and others to plan for individual growth.

THE THORPE DEVELOPMENTAL INVENTORY (TDI)

Helene Thorpe
805 Oak Avenue, Davis, California 95616

WHAT IS MEASURED	HOW MEASURED
Gross motor abilities	Performance of balance and coordination activities
Self identity and sentence use	Answering questions provide clues to child's understanding of basic needs and safety
Comprehension and expression skills	Demonstrating knowledge of concepts of colors, spatial relationships, numbers, vocabulary, articulation, analogies, and the descriptive use of language
Fine motor skills	Eye-hand and small muscle coordination are observed during the child's efforts at spontaneous drawing, symbols, self-picture, and additions on an incomplete man
Personal-social behavior	Relates to self-care using the Button Book

Administration of Test: TDI can be administered by an experienced examiner to an individual child in English or Spanish in about 20 minutes. TDI is designed for children between three and six years of age. A parent should be present when TDI is administered by an examiner familiar with the child.

Comments: TDI is a copyrighted appraisal procedure with a health care base. It provides accurate, descriptive information about a child's developmental assets and needs. From this information, a comprehensive profile is prepared which includes behavioral history and health status—including hearing and vision screening—and current developmental standing. Knowledge of a child's age level abilities helps an examiner evaluate whether expectations of and stimulations available to the child are realistic. As a link between health and educational services for both normal and handicapped children, this Inventory helps professionals plan appropriately. Descriptive information provided by TDI can: (1) alert sensitive and knowledgeable examiner to a child's developmental level in each of five areas, (2) offer clues about child's strengths and needs during periodic health care, (3) serve as a baseline at the beginning of a preschool program to measure a child's progress over a given period of time, (4) guide planning of an appropriate educational curriculum that is developmentally-oriented, (5) be combined with medical history and examination in early identification of isolated or multiple developmental delays which need specialized medical, psychiatric, psychological or hearing and speech evaluation, and (6) assist staff in conferencing with parents and a child's total developmental status. The inventory alone does not make a definitive diagnosis. Findings must be correlated with health history and physical examinations before interpretations and recommendations can be made to parents. A training program for examiners is available

EVALUATION TEST FOR TRAINABLE MENTALLY RETARDED CHILDREN
University of Northern Colorado, Department of Special Education and
Rocky Mountain Special Education Instructional Materials Center
Greeley, Colorado 80631

WHAT IS MEASURED	HOW MEASURED
Writing	Drawing a variety of shapes; copying words, letters, and sentences; writing name and phone number; making numbers; addition; subtraction; counting money; selecting proper change
Safety and health	Reading and visual recognition of simple words pertaining to such things as boys and girls restroom, and signs of warning or danger (self-preservation)
Community living	Recognition of signs and pictures pertaining to the community and ability to answer specific questions
Daily living	Assesses skill in eating, toilet habits, dressing, and personal hygiene
Weather	Recognition of pictures related to different kinds of weather
Time	Telling time from pictures of clocks with hands in various positions
Holidays	Showing knowledge of holidays by identifying pictures relating to them
Motor development	Posture, walk, run, climb stairs, skip, balance, space orientation, gross motor coordination, other coordination
Body image	Shows knowledge and abilities related to body differentiation, back extension, body parts, senses, emotions
Eye-hand coordination	Catching, throwing, hitting, kicking balls, using scissors, beads, blocks, books, crossing midline
Speech development	Evaluates verbal and nonverbal speech (puckering and smiling), use of speech muscles, voice quality, lips, tongue mobility
Perception	Shows ability and understanding of a variety of tests to determine tactual, auditory, and visual perception
Use of free time	At home, school, with family, etc.
Psycho-social development	Evaluates personality, inappropriate behavior, emotional maturity, attention span, social behavior in various settings, social interaction, social independence

Administration of Test: Administration is informal; various aspects should be given at different times. Test should be repeated often so that growth can be measured. Test is designed to provide teacher with a diagnostic tool useful in making valid judgments regarding the entire program. In evaluating performance, subjective analysis involving tester's knowledge of a child should be utilized as well as objective measurement. Examiner should be concerned with total child and realistic goals should emerge from test. Testing instrument is designed to help an individual become what he ought to be and capable of becoming. Test booklet contains two pages of items needed to administer various tests—none are unusual or particularly expensive. Youngsters participate in test by answering questions, performing skills, and by general behavior. Tester completes checklist for each item on each test. Book contains a report form to follow in keeping parents up-to-date on each individual's progress. A skills' summary form is included for quick comparisons and overall analysis.

Comments: Test book is designed to find functioning level of a child in motor development, psycho-social development, activities of daily living, and academics. It aids teacher by: (1) helping with placement, (2) determining a base point at which to start prescriptive teaching, (3) serving as a guide for developing meaningful goals, competency based objectives, and a more enriched program, (4) measuring progress through repeated testing, (5) establishing valid criteria for presenting parents with a profile of their child's developmental level, progress, and needs, (6) serving as a diagnostic tool in planning daily activities for individual children, and (7) evaluating the child's level of development and progress and by showing specific behavior changes for purposes of accountability. A similar test booklet known as *Evaluation Form for Trainable Mentally Retarded Children* is available from the same source.

SENSORY-MOTOR TRAINING OF THE PROFOUNDLY RETARDED
American Journal of Mental Deficiency, Vol. 74, 1969, pp. 283-295.

WHAT IS MEASURED	HOW MEASURED
Awareness	Rating approach-avoidance reactions, avoidance-approach reactions, and discriminatory reactions to variety of stimuli
Manipulation of environment	Rating subject on reaching for objects, grasping, throwing objects, manipulating ball, combining of objects, removing towel from head, patting mirror image, communicating needs, relating to one or more persons
Movement	Rating subjects ability to roll to side, from stomach to back, completely over, in barrel, over obstacles, rock balance board or beach ball, chair or rocking horse, bounce on bed (jump-up seat or trampoline), swing on hammock or suspended seat, give active assistance when limbs are moved in rhythm
Posture and locomotion	Rating subjects ability to hold up head, sit in chair or on floor, move on back by pushing with legs, move on seat, creep, crawl, stand supported, stand alone, walk with assistance, walk alone, ride tricycle, climb stairs

Administration of Test: Test is designed for use with persons 2½ to 17½ years of age. It is best administered by trained therapists. Scoring is based on ratings in each of four main categories by evaluating subject's ability to perform each of a total of 50 individual items always, often, sometimes, seldom, never. Indices are computed for each of the main categories.

Comments: Test is designed to evaluate and then offer aid in overcoming deficiencies in awareness, manipulation of environment, movement, and posture and locomotion.

PEABODY DEVELOPMENTAL MOTOR SCALES (IMRID BEHAVIORAL SCIENCE MONOGRAPH NO. 25)
IMRID, George Peabody College
P. O. Box 163, Nashville, Tennessee 37203

WHAT IS MEASURED	HOW MEASURED
Gross motor	Ability to perform some 205 specified gross motor tasks at stipulated age levels from birth through seven years of age
Fine-motor adaptive behavior	Ability to perform some 130 specified fine motor tasks at stipulated age levels from birth through six years of age

Administration of Test: Scales were designed as indices of gross and fine motor skills occurring in children between birth and seven years of age for gross motor and birth and six years of age in fine motor. Evaluator observes child as well as administering test items at appropriate age levels. In administering test, examiner simply turns to the appropriate section of scales, child's chronological age, unless he is obviously functioning below his age level. If child refuses to perform some items, they may be administered by a parent or teacher. Specified directions are provided for each item and rating performance. Five criteria are provided for rating the child's performance on each item, ranging from total dependence to complete independence in performing the task.

Comments: Scales allow examiner to obtain knowledge about skills child has mastered, those he is currently developing, and those not in his repertoire. Scales are accompanied by a program of activities designed to teach each skill included in scales. Activities allow examiner to recommend a precise motor program tailored to fit each child's needs. Recommended program should include activities to fill developmental gaps, strengthen emerging skills, and set objectives for skills not yet obtained.

CAROLINA DEVELOPMENTAL PROFILE
803 Churchill, Chapel Hill, North Carolina 27574

WHAT IS MEASURED	HOW MEASURED
Gross motor	Contains tasks such as ability to sit, stand, toss balls of various sizes, walk in different directions, balance, jump, kick, and skip
Fine motor	Includes tasks such as turning pages of a book, building towers, stringing beads, unwrapping pieces of twisted paper, copying different shapes, using scissors, tracing various patterns, catching balls, and placing objects in containers with one or both hands
Visual perception	Provides opportunities to match colors, group and stack objects, name pictures, make selections, add to incomplete designs and pictures, copy designs, and arrange coins according to size
Reasoning	Presents tasks involving discriminating, choosing, using, counting, and naming various objects, concepts, and terms
Receptive language	Includes tasks involving following directions, and touching objects upon request according to name or function
Expressive language	Contains tasks involving repeating digits, naming pictures or objects, telling name, answering questions, talking about pictures, using two-or-three-word phrases, and using plurals

Administration of Test: This checklist is designed to be given in a large room and in several different sessions. Start with items on a gross-motor checklist, selecting age level at which the child should be successful. If items are easily passed, skip several age levels to find base level of success. A child's highest level of functioning is established by determining Developmental Age Ceiling (DAC). Criteria for determining DAC varies from one area to another—three or more tasks in some areas and two in others. Age levels should be used as general sequential reference guides for development of the child. Checklist findings should be translated into long-range instructional objectives. All findings in the six areas should be charted on the profile provided.

Comments: This is a criterion-referenced behavior checklist designed to increase a child's abilities to the maximum degree as preparation for formal academic tasks that will be faced in early elementary school. This checklist is not to compare or assess a child in terms of normative data; it is not a test nor should it be used as such. Items are presented in sequence by developmental areas. A task number, a description of the task, and developmental age are given for each item in each area.

LOCALLY DEVELOPED ASSESSMENT DEVICES

It is more important for us to know where we are going than to try to get there too quickly. Time is on our side. We must not mistake activity for achievement.

Personnel in many public and private schools, school districts, recreation departments, activity and day care centers, clinics, and residential facilities have devised and successfully used their own testing instruments, rating scales, and assessment devices. Often items from various standardized tests have been adapted or modified and used with locally devised items as bases for evaluating, diagnosing, and prescribing appropriate physical, motor, and recreational activities. This approach allows physical educators, recreation personnel, special education teachers, and other concerned individuals to be flexible in preparing, modifying, and using a variety of assessment devices, evaluative instruments, and rating scales regardless of specific situations, changing environments, and needs of individuals.

The traditional approach in evaluation and assessment has been to test an individual in a special situation or environment and then generalize results to a variety of other situations, related or not! However, many experienced persons have been extremely successful in obtaining this same kind of information from carefully planned observations in actual program situations. Rather than determining general abilities or specific skills in badminton, basketball, basic movement patterns, physical fitness traits, or perceptual-motor functions from results on formal tests, individuals are observed in actual badminton or basketball games or lead-up activities, on the playground, in the gymnasium, or in the swimming pools. In fact, locally developed progress charts and performance scales have been extremely effective in individual swimming programs at all levels. Neither process—formal testing nor informal assessment—can be haphazard or left to chance; both must be planned, systematic, and regular.

Evaluation and assessment are inseparable from progressive developmental sequences themselves and are vital and integral parts of the learning process itself. In this way, when an individual is successful in performing certain tasks, movements, skills, or patterns, the next appropriate step in the progression can be introduced. This is consistent with current emphasis on criterion, references, techniques, and also recognizes the specific nature of learning as applied to each individual's ability to participate successfully in the gymnasium and classroom, on the playground and athletic field, in camp or in the swimming pool. Evaluation and assessment are intended as aids to instruction and to help teachers, leaders, and others know and zero-in on individual participant needs. As a continuous and ongoing process, emphasis is on observation of growth, development, and progress in real life program situations. *Educated hunches* gleaned from observations when combined with knowledge of children in general, each participant in particular, and tempered with personal experience and good judgment are basic ingredients for individualizing programs and activities for each child. In this way programs and activities can be modified or changed daily as actual performance and progress are observed and assessments made. This process also eliminates the testing situation itself as a factor which can have either a positive or negative influence on results and performances by specific individuals in given situations. In short, evaluation and assessment are a part of educational decision-making in terms of what each individual can do and learn during the course of a single period, an entire day, a whole week, one semester, or the school year. Objectives for each youngster must be made, revised, and reexamined as performances are continuously observed and progress assessed.

Regardless of approach—formal testing or informal assessment—major purposes are the same:

- Aid and facilitate instruction as to what comes next.
- Determine effectiveness of certain activities, approaches, and methods for each individual participant.
- Provide a record of growth, development, performance, improvement, and progress.
- Determine each child's strengths, abilities, weaknesses, and problem areas—what a child can and cannot do.
- Assess the degree in which specific programs, certain activities, and various approaches accomplish what written goals and objectives stipulate; this is when one is held accountable.

Important to any assessment system is a procedure for scoring, tabulating, and recording data and information about specific aspects of individual performance. Since increasing numbers of personnel in local programs have indicated that many formal tests and diagnostic instruments have limited value and applicability for participants in their programs, devices and approaches have been developed to meet needs and abilities of those in local programs, specific localities, and given situations. Specific items have been extracted from a variety of test batteries and different approaches used to score and record this information. Representative examples from instruments, scales, and devices developed and used in local school systems, special schools, recreation departments, residential facilities, day care and activity centers, clinics, early childhood centers, and related programs are included in the following

pages. This material is provided to show a variety of locally developed devices and approaches used for both formal testing and informal assessment purposes. For example:

- Present status in qualitative terms:
  - slow, average, good, needs more training
  - pass, fail; yes, no; can, can't
  - adequate, educational care, referral care
  - cannot do, inadequate, adequate
  - unable, weak, average, strong
  - correct, hesitates
  - satisfactory, unsatisfactory

- Present status in quantitative terms:
  - time for agility run, dash, endurance run, holding balance, hopping a given distance
  - distance walked on balance beam, jumped, run in a given time
  - number of pull-ups or sit-ups, times ball is bounced, objects picked up in a given time
  - rating according to predetermined scale based on specific criteria or standards

- Use line drawings, stick figures, or diagrams as a means by which non or poor readers can use the same materials and score cards as students who read. It is vital that levels of physical fitness and ability to perform motor tasks be accurately determined and not reflect general intelligence or specific academic skills.

- Group and present personal characteristics and basic behavior traits in different ways and various patterns:
  - neurological organization, mobility, perceptual characteristics, agility, basic motor skills, fitness activities
  - functional concepts, physical education, play skills
  - body awareness, spatial relationships axial movement, locomotor, gross acility, balance-posture, ball handling
  - hand-eye choice, jumping, hopping, angels in snow, balance beam/rail walking, skipping, swinging, identification
  - gross motor, sensory-motor integration, perceptual-motor skills, language development, conceptual skills, social skills
  - language, pre-reading and reading, math, perceptual-motor
  - obstacle course, warm-ups, rhythms, hokey pokey, ball handling, kick ball, gunny sack relay
  - attitudes and habits, relaxation, general movement patterns, specific movement patterns, eye movement patterns, communication patterns, visualization patterns
  - agility, balance, body image, coordination, directionality, figure ground, laterality, reflex, shapes, tactile, vision

- Group different numbers of specific tasks within each basic category or area depending upon characteristics and traits themselves and type of information needed about each participant.

- Include information about attitudes and approaches of participants toward certain tasks and activities in addition to comments and information about actual performance of skills, movements, and patterns:
  - wouldn't try
  - tried, failed, quit
  - tried, failed several times, quit
  - tried, continued to try and fail, had to be stopped

In preparing scales, instruments, and related devices, regardless of purposes for which they are to be used, *simplicity* and *flexibility* are important considerations. Devices need to be structured so that they can be used easily by individuals with diverse amounts of training, background, and experience; they must not require a lot of time to record information and results of observations. In addition, devices must be *functional* so information can be applied and used as bases for improving program opportunities and experiences for each program participant. Flexibility is important so devices can be used in ways or approaches best for a particular staff in a given program to meet unique needs of the population being served.

In preparing assessment devices and related procedures, teachers/leaders should:

- Be sure items obtain information intended—no more, no less
- Recognize that activities or skills need to be assessed from simple to complex, easy to difficult. However, remember that a progression or sequence appropriate for one individual or most participants in a group is not necessarily effective with everyone—not everyone learns skills, particular patterns, specific movements, given tasks, or perceptual-motor activities in the same order or way; adjustment to individual needs is essential.
- Be able to screen and assess performances of children throughout their educational careers. An increasing number of schools have devised nursery, preschool, or kindergarten developmental profiles and perceptual-motor screening instruments which are administered to children before they start to school. Such screening procedures are helpful for grouping, planning, and making educated guesses with respect to strategies to help each youngster be successful and get off on the right foot in school.
- Be able to determine which boys and girls need supplementary assistance beyond and in addition to regular class programs and which youngsters may require specialized and more formal testing.
- Consider activities and programs designed to meet specific needs of children in various aspects of physical education, recreation, and related activities.
- Demonstrate that formal testing and informal assessment are vital components of the teaching-learning process. No program should become a slave to testing—tests should not be administered solely for the sake of testing and data gathering.

SAN JUAN UNIFIED SCHOOL DISTRICT[1]
Special Education Department

Motor Skill Assessment

BODY AWARENESS

	Test 1		*Test 2*	
	P	F	P	F
Can you point to parts of your head?	0	0	0	0
Can you identify body surfaces? Top?				
Front? Back? Side?	0	0	0	0
Can you identify and move body parts?	0	0	0	0
Finger to thumb? Both hands?	0	0	0	0
Bend your wrist? Rotate your wrist?	0	0	0	0
Bend your elbow?	0	0	0	0
Bend at the waist?	0	0	0	0
Bend your left knee?	0	0	0	0
Can you open and close hands alternately?	0	0	0	0

SPATIAL RELATIONSHIPS

Can you point to or move body parts on a specific side?	0	0	0	0
Can you distinguish between right and left side	0	0	0	0
of others?	0	0	0	0
Can you move in (a specified direction)?				
Left-Right	0	0	0	0
Up-Down	0	0	0	0
Before-Behind	0	0	0	0
Over-Under	0	0	0	0
In-Out	0	0	0	0
Far-Near	0	0		0
High-Low	0	0	0	0
Forward-Backward	0	0	0	0

AXIAL MOVEMENT

Can you swing your arm?	0	0	0	0
Both arms?	0	0	0	0
One leg?	0	0	0	0
Can you jump and turn: Quarter turn?	0	0	0	0
Half turn?	0	0	0	0
Full turn?	0	0	0	0

LOCOMOTOR

Can you hop through a hopscotch diagram?	0	0	0	0
Can you hop, step, jump?	0	0	0	0
Can you jump backwards? (Three jumps)	0	0	0	0
Can you tell me the distance you can broad jump?	0	0	0	0

[1]*M. Jeanne Bartell, Program Specialist, Physical Education, San Juan Unified School District, San Juan, California.*

GROSS AGILITY

	Test 1		*Test 2*	
	P	F	P	F
How fast can you get up and face me?	0	0	0	0
SCORE: GOOD if child sits up and rises in 2 seconds or less.				
FAIR if child sits up and rises in 3 seconds or more.				
POOR if child turns on stomach and arises.				
Can you kneel on one knee at a time and stand up on one leg at a time?	0	0	0	0
SCORE: GOOD if movement is executed perfectly with hands at sides.				
FAIR — unsteadiness, without use of hands or uses one or both hands, or falls back.				
POOR — uses hands on floor and thighs to assist, touches hands to thighs, or uses *both* knees at once or gets up to both feet at once.				

BALANCE POSTURE

Balance Beam — Eyes should be forward on end of beam. Walking sideways, eyes should be focused straight ahead. Use bean bag on the head.

Forward — toe-heel to length of beam.	0	0	0	0
Backward — toe-heel to length of beam	0	0	0	0
Sideward — step left, slide right foot to side return to starting position by step right, slide left	0	0	0	0
Stunts — Catwalk, (all fours) forward	0	0	0	0
Walk to center, lower to one knee and stand, walk off	0	0	0	0
Stand with one foot placed directly in front of the other foot	0	0	0	0
Sit in chair, bean bag on head, rise, walk around chair and sit down	0	0	0	0

BALL HANDLING

Throw ball to wall and catch on first bounce 3 out of 5 times, 10-15 feet away	0	0	0	0
Roll ball between two blocks 2 feet apart from distance of 10 feet	0	0	0	0
Throw bean bag to successive 18 inch targets placed at 2 foot intervals	0	0	0	0

LAMPHERE PUBLIC SCHOOLS—
Differential Education
Madison Heights, Michigan 48071

Perceptual-Motor Activities

Name: _____ School: _____ Grade Equiv. ____
Last First Mid. Init.

Birth Date: _____ Sex: ____ Teacher: _____ Date: _____

ALL TASKS DONE WITH VISUAL FIXATION

	Adequate		Educational Care		Referral Care	Score
	5	4	3	2	1	0
1. Hand and Eye choice Right handed	RR LR BR		RL LL BL		Undefined	
Left handed	LL RL BL		LR RR BR		Undefined	
Undefined Hand dominance						
2. Jump—both feet Forward	___ Eyes on target ___ Maintains direction ___ Maintains balance		___ Eyes not on target ___ Loses direction ___ Lack Parallelism ___ Rigid		___ Loses Balance ___ Alternate feet ___ Cannot do	
Backward	___ Eyes on target ___ Maintains direction ___ Maintains balance		___ Eyes not on target ___ Loses direction ___ Looks back ___ Rigid		___ Loses balance ___ Alternate feet ___ Cannot do	

3. Hop

Right foot

___ Eyes on target
___ 4 hops or more
___ Maintains balance
___ Maintains direction

___ Eyes not on target
___ Processes
___ Loses direction
___ Lands flat footed
___ Opposite foot touches floor

___ Loses balance
___ Cannot do

Left foot

___ Eyes on target
___ 4 hops or more
___ Maintains balance
___ Maintains direction

___ Eyes not on target
___ Processes
___ Loses direction
___ Lands flat footed
___ Opposite foot touches floor

___ Loses balance
___ Cannot do

4. Angels in Snow

Ipsi.

___ Moves limbs smoothly and decisively
___ Can move on visual & auditory stimulus

___ Processes at first
___ MOF on first try
___ Segmented movements
___ Requires tactual stimulus

___ Continuous MOF
___ Continuous processing
___ Requires kinesthetic stimulus

Contra

___ Moves limbs smoothly and decisively
___ Can move on visual & auditory stimulus

___ Processes at first
___ MOF on first try
___ Segmented movements
___ Requires tactual stimulus

___ Continuous MOF
___ Continuous processing
___ Requires kinesthetic stimulus

5. Walking rail (off floor)

a. Forward

___ Eyes on target
___ Uses both sides to balance
___ No hesitation

___ Eyes not on target
___ One-sided activity
___ Too fast
___ Feet toe in or out
___ Can recover balance
___ Steps off rail

___ Awkward
___ Poor balance
___ Heel cannot touch toe

b. Backward	___ Eyes on target ___ Uses both sides to balance ___ No hesitation	___ Eyes not on target ___ One-sided activity ___ Too fast ___ Feet too in or out ___ Can recover balance ___ Steps off rail	___ Awkward ___ Poor balance ___ Heel cannot touch toe
c. Sideways	___ Eyes on target ___ No hesitation ___ Easy balance ___ Smooth weight shift	___ Eyes not on target ___ Rigid posture ___ Steps off rail ___ Difficulty in weight shift	___ Awkward ___ Poor balance ___ Cannot shift weight
6. Skipping	___ Eyes on target ___ Bilateral skip	___ Eyes not on target ___ Hop and skip alternately ___ Processes ___ Rigid	___ Gallop ___ Cannot skip

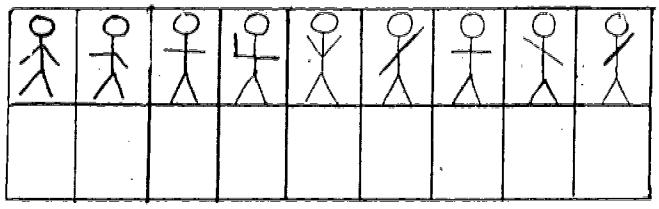
MEDFORD PRESCHOOL[1]
Perceptual-Motor

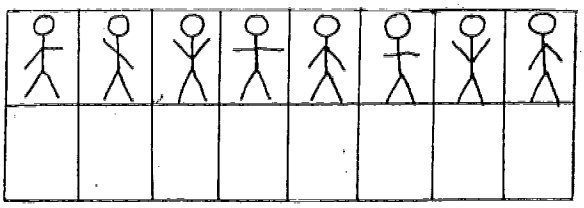
I. **Imitation of Body Movements:**

Given a visual model, the child will imitate the body movements without hesitation.

(Baseline)
+ = Pass

(Date)





J. **Balance Beam Forward:**

Given a verbal command, the child will walk forward, heel to toe, on a balance beam.

(Baseline)
+ = Pass

(Date)

1 step	1 ft.	2 ft.	3 ft.	4 ft.	5 ft.	6 ft.

K. **Balance Beam Backward:**

Given a verbal command, the child will walk backward, heel to toe, on a balance beam.

(Baseline)
+ = Pass

(Date)

1 step	1 ft.	2 ft.	3 ft.	4 ft.	5 ft.	6 ft.

[1]Based on Preschool Curriculum: Preschool Disability, Identification and Prevention. Medford School District 549C, Medford, Oregon.

O. **Bean-bag Throwing:**

Given a verbal command, the child will hit a one foot by one foot target on the wall three out of five times at a designated distance.

(Baseline)
+ = Pass

_____
(Date)

2 ft.	3 ft.	4 ft.	5 ft.	6 ft.

P. **Bean-bag Catching:**

Given a verbal command, the child will catch a bean-bag three out of five times in the hands (not in the arms) at a designated distance.

(Baseline)
+ = Pass

_____
(Date)

3 ft.	4 ft.	5 ft.	6 ft.	7 ft.	8 ft.

Q. **Ball Catching:**

Given a verbal command, the child will catch a 6" diameter ball three out of five times in the hands (not in the arms) at a designated distance.

(Baseline)
+ = Pass

_____
(Date)

3 ft.	4 ft.	5 ft.	6 ft.	7 ft.	8 ft.

GROSS MOTOR[1]

SKILL:	Unable	Week	Average	Strong	REMARKS:
Rolling (left & right)					
1. Roll-hands at side					
2. Roll-hands above head					
3. One hand at side-one above					
4. Somersaults-forward					
Sitting					
1. Sit straight on chair					
2. Indian style					
3. Sit balancing book on head					
4. Sit on balance beam feet up					
Crawling					
1. Creep on stomach					
Forward—					
Backward—					
2. Homolateral crawl					
Forward—					
Backward—					
3. Cross diagonal crawl					
Forward—					
Backward—					
Self-Identification					
1. Responds to name					
2. Watch self in mirror					
3. Identify name					
4. Photographic identification (color)					
5. Picks picture from group					
6. Picks self from within group photo					
7. Writes name					
8. Draws figure					

[1]Based on materials from Audrey Doty, 13 Spring Hill Road, Mantua, New Jersey 08051.

SKILLS:	Unable	Weak	Average	Strong	REMARKS:
Body Localization					
1. Points to or names major parts of body (eye, mouth, etc.)					
2. Points to or names minor parts of body (fingernails, etc.)					
3. Points to parts of body on others					
4. Can play "Simon Says" and "Hokey Pokey"					
5. Trace body of others, put in features					
6. Points out parts of body in photo of self					
Muscular Strength					
1. Crouch and jump					
2. Hang from pole or rings					
3. Climb stairs					
4. Bends knees					
5. Throw medicine ball					
6. Touch floor with fingers					
7. Swim					
8. Sit-ups					
9. Push-ups					
10. Chin-up					
Balance and Rhythm					
1. Run or walk tip toe					
2. One foot stand					
3. Bounce ball					
4. Rhythm band—steady beat					
5. Balance beam					
Forward					
Backward					
Sideway					
Right					
Left					
6. Dancing—contemporary, twist					

MOTOR DEVELOPMENT CHECKLIST[1]
EMR—TMR

	Name:						
Obstacle Course							
1. Roll							
2. Creeps							
3. Crawl (hand & knees)							
4. Walk							
5. Walk beam (forward)							
Backward							
Right							
Left							
6. Walk over, under, between							
7. Footsteps w/ crossover							
8. Static balance w/							
eyes closed							
both feet							
one foot							
9. Run							
10. Hop							
11. Climb							
12. Skip							
Warm-ups							
13. Angels-in-the-snow							
14. Wig-wag							
15. Single leg lifts							
16. Hook lie sit-up							
17. Toe touch							
18. Rocker							
Rhythms							
19. Jump rope w/ music							
20. Clap & walk w/ music							

[1]Janet Seaman, California State at Long Beach, Long Beach Recreation Department, Long Beach, California.

Hokey Pokey							
21. R-L discrimination							
22. Identification of body parts							
Ball Handling							
23. Roll							
24. Catch							
25. Overhand throw							
26. Bounce & catch							
27. Roll into box							
28. Bounce on target							
Kick Ball							
29. Kick stationary ball							
30. Kick rolled ball							
Gunny Sack Relay							
31. Jumping							

Scoring: 1 = Cannot do; 2 = Inadequate 3 = Adequate

	NAME						
300 YARD WALK-RUN ENDURANCE							
BENT KNEE SIT-UPS ABDOMINALS							
OSERETSKY-MATCHSTICK (MANUAL) FINE MOTOR COORDINATION							
STANDING BROAD JUMP OR VERTICAL JUMP							
30 YARD DASH-DYNAMIC LEG POWER							
ENDURANCE HANG (UPPER) ARM AND SHOULDER GIRDLE STRENGTH							
AGILITY RUN—AGILITY							
WALL BOUNCE—EYE-HAND COORDINATION							
BALANCE WALK-BALANCE							

[1]Boulder Valley School District, Boulder, Colorado

MOTOR-SKILLS TEST[1]
LEVEL ONE

Pupil's Name _____ Grade _____ Age _____

School _____ Teacher _____ Date _____

Test Items	Pretest S. U.	(Check One) Post Test S. U.	Test Differences I. S. D.
I. *Balance Beam*—(Eye-foot coordination, balance). For balance beam activities, have pupils remove shoes. Balance beam or 2 X 4 should be at least 8 feet long.			
A. *Forward.* Walk forward, touching heel to toe, length of beam without stepping off.			
B. *Backward.* Walk backward, touching toe to heel, length of beam without stepping off.			
C. *Sideward.* Stand sideways on beam. Step with right foot, slide left foot to right. Continue same action the length of the beam without stepping off.			
II. *Hopping*—(Balance, coordination)			
A. *Right foot.* 3 hops			
B. *Left foot.* 3 hops			
C. *Both feet.* 3 hops			
III. *Stiff Leg Sit-Up*—(Flexibility, strength)			
A. Lie flat on floor with arms at sides, palms down. *Keeping legs straight*, lift upper part of body, touch toes with fingertips. (Repeat 3 times.)			
IV. *Ball Handling*—(Hand-eye coordination)			
A. *Bounce and catch.* Using both hands, bounce and catch ball 5 consecutive times without missing, dropping, or losing control of 8½" rubber playground ball.			
B. *Rolling ball.* Roll 8½" rubber playground ball at target 10 feet away. Hit target 1 out of 3 tries—use wastebasket, cardboard box, etc. for target.			

* S = performed the skill successfully.
U = unsuccessful performance—indicates deficiency which needs instructional practice.
I = improved performance.
S = post-test score same as pretest score.
D = digressed—post-test score lower than pretest score. Retest in a few days.

[1]Based on Motor Skills Testing in the Primary Grades, Oklahoma Department of Education (Physical Education Section), Oklahoma City, Oklahoma.

MOTOR-PERCEPTUAL MOVEMENT PATTERNS[1]

Name of Child _____ Age ____ Grade ____

Observation and testing of this child indicates the following:	Progress			Needs more training
	slow	average	good	
ATTITUDES AND HABITS				
Effort				
Confidence in movement				
Care and appreciation of equipment				
Ability to work independently				
RELAXATION				
Sleep pattern				
Ability to stop all movement				
GENERAL MOVEMENT PATTERNS				
Flip-flop (tonic neck reflex)				
Head lift and roll				
Rolling				
Crawling				
Creeping				
Walking and running				
Hopping and jumping				
Skipping				
Galloping				
Angels-in-the-snow				
Balancing				
Body image				
Spatial orientation				

[1]D. Krause and B. L. Olsen, University of Wisconsin at LaCrosse, LaCrosse, Wisconsin

SPECIFIC MOVEMENT PATTERNS	Progress			Needs more training
	slow	average	good	
Manipulation of small articles				
Ball skills				
Rope jumping				
Holding pencil correctly				
Dominance (mixed, right, left)				
EYE MOVEMENT PATTERNS				
Focusing (eye contact)				
Ocular pursuit (following target)				
Peripheral (seeing out of the corner)				
Accommodation (near and far)				
COMMUNICATION PATTERNS				
Ability to follow directions				
Ability to tell or give directions				
VISUALIZATION PATTERNS				
Ability to project and interpret				
Ability to be creative				

School _____

Teacher _____

OTHER COMMENTS:

ADAPTED PRE-BEGINNER SWIMMING PROGRAM

LEVEL I

PUPIL IS ABLE TO:

___ 1. Enter pool via ladder with assistance.
___ 2. Leave pool via ladder with assistance.
___ 3. Sit on deck and enter pool with assistance.
___ 4. Climb on deck from pool with assistance.
___ 5. Bob up and down in water to chin level with support of two arms of instructor.
___ 6. Bob up and down in water to chin level with support of one arm of instructor.

ADAPTED PRE-BEGINNER SWIMMING PROGRAM

LEVEL II

PUPIL IS ABLE TO:

___ 1. Climb down ladder unassisted.
___ 2. Climb up ladder unassisted.
___ 3. Enter pool from deck unassisted.
___ 4. Leave pool from water unassisted.
___ 5. Bob up and down in water without support of instructor, using bobbing progression in Level I.
___ 6. Bob down deep and touch ankles, jump up high in air, and maintain balance using both arms to balance body.

ADAPTED BEGINNER SWIMMING

LEVEL VI

PUPIL IS ABLE TO:

___ 1. Do crawl stroke and rhythmic breathing while standing in place.
___ 2. Do crawl stroke—20 yards. (Arms, breathing, and legs)
___ 3. Do combined stroke on back (kicking and sculling or finning)—10 yards.
___ 4. Change directions to right by reaching with hand and arm and turning head in direction of turn, while kicking legs to maintain horizontal position.
___ 5. Change directions to the left.
___ 6. Turn over from front to back and back to front.

ADAPTED INTERMEDIATE SWIMMING

LEVEL IX

PUPIL IS ABLE TO:

___ 1. Scissors kick 10 yards with kickboard.
___ 2. Crawl kick 10 yards with kickboard.
___ 3. Breaststroke kick 10 yards with kickboard.
___ 4. Sidestroke arms only 5 yards; legs trail.
___ 5. Crawl armstroke only 5 yards; legs trail.
___ 6. Breaststroke armstroke only 5 yards; legs trail.

Source Unidentified

Name_____ IQ____CA ____TMR ____EMR ____HYPR _____
RESTRICTIONS_____
Toilet trained_____
Feeds self_____
Dress self_____
Stimulus responses_____
Verbalizes_____
Tactile_____
Kinesthetic_____
Stack test_____
Mobility_____

FUNCTIONAL CONCEPTS	DIRECTIONALITY[1]										
	A Body Parts	B Stop-Go	C Up-Down	D Over-Under	E In-Out	F Long-Short	G Near-Far	H Big-Little	I	J	K
1 LINE CONCEPTS:											
2 SHAPES:											
3 MOBILITY:											
4 AGILITY:											
5 _____											
PHYSICAL EDUCATION SKILLS—PLAY SKILLS											
6 ROLL & BOUNCE A BALL:											
7 THROW AND CATCH:											
8 KICK & HIT:											
9 BODYROLL, TIP-UP, HEADSTAND:											
10 RELAY & CIRCLE GAMES:											
EVALUATION:_____											
COMMENT:_____											

[1] Ernie Davis, 12651 Pebble Beach Drive, Sun City, Arizona 85351

Neurological Organization: "War Games"

A

CRAWLING
1. Homolateral
2. Cross Patterns
3. One leg drag
4. Two leg drag

CREEPING
5. Homolateral
6. Direction
7. Knee slap

STANDING
8. Homolateral
9. Cross Patterns
10. Bilateral

Perceptual Character Directionality—Pioneers-Eagles

B

1. Jump rope
2. Make a mountain
3. Walk-run-skip Left and right
4. Jump the m'tn.
5. Indian dance
6. Straddle m'tn.
7. Ride a horse & walk the rope
8. Hunt the deer
9. Shoot the deer
10. Bring it home to campfire

Basic Motor Skills Gym Organization

C

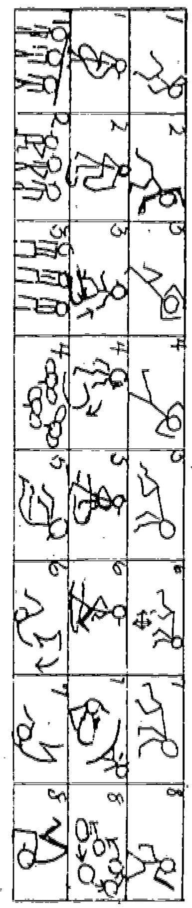
1. Line-up (height)
2. Dress-right (spc)
3. Count-off (No.)
4. Open-ranks
5. Measurement
6. Forward-roll
7. Roll-over partner
8. Tip-up
9. Headstand
10. Cartwheel

AN EVALUATION FORM TO DETERMINE LEVELS OF PSYCHOMOTOR FUNCTION IN THE MENTALLY RETARDED[1]

Neurological Organization: (Mobility) A

Perceptual Characteristics: (Agility) B

Basic Motor Skills Fitness Tests: (Tumbling) C



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10																								

[1]Ernie Davis, 12651 Pebble Beach Drive, Sun City, Arizona 85351

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ANNOTATED RESEARCH BIBLIOGRAPHY IN PHYSICAL EDUCATION, RECREATION, AND PSYCHOMOTOR FUNCTION OF MENTALLY RETARDED PERSONS. Contains 439 studies and bibliographic citations for 419 additional projects covering almost 100 years — 1888 to 1975. Represents the most comprehensive effort yet made to present studies and analyses in these areas. Offers review and analyses of trends and major findings for each study and delineates unanswered questions that need to be proved in further studies, projects and programs. Also presents various other problems, issues and needs having implications for research, demonstration training, and service in physical education, recreation and psychomotor function of mentally retarded persons. Translates research findings into practical instructional hints, teaching techniques and related ideas that can be used by practitioners. All entries are indexed and cross-indexed in one of five indices. 1975. 296 pp.

BEST OF CHALLENGE — VOL. II. A compilation of the best articles from the 1970-1973 issues of CHALLENGE, AAHPER's newsletter for special educators, parents, volunteers and others who work with the handicapped. Designed as a basic or supplementary text for college courses and as a reference for workshops, clinics, seminars, institutes, classes and similar in-service and preservice programs. 1974. 184 pp.

INTEGRATING PERSONS WITH HANDICAPPING CONDITIONS INTO REGULAR PHYSICAL EDUCATION AND RECREATION PROGRAMS. An analysis of selected research and program literature concerned with the integration of individuals with handicapping conditions into physical education, recreation and related programs. With selected references and audiovisual aids. 1975. 60 pp.

MATERIALS ON CREATIVE ARTS FOR PERSONS WITH HANDICAPPING CONDITIONS. A comprehensive analysis of program and research literature concerning arts, crafts, dance, drama and music for individuals with various handicapping conditions. Sections include bibliographic references, audiovisual materials, resource persons, related associations and organizations, and material/equipment suppliers. 1975. 104 pp.

PHYSICAL ACTIVITIES FOR THE MENTALLY RETARDED (IDEAS FOR INSTRUCTION). Instruction in activities promoting fundamental motor development and the exploration of general areas of skill; designed for use by physical education instructors, classroom teachers, parents and recreation personnel. 1968. 137 pp.

PHYSICAL EDUCATION AND RECREATION FOR INDIVIDUALS WITH MULTIPLE HANDICAPPING CONDITIONS. Contains a brief analysis of literature, abstracts and information on physical education and recreation for individuals with multiple handicapping conditions. Sections are presented that include examples of related programs, references, resource contacts and audiovisual aids. 1975. 60 pp.

PHYSICAL EDUCATION AND RECREATION FOR THE VISUALLY HANDICAPPED. A valuable resource for the special educator, recreation specialist and physical educator — as well as the volunteer, paraprofessional or parent — involved in physical education or recreation for the visually handicapped. Includes information on the nature of visual impairments, practical suggestions for active participation in modified programs and successful, easy-to-administer instructional methods. A variety of sources are suggested for further reference, study and use. 1973. 80 pp.

PRACTICAL GUIDE FOR TEACHING THE MENTALLY RETARDED TO SWIM. Designed to help professionals and volunteers teach the mentally retarded to swim or to swim better. Sections deal with the instructional staff, volunteers and aids, preservice and in-service training, and community involvement, and include creative approaches which have been used successfully in aquatics programs. 1969. 160 pp.

RECREATION AND PHYSICAL ACTIVITY FOR THE MENTALLY RETARDED. Covers the objectives of recreation, brief description of mental retardation, what play can mean for the retarded, objectives and desired outcomes of programs in physical activity, organization and teaching, and suggested activities. Annotated bibliography of source materials. 1966. 96 pp.

RESOURCE GUIDE IN SEX EDUCATION FOR THE MENTALLY RETARDED. A comprehensive guide for the educator, volunteer and parent prepared by AAHPER and the Sex Information and Education Council of the United States. A developmental approach is utilized so that materials can be readily selected for use with the educable or trainable child. Includes a detailed coded listing of additional resources. 1971. 80 pp.

SPECIAL FITNESS TEST MANUAL FOR THE MENTALLY RETARDED. Explains the development of the test, which was adapted from the AAHPER Youth Fitness Test, and describes each of the seven test items and tells how each is administered. National norms for mentally retarded boys and girls, age 8 to 18, are presented along with standards of eligibility for each award. 1968. 56 pp.

SPECIAL OLYMPICS INSTRUCTIONAL MANUAL—FROM BEGINNERS TO CHAMPIONS. Covers activities, methods, teaching/coaching hints and progressions for conditioning and fitness, track and field, volleyball and swimming appropriate for youngsters of all ages, at all performance levels. Developed primarily for use by aides, volunteers and classroom teachers of mentally retarded youngsters, but equally useful for professionals in the fields of physical education, recreation, sports and athletics. Published jointly with the Joseph P. Kennedy, Jr. Foundation. 1972. 128 pp.

WHAT RECREATION RESEARCH SAYS TO THE RECREATION PRACTITIONER. The appendix to this new AAHPER publication, which highlights the practical aspects of recent recreation research, provides a guide to information resources programing for persons with handicapping conditions. Contains sections on administrative behavior, behavior modification, therapeutic recreation, and recreation as a social institution. 1975. 80 pp.

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