

# Piaget's Preoperational Stage of Development

- *Operations – Internalized mental “actions” that are reversible and obey the rules of logic.*
- *Capacity for Mental Representation*

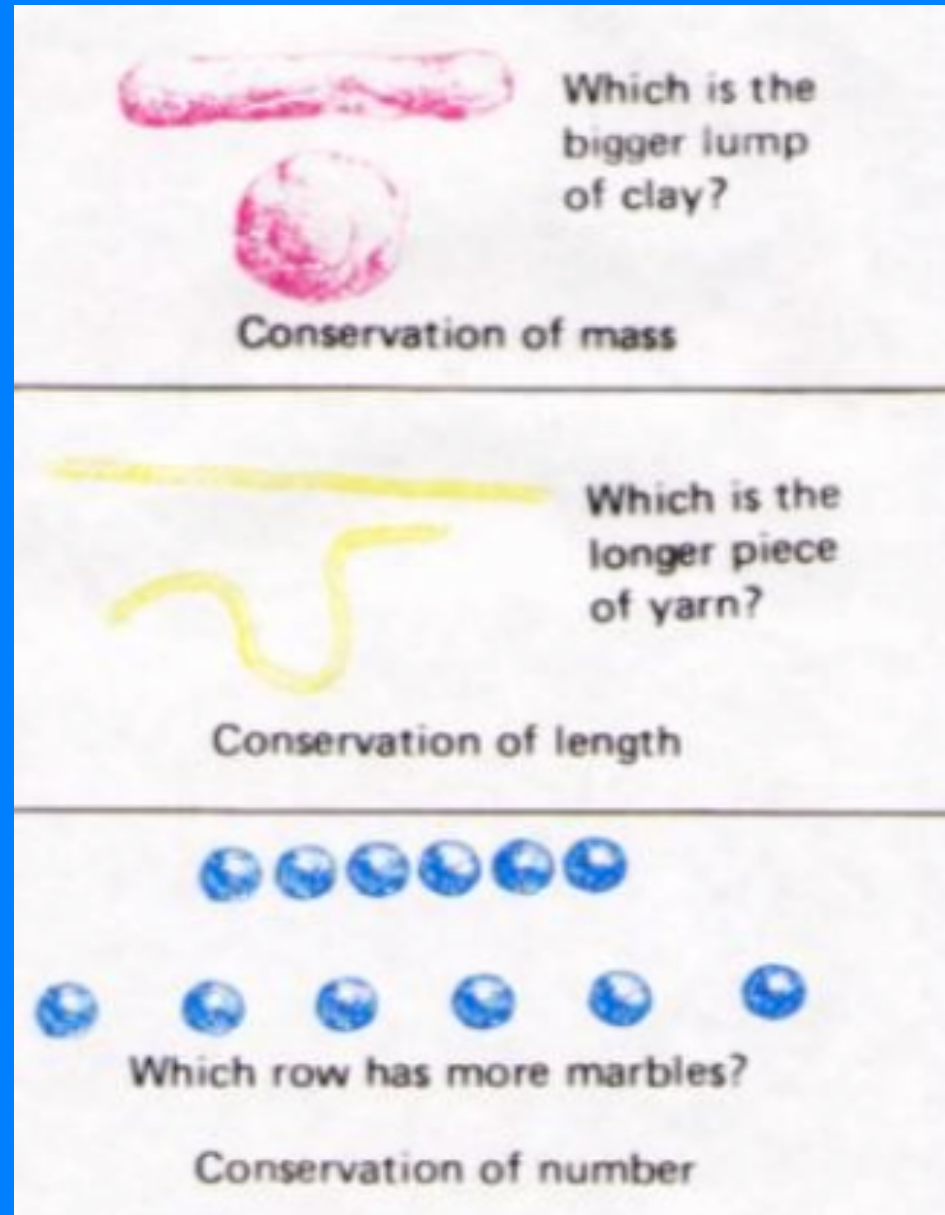


# Preoperational Period: Key Developments

- Symbolic Capacity – Emerges at the end of the Sensorimotor period
- Sensorimotor Play vs. Preoperational Play
- Use of symbols to represent Objects
- Language spurt

## Piaget

What is  
conservation?  
Understand  
changing  
appearance does  
not change  
amount /quantity



# Egocentrism



- Egocentrism is the inability to distinguish between one's own perspective and someone else's perspective.

# Perception Bound

- Young Children confuse the appearance of something with reality.

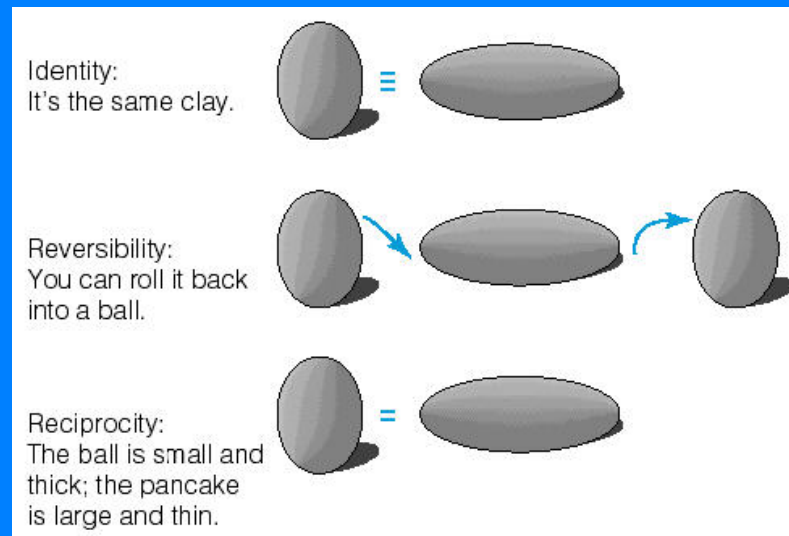
# Other Characteristics

- Animism is the belief that inanimate objects have “lifelike” qualities and are capable of action.
- A child may believe that the sidewalk “made” him trip and fall down.
- Magical and transductive thinking















# Concrete Operations

- Master logical operations
- Seriation – arrange items in order mentally
- Class Inclusion=



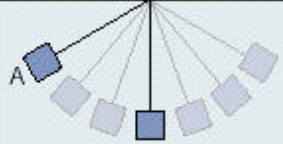
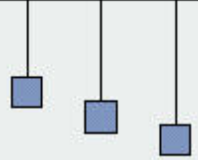
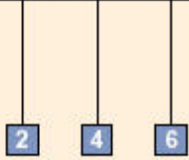
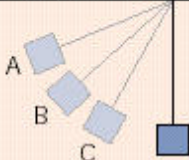
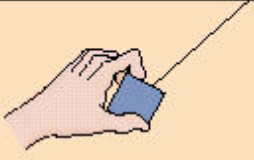


### Tests of Various Types of Conservation

Type of conservation	Initial presentation	Transformation	Question	Preoperational child's answer
Liquids	Two equal glasses of liquid. 	Pour one into a taller, narrower glass. 	Which glass contains more?	The taller one. 
Number	Two equal lines of checkers. 	Increase spacing of checkers in one line. 	Which line has more checkers?	The longer one. 
Matter	Two equal balls of clay. 	Squeeze one ball into a long, thin shape. 	Which piece has more clay?	The long one. 
Length	Two sticks of equal length. 	Move one stick. 	Which stick is longer?	The one that is farther to the right. 

# Formal Operations

- Mental actions on ideas
  - Hypothetical and abstract thinking
  - Systematic and scientific thinking
- Coexists with earlier forms of reasoning
- Adolescent egocentrism
  - Idealism
  - Imaginary audience
  - Personal fable

 <p>A pendulum is made by hanging a weight at the end of a string fixed at the other end. If released from A it swings at a regular rate.</p>	The child is shown how four factors can be varied.			
 <p>Length of string</p>	 <p>Weight</p>	 <p>Point of release</p>	 <p>Amount of impetus</p>	
Find out which of these factors makes the pendulum go faster or slower.				

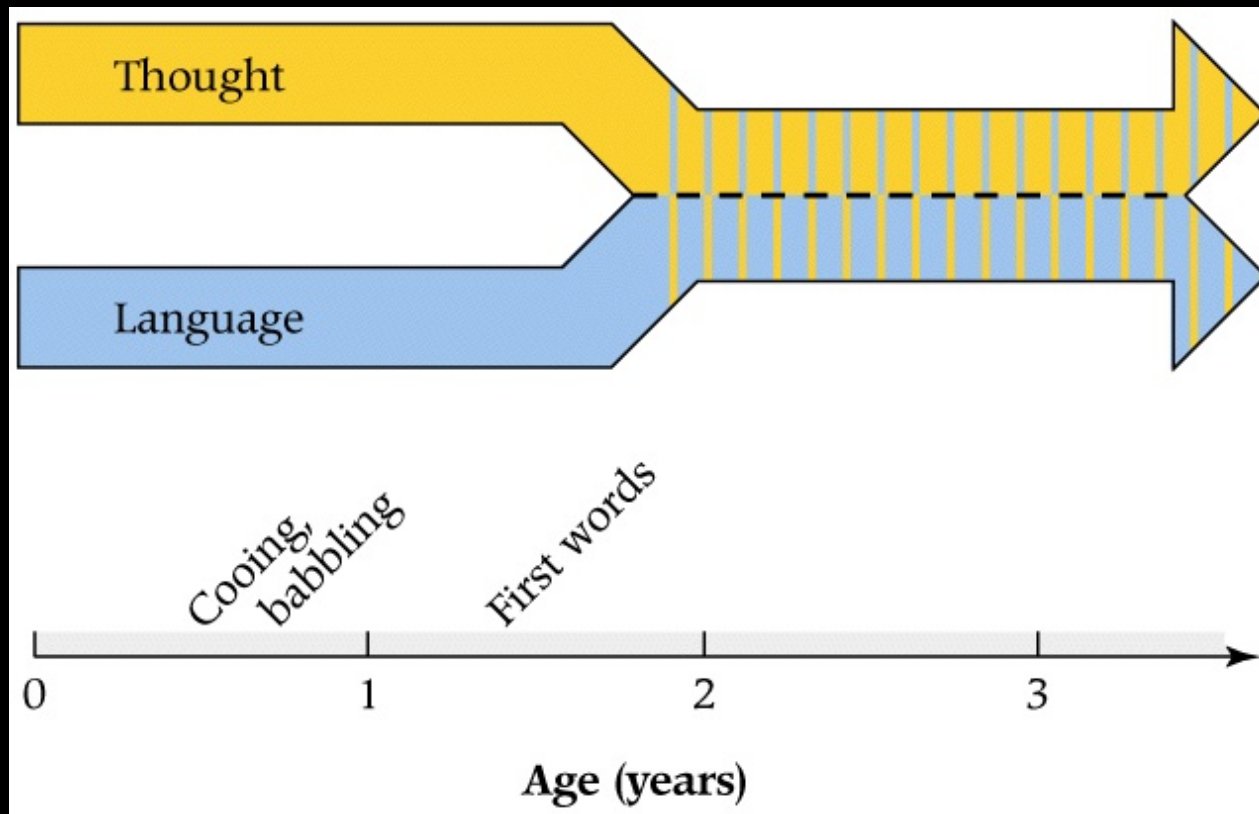
# Vygotsky's Theory of Development

- The Zone of Proximal Development: The range of ability between observed level of ability and person's basic capacity at each stage of development.
- Inter-subjectivity –shared understanding based on a common focus of attention/ common goal
- Scaffolding in Cognitive Development

# Vygotsky's View of Language and Thought

- Language serves the following functions
  1. social communication
  2. planning, guiding, and monitoring behavior in a self-regulatory fashion.
- Language used for this purpose is called inner speech or private speech.
- Researchers have found support for Vygotsky's view of the positive role of private speech in development.

# VYGOTSKY'S VIEW OF



# Piaget and Language

- For Piaget, private speech is egocentric and immature, but for Vygotsky it is an important tool of thought during early childhood..
- For Piaget, egocentric speech simply reflects children's thinking at the preoperational level.

# INFORMATION PROCESSING

**HARDWARE:** the *mind* as an information processing system

**SOFTWARE:** *cognition* as applying cognitive processes

**DATA:** *learning* as knowledge acquisition





# Information Processing

- IP theories have contributed to new understandings about the *processes* involved in learning.
- Let's examine some of the important ones.

# METACOGNITION

- Thinking about one's thinking
- Exerting DELIBERATE CONTROL over one's cognitive activities

# Metacognition– Awareness of

- **PRIOR KNOWLEDGE**– what do we know– what don't we know?
  - cognizant of what one *knows* and *does not know*
- **TIME** re-quired to comprehend
- **EFFORT** required to comprehend
- **LEARNING STRATEGIES** available
- **CRITICAL CONCEPTS**
- **UNDERSTANDING**
- **POOR OR MISUNDERSTANDING**

# How can we become better problem-solvers?

Learn to think *nonroutinely*.

- preparation
- incubation
- illumination
- elaboration

1. Avoid *one-shot thinking*.

2. *Attend*. Learn to *identify the problem*

3. *Metacognize*

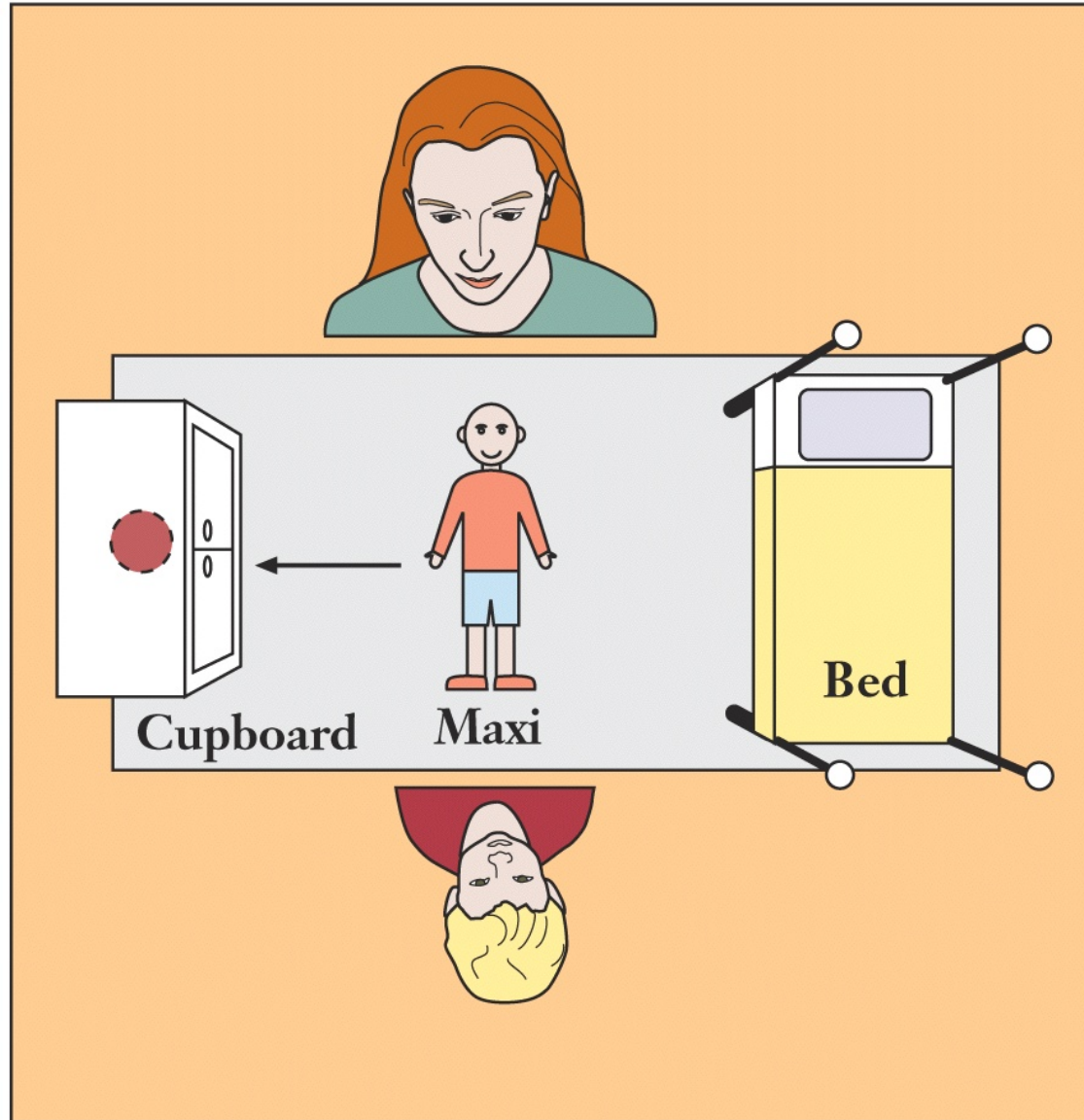
## Newer IP Views

- Continue to use computer analogy, but a more active focus
- Bridge between Constructivism and Learning Theories
- Actively select, organize, and integrate experience with existing knowledge – (Sounds like Piaget???)

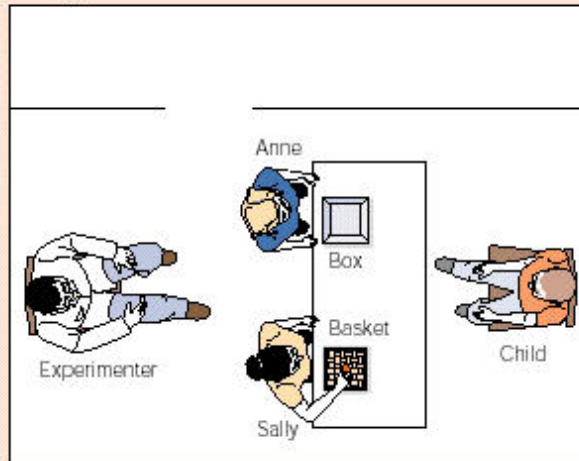
# Theory of Mind

- A commonsense understanding of how the mind works (Uta Frith clip)
- Suggests these mental processes (emerge at about 4 years)
  - false belief understanding
  - origins of knowledge
  - appearance-reality distinction

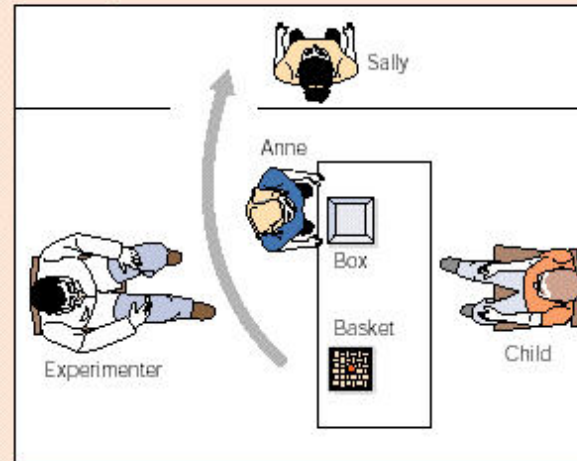
# 1. Maxi places ball in cupboard.



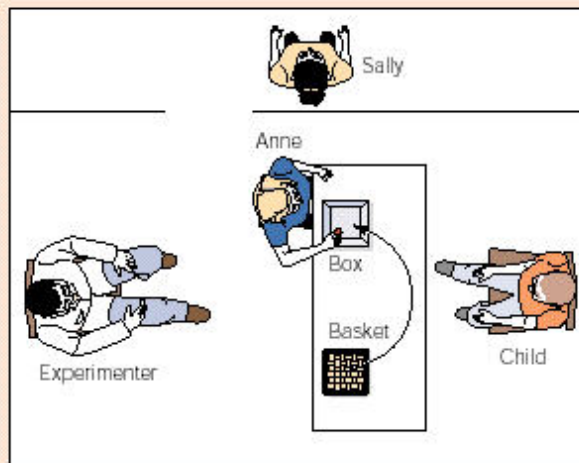
1 Sally places her marble in basket



2 Exit Sally



3 Anne transfers Sally's marble to box



4 Re-enter Sally

