Chapter 1: Introduction to Motor Development

Terms to define
Motor development  Proximodistal  Cross-sectional design
Maturation  Differentiation  Longitudinal design
Growth  Integration  Stage
Cephalocaudal  Lifespan perspective  Critical Period
Infancy  Early childhood  Puberty
Adulthood

Concepts to know
What to you mean by developmentally appropriate? What are the two dimensions of the term?
List and describe the six components of developmental change?
What are two current trends have arisen in the study of human motor development?
Describe the differences between the product and the process approach of motor development?
Identify the four domains of motor development.

Chapter 2: Classification of Motor Skills

Terms to define
Motor skill  Gross skill  Fine skill
Movement  Discrete skill  Serial skill
Continuous kill  Open skill  Closed skill
Intertrial variability  Regulatory conditions  Taxonomy

Concepts to know:
What are the two dimensions used to classify skills in Gentile taxonomy?
Describe the differences between the three one-dimensional skill classification schemes?
Discuss how you would implement the three practical uses Gentile described for her taxonomy of motor skills?
Apply Gentile taxonomy to identify functional appropriate activities.

Chapter 3: Measurement of Motor Performance

Terms to define
Reaction time  Simple reaction time  Choice Reaction Time
Discrimination RT  Fractionate RT  Pre-motor time
Motor-time  Absolute error  Constant Error
Variable Error  RMSE  Kinematics
Displacement  Kinetics  EMG
Concepts to know
Describe the differences between simple, choice, and discrimination RT?
What does it mean to fractionate RT?
How does MT differ from RT?
What are various uses of the reaction time information?
What different information can be obtained about a person’s performance by calculating AE, CE, and VE when performance accuracy is the movement goal?
What measure is used to study continuous skills?
What are the three kinematic measures of movement and explain what each measure tells us about the movement?
What is meant by the term kinetics as it is related to measuring human movement?
What information about a movement can be obtained by using EMG?

Chapter 4: Motor Control Theories

Terms to define
Coordination  Degrees of freedom problem  Open-loop control
Closed-loop control  Motor program  Invariant features
Parameters  Relative time  Schema
Dynamic Pattern Theory  Nonlinear behavior  Stability
Attractors  Order parameters  Control parameters
Self-organization  Coordinative structures
Perception-action coupling

Concepts to know
Describe the similarities and differences between a closed-loop control system and an open-loop control system?
Define a generalized motor program and describe the two invariant features and two parameters proposed to characterize this program.
Discuss dynamic pattern theory of motor control in controlling voluntary motor movement.
Discuss motor program theory of motor control in controlling voluntary motor movement.

Chapter 5: Perceptual-Motor Development

Terms to define
Perceptual-motor  Perceptual-motor development  Balance
Static Balance  Dynamic Balance  Spatial movement
Temporal awareness  Body awareness  Directional movement
Hemispheric dominance  Meta-analysis

Concepts to know
Discuss the differences between perceptual-motor and physical education programs.
What are the differences between static and dynamic balance? Why does balance regress as we age?
Discuss the major concepts of Kephart’s perceptual-motor theory?
Discuss the major concepts of Delcato’s contention?
Does a motor perceptual program directly improve cognitive skills?
What are the major components of a perceptual motor development program?
What is spatial awareness?
What is directional awareness?
What is lateral awareness?
What is temporal awareness?
What are the steps of the perceptual-motor process? Discuss each step.

Chapter 6: Voluntary Movement of Infancy

Terms to define
Voluntary movement  Contralateral  Locomotion
Grasping  Phase I reaching  Phase II reaching

Concepts to know
What are the three categories of voluntary movement during infancy?
Differences between the two phases of reaching and grasping.
How does infant head control relate to motor develop during infancy?
How does infant upright posture related to motor development during infancy?
Which occurs first, crawling or creeping? What is the difference between crawling and creeping?
What is meant by contralateral creeping?
What is prehension? How does it affect motor development in general during infancy?
What is bimanual control? What are some examples?

Chapter 7: Fine Motor Development

Terms to define
Manipulation  Intrinsic movements  Extrinsic movements
Simple synergies  Reciprocal synergies  Sequential patterns
Prehension  Haptic perception  Dynamic tripod
Supinate grasp  Pronate grasp  Scribbling stage
Pictorate stage

Concepts to know
Why are fine movements of the hand emphasized in this chapter?
Differences between the three categories of hand movements
Summarize the early work of Halverson?
What is haptic perception?
Three components of prehension
Stages in holding an implement in handwriting
Summarize the cross-cultural studies of children in their development of the dynamic tripod?
The development of drawing as it relates to handwriting.
Describe the development of drawing as proposed by Kellog? What are the stages of drawing development?
Repetitive tasks and successive movements related to tapping.
How does handwriting and finger tapping change from early to late adulthood?
How does fine motor development change as we age?

Chapter 8 Performance Characteristics of Complex Skills

Terms to define
Speed-accuracy Fitt’s laws Prehension
Motor equivalence Bimanual coordination

Concepts to know
How is Fitt’s law related to the speed-accuracy trade-off phenomenon?
What are the components of prehension?
Discuss how the skill of handwriting relates to motor equivalence, different grips, and drawing.
Discuss gait in relation to rhythmic structure and head stability.
Motor control view on how we can perform bi-manual skills in a coordinated fashion.
Motor control view of a bimanual task where one hand a more difficult task versus the other.