CHAPTER 2

Motor Development and Motor Learning for Children

The purpose of this chapter is to identify and discuss the process of motor development through which children progress. Principles of motor learning and developmentally appropriate teaching practices for elementary school children are presented. You are encouraged to reflect on the role physical activity plays in the development of children.

Objectives

After studying this chapter, you will be able to do the following:

- Describe the normal process of motor development of children ages 3 through 12.
- Discuss the concepts of motor learning that influence children's motor skill acquisition.
- Identify developmentally appropriate teaching progressions for motor skill attainment.
- Comprehend how regular physical activity benefits children's growth and development.

Ms. Jones was observing her second-grade students out on the playground; they were successfully engaged in throwing to targets. She had discussed this lesson with Ms. Key, the physical educator, and the objective was for children to demonstrate overhand throwing to targets. She saw Sally standing about ten feet away from a wall throwing a tennis ball to a big *X* target on the wall. She saw Karen throwing a foam ball through a hula hoop suspended from the basketball rim. Randy was throwing a small football over John's head to his partner, Susan. Ms. Jones could see that students were experiencing success because of the equipment they were able to choose from. The children chose their equipment based on their comfort level and the challenge of the activity. As Ms. Jones walked around and talked to the children, she was pleased about how they enjoyed the activity and what they could tell her about the overhand throw. It was apparent to Ms. Jones that they were becoming more competent with the overhand throw, and the equipment they had to choose from was helping to create a successful activity.

Introduction to Motor Development and Motor Learning

Motor development is defined as the changes that occur in human movement across the life span. Motor development does not occur in isolation as a child matures from infancy to adolescence. Rather, motor development will be influenced by biological characteristics that a child possesses (such as heredity and maturation) and by the environment in which the child lives. Opportunities for movement that are found within the environment (such as toys, swing sets in the backyard, stairs to climb in the home) influence motor development.

Motor learning refers to a relatively permanent change in performance as a result of practice or experience. Although learning cannot be directly observed, it can be inferred during a motor performance. Through repeated observations of a child's performance, you will be able to infer whether or not a skill has been learned or refined. When assessing performance and making instructional decisions, three elements will be considered: the learner, the task, and the environment.

For example, you might ask yourself the following questions:

- Has the learner acquired easier components of a skill before being asked to combine the parts into one movement?
- Does the task require that an object be manipulated while the child moves within the classroom space?
- Are objects within the classroom stationary or moving?

Understanding motor development and motor learning is important if you are to help children improve their motor performance. Such an understanding also requires knowledge of development in the physical, cognitive, and affective domains because these domains all interact with the motor domain. For example, improved movement performance may impact feelings of self-worth or status in a peer group. Since these domains are in constant interaction, we need to look at the interrelationships of the domains before we create learning experiences for elementary school children.

Children of the same age can display variations in growth.

PHYSICAL GROWTH AND MOTOR DEVELOPMENT IN CHILDREN

What is the typical height and weight of an eight-year-old child? Why do third-grade children have so many different abilities when it comes to throwing a ball? How do boys and girls differ in their physical development? Should boys and girls participate together in elementary school physical education activities? As you plan physical activities for elementary school children, it is important that you understand the characteristics of children and how to plan your learning activities to meet their needs. As you look at a group of children in a classroom, you will notice that no two children look the same. Their physical characteristics differ, and their motor skills do as well.

Growth Patterns Although growth patterns of children are genetically determined, there is a predictable pattern that children experience. However, the timing for that pattern will vary from child to child. During childhood, height, weight, and muscle mass steadily increase, although the increases are not as rapid as during infancy. Growth gradually slows throughout childhood until the adolescent growth spurt. The annual height gain from early childhood to puberty decelerates from 2.75 inches per year (at ages three through five) to 2.25 inches per year (from age six through adolescence). The average weight gain is about 4.5 pounds per year during early childhood, with an average increase to 6.5 pounds per year from age six to adolescence. These years of slow but steady growth enable children to explore how their bodies function and to move when called upon to do so.

Gender Similarities If you were to see a boy and girl from the same kindergarten class out on the playground from a posterior perspective, you would find these two children to be similar in appearance. Boys and girls have similar amounts of muscle and bone mass during preschool and early primary grades, and they show a similar gradual decrease in fatty tissue through age eight. As children continue to advance to age 12, both boys and girls have greater limb growth than trunk growth. Slight differences are apparent in that boys tend to have longer legs and arms, and girls tend to have greater hip and thigh width.

Physical differences between boys and girls are minimal until the onset of preadolescence (see Instant Activity 2.1). The similarities in growth patterns for boys and girls during the elementary school years allow them to participate together during physical activity periods. We encourage you to take an active role in letting boys and girls interact during physical activity so that they learn to understand and respect the similarities and differences among children in the movement setting.

INSTANT ACTIVITY 2.1 Tracking Height

Grades K–6

Equipment Needed

Ruler

Activity

Place a ruler on the wall of your classroom and let students periodically check how much they have grown. Ask them to write their height in their own personal notebook, and discuss the following questions with them.

Grades K–2

How can you tell that you have grown taller?
When we started school, were you taller than most students, shorter, or somewhere in between?
Are you taller, shorter, or somewhere in between now?
Is everyone in the class the same height? Why not?

Grades 3–4

How much have you grown since the beginning of the school year?
By what other ways besides measuring yourself can you tell you have grown?
When you stand next to adult members of your family, how can you tell that you have grown?

Grades 5–6

How has your height changed since the beginning of the school year?
How does your height compare with that of others in your family?
Are you taller, shorter, or somewhere in between when you compare yourself with your classmates?
Why is it okay for you to be different from everyone else in the classroom?
If one of your friends complained about his or her body height, what might you say to help your friend feel good about his or her height?
What can we do to accept ourselves and our friends just the way we are?

COGNITIVE IMPLICATIONS FOR MOTOR DEVELOPMENT

Once children learn to walk upright unassisted, verbal communication rapidly improves. Walking allows children to explore the environment and expand their conceptual knowledge of the world in which they live. As children learn concepts—for example, dogs and cats have four legs or dogs bark and cats meow—their ability to communicate verbally becomes more efficient.

Between the ages of two and four, children learn to role-play as they pretend play. It is not unusual to see children dress up as their mother or father and walk around the house talking as they have heard their parent talk. During their pretend play, props, such as clothing, makeup, and jewelry, may be used to symbolize objects to make play more enjoyable as the child imitates a favorite activity of the parent. Such activity benefits motor development as well as enhances the child's cognitive development to communicate.

A noticeable characteristic of children between the ages of two and four is their egocentrism. They view the world only from their own perspective and have a difficult time sharing or cooperating with others. It is all about "Me!" The movement educator must be careful to plan activities that avoid large group participation, as children of these ages will not work together toward a group goal. Participation in individual exploratory movement with progression to cooperative partner and small group movement opportunities will increase social interaction among children and encourage them to learn to be more sensitive to the feelings of others.

Between the ages of four and seven, children have a difficult time thinking about more than one aspect of a motor problem at a time. If you have seen young children play soccer on a Saturday morning, you may have noticed that most of the children are trying to kick the ball. Their attention is focused so much on kicking the ball that they do not even consider the possibility of passing the ball to a teammate who might be away from the crowd. Children are more successful participating in movement activities that are low in complexity and require focus on one movement at a time. For example, a game of Four-Square that requires children to hit a ball with an underhand striking

motion is easier than a game of modified volleyball in which children must decide to strike with the forearms, or overhead set, or one-handed hit.

Upper elementary school children, ages 7 to 11, develop the ability to problem-solve on more than one task at a time. However, tasks that demand their focus must be within their real-world or personal experiences rather than a hypothetical situation. Children who have attained the cognitive ability to focus on more than one task can begin to develop strategies in movement activities that include offensive and defensive tactics. On any given Saturday morning in the fall, you can see children of these ages successfully countering an opponent's dribbling tactics on soccer fields across the country. Because of the ability to focus attention on multiple tasks, the child can anticipate what an opponent will do, formulate a strategy to counterattack, and execute the movement.

AFFECTIVE IMPLICATIONS FOR MOTOR DEVELOPMENT

Play is an important factor in children's socialization and motor development. Through play children interact and develop an awareness of each other and begin to form social groups. Play typically is based on movement; consequently there is an impact on motor development as well as the affective, social development.

During the early childhood years of 3½ to 4½ years of age, children emerge from playing in solitary and begin interacting with other children as play occurs. They begin to share toys and equipment, but there is little evidence of working within a group, as they are egocentric in their cognitive perspective. When children enter kindergarten, the school becomes a socializing factor that reinforces group interaction in purposeful play activities. Throughout the elementary years, children learn to cooperate, compete, and develop leadership skills. For example, it is very common to hear a classroom teacher say, "Who is the line leader today?"

When children play, it is not unusual to see them running, jumping, laughing, and even screaming in delight. They have a wonderful time moving and interacting with another, whether that is a caregiver or a neighborhood friend. As play evolves into more structured group activity or physical education class during mid-childhood, children become more aware of their competence and social acceptance. They begin to verbalize their feelings of self-worth and self-esteem based on how they see themselves compared with other children. If children view themselves as being as competent as others in their social group, increased participation in physical activity will enhance both their social and their motor development. However, if they view themselves as a "loser" or a "klutz," they are apt to link physical activity with negative self-worth and low self-esteem. Both their social and motor development may then be hindered because of their self-consciousness of being viewed by others as incompetent.

Movement educators need to be aware of the social behaviors of children as they plan activities. It will be unrealistic to expect children in early childhood to participate in activities with a group goal. These children will be more successful exploring movement individually and learning to enjoy movement as a form of play. Older elementary school children find group activities fun, but such activities need to promote social success and the development of leadership skills of all students. Otherwise, children may perceive a negative relationship between social and motor development. The feeling of success in movement and the simple act of participation within a group can positively affect a child's self-worth and self-esteem.

Motor Development Concepts

General motor development of all humans is quite similar. Although all humans are unique in the characteristics they display during movement, the sequence and predictability of development are similar across the population. Growth and development occur in two directions: from head to toe and from the center of the torso outward to the limbs. Voluntary movement, or movement that is controlled in higher areas of the brain, is evident by the end of the child's first year. While these movements may not always contain all of the elements of the more mature movement of an elementary school aged child, they are recognizable. Voluntary movements may be classified into categories called nonlocomotor, locomotion, and manipulation. These same categories will delineate the basic fundamental motor skills discussed in Chapter 3.

HEAD TO TOE DEVELOPMENT

Because motor development occurs from head to toe, the ability to do voluntary movement begins at the head. Infants at one month may display minimal control of the head and neck while in a supine position.

However, by five months of age, infants in the same position will be able to raise their head and look over their environment. Once control of the head is evident, control of the upper body is important, as the ability to elevate the chest becomes a precursor to rolling to a sitting position. By eight months of age, most children can sit alone, and by ten months of age, most children will control upper and lower areas of the body and pull themselves into a supported standing position.

The ability to stabilize and control the body also continues the progression to upright walking. By raising the chest after rolling to a prone position, children are encouraged to use their arms to crawl across the floor. Use of the legs in this head to toe development will occur later. Initial crawling may be evident by seven or eight months of age. As the upper body is controlled to raise the chest off the floor and the legs are involved, children will begin to creep by the end of the first year.

Upright walking begins with support from a parent at about eight months and progresses to support by a piece of furniture at about ten months. Less support is needed to maintain balance at 11 months, and some children are able to walk unassisted at 12 months of age. If you envision a child learning to walk upright, the child will have stiff knees and ankles. As development continues, the child will eventually gain greater control of the knee joint and then the ankle joint, which allows a more normal walking pattern. A gross, voluntary movement eventually becomes refined to the more controlled movement of walking.

As children walk to explore their surroundings, their strength and balance improve, and soon they begin to propel themselves into the air in a form of running. Other voluntary movements follow and include jumping and hopping. The fundamental skills of galloping, sliding, and skipping take longer to acquire, as children need to combine and coordinate motor skills (for example, a step and a leap combine in a gallop) in order to successfully accomplish the skill. The skip is the last fundamental skill to be learned and may not be evident until age six or seven. The critical period from ages three to eight is when children should master control and coordination of large muscle groups to perform the fundamental motor skills. Children who fail to develop mature fundamental skills during this critical period may experience difficulties coordinating more complex skills required for participation in sport skills and recreational physical activities. (Fundamental motor skills are discussed in Chapter 3. You may refer to the movement map in Chapter 3 for a graphic display of these skills.)

TORSO TO LIMB DEVELOPMENT

Another direction of control for voluntary movement is from the center of the body outward to the limbs. Because children gain control of their body first at the center, **gross motor skills** like those we have been discussing—running, jumping, throwing, body rolling—will be evident before skills requiring fine motor control. Small muscle skills, called **fine motor skills,** require more precise movements, typically of the hand and fingers, and involve eye-hand coordination. Writing, buttoning a shirt, and playing a musical instrument require fine motor skills. Figure 2.1 demonstrates progression in fine motor control as children learn to manipulate a crayon to draw. As children attain greater use of muscles in the hand and fingers, drawings display more precision and detail.

The ability of children to gain control of motor skills is associated with two processes: differentiation and integration. **Differentiation** is the progression of skill development from gross movements of infants to the more refined and useful movements of children. **Integration** is the coordination of muscle and sensory systems as found when movements of the hands and fingers are integrated with the use of the eyes to perform more refined skills. For example, a child will initially trap a ball against the chest in an attempt to catch the ball. Eventually, as the child integrates the visual information with better control of limb movement from the shoulders to the hands, the ball will be caught with the hands and fingers.

Physical activity typically emphasizes the development of large muscle skills, while the classroom environment provides opportunities to practice fine motor skills. Development of both categories of motor skills is critical to the enjoyment of many lifetime pursuits, such as recreational sport activities, musical activities, and occupational skills. We recommend that children receive numerous opportunities to practice and succeed with movements from both categories so that they are confident in their abilities. Smooth coordination of large muscles and precise control of small muscles are essential to successful completion of many tasks that children are called to do during the typical school day.

FACTORS AFFECTING MOTOR DEVELOPMENT

Unfortunately, some children will not experience normal motor development. Recreational drug use, such as alcohol, cocaine, and tobacco, can affect both the mother and the developing fetus. Use of alcohol may

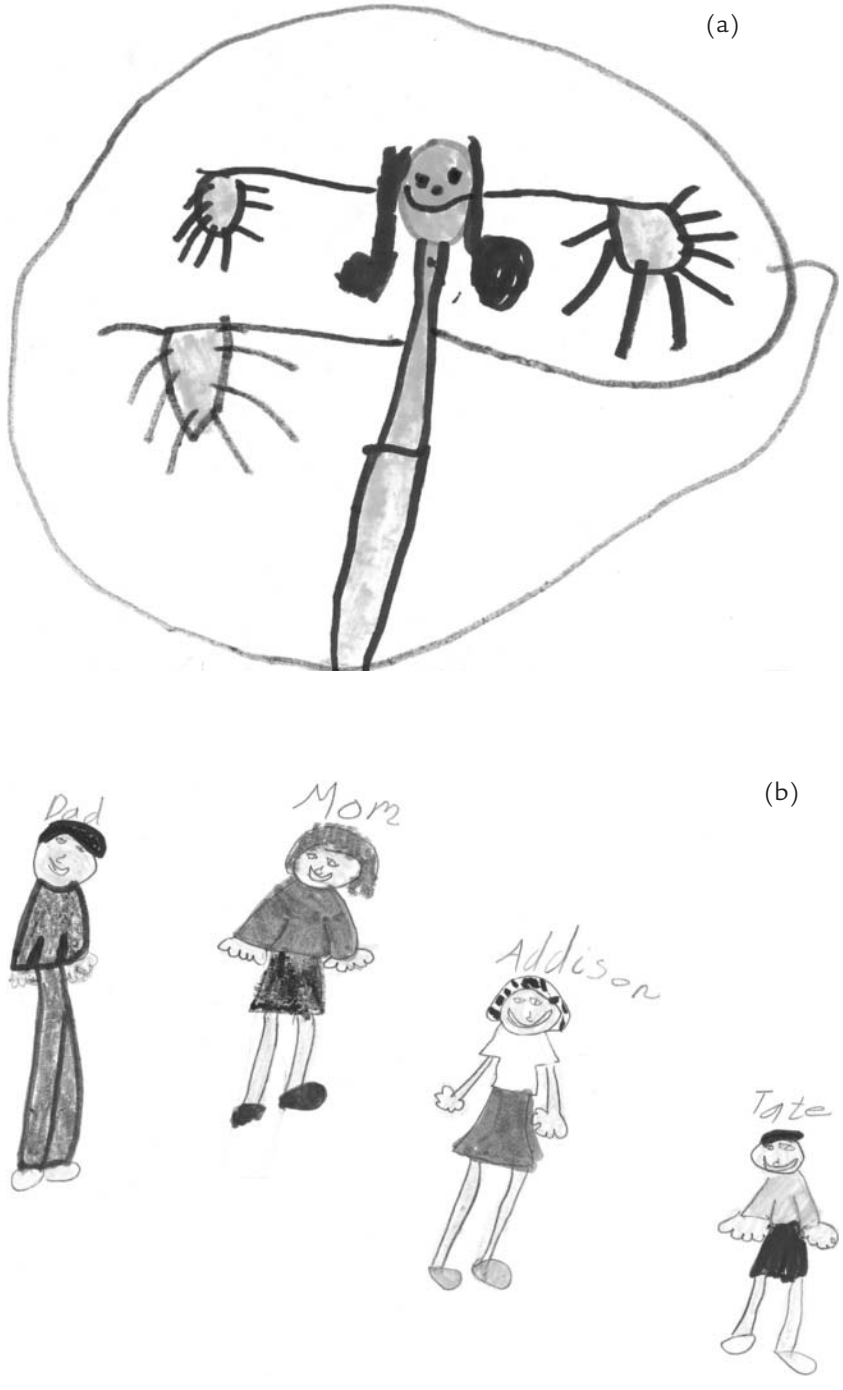

FIGURE 2.1 As children develop greater use of the muscles of the hand and fingers, fine motor control improves. The drawing of a four-year-old child (a) displays little precision, while the drawing of a seven-year-old child (b) displays much more detail and precision due to increasing fine motor control.

result in birth defects known as **fetal alcohol syndrome.** Abnormalities to the fetus may include mental retardation, attention deficit disorder with hyperactivity, and retarded physical growth. Cocaine use during pregnancy may cause brain damage to the fetus as the result of decreased oxygen. During development the fetus and mother may also experience extreme fluctuations in heart rate and blood pressure, which may result in ruptured vessels in the fetus. Blood vessels to the placenta may also constrict and impede the nutrients going to the fetus, resulting in low birth weight and possibly poor blood supply to the fetus. Adverse effects of tobacco use during pregnancy include lack of oxygen to the fetal tissues, due to the interference of carbon monoxide with the capabilities of hemoglobin to carry and release oxygen, and low birth weight.

Use of prescription and nonprescription drugs during pregnancy should be done only in consultation with a physician. Possible effects on the fetus include

central nervous system defects, eye defects, congenital heart defects, mental retardation, and hearing loss.

It is important for pregnant women to receive adequate nutrition. Since the mother is the source of nutrients for the fetus, a balanced diet is critical to the development of the fetus. If a mother's diet is deficient in nutrients, the fetus may develop a parasitic effect on the mother and drain the needed nutrients. Deficiencies in nutrients may lead to low birth weight, premature delivery, incomplete brain development, below normal motor development, poor mental functioning, and skeletal growth retardation. For the pregnant woman wishing to exercise, a balanced diet and additional water consumption are needed to maintain appropriate weight and hydration for herself and the fetus.

READINESS TO LEARN

Why is it that one seven-year-old child is able to smoothly skip around the playground while another seven-year-old child looks awkward and clumsy when attempting to do the same thing? When we observe children as they acquire new skills and become competent with those skills, we are reminded of the uniqueness of each child. Each child has her or his own biological timetable for determining the rate and extent of skill development. While the rate of change in motor development varies for all children, the general sequence of development is relatively similar. Therefore, one seven-year-old child may have acquired a skipping movement pattern while another child may yet be gaining coordination and control of the skip.

One of the challenges of providing appropriate movement activities is matching the task to the movement abilities of the children. If a task is too difficult, children become frustrated and lose interest. If a task is too easy, children become bored. Compound this situation by 20 or more students in a class and it is easy to understand the importance and the challenge of providing motor activities that are developmentally appropriate for all students. Developmentally appropriate activity accommodates a "variety of individual characteristics such as developmental status, fitness and skill levels, body size, and age" (NASPE 2000). Thus an appropriate activity for most second graders would be hitting a ball off a tee, whereas an inappropriate activity would be playing a regulation game of softball.

As you consider which activities are developmentally appropriate, you must consider the **developmental readiness** of the children who will experience the activities. Because children demonstrate variability in their development, you will want to learn whether the children are ready to learn the activities. You may talk with the children to determine whether they have had previous experiences with similar, but easier tasks. You may watch students to see whether they appear awkward and unable to repeat a movement, or whether they are able to perform repetitions of the correct movement. For children to succeed, it is important that you recognize the variability among and within your children and be prepared to modify activities to meet your children at their level of readiness. Movement educators cannot plan activities based on grade level or age and expect all children to be successful. You must take into account children's developmental variability and individual readiness for activity (see Instant Activity 2.2).

STAGES OF PERFORMANCE

The movement educator is responsible for understanding the **stages of performance** of the children in the class and meeting their needs at their particular stage of performance. Progression through these stages is independent of age, yet all learners progress through the distinct sequence of stages of beginning, intermediate, and advanced learner for skills unique to their level of readiness if quality instruction is provided.

Beginning Level The first stage of performing a motor skill may be thought of as the beginning stage. The learner is generally attempting to get an idea of what the movement looks like and how to coordinate the body to perform the skill. However, more likely than not, the movements of the learner are clumsy and awkward. Because the learner is attempting to understand the movement, the learner also becomes overwhelmed by the numerous visual stimuli that the environment presents. Consequently, the learner tires easily because of the mental fatigue that occurs. Beginning students may find it necessary to talk to themselves as they do the movement, thereby possibly creating frustration and mental fatigue if success is not experienced.

Kindergarten children are typically at the early stages of the beginning level. Let's look at a specific example of how children at this level look. If the activity of the day incorporates the locomotor movement of jumping, children at this level generally achieve little flight off the floor when they jump for height or distance. Arm movement is not coordinated to achieve lift off the floor, and the jump is often off two feet in order to maintain balance during the jump. As children progress through the beginning level, they perform basic

INSTANT ACTIVITY 2.2 Wadding Paper into a Ball

Grades K–6

Equipment Needed

Balloons or recycled paper

Activity

In the classroom general area that is away from desks, tables, or chairs, have children sit on the floor. Provide an inflated balloon for younger children. Ask older students to wad a piece of recycled paper into a ball.

Grades K–2

Have children toss and catch the balloon as many times as possible without letting it touch the floor.
Have children repeat the above, but invite them to volley the balloon with the dominant hand, if they choose.
Have children keep the balloon up in the air with the nondominant hand.

- Which way was easiest? Which way was most difficult?
- Which way did you have the most success? Which was most fun? Does everyone have to agree, or is it okay for everyone to have their own favorite way?

Grades 3–6

Have older children volley the paper ball back and forth from one hand to the other. See how many times they can rebound the paper ball without dropping it.
Find a different way to volley the paper ball back and forth using the hands.
From a standing position, volley the paper ball upward from the hand to the thigh that is parallel to the floor. While volleying in a safe manner, find a new way to strike the ball upward.
Provide additional time for students to practice.

- How did you feel while you were volleying the ball?
- Which way was the most challenging? The most frustrating? The easiest? The most fun?
- Did you get better as you practiced?
- Did everyone practice the same way and have the same amount of success?
- Why didn't everyone perform the same? Is it okay that everyone was different? Why isn't everyone the same? Why didn't you find everything to be fun or easy?
- What have you learned about differences among all the students in the class?

jumping patterns with more vigorous takeoffs and balanced landings. The arms and legs are used to assist the trajectory of the jump and provide more flight. Landings are aided when children learn to absorb the shock with the hips, knees, and ankles.

When providing instruction to learners in this stage of performance, you should plan activities in which the environment and the object of manipulation remain stable. Keep instructions short and simple. Children develop a better mental picture of the motor skill if they observe a demonstration and if you link the new skill to a motor skill previously learned. As children practice the skills, keep corrections and feedback positive, brief, and immediate so that children continue to develop an understanding of how to perform the motor skill without being overly fatigued mentally (see Box 2.1 for additional teaching hints).

Intermediate Level The second stage of performance, the intermediate stage, is characterized by refinement of the movement so that it is more consistent and has fewer errors. At this stage children find movement to be less mentally taxing because they focus less on doing the skill and more on the outcome of their efforts. Not only do children have the mental idea of the movement developed, but they also continue to refine how it feels to perform the skill. Therefore they pay less attention to the numerous distracters that are typically in the environment.

Compared with those at the beginning stage, children performing the jump at this stage exhibit a mature pattern. When jumping for distance, the arms are swung behind as the child crouches to prepare for takeoff. The arms swing forward to shoulder height throughout the flight. The arms continue to reach in front as the body weight moves forward on landing. Children are encouraged to explore jumping in combination with other movements, such as catching a ball, so that they begin to apply these skills in more gamelike situations.

Children in this stage of performance may choose not to progress beyond this stage if they perceive that they have failed in their attempts to learn the new skill. Provide maximum opportunities to practice

BOX 2.1
Hints for Teaching Students at the Beginning Level

Do the following to assist children at the beginning level to learn new movement skills:

- When appropriate, break the skill into parts and introduce one part at a time.
- Provide a demonstration to give children a visual image.
- Provide maximum opportunities for each student to practice with equipment.
- Focus immediate feedback on one critical element at a time.
- Focus on the quality of the movement rather than the product of the movement.

progressively more challenging activities. Give feedback that is positive, immediate, and brief so that children construct the knowledge to detect and identify some of their own errors and begin to make their own corrections (see Box 2.2 for additional teaching hints).

Advanced Level In the final stage of performance, the skill has become almost automatic for the performer, and little conscious thought occurs during execution of the skill. The performer is consistent from one practice attempt to the next and is able to detect and correct errors in his or her movement. To consider our previous example, children performing the jump at the advanced stage are able to carry out complex maneuvers. The skills may be part of a sporting event, such as the high jump, or they may be used for expressive purposes such as creative dance.

The transition across the stages of performance occurs when the performer has many opportunities to practice. Children in elementary school typically do not reach the advanced level of learning because of limited practice opportunities in the two- or three-day-a-week physical education program. You as the elementary classroom teacher can facilitate refinement of the skills by providing practice opportunities that offer authentic, dynamic situations similar to a game environment. Children embarking on the advanced level should be encouraged to think critically about game tactics and strategies for successful participation in game play (see Box 2.3 for additional teaching hints).

BOX 2.2
Hints for Teaching Students at the Intermediate Level

Do the following to assist children at the intermediate level to learn new movement skills:

- Maintain a positive, safe learning environment.
- Provide practice opportunities that become progressively more challenging.
- Vary practice activities often to maintain motivation.
- Give informative, immediate, and brief feedback.
- Provide authentic challenges that focus on small-group applications to the movement task.
- Meet individual needs by modifying the task to meet the abilities of each learner, because the gap in the skill levels of children widens as they grow older.
- Encourage children to analyze the critical elements of movement tasks and begin to detect errors and identify corrections.

Your responsibility in the movement setting, whether in the classroom, on the playground, or in the gymnasium, is to provide children the opportunity to practice, acquire, and refine their motor skills. Children's stages of performance will influence the way you teach. It will be helpful for you to develop a repertoire of teaching styles that you can use to meet the needs and developmental levels of the diverse learners in your class, as well as the objectives of your lessons. In Chapter 7, you will have the opportunity to learn about various teaching styles.

Motor Learning Concepts

As you learned in the concepts of motor development, general motor development is similar for all people. We are born with motor skills that allow us, through maturation and experience, to demonstrate adequate form when reproducing the skills. In order to achieve proficiency in motor skills, however, much instruction and practice is necessary. To provide effective instruction, you need to understand the motor learning concepts that will help children successfully produce movements that achieve desired movement goals. These concepts will form the foundation for all

BOX 2.3
Hints for Teaching Students at the Advanced Level

Do the following to assist children at the advanced level to learn new movement skills:

- Provide opportunities to practice in gamelike situations.
- Encourage students to practice offensive and defensive tactics during game play.
- Provide specific, immediate feedback on critical elements of the movement skill.
- Help the performer practice consistent movement from one practice trial to the next.
- Encourage execution of movement skills with little conscious thought.

of the instructional decisions that you make as you plan activities that are developmentally appropriate for all children in your classroom.

CONCEPT OF ATTENTION LIMITS

There is a limit to how many things children can pay attention to at any given time. When the limit is reached, children will have difficulty paying attention to everything going on in their environment. Consequently, they may demonstrate a slower response to initiate a skill, poorer quality of performance of one or more activities, or a total disregard for an activity that is presented. For example, if a child has not yet mastered kicking a stationary ball against the wall and you ask that child to play one-on-one soccer against a classmate, the child's attention limits may be exceeded, as the child must think about kicking a moving ball and moving in relation to the opponent. The child may have little success completing this task, because the unpredictability of the environment and the difficulty of the task have exceeded the limits of the child's attention. To reduce the likelihood that the limits would be exceeded for this child, you might ask the child first to practice dribbling the soccer ball without a defender. Then, be sure to provide sufficient practice just dribbling the ball before teaching the child to play one-on-one soccer.

Levels of excitement may also affect how much attention a child will give to the task at hand. There is an optimal level of excitement, not too much and not too little, that will vary across children. When a child fails to be excited about participation, performance often decreases because the child fails to pay attention to what is happening in the movement environment. Conversely, if the child is too excited, performance decreases as the child pays attention to too much in the environment and the attention limit is exceeded. The movement educator needs to understand that each child will have a different optimal level of excitement and to help each child maintain the optimal level of excitement.

CONCEPT OF TRANSFER

As you get to know your students' movement capabilities, determining what previous movement experiences they have had will be helpful. Previous learning may influence new movement experiences, and movement educators desire to make a positive transfer of learning from previous learning to new learning. **Positive transfer** occurs when previous learning experiences facilitate learning to use a skill in a different context or assist with learning a new skill. For example, children's previous experiences punting a round ball should assist in learning to punt a football. The critical elements of the motor skill are similar, but the ball has a different shape. Also, learning to volley a ball off the forearms may positively transfer to volleying a footbag, as both require a flat surface for successful completion.

As you design movement experiences for children, consider the following guidelines outlined by Coker (2004) to promote positive transfer.

- Determine whether components of the skill are similar to previously learned skills. Make comparisons throughout the instruction and practice time to draw attention to similarities of the new skill.
- Use previous learning experiences to create a mental image of the movement. For example, movement educators often suggest that children "reach your hand to the cookie jar on the top shelf" to create an image of how the follow-through on a one-handed basketball shot should look.

CONCEPT OF SKILL DEMONSTRATIONS

When teaching a new skill to children, it will not take long to realize the truth of the old adage "a picture is worth a thousand words." Lengthy, detailed descriptions of how to do a new skill will challenge attention

limits as well as decrease children's excitement for attempting the new task. Skill demonstrations create a meaningful visual picture of the movement requirements and how all the components of the skill connect together. It is helpful to perform skill demonstrations at a normal speed rather than slow motion so that children get a sense of the timing of the motor skill. At any time that a slow-motion demonstration is used, a demonstration at normal speed should follow so children again see the correct speed of performance.

Movement educators often worry that they cannot provide a correct demonstration of a new skill because they are not able to do the skill. While a correct demonstration will provide a better visual picture for children, there is much to be said for a demonstration that is performed by a classmate who is also learning the skill. The benefit of having an unskilled child do the demonstration is that other children will not only hear the feedback given by the educator to the performer, but also observe how the performer tries to correct the identified errors. In addition, children become more motivated to try new skills when they see that their classmates may not be any more skilled at performing the movement than they.

All children must be able to see the demonstration and hear the instructions that accompany the demonstration. So, consider what will be the most effective formation of students that enables them to see a complete picture of the movement. Circle formations with the performer in the middle of the circle often confuse children who will observe a mirror image of the way they will do the skill. Circle formations also have some students positioned behind the demonstrator so that it is difficult to hear instructions. Line or half-moon formations with the performer in front may allow more children to see the demonstration. To be effective, the performer should present a mirror image by facing the children, but perform the skill in the same direction that the children are moving. It is also helpful to present demonstrations from multiple angles so that children form a more complete picture of the skill.

CONCEPT OF TASK PROGRESSION

Designing appropriate task progressions is crucial to all skill development. It is not uncommon to walk into a movement setting and find children volleying a ball back to a partner who is tossing the ball during the first half of the class and then playing a six-on-six volleyball game for the remaining minutes of the class. Unfortunately, this practice often ends up with most children in the class not having their needs met. Some students will be frustrated because they are not able to hit the ball back, if it comes their direction during the game. Other students with more experience will find the initial activity too easy, and they will not stay excited about the tasks to be practiced. As a teaching practice, the transition from volleying to a partner to playing the volleyball game is inappropriate. These tasks are at the opposite extreme from each other and therefore should not be included in the same lesson or, realistically, sequence of lessons. Design of appropriate task progressions involves the identification of appropriate changes in the environment to address the level of performance of children in the class.

The **environment** can be described as the context in which children do a skill or in which an object is manipulated by the children. If the environment or the object does not change while a child performs a skill, the skill is classified as a **closed motor skill.** The object waits for the child to do something to it, such as hit the ball off a tee, or kick a ball that is sitting stationary against the wall. Walking through a classroom where tables and chairs do not move describes an unchanging, predictable environment.

The other end of the progression is an **open motor skill** that is performed in an unpredictable environment where the object is in motion or the context is changing. Advancing a ball down the court while playing basketball describes an open skill, as the environment may change due to movement of other players or a change in the speed or direction of the dribble.

Environmental conditions may be adjusted to be more or less predictable by altering space requirements, placing or restricting obstacles or defenders in the path, changing the equipment, or adding or deleting team members to game play. Instant Activity 2.3 shows a task progression designed by children for a recess activity with shooting to a soccer goal as the focus. Palmer and Hildebrand (2005) make the following recommendations for designing task progressions:

- Determine whether larger, open space or smaller, restricted space increases the task difficulty, and adjust the space accordingly. Smaller space does not always equate to less difficulty.
- Obstacle and defender predictability are effective means to adjust the level of task difficulty. Stationary obstacles are appropriate for beginning performers; restricting the movement of defenders to keeping a foot inside a hoop enables intermediate performers to have a more predictable environment; and free-moving defenders create an unpredictable environment for advanced performers.

INSTANT ACTIVITY 2.3 Child-Designed Physical Activity

Grades 3–6

Equipment Needed

None

Activity

Ask children to design a recess activity that can be taught to students in all of the classes. In small groups, have older students invent soccer activities for shooting to a goal that begin with the closed skill of shooting a stationary ball to an open goal (appropriate for younger children) and end with the older student dribbling a ball against a defender to a closely guarded goal.

Activity 1. Design a shooting activity in which the ball handler stands still and shoots a ball that is still into an open goal.

Activity 2. Design a shooting activity in which the ball handler is allowed to move but the ball stays still.

Activity 3. Design a shooting activity in which the ball handler stands still but the ball is moving.

Activity 4. Design a shooting activity in which the ball handler and the ball are moving.

Activity 5. Design a shooting activity in which the ball handler can move with the ball to shoot at a goal but a defender must stand still.

Activity 6. Design a shooting activity in which the ball handler can move with the ball to shoot at a goal, the defender must stay behind the ball handler, and the goalie must stay still.

Activity 7. Design a shooting activity in which the ball handler can move with the ball to shoot at a goal, the defender must stay behind the ball handler, and the goalie may move.

Activity 8. Design a shooting activity in which the ball handler can move with the ball to shoot at a goal, the defender may defend the ball, and the goalie may move.

- Large, lightweight, slow-moving equipment is easier to manipulate than regulation-sized equipment. The longer the handle of an implement, the more difficult the task becomes. Beginning performers will be more successful using larger, lightweight balls, "big-head" bats, and shorter-handled implements. Advanced performers may do well with the opportunity to practice with regulation equipment, while intermediate performers may do best by having the choice to select from either the beginning-level equipment or the advanced-level equipment.
- Equipment such as goals and targets may be adjusted similarly to the obstacles and defenders by being stationary or mobile. How predictable the goal or target is will contribute to the degree of difficulty. Beginning performers will have higher success when the goal or target is stationary. Intermediate performers may do well with targets that move slowly in a predictable manner. Unpredictable targets will challenge advanced performers.
- More team members involved in the task equates to a higher level of difficulty. Beginning performers are more successful working individually so they can control all aspects of the task. The gradual addition of team members enables children at the intermediate and advanced levels of performance to learn how to react, cooperate, engage in offense and defense strategies, and participate with changes in the space and opportunities to directly manipulate equipment.

More detailed information and examples to assist in designing and using task progressions may be found in Chapters 7, 9, and 11. Appropriate task progressions will keep students safe and motivated during movement activities.

CONCEPT OF FEEDBACK

Feedback is information learners receive about their performance and comes from sources internal to the learner or external to the learner. **Intrinsic feedback** is information that children will receive as they see the results of their practice attempt. For example, if children roll a ball to knock down bowling pins, they will see how many pins they knocked down and how many were left for their second attempt. As children become more proficient with a motor skill, they receive kinesthetic information regarding how a movement felt as it was performed. The intrinsic feedback that comes visually and kinesthetically helps advanced learners detect and correct their movement errors. **Congruent feedback** gives children information from an external source, such as the movement educator, on their performance directly related to what they were asked to

Large, lightweight balls and closed motor skills are appropriate for beginning-level performers.

do. For example, when children are asked to strike a balloon upward with a paddle, congruent feedback would sound like "keep the paddle flat when hitting the balloon upward."

When movement educators offer congruent feedback to children, children focus their efforts better when they have few cues to think about. Giving too much information can exceed the attention limits of children. Therefore it is wise to focus on one cue at a time. When the movement educator observes the performance of children in the class, it is helpful to look at performance in relation to the focus of the task that children are to accomplish. Appropriate congruent feedback should be given before moving on to feedback over other parts of a child's movement performance.

The sooner feedback is given to children after their performance, the more potential children have to use the information. However, if there is a delay in time between the performance and the feedback, children should be encouraged to reflect on their internal feedback to give them information about their performance. Movement educators can help children begin to develop their own feedback capabilities by prompting them with questions that will guide children to the answer. For example, in the previous example of hitting a balloon with a paddle, a movement educator might ask a child, "Why did the balloon go backward rather than upward?" The movement educator will guide the child to discover that the paddle face was pointing backward rather than flat and upward.

One way movement educators can maximize the information given to children without exceeding their attention limits is to develop a list of words that characterize what learners should do in relation to the tasks being practiced. Movement educators can provide feedback statements that are brief and focused on the task at hand, so that children can make the necessary corrections to their movement. In Chapter 7 you will learn techniques for application of the motor learning concept of feedback.

Strategies to Facilitate Learning

What can the movement educator do to facilitate development of motor skills? As the movement educator looks to facilitate learning, the motor development and motor learning concepts discussed in this chapter should form the foundation for decisions to be made about the instructional plan. Children should be provided with information about the skills and concepts they are to learn, and they should be taught *how* to do motor skills. Quality instruction is critical if children are to progress through the stages of performance. Instruction should be goal directed, and a positive learning environment should be established so that all children are encouraged to learn. Key strategies for facilitating positive learning experiences include adapting to students' individual learning styles, choosing appropriate practice progressions, and creating appropriate movement opportunities that are developmentally appropriate. With a well thought out program, the movement educator can ensure that children will receive the quality instruction necessary to acquire motor skills.

ADAPTING TO CHILDREN'S LEARNING STYLES

Just as you want to meet the needs of children by selecting appropriate task progressions, you will also facilitate learning by recognizing individual learning styles.

Learning styles are the unique preferences all learners have for receiving and processing new information. Learners take in and process new information through different perceptual modes. Although all learners use all modes to some extent, four types of learners have been identified by their preferred mode of learning: (1) the listener, (2) the thinker, (3) the kinesthetic learner, and (4) the visual learner. Box 2.4 gives examples of teaching for all four learning styles. Careful observation will help you to identify a child's preferred mode. Your challenge is to create a learning environment in which the numerous learning styles may be accommodated. Although you may not address each preferred perceptual mode in each lesson, your ability to frequently match learning strategies to individual learning preferences will enhance learning gains.

Instructional strategies may be outlined to accommodate the four learning modalities. The following suggestions may help you begin to develop your strategies.

1. The listener prefers verbal descriptions, so provide clear, concise discussions about the skills or activities to be performed.
2. The thinker likes to analyze movement challenges, so it is helpful to construct activities that include problem-solving or critical thinking skills.
3. The kinesthetic learner likes to feel what the body should do, so it is helpful to provide teaching aids to guide exploratory movement.
4. The visual learner does best when a visual model is given, so that an idea of the movement pattern may be perceived.

BOX 2.4
Learning Styles in Action

Let's look at all four learning styles in action. The movement activity is balancing on different body parts using wide or narrow shapes. Notice how the activity provides information to the learner according to a preferred perceptual mode.

1. *Demonstration for the visual learner:* Remember when we explored balancing on different body parts? Who can show me a balance on three of your favorite bases of support? [Ask the next question after a student demonstrates.] Is this balance using a wide or narrow shape?
2. *Rhythm for the listener:* I'm going to turn on some music to provide a steady beat to hold your balance for three seconds. [Choose a rhythm to aid the listener.] Create three new balances with a wide shape using a different number of body parts for each balance.
3. *Problem solving for the thinker:* Now I'd like you to create three narrow shape balances using a different number of body parts for each balance. I'd like you to investigate which body shape is easier to balance for three seconds and how many body parts it takes to make balancing easier.
4. *Feeling the movement for the kinesthetic learner:* Create a wide shape using your favorite body parts and then slowly move to a narrow shape. Which shape made you feel stronger and able to hold it for longer than three seconds? What did you have to do to your muscles to hold that balance?

CHOOSING APPROPRIATE PRACTICE PROGRESSIONS

Effective teaching in the movement setting is not too different from effective teaching in the classroom. In order for children *to* learn, the movement educator must teach so children *can* learn. During lesson preparation, the movement educator must reflect upon and choose the most appropriate strategies that will keep students on task and focused on skill acquisition. Movement educators should be familiar with practice progressions that facilitate the learning of motor skills.

Individualized Exploration When children begin to learn new skills, they need maximum opportunities to practice. For example, for children at the beginning stage of performance who are learning to jump rope, individual work with their own rope is best. Children have more opportunities to learn to control the rope when they have individual ropes. The movement educator can also provide more individualized, congruent feedback when each student works independently.

A question that movement educators often ask themselves when planning for individual exploration is whether children should learn the whole skill, or should they break the skill into smaller segments that can later be combined like putting a puzzle together. One argument for whole practice is that children get a better idea of the flow and coordination of the components of the movement. An argument for part practice is that breaking the movement into smaller parts reduces the movement's difficulty.

Two factors may be considered as you decide to teach a skill as a whole or in parts: the task itself and

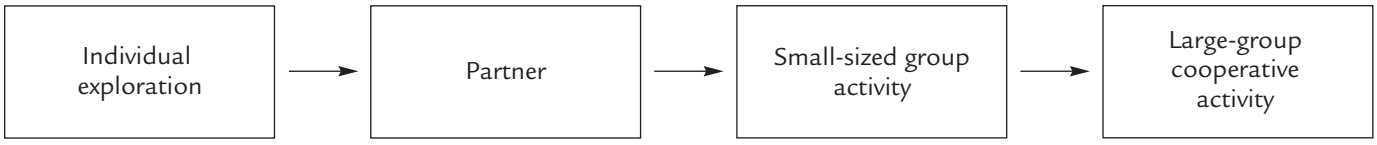

FIGURE 2.2 Recommended Teaching Progressions for Successful Practice Opportunities.

the learner. If the task has parts that cannot easily be separated, such as swinging a bat to strike a ball, teach the skill as a whole. A skill with parts that are difficult for children to learn as a whole may be taught best in parts. In the above example of learning to jump rope, a beginning learner might do best to break the jump rope skill into three progressive parts: (1) learning to self-turn the rope, (2) learning to jump over the rope that has been self-turned and stopped in front of the feet, and (3) learning to combine the jump over the self-turned rope. When you think about the children in your class, consider the limits of their attention span. If learners are unable to concentrate for long periods or remember longer sequences, teach part of the skill and then add the parts together. When children are older, have mature skills, have a longer attention span, and remember longer sequences of movement, the movement may be taught as a whole.

Partner Work with Children Partner work may be introduced to challenge children with the addition of a new dimension to the environment. For example, after children have practiced kicking a stationary ball against the wall and have extended that task to include a running approach to a stationary ball, the addition of a partner to move a few steps in any direction will add a new challenge to the learning situation. A critical mistake that many teachers make is to progress too quickly from individual practice to large-group games without establishing the basic skills that come through partner and small-group practice. Children need to experience learning progressions in a stable environment and then move on to challenges with a single partner before moving to small-group challenges.

We recommend that elementary school children continue to play in small-group activities rather than playing regulation games because of the increased opportunities to practice and be truly active in the game objective. Regulation games tend to exclude the less-skilled children and significantly reduce their chances to acquire motor skills. We believe that all children should experience success in the movement environment and that success comes only through numerous opportunities to practice and refine skills in individual, partner, and small-group activity (see Figure 2.2). We encourage you to revisit the earlier section "Concept of Task Progression" to assist you in appropriately challenging your children with additional team members.

KEEPING YOUR OPPORTUNITIES DEVELOPMENTALLY APPROPRIATE

The Council on Physical Education for Children (COPEC) has published a position statement on appropriate practices that should be evident in the elementary school movement setting (NASPE 2000). An important factor to consider about practices within the learning environment is that children are not miniature adults. Therefore activities played and equipment used by adults are not appropriate for children. Children must be given opportunities to acquire and refine basic movement skills at an early age in order to gain access to a wide variety of physical activities as they grow older. If children begin to specialize in adult sports at an early age or if they are not given opportunities to master basic skills, they will be limited in their pursuits as they mature.

By now we hope you recognize that at the center of the successful movement experience is a wide variety of motor activity that achieves the physical, emotional, cognitive, and affective development of the child. Although the developmentally appropriate physical education curriculum will be discussed in more detail in Chapter 6, we would like to call your attention to some common activities and games that are contrary to the goals of developmentally appropriate movement activity.

Two journal articles entitled "The Physical Education Hall of Shame" outline games and activities that possess inappropriate features (Williams 1992, 1994). Games and activities included in the Hall of Shame have one or more of the following elements:

- Absence of an educational objective
- Potential to embarrass children
- Elimination of participants

- Overemphasis on fun rather than goal-directed learning
- Lack of emphasis on skill acquisition or fitness development
- Low participation time
- Likelihood of danger or high risk of injury

At the forefront of discussion are the games dodgeball; Duck, Duck, Goose; Red Rover; and Simon Says, which are commonly played in elementary schools. As you consider these games and the Hall of Shame criteria, you will notice the many negative aspects of each game. NASPE (2000) states that these activities "provide limited opportunities for everyone in the class, especially the slower, less agile students who need the activity the most." Many people will argue that modifications to the games within the Hall of Shame will make them worthy of inclusion in the physical education program. Often the most heated arguments surround the game of dodgeball as many believe the game allows a means of practicing the skills of running, dodging, throwing, and catching. In a 2006 position statement on dodgeball, NASPE states, "The students who are eliminated first in dodgeball are typically the ones who most need to be active and practice their skills. Many times these students are also the ones with the least amount of confidence in their physical abilities. Being targeted because they are the 'weaker' players, and being hit by a hard-thrown ball, does not help kids to develop confidence." The selection of activities that are not in the best interests of all children should be eliminated from your repertoire.

Some activities, such as tag games, relays, and kickball, may belong on the Hall of Shame list if played in a traditional manner. Tag games that include elimination, an overemphasis on fun rather than a learning goal, and little emphasis on safety should be in the Hall of Shame. However, tag games may be modified so that elimination is not present, safety is monitored closely, and a focus is on the health-related benefits of a beginning of class instant warm-up activity. Relays may be modified so that there is maximum participation time in small groups and little emphasis on winning and losing. The standard kickball game has little participation time for most students and may be potentially embarrassing to low-skilled children. By modifying the game rules to require all members of the kicking team to run back and forth from home to first as many times as possible, the level of participation increases dramatically. The fielding team could be required to position themselves close together for all to throw and catch one or more balls before running the ball to an "out" hula hoop. Such modifications will promote greater participation, may include an aerobic benefit, and may promote cooperation rather than competition.

When considering whether to modify games and activities that have inappropriate features, we encourage you to ask yourself whether you want your children exposed to these activities. Will the game or activity promote positive experiences so that children want to be physically active outside of school and throughout their lifetime? Or will participation in the activity create an emotional scar that hinders the development of positive attitudes toward physical activity?

All children should have equal access to meaningful participation in movement activities. Boys and girls and low-skilled and high-skilled children should have their needs met for active participation in all learning experiences. Appropriate equipment for children will accommodate their size and level of motor development and will increase the likelihood of success. We encourage you to provide equipment of various sizes, textures, and weights so that children may choose equipment they can control rather than equipment that will control them.

Most children love to move and play when they are in elementary school. In order to keep their love for fun and enjoyment alive in the movement setting, it is critical that you plan activities that emphasize self-improvement, participation, and cooperation. All too often the movement setting is plagued with inappropriate practices that make children feel fearful, excluded, or frustrated. Situations such as the following decrease the desire to be involved in movement activity:

- Being picked last by a captain for a team
- Struggling to do a pull-up while the entire class watches
- Doing push-ups for punishment
- Being eliminated from a game and sitting out for a long period of time
- Practicing the same activities in all grade levels
- Standing in line to wait for a turn to hit the ball

One inappropriate practice found in the elementary school setting merits discussion. All too often children are disciplined for misbehavior or poor work habits by withholding participation in movement activity or recess opportunities. We strongly discourage this practice because of the message it sends to children about physical activity as unimportant and unnecessary. Children need daily physical activities that aid in the development of healthy minds and bodies. We encourage you to develop other strategies to discipline children that are proportional to the severity of the incident.

Appropriate teaching practices that allow children to integrate the cognitive, affective, and psychomotor aspects of learning will help them understand the contributions of physical activity to good health. We encourage you to recognize the benefits of physical activity for all children and use teaching practices that enable all children to participate regularly in physical activity. Physical activity should be taught through positive learning experiences that provide children of all abilities and interests the foundation of movement skills that lead to lifelong participation.

Summary

As you select, plan, and implement movement experiences, you will want to consider the developmental variability and individual readiness for activity of the children in your class. Because children are not miniature adults, movement experiences should reflect the physical, motor, affective, and cognitive levels of children. The selection of styles, teaching practices, and practice progressions should be made with the interests and abilities of each and every child in mind. Your knowledge of motor development characteristics of children and motor learning concepts will provide you with helpful strategies for selecting movement experiences that will lead to lifelong active and healthy lifestyles.

Chapter Activities

1. Based on what you have learned about variability among children in this chapter, describe what you would recommend the movement educator do in the following situations.
   - Jason and Sally have difficulty skipping through the maze you placed on the floor. The other first-grade students in the class are doing well with the task.
   - Ernie, a small third grader, has difficulty catching a tennis ball that he has tossed against the wall from a distance of eight feet.
   - Within a class of fifth-grade children, it is apparent that four children are at the beginning stage of learning for the task of striking with a short paddle whereas the rest of the class is at the intermediate level of learning.
   - Gayle is a highly skilled soccer player on her recreation league team. She becomes very frustrated during movement activities involving dribbling a ball with her hand. She often asks to sit out during those activities.
2. Construct a list of pros and cons for the inclusion of dodgeball in the movement curriculum. Write a position paper to clarify your views on the merits of this activity in the elementary school curriculum.
3. Based on what you learned in this chapter, construct a series of movement tasks that encourage children to explore the difference between gross movements and fine movements while moving to a rhythmical beat.
4. Your principal questions your request to order balls of various sizes, weights, and textures for use in class. The principal prefers that you order balls of the same size from the district storehouse to save money. How would you justify your request?
5. You are teaching first-grade children to dribble a ball with one hand. Describe how you would accommodate as many learning styles as possible in your instructions to students about dribbling the ball under control.

Internet Resources

American Academy of Pediatrics. Provides information on the development of children and adolescents as well as guidelines for promoting healthy activity.
www.aap.org

Centers for Disease Control and Prevention. Growth charts for height and weight predictions.
www.cdc.gov/growthcharts

Healthy People 2010, Nutrition and Overweight. Objectives for promotion of health and reduction of chronic diseases associated with height and weight.
www.healthypeople.gov

National Association for Sport and Physical Education. Position papers and resources to assist in providing developmentally appropriate instruction.
www.aahperd.org/naspe

PELinks4U. Electronic newsletter for the promotion of active and healthy lifestyles.
www.pelinks4U.org

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QUICK LESSON 2.1
Individual Exploration with Balloons

GRADES K–2

NASPE STANDARD 1 Students demonstrate competency in motor skills and movement patterns needed to perform a variety of physical activities.

LESSON OBJECTIVES

- Students explore various body surfaces to manipulate a balloon.
- Students explore striking balloons to different levels.
- Students explore the concept of effort as they strike a balloon.

EQUIPMENT NEEDED A balloon for each child.

PREPARATION TIME Fifteen minutes to blow up balloons.

KNOWLEDGE CONTENT Balloons provide interesting opportunities for exploration. Balloons are inexpensive and float easily, so children may experience success. As children explore striking the balloon, they will become more confident tracking the balloon with their eyes.

Movement concepts of space and effort provide children knowledge of how the body can move by enabling them to learn how motor skills may be modified. Within the concept of space, children may vary movements through the levels of high, medium, and low. Effort of movement may be modified by strong or light force applied to the balloon. Children should be encouraged to explore how their body can move before concentrating on the skill theme of striking.

As children explore effort and space with their balloons, consider the following safety tips:

- Children will need sufficient space to move without interfering with other students.
- To avoid breakage, the balloons should not be overinflated.

CLASSROOM ACTIVITY With each child in his or her own personal space (a child's personal space consists of the space surrounding the child that the child can move in when remaining in basically the same spot on the floor), ask students the following:

- Show me how to keep the balloon in the air above your head.
- Show me how to keep the balloon in the air as high as possible.
- As low as possible.
- Show me how hard you can hit the balloon.
- How soft you can hit the balloon.
- How many different body parts can you use to hit the balloon into the air?
- Can you alternate body parts and hit the balloon above your head?
- Can you alternate body parts and hit the balloon between your knees and shoulders?
- Which body part can you use to hit the balloon low?
- Can you jump and make high contact with the balloon?
- Can you lie on the floor and make contact?
- Can you sit on the floor and make contact?
- Can you explore the same tasks with a partner?
- With a partner, can you explore keeping two balloons in the air at a time while accomplishing the task?

ASSESSMENT Exploratory teaching encourages children to create movement in response to a movement task. Because you want children to feel free to explore and create, there are no right or wrong movements. The teacher observes the children during the exploration and keeps them on target with the movement task. If children begin to stray from the movement task, the teacher should redirect the questions to focus children again.

The teacher should encourage children through motivational feedback. However, the teacher should be cautioned against providing specific feedback about a child's performance. Typically, specific, congruent feedback will cause children to imitate each other rather than create movement themselves.

SUCCESS FOR ALL Exploratory movement should enable all children to enjoy creating movement and to discover what their bodies can do. Children enjoy watching balloons of different colors float through the air, so they will be excited about the activity. With praise and words of encouragement, the teacher can help all children experience the success of exploration of effort and space with balloons.

INTEGRATION WITH OTHER SUBJECT AREAS Children may be encouraged to count or recite the alphabet as they strike the balloon. A pair of dice might be rolled to integrate math addition, subtraction, or multiplication with the striking activity.

CLASSROOM LEARNING STATION 2.1

Are We All the Same?

GRADES K–6

NASPE STANDARD 5 Students exhibit responsible personal and social behavior that respects self and others in physical activity settings.

LESSON OBJECTIVES

- Students recognize and respect the differences in sizes among their classmates.
- Students recognize and respect the variability of abilities among their classmates.
- Students interact with their classmates as they learn about physical growth.
- Students describe how their bodies change as they grow and how their ability to perform motor tasks also changes.

EQUIPMENT NEEDED A long jump rope or clothesline, clothespins, socks of different sizes.

PREPARATION TIME A few hours should be allotted to gather socks of different sizes, from infant size through adult. The rope should be attached to a wall or another object from low to high, with low being approximately head high for children in class, and high being approximately seven to eight feet. Arrange the socks on the rope by size, with the smallest socks on the low end of the rope. Attach to each sock a tag that identifies the approximate age of the person who wears the sock.

KNOWLEDGE CONTENT The knowledge content of this learning station involves helping children understand how their bodies change as they grow. They should also be able to summarize that at a certain age the body stops growing taller and other body parts also stop growing. As bodies change, so may each child's ability to perform a motor task. Just as we respect our physical differences, we should also respect our differing abilities to do movement activities.

Follow these safety tips for the learning station activity:

- Provide ample space next to the wall free from objects.
- Children should not be allowed to grab onto the rope as they jump.
- Children should be encouraged to bend their knees upon takeoff and landing to avoid leg injuries.
- Children should be encouraged to stretch their ankles and legs in preparation for activity.

CLASSROOM ACTIVITY The learning station asks children to do the following:

- Observe the different socks and describe what is different about each sock.
- Notice that the socks increase in size as one grows older, but also observe that at a certain age the socks no longer increase in size.
- Describe how the body changes physically as a person grows. Identify other body parts that grow and change as we get older.
- Brainstorm on other ways growth occurs as we get older.
- Attempt to determine how individual children of the same height have differing abilities to jump and touch the rope. Ask children to jump from a stationary position next to the wall and touch the rope as high as possible.
- Summarize how bodies change over the years and how abilities change as we grow older and have different experiences.

ASSESSMENT The teacher guides the discussion on physical growth and visually observes the students while they jump as high as they can to touch the rope. The teacher will then lead the discussion on differences in body height and physical ability.

SUCCESS FOR ALL If students with disabilities are present, the activity may be modified so that children may touch the different socks to compare sizes. They may also sit and touch or stand and touch the rope rather than jump to the rope.

INTEGRATION WITH OTHER SUBJECT AREAS Children may be encouraged to write a short story or draw a picture about things they could do when they were smaller that they can't do now. They may also write or draw about things they look forward to doing as they continue to grow.

Nutrition may be integrated into this activity by having children discuss how a healthy, well-balanced diet will help a body grow.

SPECIAL EVENT 2.1
Health and Movement Fair

GRADES 3–6

NASPE STANDARD 5 Students exhibit responsible personal and social behavior that respects self and others in physical activity settings.

LESSON OBJECTIVES

- Students comprehend changes in physical and motor development across a school year.
- Students self-assess physical activities and the ability to perform the activities.
- Students respect the differences among peers in the class regarding changes in physical and motor development during the school year.

EQUIPMENT NEEDED Task sheets for each student, as well as the equipment listed in each station description.

Health and Movement Fair
Task Sheet

Student's Name: _____

Station 1: Height _____ Weight _____

Station 2:

Shoe length _____

Arm length _____

Leg length _____

Station 3:

Left eye _____ Right eye _____

Station 4:

Best vertical jump _____

Station 5:

Best jump rope attempt _____

Station 6:

Best juggling attempt _____

Station 7:

Best hula hoop attempt _____

Station 8:

Best throw/catch attempt _____

Station 9:

Left foot _____ Right foot _____

Station 10:

Best keep-it-up attempt _____

PREPARATION TIME Two hours to collect equipment and set up the stations.

KNOWLEDGE CONTENT The students should understand that their bodies grow and change and that their abilities to perform physical activities also change. This activity may be set up in the classroom with learning stations or it may be expanded into the lunchroom or hallways, depending on the number of students involved. To demonstrate changes within individual children, this activity would best be scheduled early in the school year and then again at the end of the school year. The objectives for this activity would be best met if children are able to perform as many of the self-tests with the assistance of another student rather than an adult.

FAIR ACTIVITIES Stations should be set up so children may measure their physical and motor ability tasks (see the following suggested station activities). Allow approximately five minutes at each station. Children should have a task sheet and a pencil with them as they travel throughout the stations.

The teacher should mingle with students and provide assistance as requested by the children. The teacher should provide positive feedback to children who cooperate with each other to complete the tasks.

ASSESSMENT The task sheets completed by the students may be included in a portfolio. Children should be encouraged to draw a picture or write a story about what physical activities they like to do. Their picture or story at the end of the year may be compared with the one from the beginning of the year to demonstrate change. Children should be encouraged to write or talk about how they have changed in their likes and dislikes as well as in their physical and motor development.

SUCCESS FOR ALL Modify tasks and provide ample space between stations so children with disabilities will be able to participate with their classmates.

INTEGRATION WITH OTHER SUBJECT AREAS

As noted in the assessment section, integration with language arts and art education is recommended. Math skills and critical thinking activities are included as children compare and contrast their physical dimensions.

STATION 1: HEIGHT AND WEIGHT STATION

Equipment: A scale and a measuring tape secured to the wall

- Have students record their weight and their height on their task sheet.

STATION 2: PHYSICAL MEASUREMENTS
Equipment: Sewing tape measures

- Have students measure the size of their shoe from heel to toe.
- Have students measure the length of their arm from shoulder to tip of the middle finger.
- Have students measure the length of their leg from knee to ankle.

STATION 3: EYE STATION *Equipment:* An eye chart, masking tape, an eye patch

- Have students stand at a piece of tape ten feet from the eye chart, cover one eye, and read the eye chart. Repeat with the other eye.
- Have students record which line they were able to read without mistakes.

STATION 4: VERTICAL JUMP STATION
Equipment: A tape measure, paper hung on a wall, a marker

- Have students stand with their dominant side next to the wall. From a stationary position, students should jump as high as they can, extend the hand with the marker above their head, and make a mark on the piece of paper. After three attempts, measure and have students record the best attempt.

STATION 5: JUMP ROPE STATION *Equipment:* Five to ten individual ropes of varying lengths for students of various heights

- Students may jump rope in any preferred way and record the number of consecutive jumps they make without missing. They may record the better of two attempts.

STATION 6: BEAN BAG AND SCARF JUGGLE STATION *Equipment:* Fifteen or more bean bags and fifteen or more chiffon juggle scarves

- Students may choose to juggle scarves or bean bags and may choose one, two, or three scarves or bags to juggle. Students should record the number of tosses before dropping the scarves or bags. They may record the best of five attempts.

STATION 7: HULA HOOP STATION *Equipment:* Five to eight hula hoops, 24-inch diameter for smaller children, 30- or 36-inch diameter for larger children; a stopwatch

- Have students hula hoop around the waist while a partner keeps track of time on the stopwatch. The better time of two tries should be recorded.

STATION 8: THROW AND CATCH STATION
Equipment: Balls of various sizes, weights, colors, and textures

- With a partner, have children stand 30 feet apart and throw and catch a ball of their choosing. Students should count the number of throws before dropping the ball. After two minutes, have students record the best attempt.

STATION 9: BALANCE STATION *Equipment:* A stopwatch

- Have students balance on one foot with arms across the chest. Partner will begin the stopwatch when the child is balanced in a still position and stop the watch when balance is lost. Record times on left foot and on right foot as the best of three attempts.

STATION 10: KEEP IT UP IN THE AIR *Equipment:* Short-handled paddles, small foam balls, 36-inch hula hoops, a stopwatch

- Give students 60 seconds to keep the ball up in the air by striking it with the paddle while remaining inside the hula hoop. Record the greatest number of consecutive strikes in the 60-second time.