Chapter 9	
Preoperational stage	period from 3-6 years
• Operational	The logical systems of thought which eventually emerge in middle childhood
• Preoperational	Piaget describes preschoolers as incapable of these advanced forms of reasoning.
Symbolic function	Piaget identified the end of the second year of life as a major turning point in cognitive development, marked by the advent of the ***symbolic function*** - the ability to use symbols to represent or stand for perceived objects and events. The symbolic function takes several distinct forms as the child moves into the third year of life: deferred imitation, symbolic or pretend play, mental images, and language.
• Deferred imitation	Children observe the behavior of a model and imitate that behavior after a delay and, in some cases, when the model is no longer present. The child maintains modeled behavior in symbolic form over time, imitating the behavior only when it becomes adaptive to do so.
• Symbolic/ pretend play	Children pretend that an object is something other than what it really is. Each of the pretend skills follows a unique course of development: shifting context, substituting objects, substituting other agents for oneself, and sequencing and socialization of pretend episodes
-Shifting context	Two- and three-year-old children typically require support from the play setting to initiate and sustain their pretense. In contrast, older children are capable of shifting context, performing routine behaviors outside of their typical setting.
-Substituting objects	Children often substitute one object for another in their pretend play. During their third year, children become increasing able to transform virtually any object into the props needed for their pretend play episodes and they become progressively less dependent on realistic props during the preschool years (at first they require realistic props)
-Substituting Other Agents for Oneself	When pretense first appears early in the second year, toddlers are the agents of their own acts of pretense. Later in the second year, children begin to use dolls in pretend play, but only as passive agents. By the beginning of the third year most children use dolls as active agents, pretending that dolls initiate and sustain their own behavior as in talking, running, or playing with other dolls.
-Sequencing and Socialization of Pretend Episodes	Although pretense begins with single acts, children coordinate such acts into sequences of increasing length and complexity through the preschool years. Such sequences also begin to incorporate behavior patterns for agents which reflect conventional roles - that is, the police are expected to catch crooks but not to perform housecleaning tasks
• Mental images	Internal representations of external objects or events. Mental images free children from the here and now, enabling them to think about objects when the objects are not physically present, and to think about events before, during, and after their occurrence.
Limitation of the three types (deferred imitation, pretend play, mental	The three terms discussed thus far only express private, idiosyncratic meanings derived from personal experience. The private and idiosyncratic nature of the symbolic function in young children limits their ability to

images) of symbolic functioning:	communicate their thoughts to others, challenging caregivers' interpretive skills and patience.
Centration	Piaget believed that preschool-age children tend to focus their attention on minute and often inconsequential aspects of their experience. Centrated perception results in unsystematic samplings of isolated bits of information from any given experience.
Preconcepts	Piaget suggested that such collections of images, derived from centrated perception, merge into ***preconcepts***: disorganized, illogical representations of the child's experiences. Although preconcepts provide a less than adequate representation of children's experiences, they do establish a foundation for the eventual emergence of logical concepts in the subsequent stage of cognitive development.
Induction	(logical thought in older children) we derive general principles from particular examples.
Deduction	(logical thought in older children) we use general principles to predict particular outcomes
Transduction	This is in preoperational children: Piaget believed that preoperational children are incapable of thinking inductively or deductively. Instead, they think by ***transduction***, reasoning within the unsystematic collections of images which constitute their preconcepts
Egocentrism	one of the major limitations of preoperational thought is the child's inability to conceptualize the perspective of other individuals - a quality he called ***egocentrism*** Term means: children have difficulty seeing the world as others see it.
Three mountain problem	The effects of egocentrism on perception and cognition are illustrated in Piaget's experiments- found that children under 8 only could describe their view of the scene even when asked to say the view of the researcher's point of view (which was different than the child's)
Irreversibility	A second limitation of preoperational thought The notion that preschoolers cannot mentally reverse their transductive sequences of thought
Classification	refers to the tendency to group objects on the basis of particular sets of characteristics Adult classification systems are organized on the basis of class inclusion - that is, a class must be smaller than any more inclusive class in which it is contained In children there are stages that they go through in how they classify objects (different than adults)
• Stage 1	5 years-old and younger Had no overall plan for sorting, but produced graphic collections , or pictures made with objects
• Stage 2	6-8 years Sorted in a more organized way, producing a series of collections of objects, each based on a different dimension of similarity. Piaget called these non-graphic collections Children were not able to classify on two dimensions simultaneously.
• Stage 3	Later childhood to early adolescence

	understood the relationship the rule of class inclusion Children at this stage successfully classified using multiple dimensions
Quantitative reasoning	refers to the ability to estimate the amount of things and changes in the amounts of things in terms of number, size, weight, volume, speed, time, and distance.
Concepts of quantity	Children become aware that things in nature exist in specific amounts, and that those amounts only change when certain actions - such as addition and subtraction - are carried out.
• Conservation	The notion that certain attributes of objects and events may remain unchanged, despite transformations or changes in other attributes Preschool children have difficulty with conservation
Concepts of number	Young preoperational children show no understanding of 1:1 correspondence, responding only to the physical appearance of the rows: if one row is spread out, it is judged to have more beans; if compressed, it is judged to have fewer beans. Slightly older children show some understanding of 1:1 correspondence, but continue to be confused by the superficial appearance of the rows. Piaget tells us that conservation of number is not achieved until the stage of concrete operations, at 7-8 year of age.
• 1:1 correspondence	Used to study the concept of number
Concepts of counting	To give a child credit for counting ability, the child must be able to systematically assign numbers to items in an array, using the following five principles:
1. The one-to-one principle	One and only one distinctive number name must be assigned to each item in the array.
2. The stable-order principle	Number names must be assigned in a stable, repeatable order.
3. The cardinal principle	The final number in a counting sequence gives the total number of items in the array
4. The abstraction principle	Virtually anything can be counted: tangibles such as objects and events, and intangibles such as ideas, values, or emotions.
5. The order-irrelevance principle	The order in which objects are counted is irrelevant
How well do children apply these principles?	While many two-year-olds engage in counting-like behavior, they assign numbers to objects unsystematically - repeating and reversing number assignments and violating 1:1 correspondence. Three- and 4-year-old children begin to incorporate all five principles when counting small numbers of objects.
Distinguishing appearance and reality	refers to the fact that adults generally sense that appearances do not always reflect reality: that people do not necessarily mean what they say, intend what they do, or feel the emotions implied by the look on their face. But young children often appear confused by discrepancies between appearance and reality -Object identity task (what is looks like vs. what it is used for)
Information processing	offers an alternative view of children's cognitive development to that of