

Piaget's theory of cognitive development: schemas, assimilation, accommodation, equilibration, stages of intellectual development.

A schema is a mental representation (template) stored in our memory used to help us make sense of the world around us. Piaget used these cognitive frameworks in his explanation of cognitive development. Piaget (1952) viewed intellectual growth as a process of adaptation (adjustment) to the world. This happens through:

- **Assimilation** – is using an existing schema to deal with a new object or situation.
- **Accommodation** – happens when the existing schema (knowledge) does not work and needs to be changed to deal with a new object or situation.

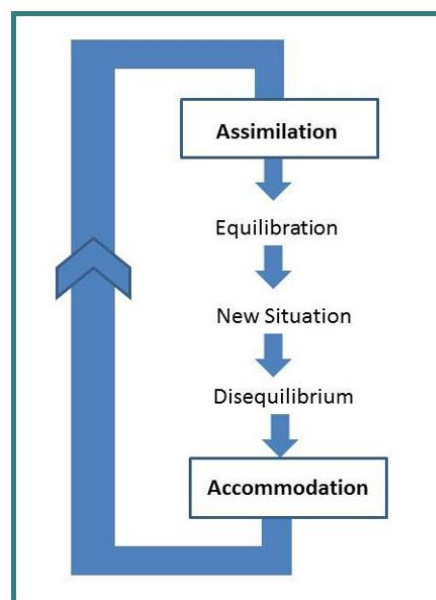
In Piaget's theory, assimilation uses an existing schema to make sense of a new experience, whereas, accommodation changes an existing schema, or creates a new one, when the experience does not fit. They work together as part of adaptation.

For example, a child may first call a zebra a horse because the animal fits an existing schema. After noticing the stripes and stable differences, the child may refine that schema and form a distinct category.

- **Equilibration** – is the force which moves development along. Piaget believed that cognitive development did not progress at a steady rate, but rather in leaps and bounds.

Equilibrium occurs when a child's schemas can deal with most new information through assimilation. However, an unpleasant state of disequilibrium occurs when new information cannot be fitted into existing schemas (assimilation).

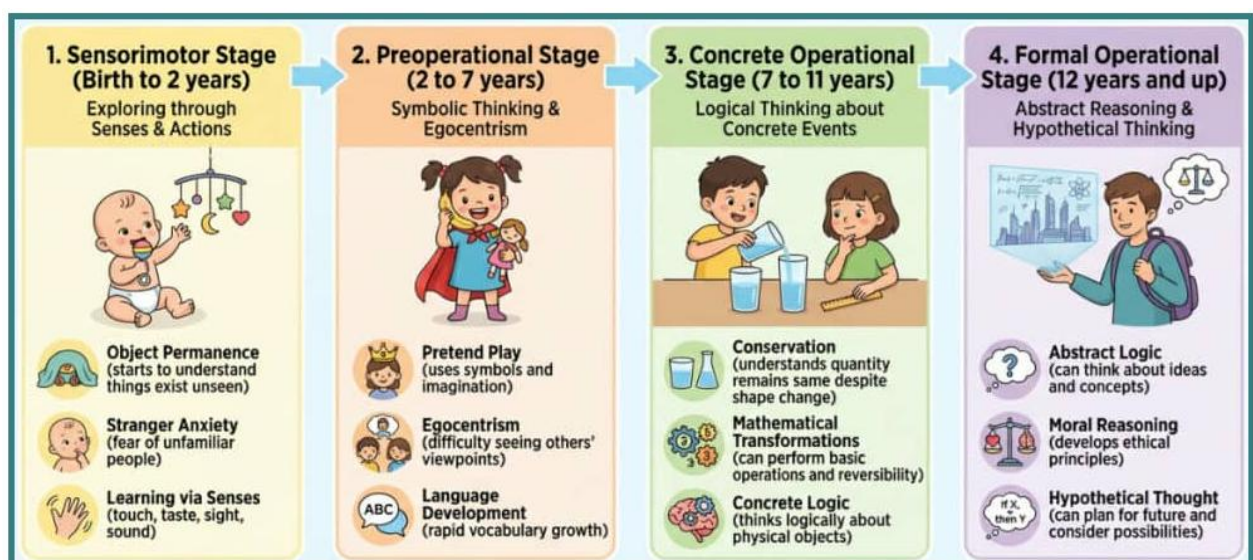
Equilibration is the force which drives the learning process as we do not like to be frustrated and will seek to restore balance by mastering the new challenge (accommodation). Once the new information is acquired the process of assimilation with the new schema will continue until the next time we need to make an adjustment to it.



ASSIMILATION	ACCOMMODATION
The "Same" Rule Uses existing schemas	The "Change" Rule Changes schemas
Mental Process This fits what I know <i>No fundamental change</i>	Mental Process I need to revise what I know <i>Fundamental restructuring</i>
Cognitive Effort Easier, less effort required	Cognitive Effort Harder, more effort required
Equilibrium Maintains equilibrium <i>Preserves cognitive balance</i>	Equilibrium Restores equilibrium <i>After disequilibrium occurs</i>
Timing First response to new info	Timing When assimilation fails
Example Child sees zebra, calls it horse <i>Fits existing horse schema</i> <i>Four legs, similar shape</i>	Example Child learns zebra $\neq$ horse <i>Creates new zebra schema</i> <i>Has stripes, different sound</i>

Piaget went on to develop his theory of cognitive development creating four stages of intellectual development.

1. The sensorimotor stage is approximately from birth to two years old.
2. The preoperational stage is approximately from age two until age seven.
3. The concrete operational stage is approximately from age seven to eleven.
4. The formal operational stage begins at approximately age eleven/ twelve and lasts into adulthood.



Characteristics of these stages, including object permanence, conservation, egocentrism and class inclusion.

In the sensorimotor stage the main achievement is **object permanence**; which is knowing that an object still exists, even if it is hidden. This requires the ability to form a mental representation (schema) of the object.

The characteristics of the preoperational stage are **egocentrism**, animism, centration, and the inability to understand conservation. Egocentrism is a child's tendency to only see the world from their point of view. It is the overwhelming focus on the self as the centre of importance. Many young children display this characteristic. In the preoperational stage young children can think about things symbolically. This is the ability to make one thing; a word or an object, stand for something other than itself. However, thinking is still egocentric, and the infant has difficulty taking the viewpoint of others.

Skills such as **class inclusion** and **conservation** develop a little later. The concrete operational stage marks the beginning of logical or operational thought. This means the child can work things out internally in their head, rather than physically try things out in the real world. Class inclusion refers to the ability to classify objects into two or more categories simultaneously. For example, the ability to recognise that categories such as 'cars' includes smaller sub-categories of white and black cars. Conservation is the understanding that something stays the same in quantity even though its appearance changes. The concrete operational stage is where children develop conservation skills. Children can conserve number (age 6), mass (age 7), and weight (age 9).

The formal operational stage happens from age 11 years upwards and continues throughout adulthood, especially as we continue to learn and experience new things. The characteristics of the formal operational stage are abstract thinking, hypothetical reasoning, logical thinking, and the ability to think about multiple possibilities and outcomes.

Piaget's theory is significant in understanding cognitive development because it emphasises the role of active exploration and interaction with the environment in shaping a child's thinking and understanding of the world.

