Department of Education

Semester II

CC/GE-3 (Psychological Foundation Of Education)

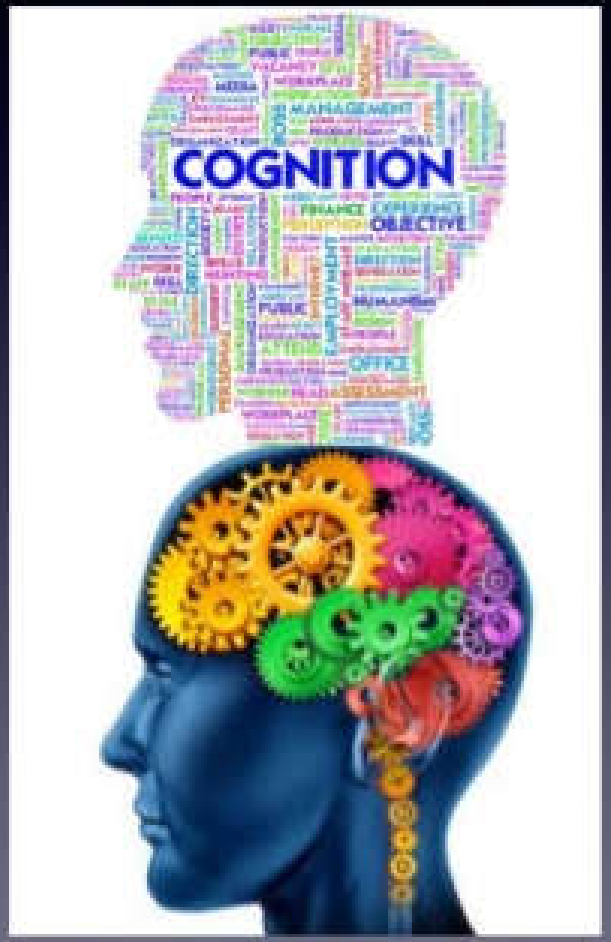
Piaget's Theory of Cognitive Development

Jean Piaget (1896-1980) : History

- **Born**: August 9, 1896, Switzerland
- **Died**: September 16,1980 (Age 84)
- **Parents**: Eldest son of Arthur Piaget and Rebecca Jackson.
- **Education**: Received Ph.D. from University of Neuchatel in 1918.
- **Wife**: Married to Valentine Chatenay in 1923
- **Children**: 3 children namely Jacqueline, Lucienne and Laurent whose intellectual development from infancy to language was studied by Piaget.

What is Cognition?

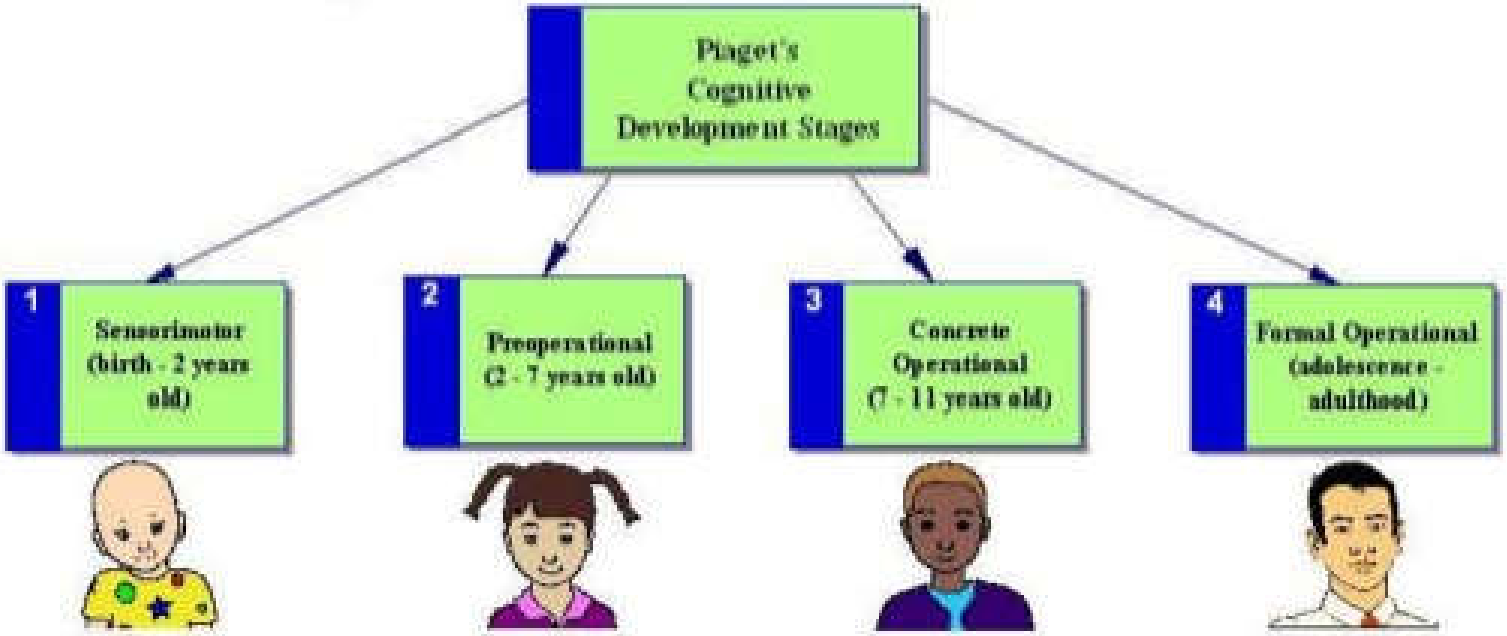
- The term cognition is derived from the latin word "cognoscere" which means "to know" or "to recognise" or "to conceptualise".
- Cognition is "the mental action or process of acquiring knowledge and understanding through thought, experience, and the senses."



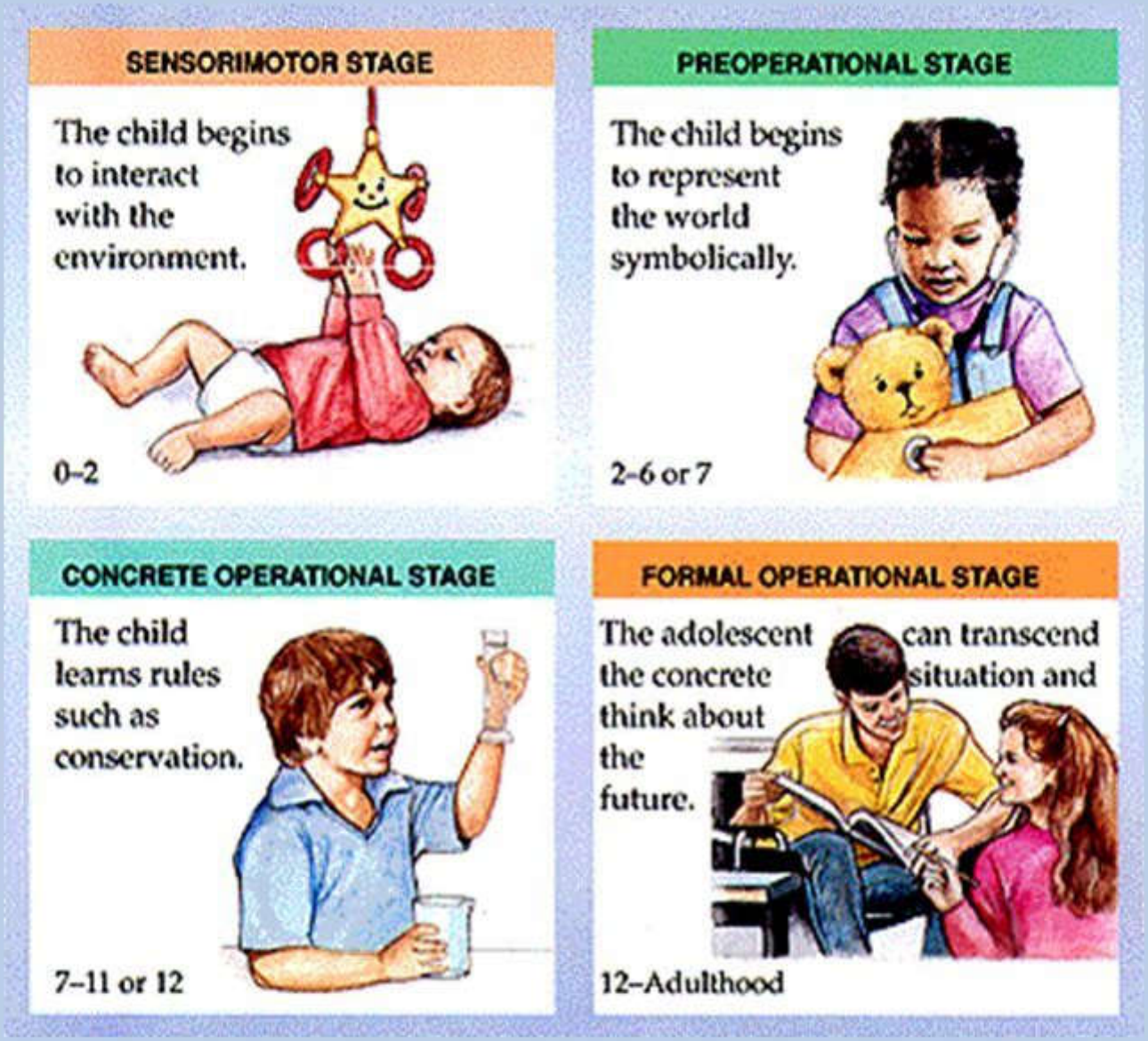
What is Cognitive Development?

- Cognitive Development is the emergence of the ability to think and understand.
- The acquisition of the ability to think, reason and problem solve.
- It is the process by which people's thinking changes across the life span.
- Piaget studied Cognitive Development by observing children in particular, to examine how their thought processes changed with age.
- It is the growing apprehension and adaptation to the physical and social environment.

The Four Stages Of Development



Four Stages of Development



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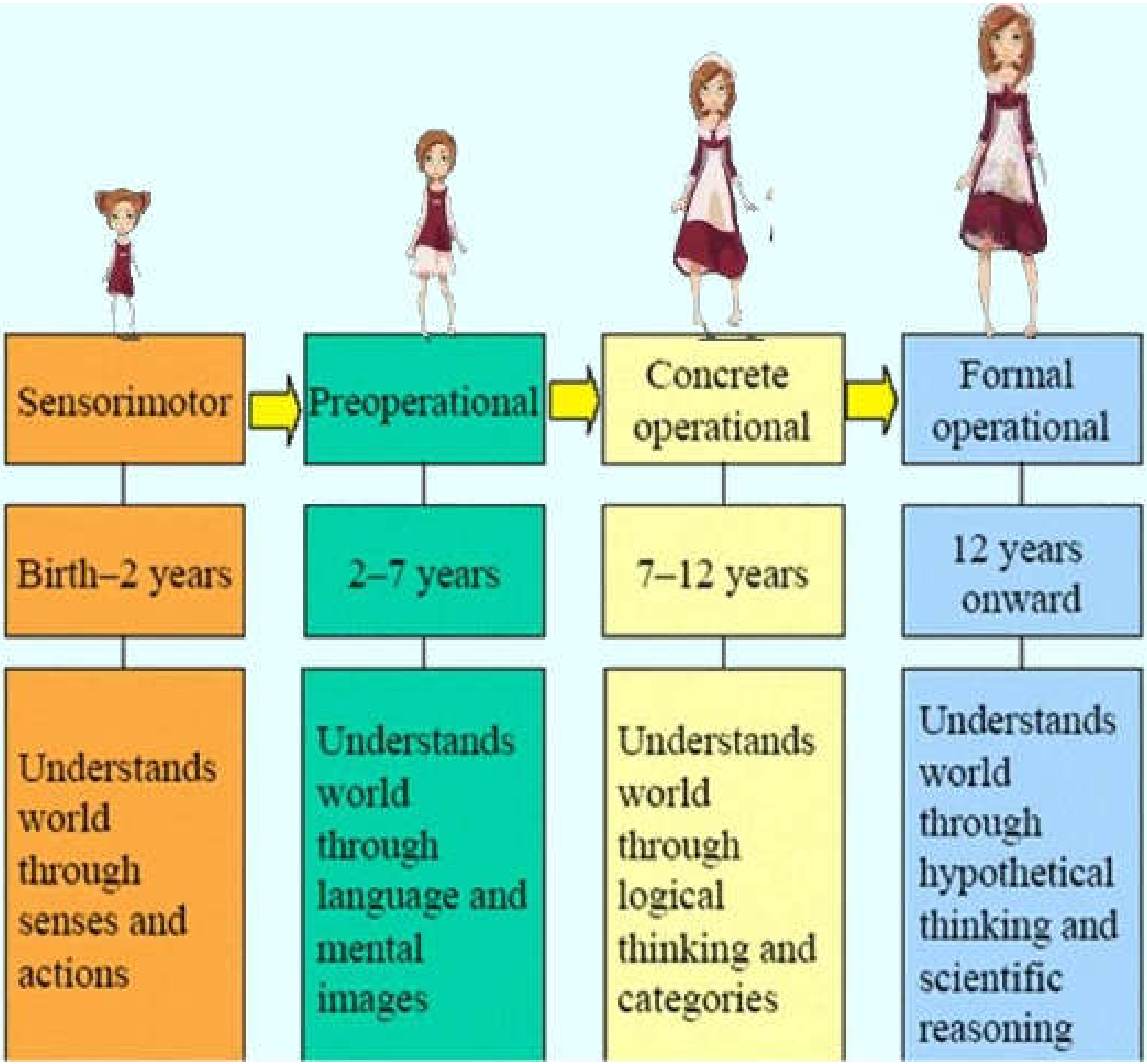

Sensorimotor
Preoperational
Concrete operational
Formal operational
Birth–2 years
2–7 years
7–12 years
12 years onward
Understands world through senses and actions
Understands world through language and mental images
Understands world through logical thinking and categories
Understands world through hypothetical thinking and scientific reasoning

Stage 1—Cognitive Development Theory

Sensorimotor Stage

Birth to age 2

During this stage, the child begins to develop:

- Reflexes
- Habits
- Hand-eye coordination
- Object Permanence (knowing something exists, even though it can't be seen)
- Experimentation and creativity. Piaget referred to the children in this stage as "little scientists."
- Trial and error experiments

Cognitive Development stages

1) Sensorimotor stage: (0-2 years)

- The world is understood through the senses and actions
- The child's thinking involves seeing, hearing, moving, touching
- Knowledge is limited, because it is based on physical interactions and experiences.
- Experimenting and learning through trial and error. Such exploration might include shaking a rattle or putting objects in the mouth.
- As they become more mobile, infants' ability to develop cognitively increases.
- Early language development begins during this stage.

Stage 2—Cognitive Development Theory

Preoperational Stage

Age 2-7

During this stage, the child begins to develop:

- Ability to represent objects with images and words
- Language skills
- Imagination

Children learn through imitation and play during this stage. They begin to use reasoning, however it is mainly intuitive, instead of logical.

Cognitive Development stages

2) Preoperational stage- 2-7 years: (logical thinking stage)

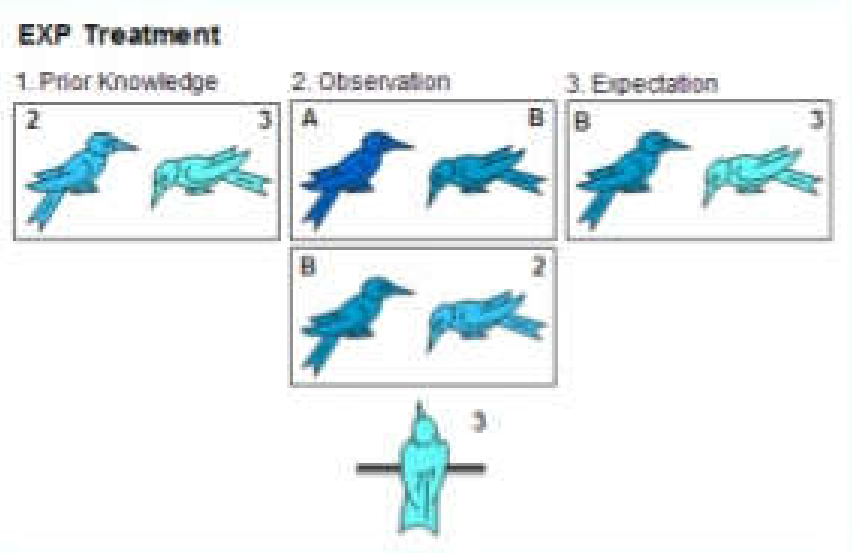
- Egocentrism begins strongly and then weakens.
- Children cannot conserve or use logical thinking.
- They begin to use language; memory and imagination
- children engage in make believe and can understand and express relationships between the past and the future.
- Focus on perceptual salience – the most obvious features of an object or a situation – means that preschoolers can be fooled by appearance
- More complex concepts, such as cause and effect relationships, have not been learned.

The child is able to think operations trough logically in one direction

Has difficulty seeing another person's point of view.

Animism: belief that inanimate things are alive

Transitive reasoning: absence of one will be absence of other.



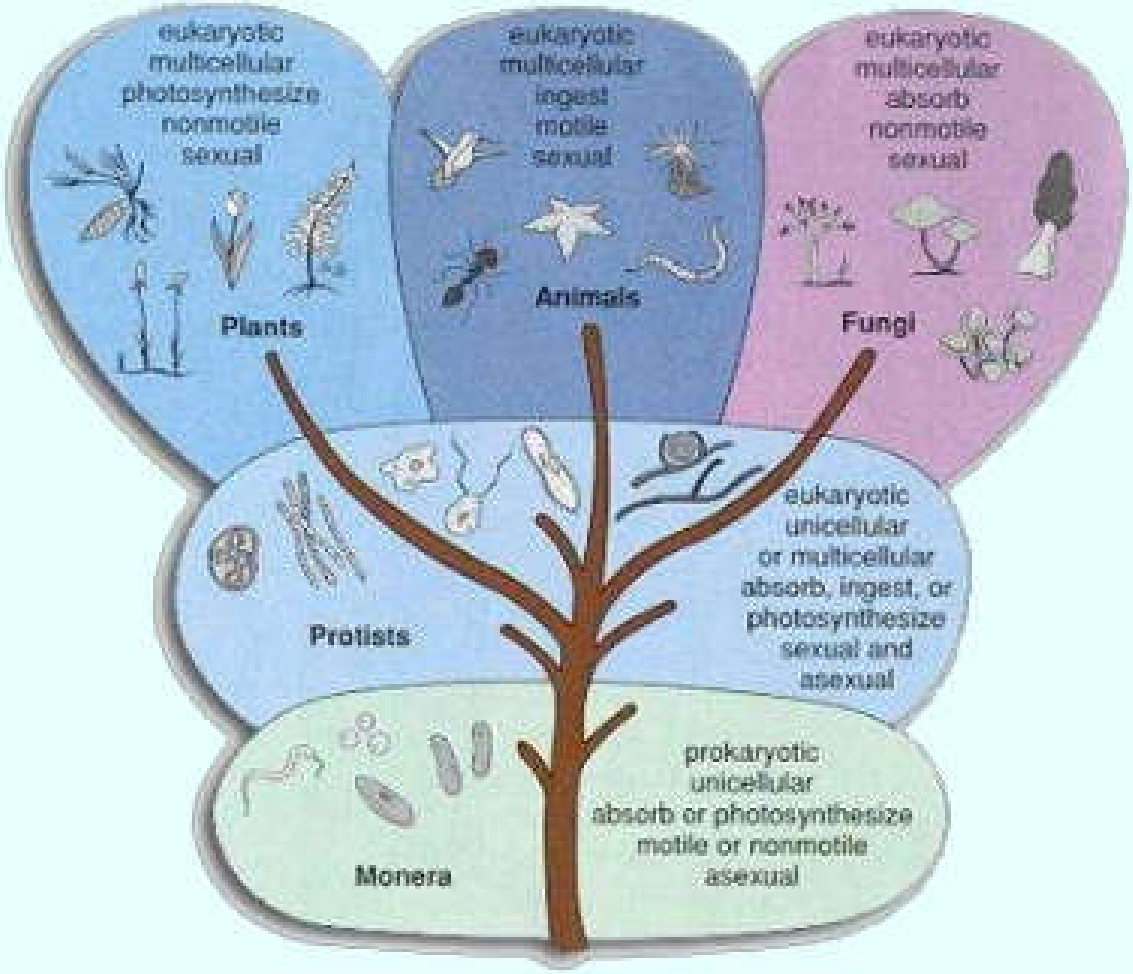
Cognitive Development stages

3)Concrete operational stage- 7-11 years:

- **The term concrete operational means the child can reason only about tangible objects are presented**
- **Children can now conserve and think logically but only with practical aids.**
- **Intellectual development in this stage is demonstrated through the use of logical and systematic manipulation of symbols, which are related to concrete objects.**
- **Thinking becomes less egocentric with increased awareness of external events, and involves concrete references. But abstract thinking is not developed yet.**
- **Recognition of the logical stability of the physical world.**
- **Mentally manipulate complex association**

Ability of reversibility which promotes logical thinking.

Classification abilities improve and subclasses are understood to be included in a whole class



CONSERVATION

ACCORDING TO THIS GUY:

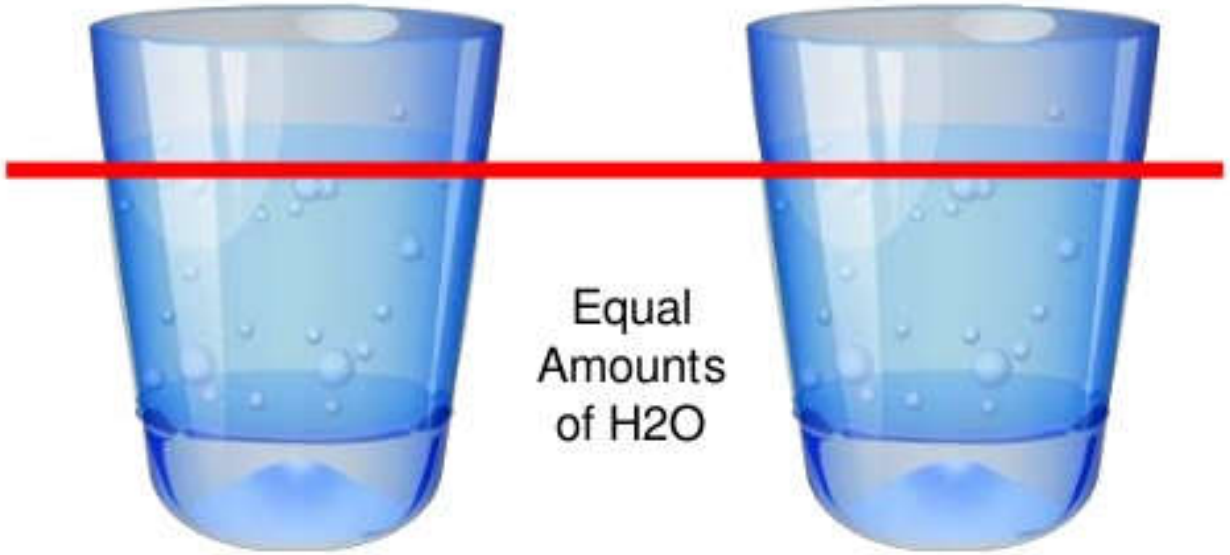
Operations = reversible mental actions…

- Thus, the preoperational

Stage is marked by children's lack of <u>conservation</u> - **"concept that certain basic properties of an object (e.g. volume, mass, and weight) remain the same even if its physical appearance changes"**

(Littlefield Cook & Cook, 2005/2009, p. 164)

FAMOUS CONSERVATION TEST



The FIRST step in the experiment is to show the child 2 cups with equal amount of water

STEP 2

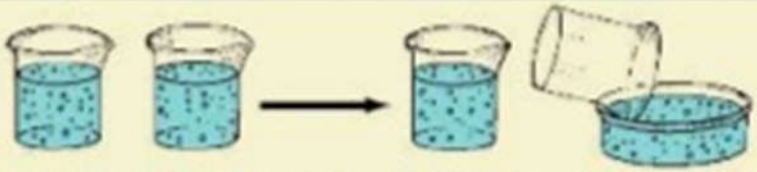
Pour one cup into a tall, skinny cup and the other into a short, fat cup

Which has MORE??

STEP 3

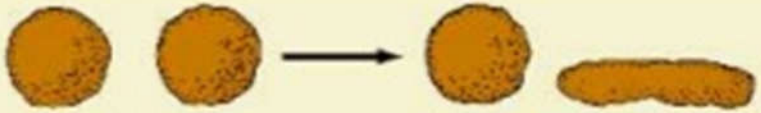
a **preoperational** child would conclude that the tall skinny class had more water because the level of water was higher.

THE UNDERSTANDING OF CONSERVATION PRINCIPLES SENDS THAT PRECIOUS LITTLE CHILD RIGHT INTO THE WORLD OF…



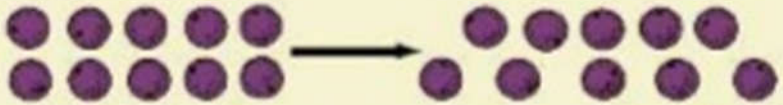
Liquids: Two identical beakers are filled to the same level, and the child agrees that they have the same amount to drink. Contents of one beaker are poured into a different shaped beaker so that the two columns of water are of unequal height.

Conserving child recognizes that each beaker has the same amount to drink (on the average, conservation of liquids is attained at age 6–7 years).



Mass (continuous substance): Two identical balls of playdough are presented. The child agrees that they have equal amounts of dough. One ball is rolled into the shape of a sausage.

Conserving child recognizes that each object contains the same amount of dough (average age, 6–7).



Number: Child sees two rows of beads and agrees that each row has the same number. One row of beads is increased in length.

Child recognizes that each row still contains the same number of beads (average age, 6–7).

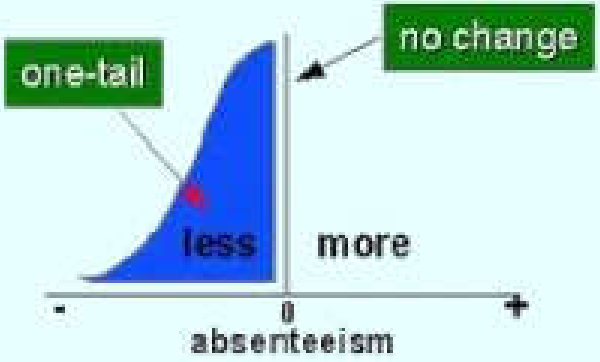
Volume (water displacement): Two identical balls of clay are placed in two identical beakers that had been judged to have the same amount to drink. The child sees the water level rise to the same point in each beaker. One ball of clay is taken from the water, molded into a different shape, and placed above the beaker. Child is asked whether the water level will be higher than, lower than, or the same as in the other beaker when the clay is reinserted into the water.

Conserving child recognizes that the water levels will be the same because nothing except the shape of the clay has changed—that is, the pieces of clay displace the same amount of water (average age, 9–12).

Cognitive Development stages

4) Formal operational stage- 12-…:

- **From age twelve to sixteen and onwards is the formal operational stage.**
- **Adolescents use symbols related to abstract concepts.**
- **They can think about multiple variables in systematic ways, can formulate hypotheses, and think about abstract relationships and concepts.**



- Thought process become quit systematic and reasonably and well integrated
- Reasoning and logical abilities
- Hypothetical thinking
- Reflective thinking
- Mental manipulated of variables
- Imagination develops
- Ability to judge logically

Educational implication of Piaget theory of cognitive development

Pre- operational stage

- Use concrete props and visual things whereas possible.
- Don't except the students to be consistent in their ability to see the world from someone's else point of view
- be sensitive to the possibilities that students may have diff meaning for the same word.
- Give children hands own experience.
- Provide wide range of experiences in order to build foundation for concept learning.

Educational implication of Piaget theory of cognitive development

Concrete operational child:

- Use concrete props and visuals things especially where dealing with sophisticated materials.
- Continue to give students a chance to manipulate and test objects.
- Make sure readings are brief and well organized
- Use familiar examples to explain more complex ideas
- Give opportunities to classify and group objects and ideas on increasingly complex levels.
- Present problems that require concrete thinking.
- Good teacher pupil interaction.

Educational implication of Piaget theory of cognitive development

Formal operational stage

- Continue to use concrete operational teaching, strategies and materials.
- Give students opportunity to explore many hypothetical questions
- Ask them write paper, then exchange these papers with the opposing side and debate topical social issues
- Ask student to write their personal vision.
- Give students opportunity to solve problems and reason scientifically.
- Set up grout discussion in which students design experiments to answer questions.

Time for test

This situation illustrate Piaget concept of……

a. Accommodation

b. Egocentrism

c. False belief

d. Dis- conservation

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1. https://www.slideshare.net/rahmani1/piaget-cognitive-development-theory
2. https://www.slideshare.net/guest807bbe/jean-piagets-theory
3. https://www.slideshare.net/janettecbalagot/jean-piaget-23997280

Thank You

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