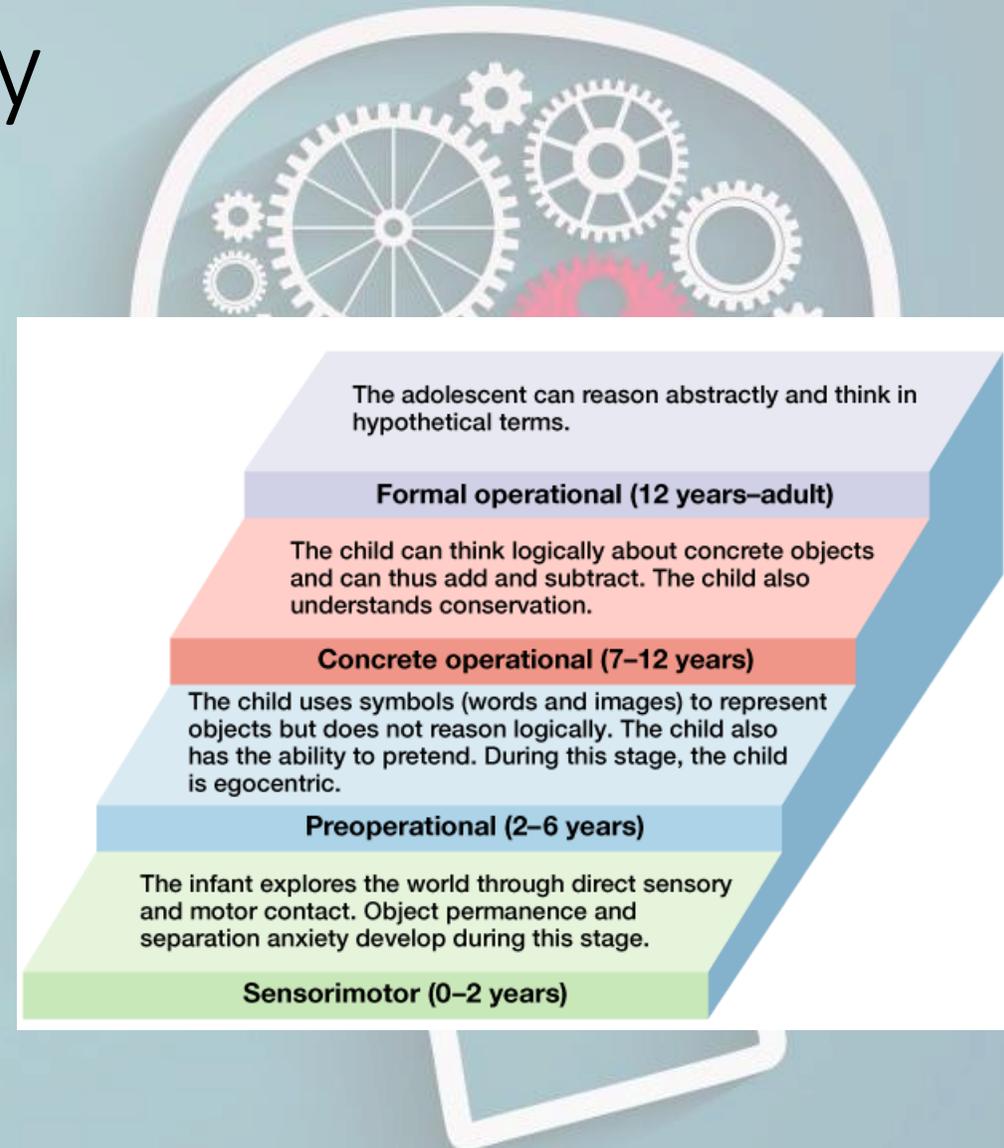


# Piaget's Stages of Cognitive Ability



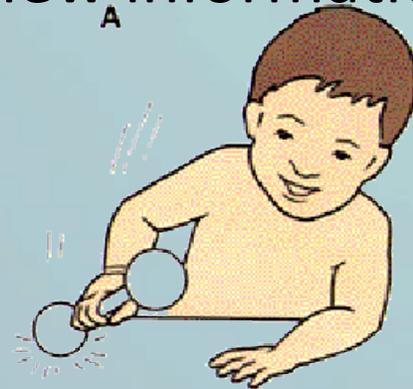
# The Field of Child Psychology

- This field is Dominated by a man named Jean Piaget.
- He was developing IQ tests and noticed that many children got the same answers wrong.
  - Thought to himself, “maybe these kids are not stupid, but instead think differently than adults.”

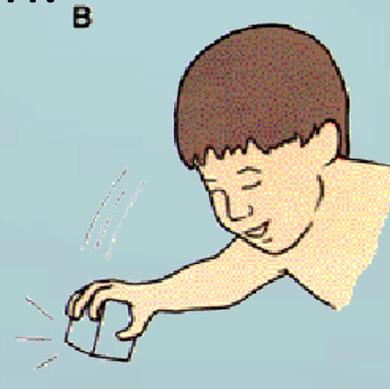


# Schemas and Building Understanding

- Children develop Schemas to try to make sense of the world.
  - **Schema**- a concept or framework that organizes and interprets information
- **Assimilation**- interpreting one's new experiences into one's existing schemas.
- **Accommodation**- adapting one's current understandings (schemas) to incorporate new information.



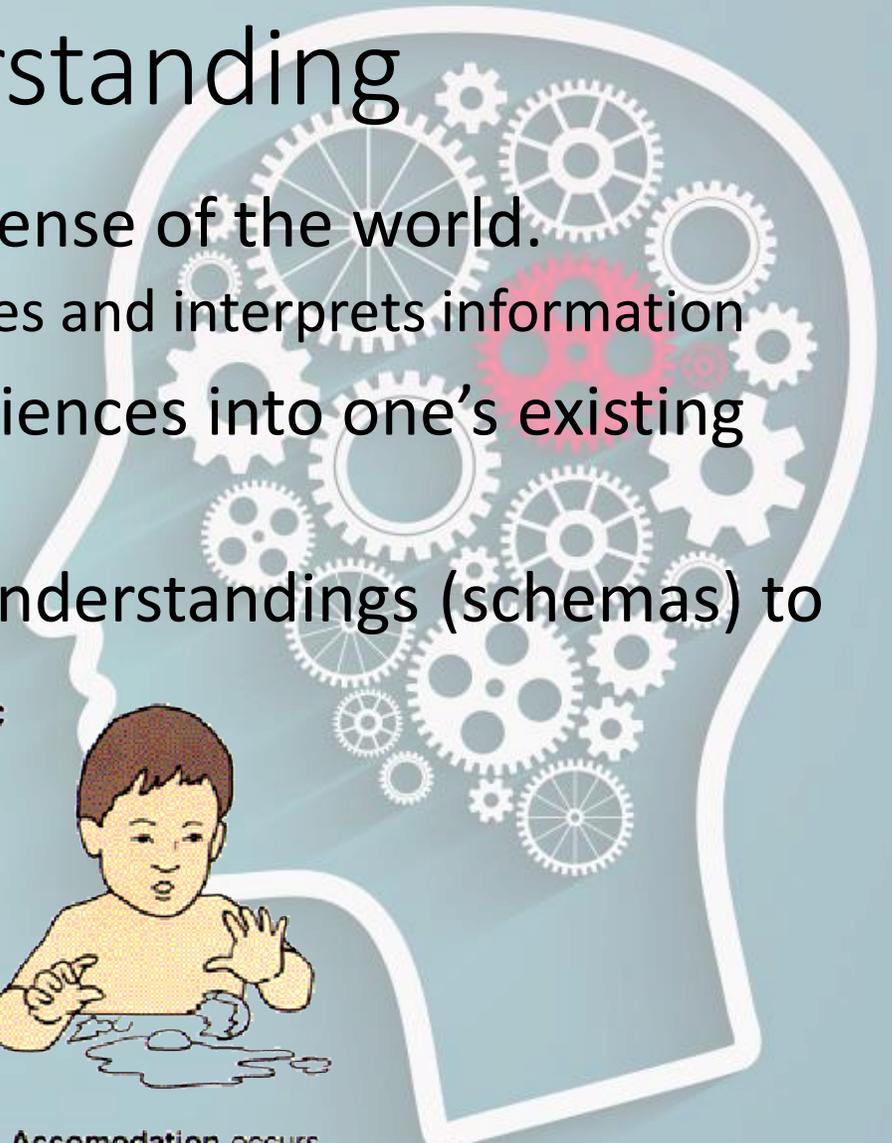
Banging is a favorite **schema** used by babies to explore their world . . .



. . . And **assimilation** occurs when they incorporate new objects into the scheme.



**Accommodation** occurs when the new object doesn't fit the existing scheme.



# Piaget and Constructivism

- Idea that individuals **construct** their understanding, that learning is a **constructive** process
- The child is seen as a ‘little scientist’ constructing understandings of the world largely alone
  - Rather than learning from a book or teacher
- Piaget believed we are constructing knowledge in all our learning.
  - No matter if it is something we are taught or something we learn on our own



| Traditional Classroom   | Constructivist Classroom   |
|---|--|
| Curriculum begins with the parts of the whole. Emphasizes basic skills.             | Curriculum emphasizes big concepts, beginning with the whole and expanding to include the parts.                           |
| Strict adherence to fixed curriculum is highly valued.                              | Pursuit of student questions and interests is valued.  |
| Materials are primarily textbooks and workbooks.                                    | Materials include primary sources of material and manipulative materials.  |
| Learning is based on repetition.  | Learning is interactive, building on what the student already knows.   |
| Teachers disseminate information to students; students are recipients of knowledge. | Teachers have a dialogue with students, helping students construct their own knowledge.                                    |
| Teacher's role is directive, rooted in authority.                                   | Teacher's role is interactive, rooted in negotiation.  |
| Assessment is through testing, correct answers.                                     | Assessment includes student works, observations, and points of view, as well as tests. Process is as important as product. |
| Knowledge is seen as inert.   | Knowledge is seen as dynamic, ever changing with our experiences.  |
| Students work primarily alone.  | Students work primarily in groups.   |

# Piaget and Equilibrium

- Believed that we are driven or motivated to learn when we are in disequilibrium
  - We are in disequilibrium when we do not know something, and will seek to regain equilibrium
  - We want to understand things



# Stages of Development

- Believed that all children develop according to four stages based on how they see the world.

He thought the age may vary some, but that we all go through the stages in the same order

1. Sensorimotor (birth –2 years)
2. Preoperational (~2-7)
3. Concrete operational (~7-11)
4. Formal operations (~12-15)



# Sensorimotor Stage

- Birth to about 2 years, rapid change is seen throughout
- The child will:
  - Explore the world through senses & motor activity
  - Early on, baby can't tell difference between themselves & the environment
  - If they can't see something then it doesn't exist
  - Begin to understand cause & effect
  - Can later follow something with their eyes



# Preoperational Stage

- About 2 to about 7
  - Better speech communication
  - Can imagine the future & reflect on the past
  - Develop basic numerical abilities
  - Still pretty egocentric, but learning to be able to delay gratification
  - Can't understand conservation of matter
  - Has difficulty distinguishing fantasy from reality
    - ex: cartoon characters are real people



# Concrete Operational Stage

- From about 7 to about 11
  - Abstract reasoning ability & ability to generalize from the concrete increases
  - Understands conservation of matter
  - Conservation of matter – understanding that something does not change even though it looks different, shape is not related to quantity
    - Ex. What is more, 10 pennies in a pile or 10 pennies in a row



# Formal Operational

- From about 12 to about 15
  - Be able to think about hypothetical situations
  - Form & test hypotheses
  - Organize information
  - Reason scientifically
    - Develop skills such as logical thought, deductive reasoning, and systematic planning



# Principles of Piaget's Stages

- Development happens from one stage to another through interaction with the environment.
  - Changes from stage to stage may occur abruptly and kids will differ in how long they are in each stage
- Cognitive development can only happen after genetically controlled biological growth occurs
  - Development leads to learning
    - Piaget's theories have been applied to Educational Psychology

