Intellectual Development

Mary Cassatt (1844-1926) *Teine Lefebvre and Margot*

Logic?

Assimilation and Accommodation

Children form concepts in their minds

Concepts: general categories of objects and information

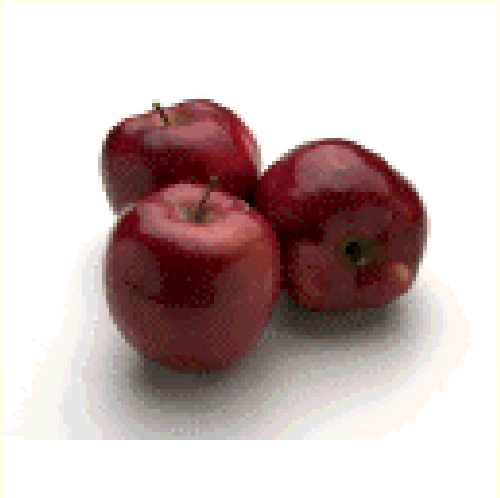
Logic?

All things in the air are birds.

Then they learn the difference between bird and plane

Logical Thinking

Another Example



These are all apples because they are red

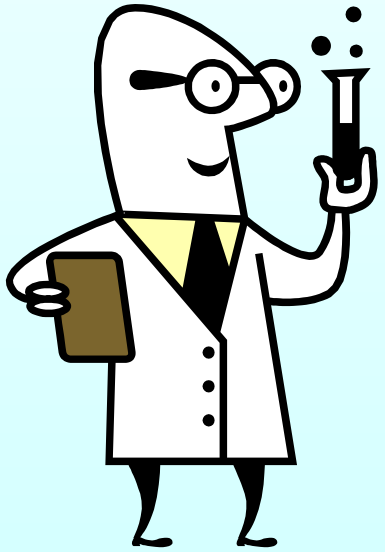
Piaget

Four Stages

1. Sensorimotor birth to 1 ½ yrs
2. Preoperational 2-7 yrs
3. Concrete Operations 7-11
4. Formal Operations 11 into adulthood

Sensorimotor Stage

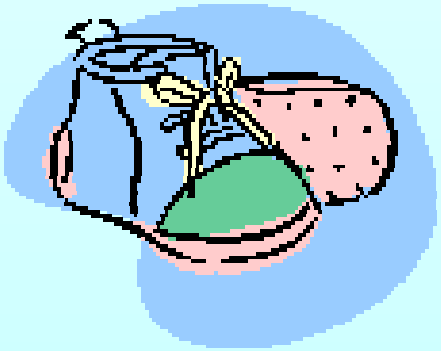
- Infant Scientist!
- In this stage children learn about the world through their senses and body movements
- This stage is broken up into 6 different steps



Sensorimotor Stage

Step One: Birth

- Infants are only aware of themselves
- They do not understand themselves as a a separate person



Sensorimotor Stage

Step Two 1 to 4 months

- Learn to combine two reflexes
- For example they wave their fists and then bring it to their mouths

Sensorimotor Stage

Step Three 4 to 8 months

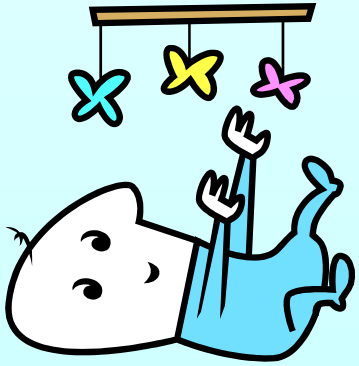
- They respond to other stimuli
- Improves hand-eye coordination

•For example if a baby bumps a rattle and it makes a noise, they may try top bump it again.

Sensorimotor Stage

Step Four 8 to 12 months

- Intentional behavior
- They learn certain actions lead to certain results
- Imitates others



Sensorimotor Stage

They learn to follow objects with their eyes

•Love playing Peek-A-Boo

Sensorimotor Stage

Ten months- learn Object Permanence

That objects continue to exist even when out of sight—can find partially hidden objects

Sensorimotor Stage

Stage Five 12 to 18 months

- Trial and error:
Push a cracker off a high chair and watch it fall to the floor. Then does it again

- Can find hidden objects

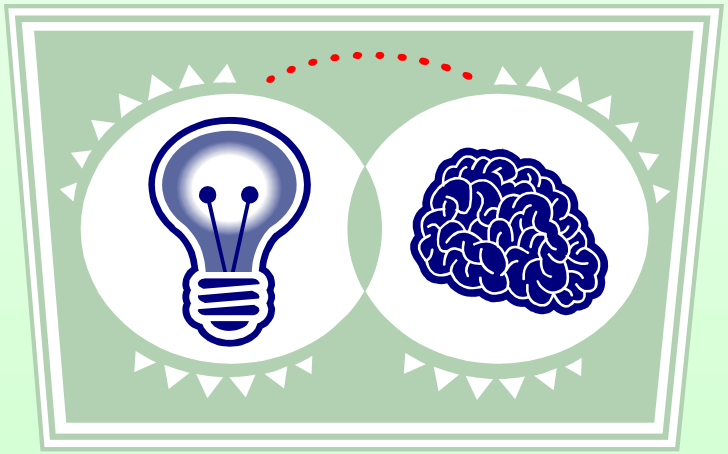
- Understands that objects exist independently

Sensorimotor Stage

Step Six 18 to 24 months

- Begin to experiment mentally as well as physically
- They think about what they are going to do before they do it

Preoperational Stage



- Ages 2 to 7
- Basic Mental operations start replacing sensorimotor activities as the primary way to learn

Language & Grammar

Children learn mostly by language and mental images

A rule is a rule

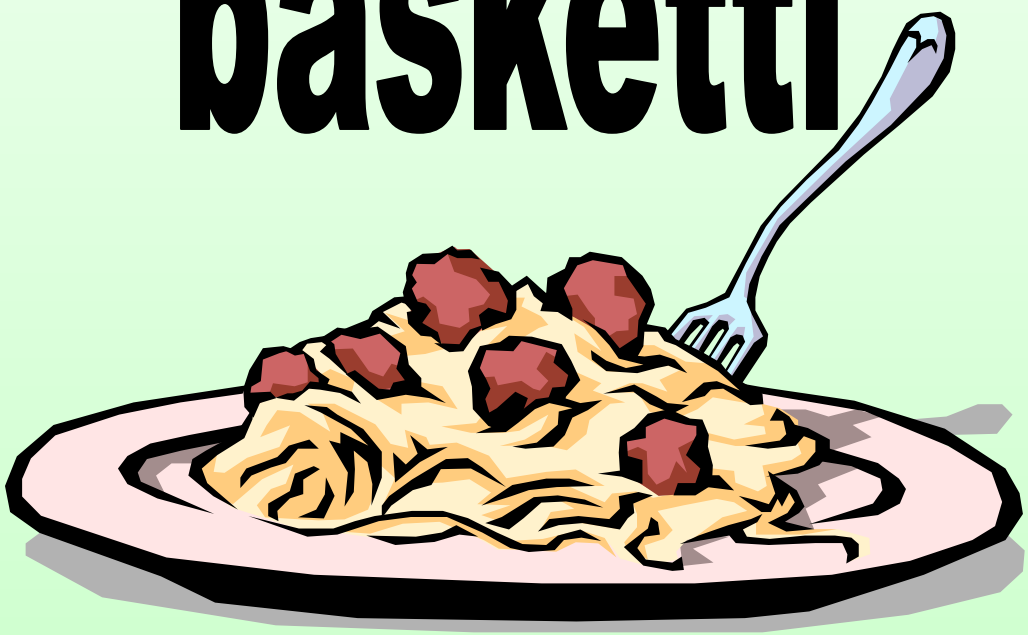
I “eated” my apple

No, it’s ate

Then I “ated” my apple

Language and Grammar

basketti

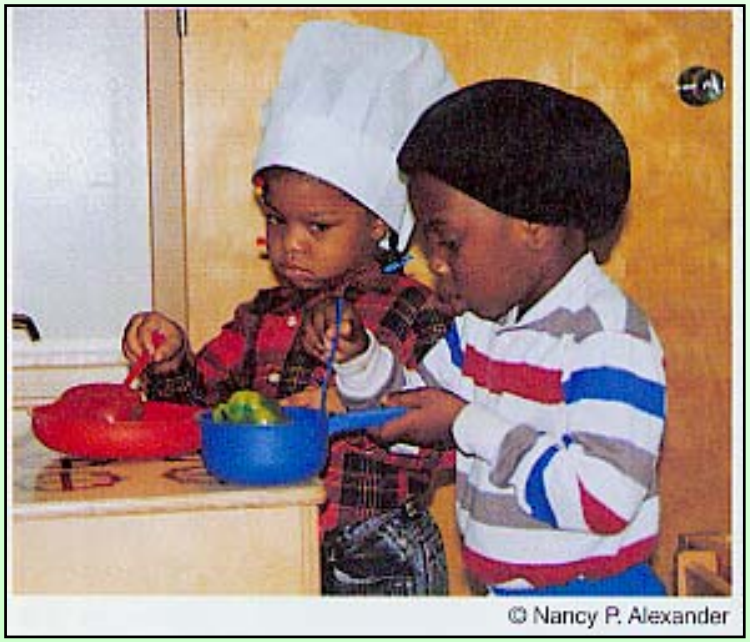


Shocolate

Cheescake

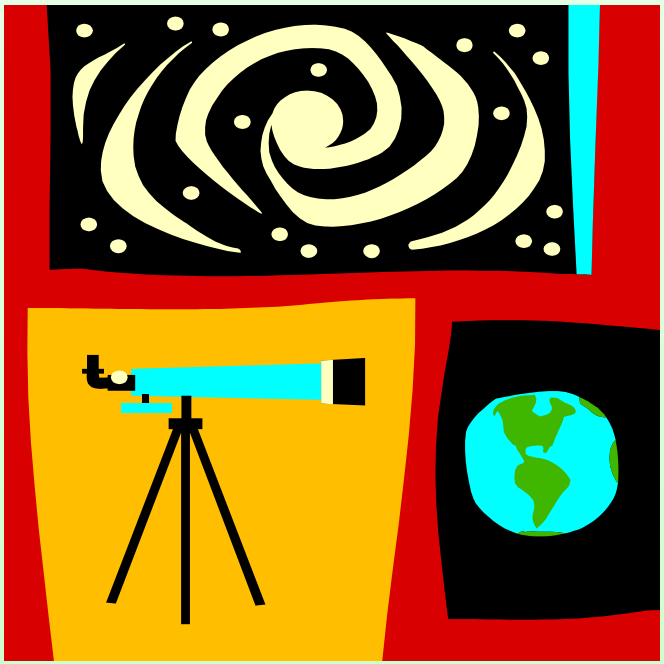
Preoperational Stage

- Make-believe play is used to create and express all kinds of mental images



Preoperational Stage

Egocentrism



Everyone views the world like I do

Preoperational Stage

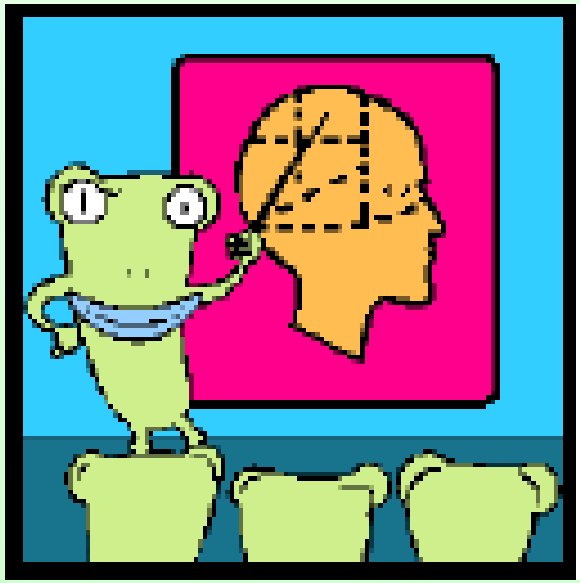
Egocentrism

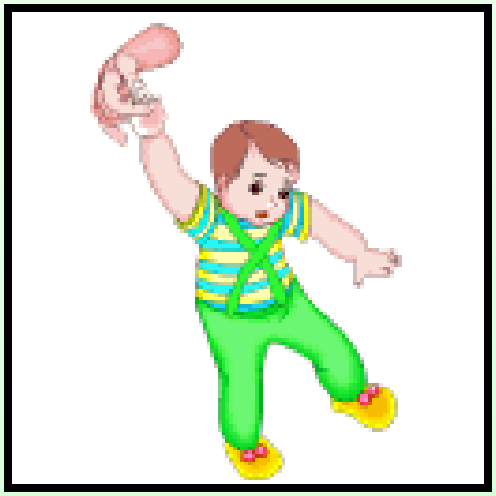
- The sun follows them from place to place and goes to bed when they do

- Problems with reversibility—can't see the world from other's perspectives

Preoperational Stage

Children are prone to thinking errors



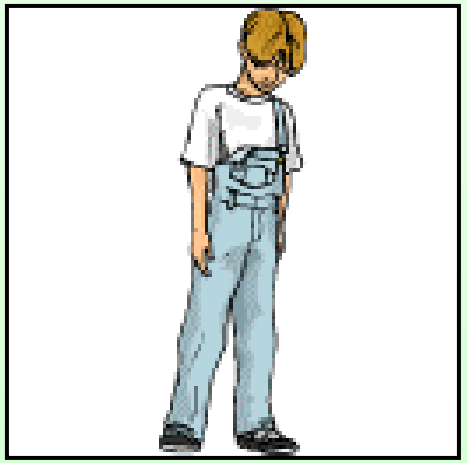


Just as a walking toddler is prone to missteps

Preoperational Stage

I don't want to go to sleep! I'm not tired!

use feeling to solve problems rather than logic



He hurt my feelings so I hit him!

Preoperational Stage

• Begin learning multiple classification– the ability to understand that an object may fit into more than one category

Preoperational Stage

- Begin learning seriation—the ability top order groups of things by size, weight, or any common property
- For example arranging beads on a bracelet from smallest to largest
- However preschool age children cannot arrange themselves by height

Preoperational Stage

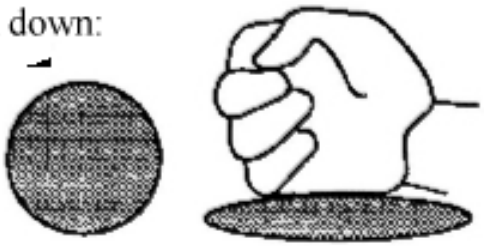
Conservation

- They think the same amount of liquid is more when poured into a tall think glass.
- To them taller means more!

Preoperational Stage

re-form

then smash down:



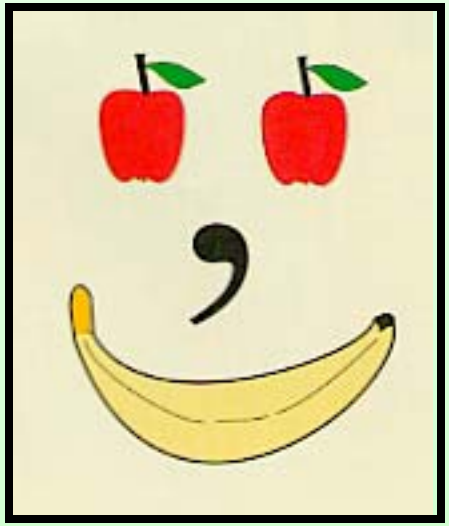
Do both objects contain the same amount of clay?

Another example of conservation

Preoperational Stage

Parts to Whole

What is this?



A Banana

Preoperational Stage

They have two kinds of reasoning

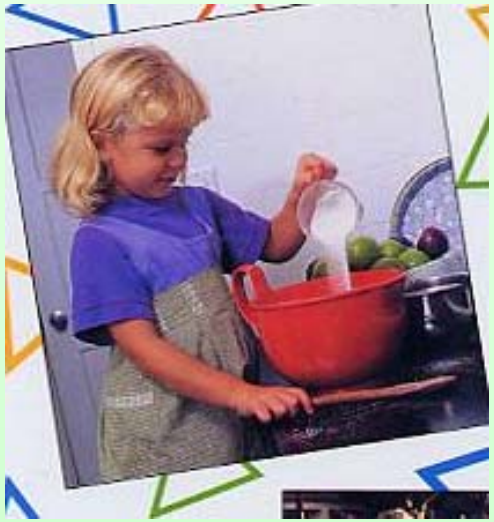
1. Syncretic– a break in logic, changing set of criteria

Example: Mother usually makes dinner before dad comes home so making dinner causes dad to come home.

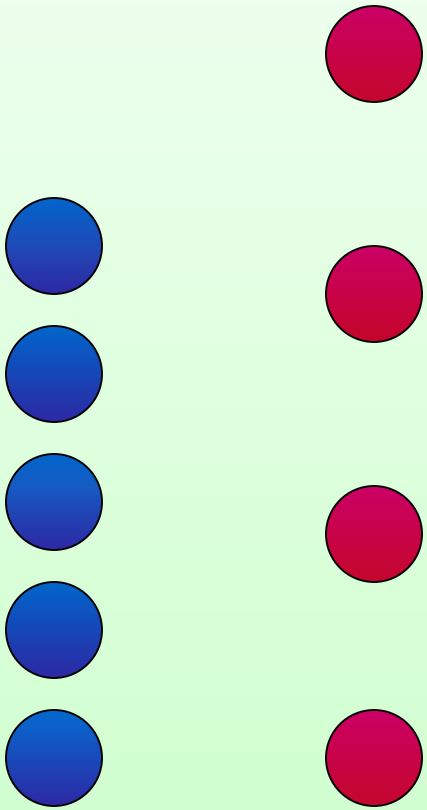
Preoperational Stage

Making Muffins

First, you put all of the white powder in a bowl. Then you pour milk into it. Stir and pour in metal cups that are hooked together. Now hurry and put in the oven because we are late for school.



Preoperational Stage

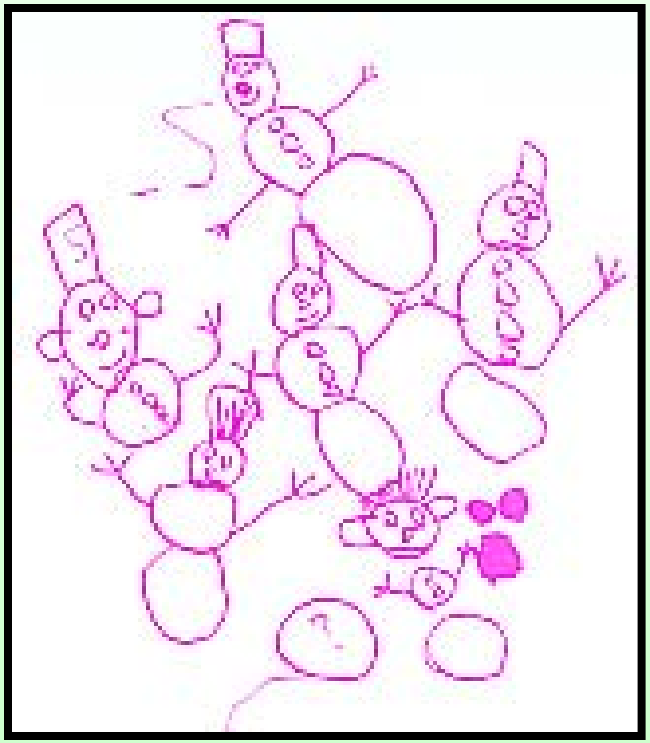


2. Intuitive reasoning—They guess!!

Which line has more marbles?

Preoperational Stage

Time

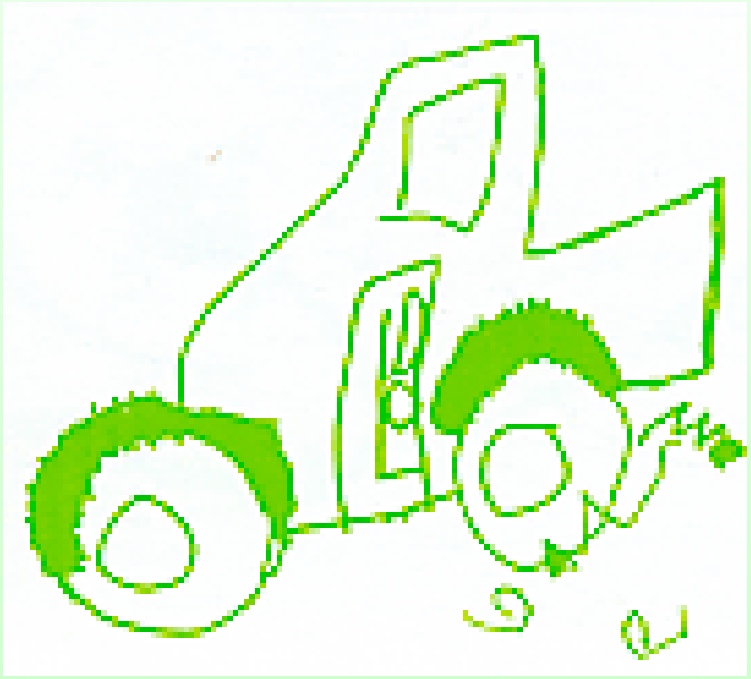


My birthday is before Christmas and after Halloween

Preoperational Stage

Time

Are we there yet?
Are we there yet?
Are we there yet?
Are we there yet?



Preoperational Stage

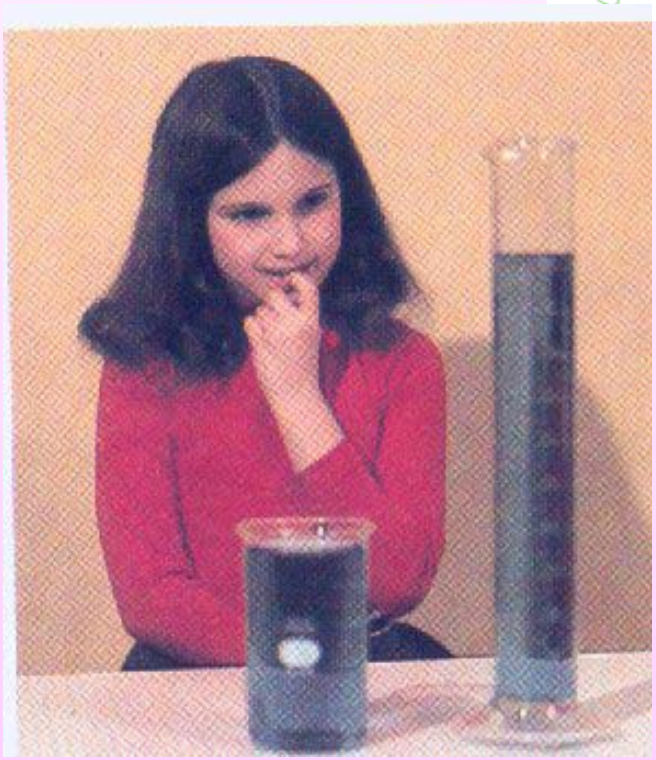
•Children may not be aware of what is real and what is make-believe

Concrete Operational Stage

- Ages 6 or 7 to 11
- Learn to solve more complex problems using basic logic
- However, they cannot think in abstract ways

Concrete Operational Stage

- Understand Conservation– a given amount of anything remains the same even if it changes shape



Concrete Operational Stage

- Perfect understanding of reversibility– things can return to their original condition after being changed
- Perfect multiple classification and seriation

Concrete Operational Stage

Why do Apples fall off trees?

Concrete Operational Stage

What's Black and White and has 16 wheels?

?

Concrete Operational Stage

Even their humor is concrete!

Formal Operations Stage

- Ages 11 to 12 into adulthood!
- Can think through very complex problems, find several solutions, and choose the most logical one.

Formal Operations Stage

- Can think in abstract ways
- Understand loyalty and freedom

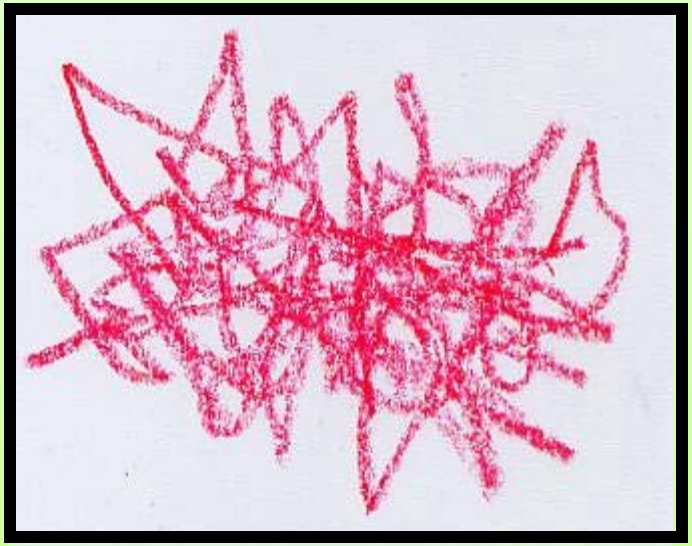
Piaget

In general we learn:

- Children learn to master one skill before another
- Children learn in their own ways
- And not as Adults do!!

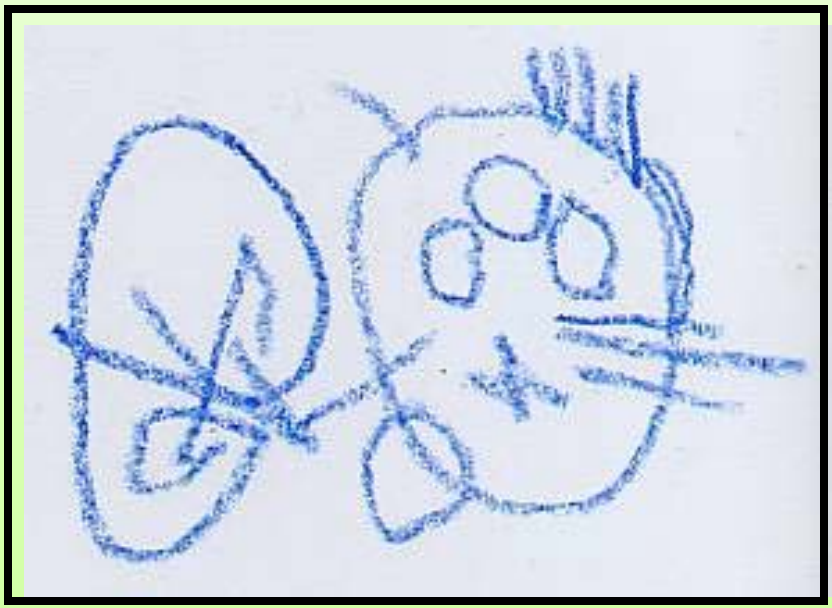
Drawing

You can tell a lot about cognitive development by looking at a child's drawing



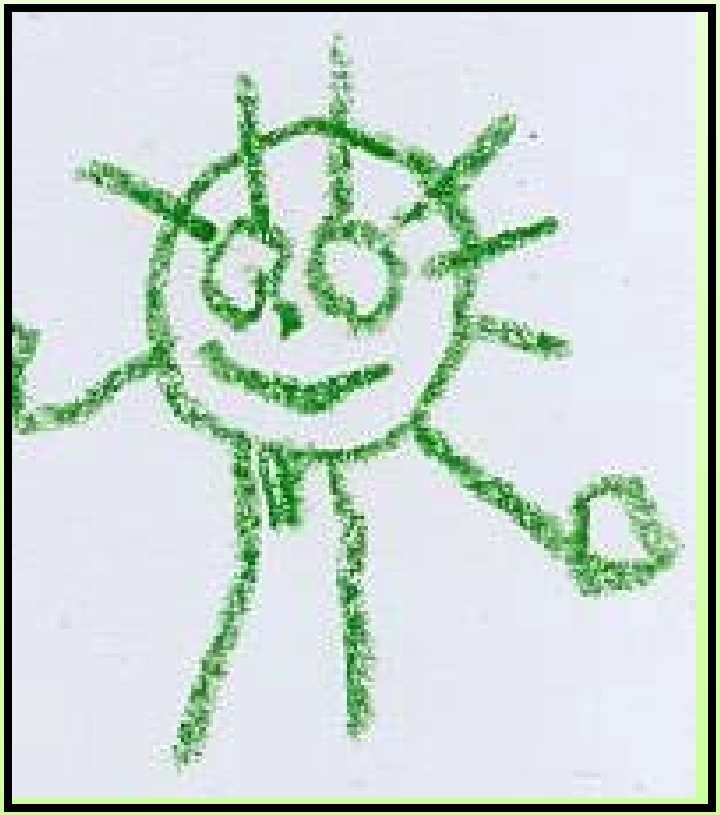
Scribbling (around ages 1-2)

Drawing



Basic Shapes
(around ages 2 1/2-3)

Drawing



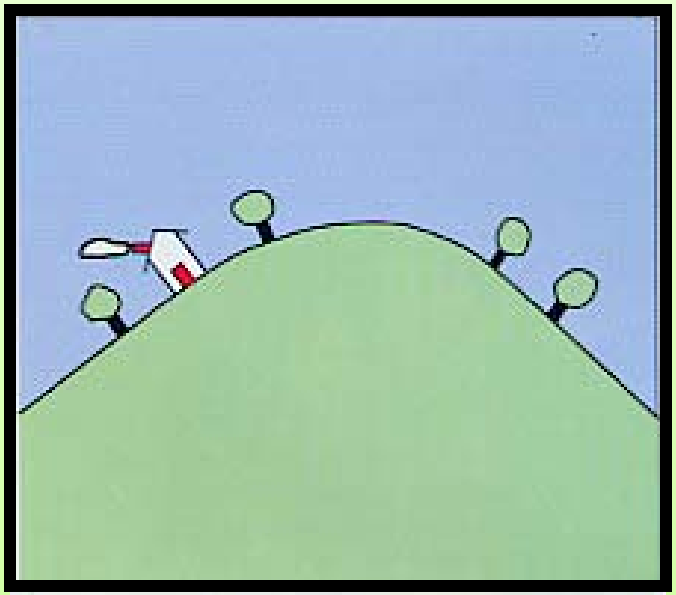
Symbolic Basic Shapes (around ages 3-4)

Drawing

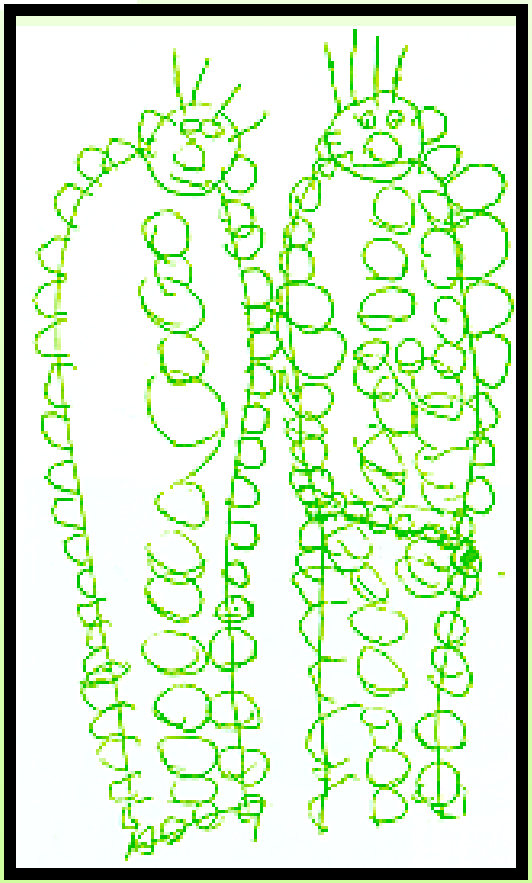
Combined Forms (around ages 5-7)

Drawing

draws trees and other objects at right angles to the slop of a hill



Drawing



Is that a drawing of two caterpillars?

No! It's my mom and dad!

Drawing

draw first then decide