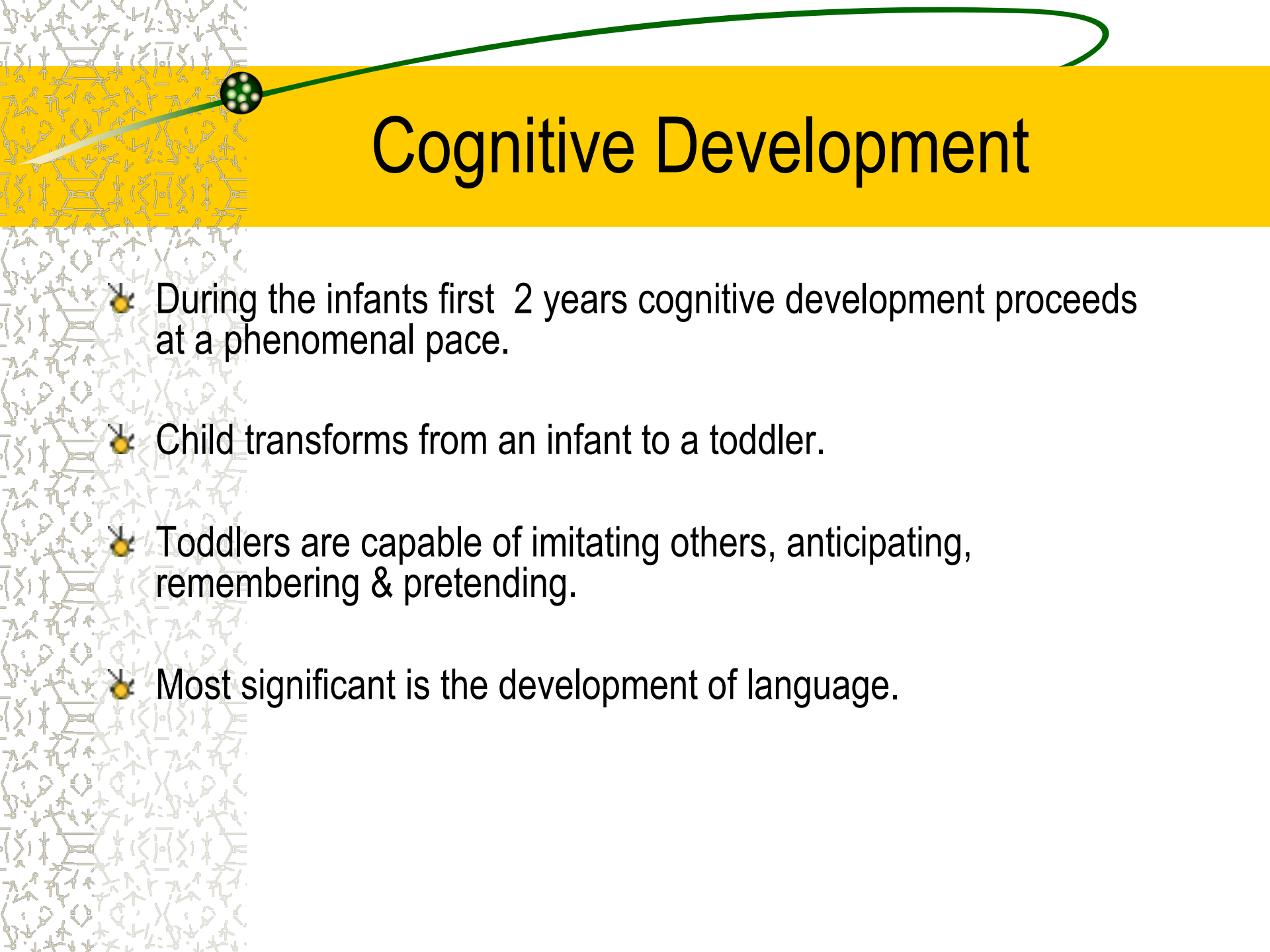




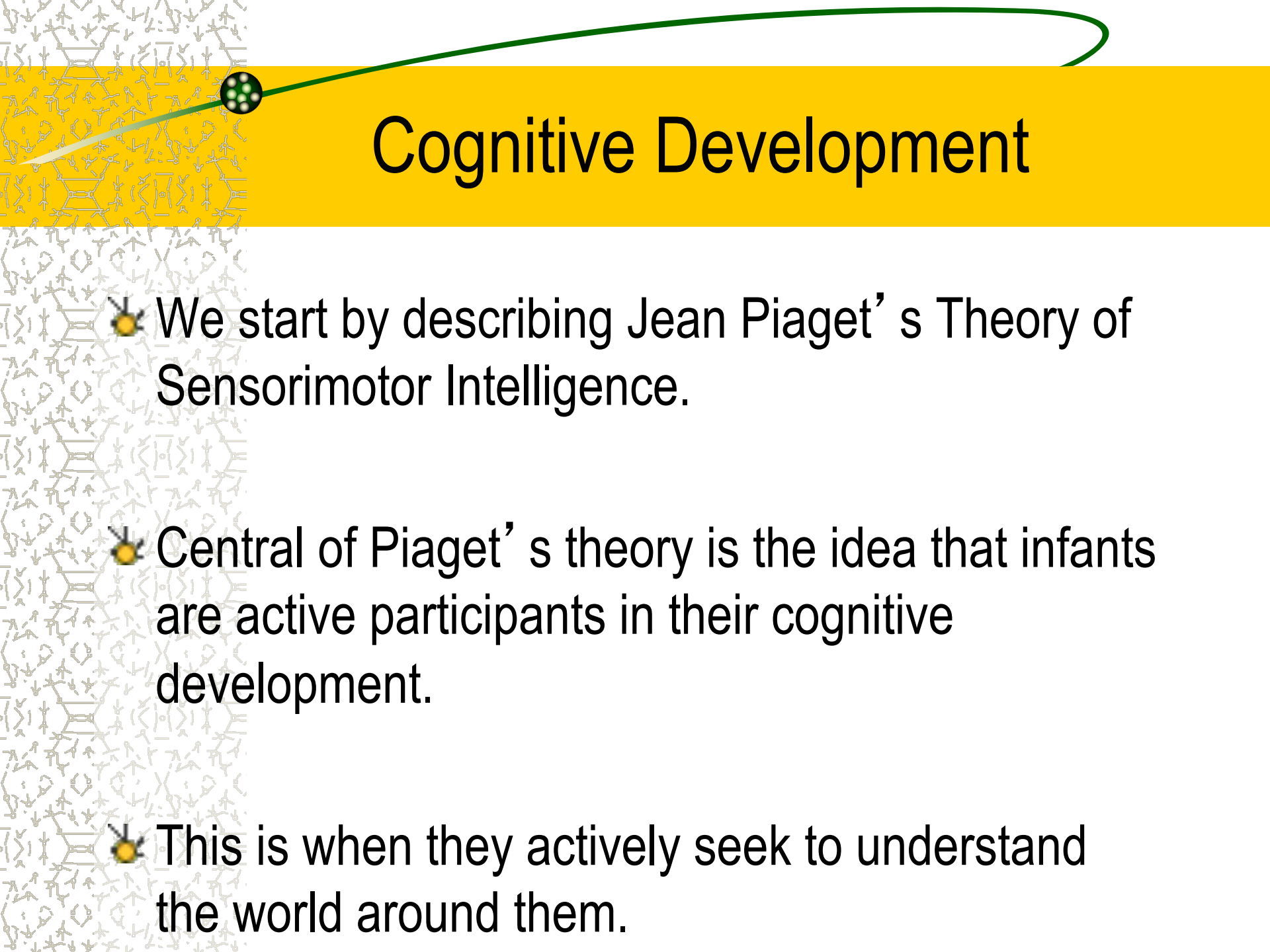
# Chapter 6

## The First 2 Years: Cognitive Development



# Cognitive Development

- ✦ During the infants first 2 years cognitive development proceeds at a phenomenal pace.
- ✦ Child transforms from an infant to a toddler.
- ✦ Toddlers are capable of imitating others, anticipating, remembering & pretending.
- ✦ Most significant is the development of language.

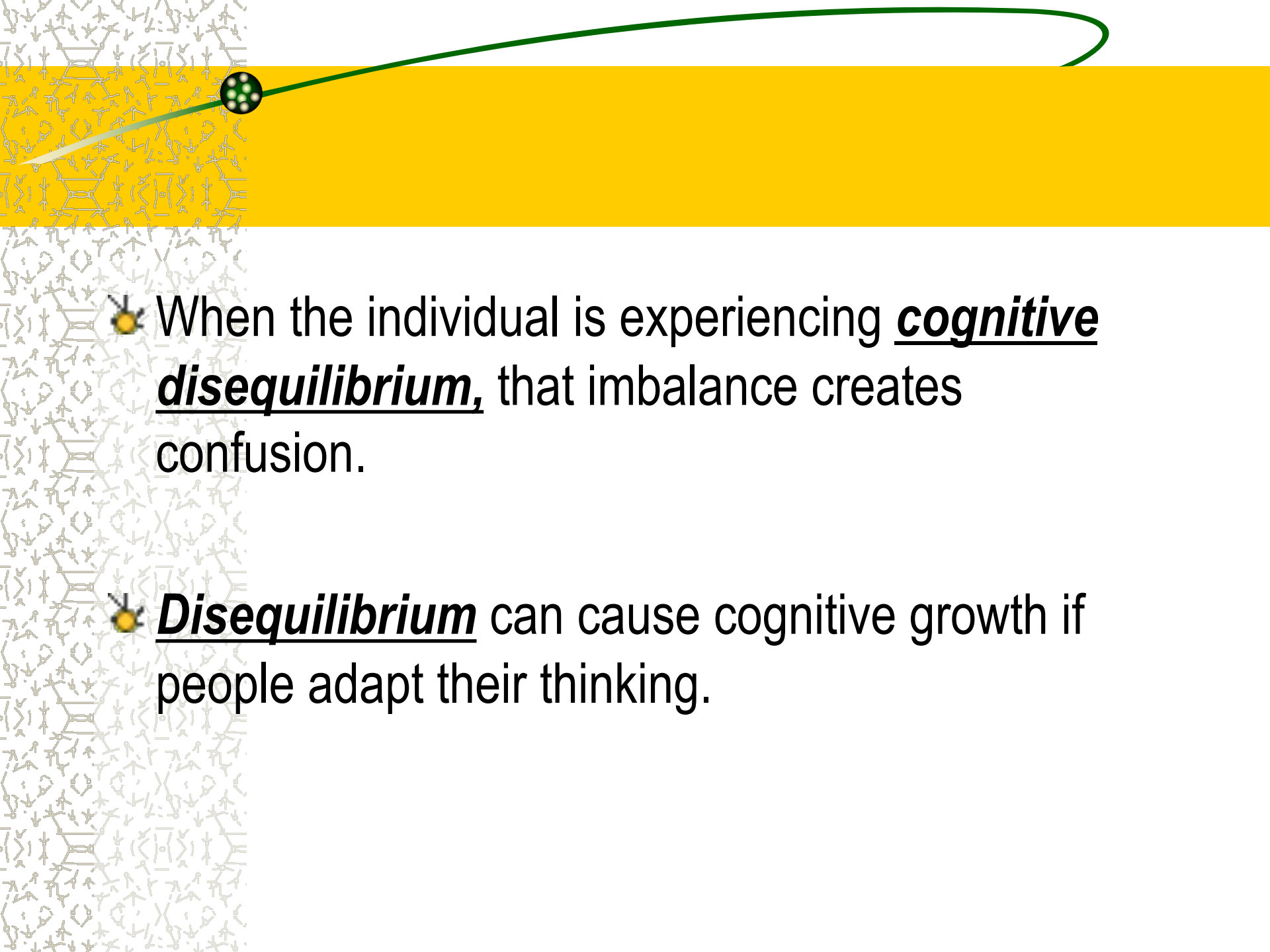


# Cognitive Development

- ✦ We start by describing Jean Piaget's Theory of Sensorimotor Intelligence.
- ✦ Central of Piaget's theory is the idea that infants are active participants in their cognitive development.
- ✦ This is when they actively seek to understand the world around them.

# Cognitive Development

- ✱ Piaget found that intellectual advancement occurs because humans at every age seek **cognitive equilibrium**.
- ✱ Achieving equilibrium is not always easy.
- ✱ Sometimes new experience or question is jarring or incomprehensible.



☀ When the individual is experiencing **cognitive disequilibrium**, that imbalance creates confusion.

☀ **Disequilibrium** can cause cognitive growth if people adapt their thinking.

# Cognitive Development

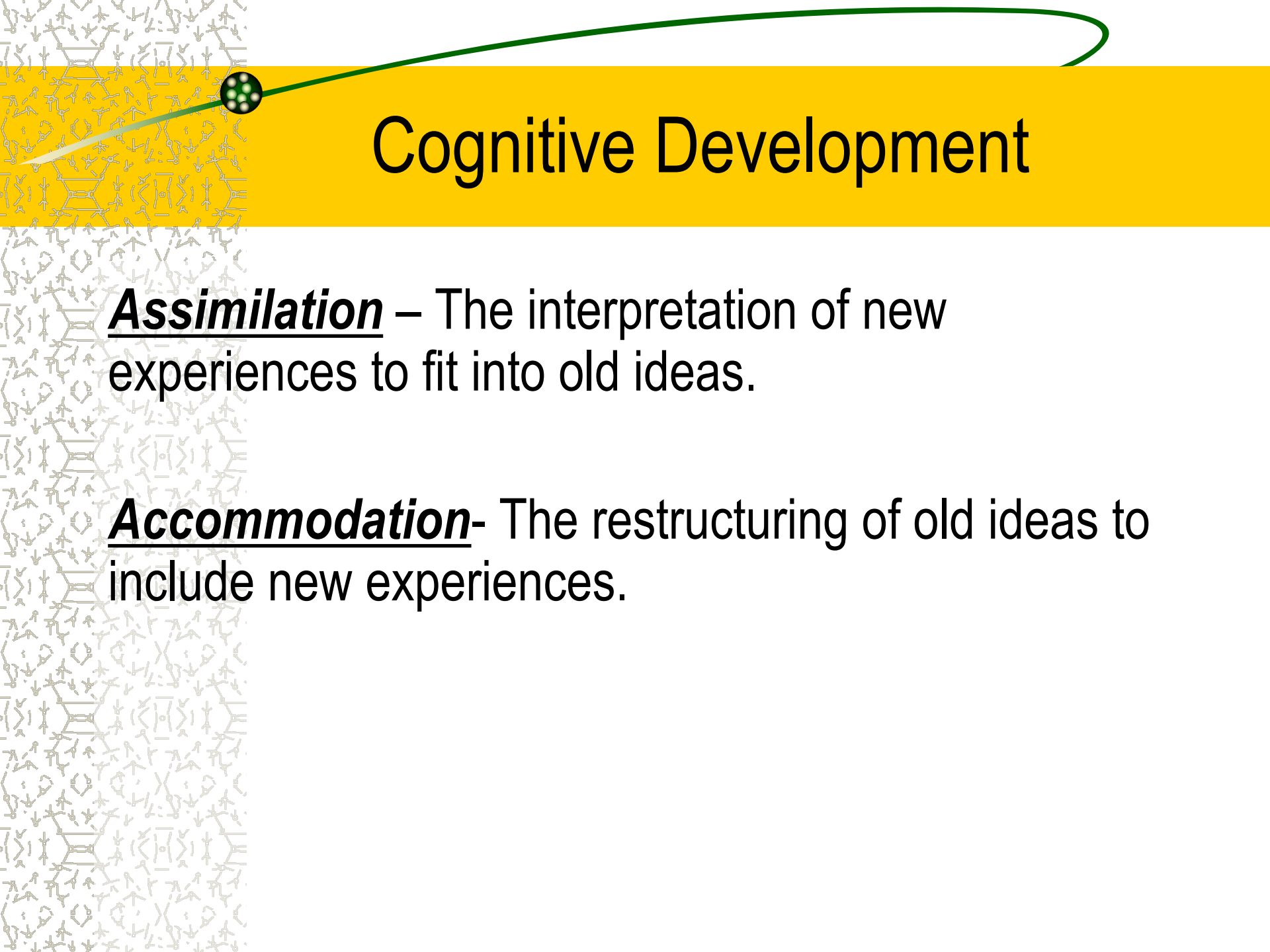
✿ Piaget describes two types of **cognitive adaptation**.

✿ **Adaptation** is Piaget's term for learning, is the core of intelligence.

✿ Adaptation occurs in two ways.

✿ **1. Assimilation**

✿ **2. Accommodation**



# Cognitive Development

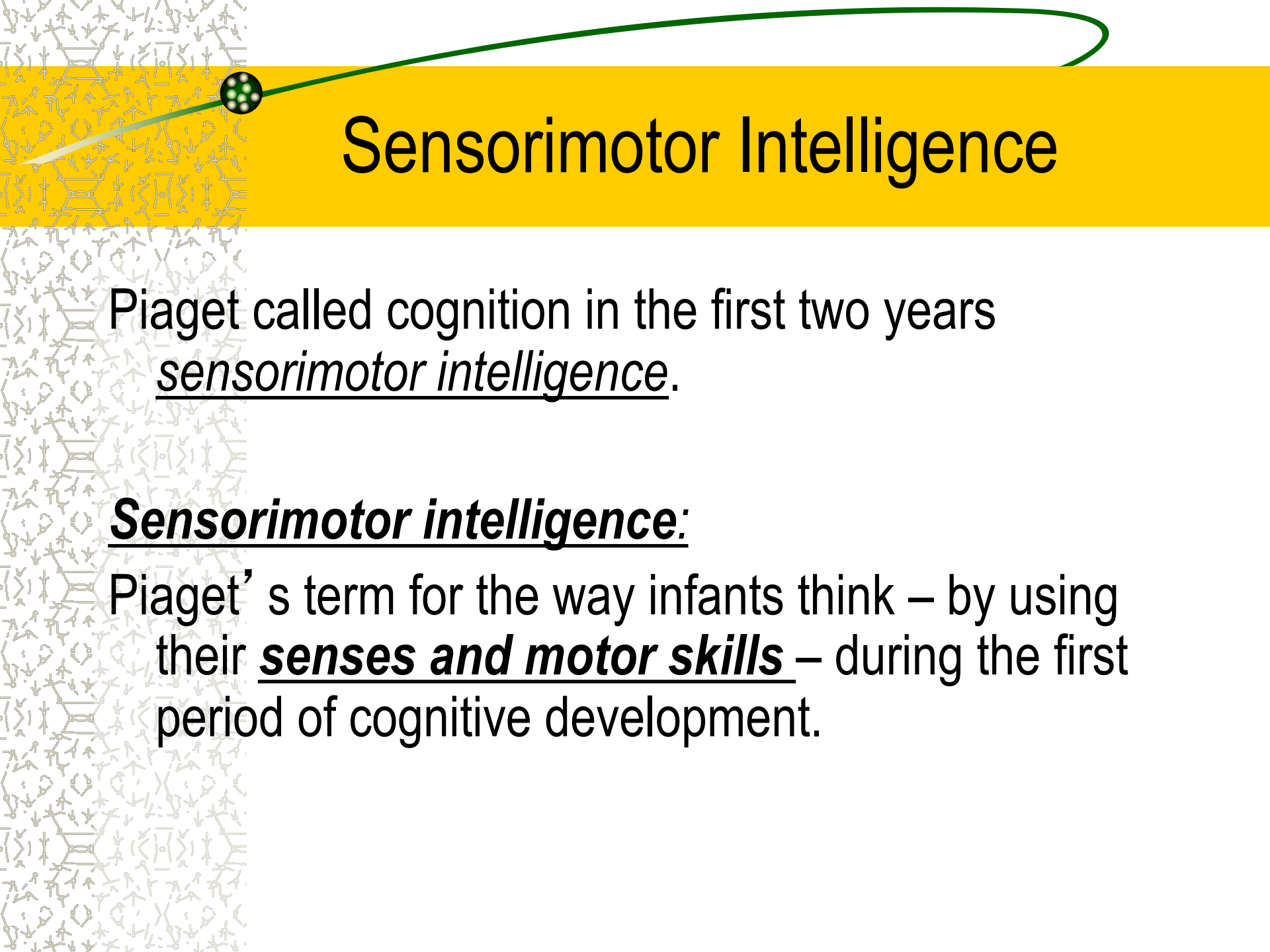
**Assimilation** – The interpretation of new experiences to fit into old ideas.

**Accommodation**- The restructuring of old ideas to include new experiences.

# Cognitive Development

- ✱ Once *adaptation* is successful, it sticks;
- ✱ breast-fed babies may reject milk from the nipple of a bottle
- ✱ or
- ✱ if parents of a 6-month-old thumb-sucker decide that a pacifier would be better, they may be too late.





# Sensorimotor Intelligence

Piaget called cognition in the first two years *sensorimotor intelligence*.

## ***Sensorimotor intelligence:***

Piaget's term for the way infants think – by using their ***senses and motor skills*** – during the first period of cognitive development.



# Sensorimotor Intelligence

✱ Those early reflexes and body movements are used by infants to develop their minds, adapting to experience.

✱ Sensorimotor intelligence is subdivided into 6 stages.



# The Six Stages of Sensorimotor Intelligence

## ✦ Primary Circular Reactions

Stage 1 (Stage of Reflexes - birth to 1 month)

Stage 2 (First Acquired adaptations - 1-4 months)

## ✦ Secondary Circular Reactions

Stage 3 (Making interesting sites last - 4-8 months)

Stage 4 (New adaptation and anticipation - 8-12 months)

## ✦ Tertiary Circular Reactions

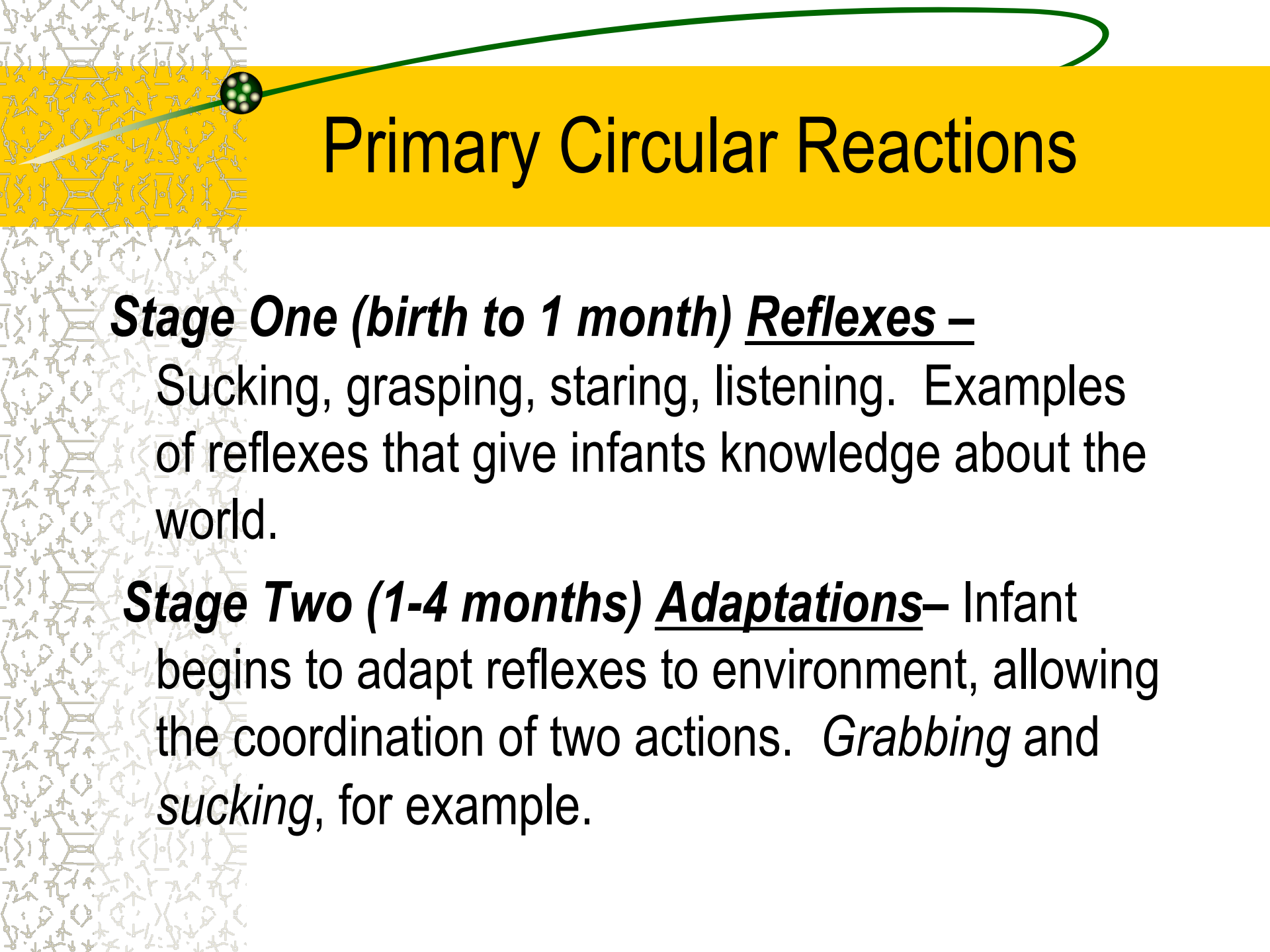
Stage 5 (New means through active experimentation - 12-18 months)

Stage 6 (Mental combinations - 18-24 months)

# Primary Circular Reactions

## ☀ Primary Circular Reactions:

- ☀ This stage involves the infant's own body. The infant senses motion, sucking, noise, and other stimuli and tries to understand them.

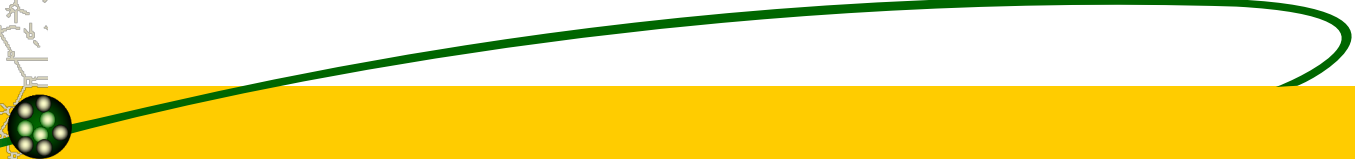
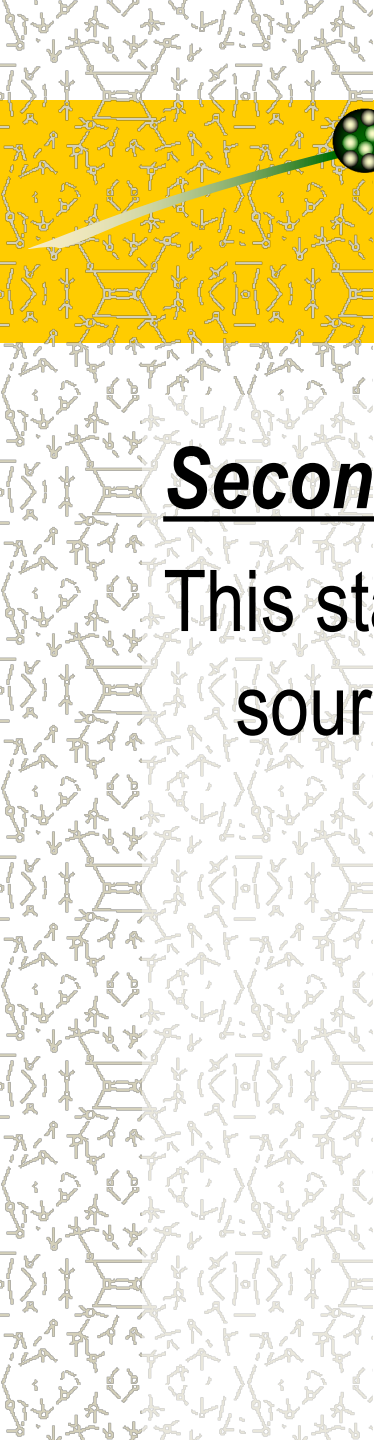


# Primary Circular Reactions

## ***Stage One (birth to 1 month) Reflexes –***

Sucking, grasping, staring, listening. Examples of reflexes that give infants knowledge about the world.

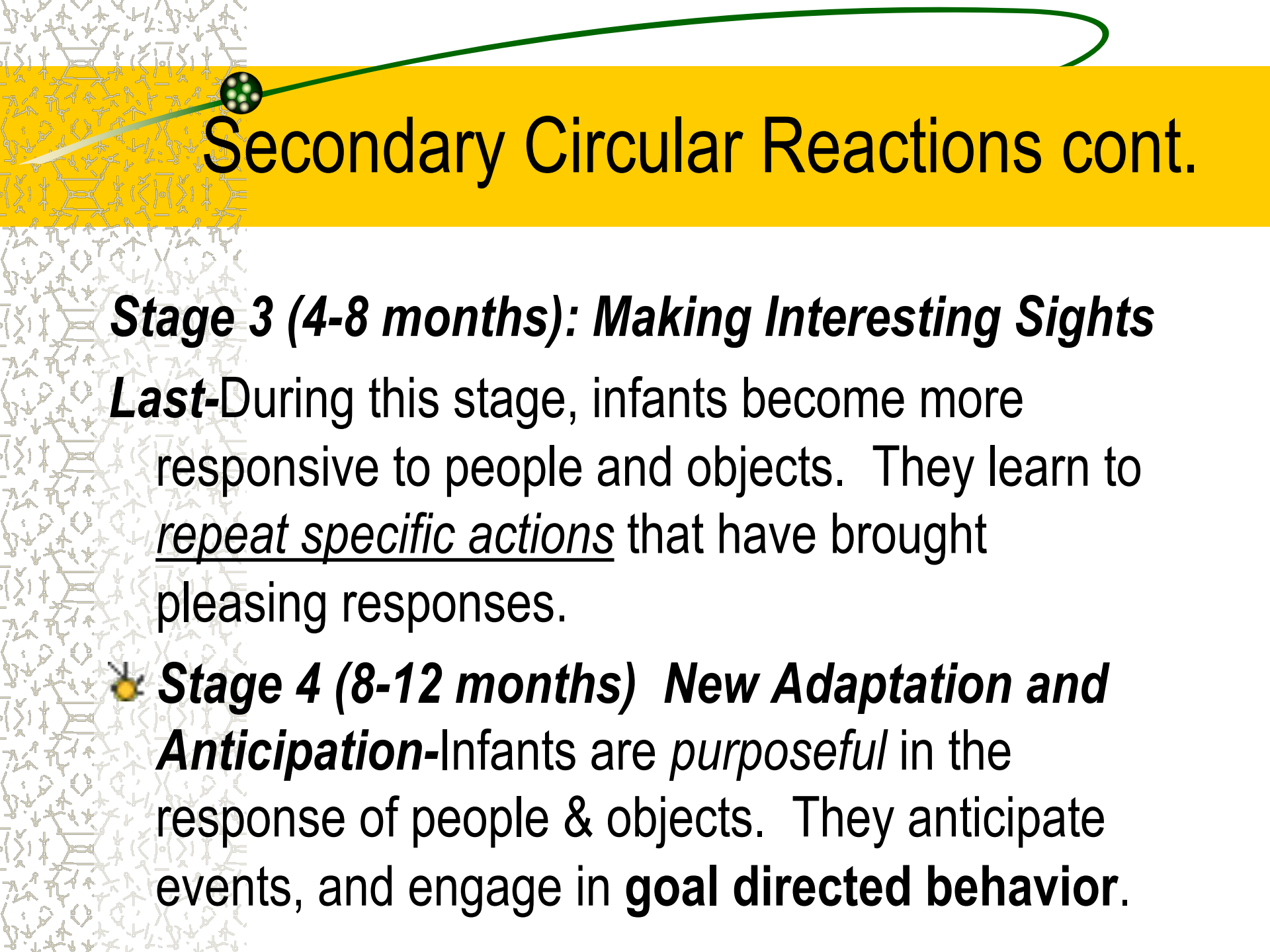
***Stage Two (1-4 months) Adaptations–*** Infant begins to adapt reflexes to environment, allowing the coordination of two actions. *Grabbing and sucking*, for example.



# Secondary Circular Reactions

## **Secondary Circular Reactions:**

This stage involves people and objects as the source of reactions.



## Secondary Circular Reactions cont.

### ***Stage 3 (4-8 months): Making Interesting Sights***

***Last-***During this stage, infants become more responsive to people and objects. They learn to repeat specific actions that have brought pleasing responses.

✨ ***Stage 4 (8-12 months) New Adaptation and Anticipation-***Infants are *purposeful* in the response of people & objects. They anticipate events, and engage in **goal directed behavior**.

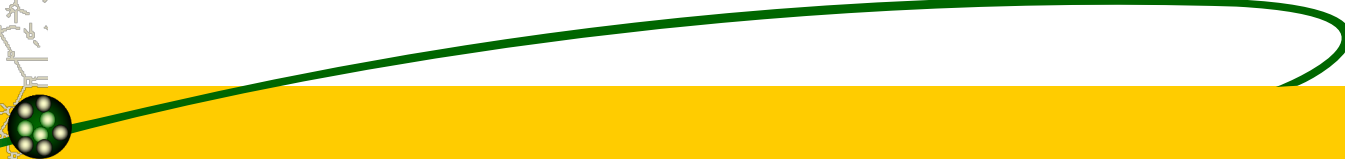
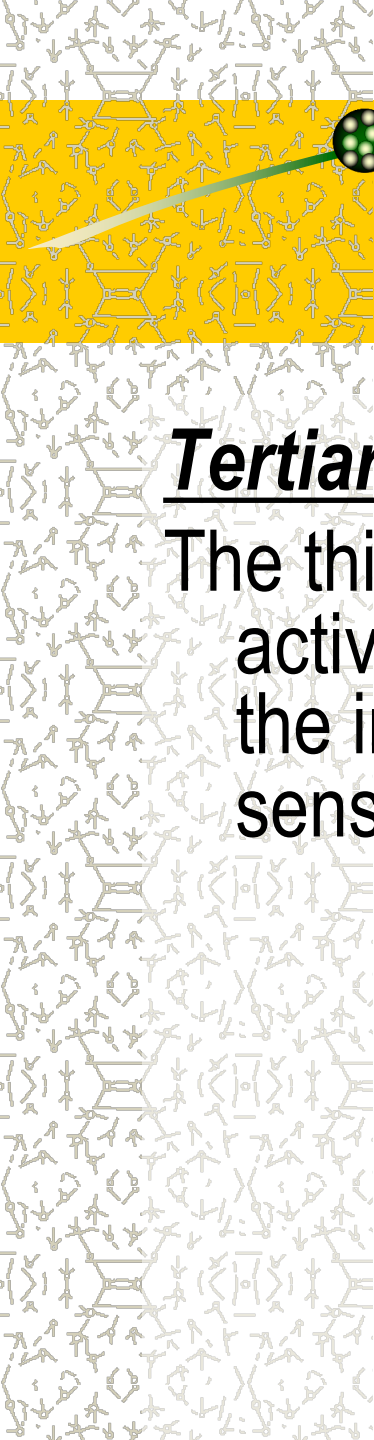
# Secondary Circular Reactions (con' t.)

✿ **Object Permanence** is a cognitive milestone which comes about in stage 4 (8-12 months).

✿ **Object Permanence:**

✿ The realization that objects including people still exist when they can no longer be seen, touched, or heard.

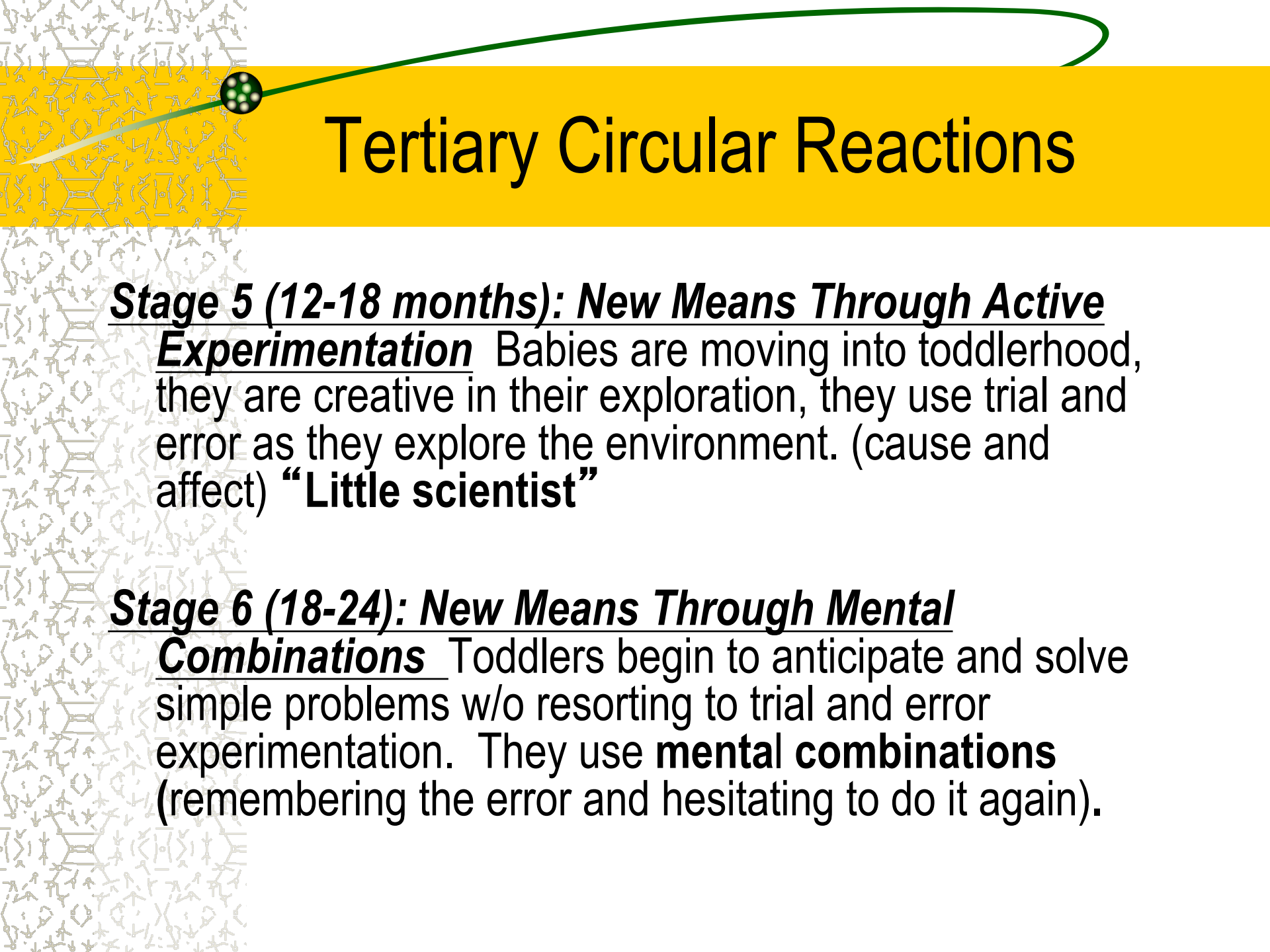




# Tertiary Circular Reactions

## **Tertiary Circular Reactions:**

The third set of action patterns, this one involving active exploration and experimentation, in which the infant takes in experiences and tries to make sense of them.



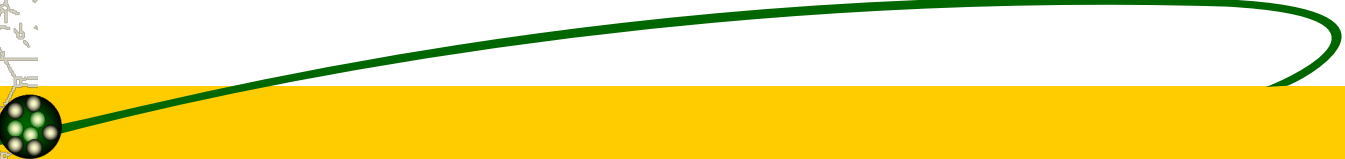
# Tertiary Circular Reactions

**Stage 5 (12-18 months): New Means Through Active Experimentation** Babies are moving into toddlerhood, they are creative in their exploration, they use trial and error as they explore the environment. (cause and affect) **“Little scientist”**

**Stage 6 (18-24): New Means Through Mental Combinations** Toddlers begin to anticipate and solve simple problems w/o resorting to trial and error experimentation. They use **mental combinations** (remembering the error and hesitating to do it again).

# Tertiary Circular Reactions (con' t.)

- ✱ This is the mental acting out of a course of action, before actually enacting it. (creating a mental picture)
- ✱ Leads to better memory, anticipation, pretend, and **deferred imitation**; a sequence in which an infant first perceives something done by someone else and then performs the same action hours or even days later.
- ✱ This milestone leads the toddler to Piaget' s next cognitive stage... Preoperational (2-6yrs).



# Information Processing Theory

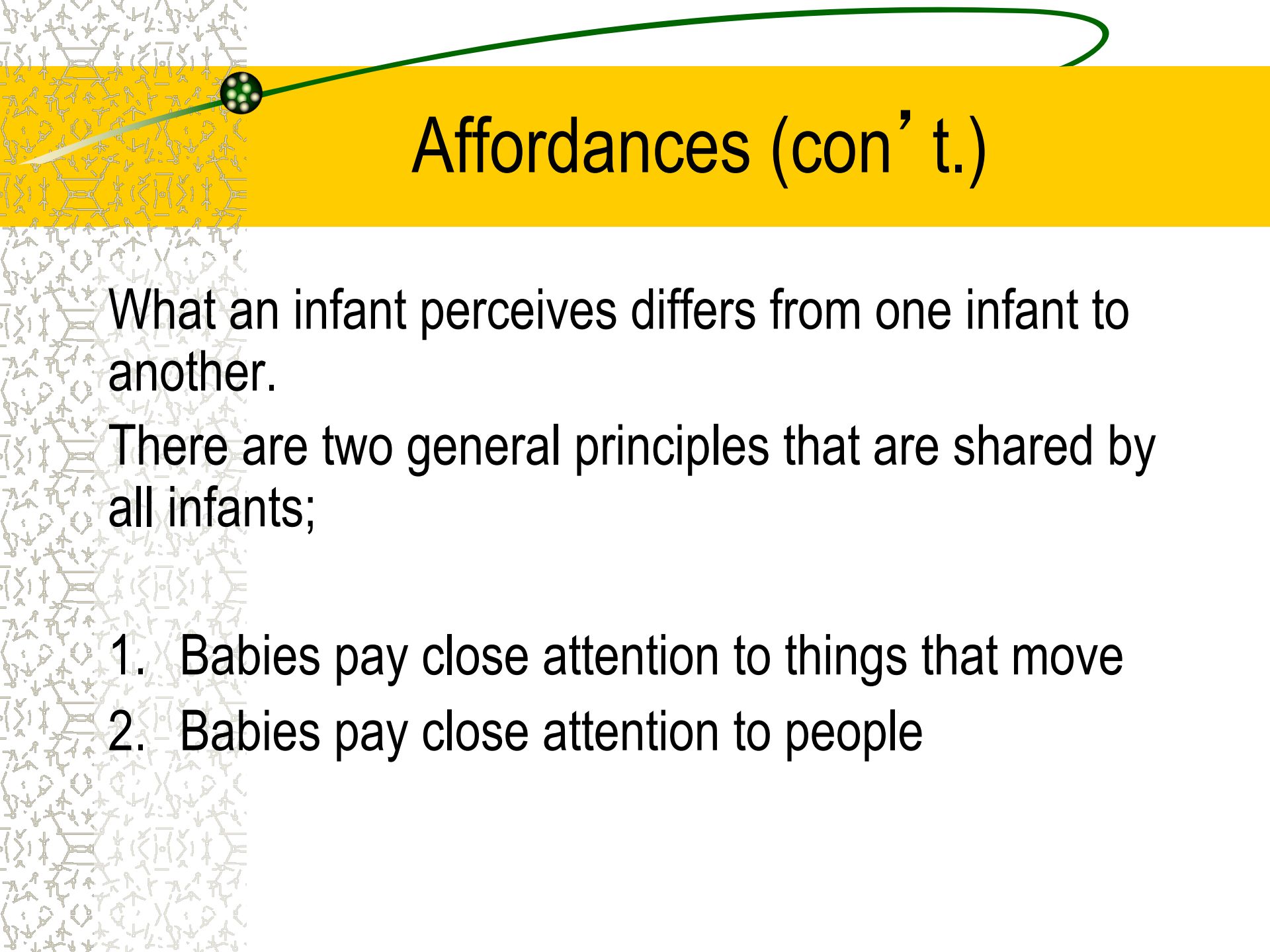
- ✿ Another view of infant cognition modeled on how computers analyze data (information).
- ✿ **Affordance:** An opportunity for perception and interaction that is offered by a person, place or object in the environment.



# Affordance

✱ Particular **affordance** is perceived and acted on depends on four factors:

- ✱ 1. sensory awareness
- ✱ 2. immediate motivation
- ✱ 3. current development
- ✱ 4. past experiences

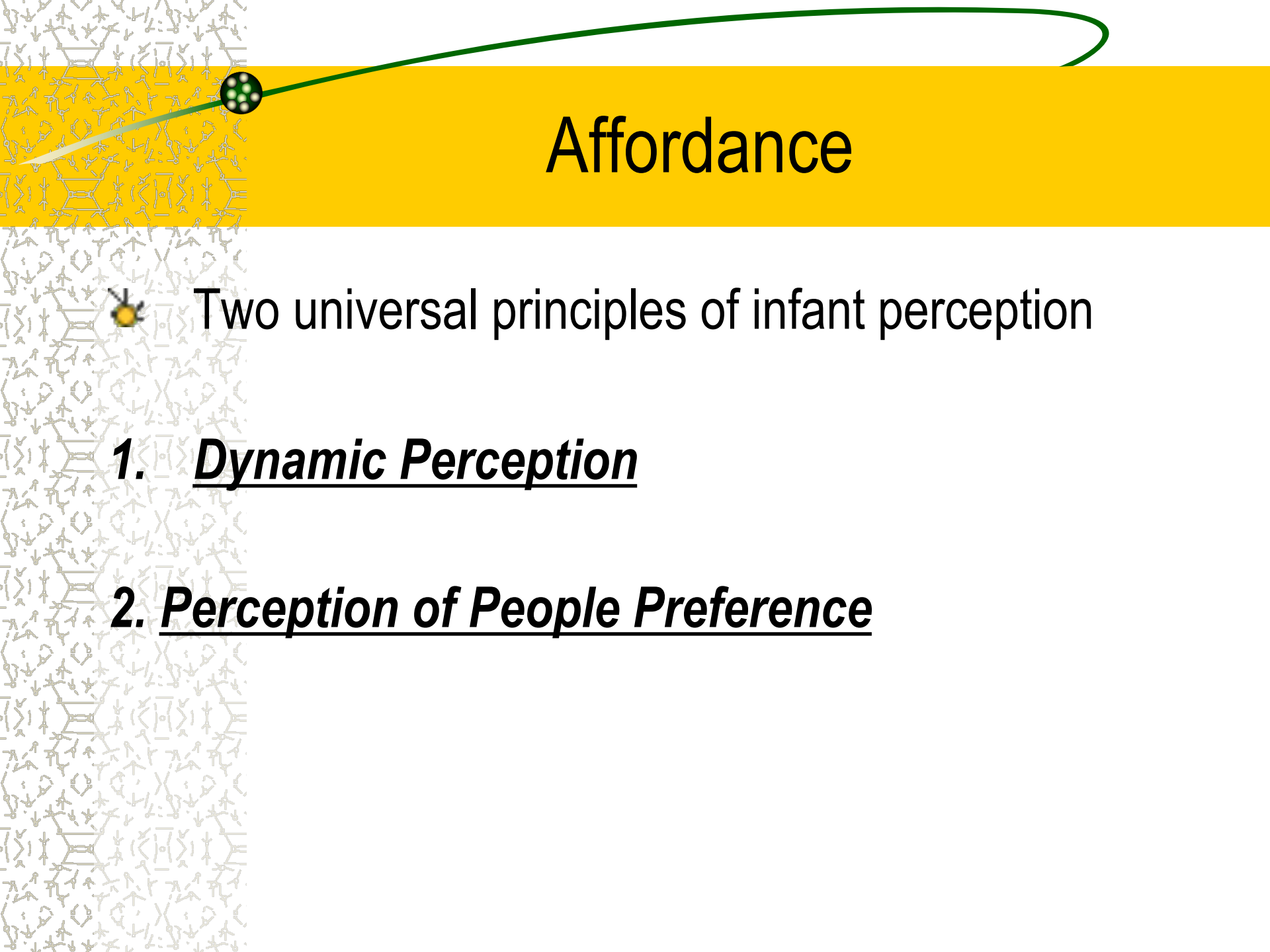


# Affordances (con' t.)

What an infant perceives differs from one infant to another.

There are two general principles that are shared by all infants;

1. Babies pay close attention to things that move
2. Babies pay close attention to people

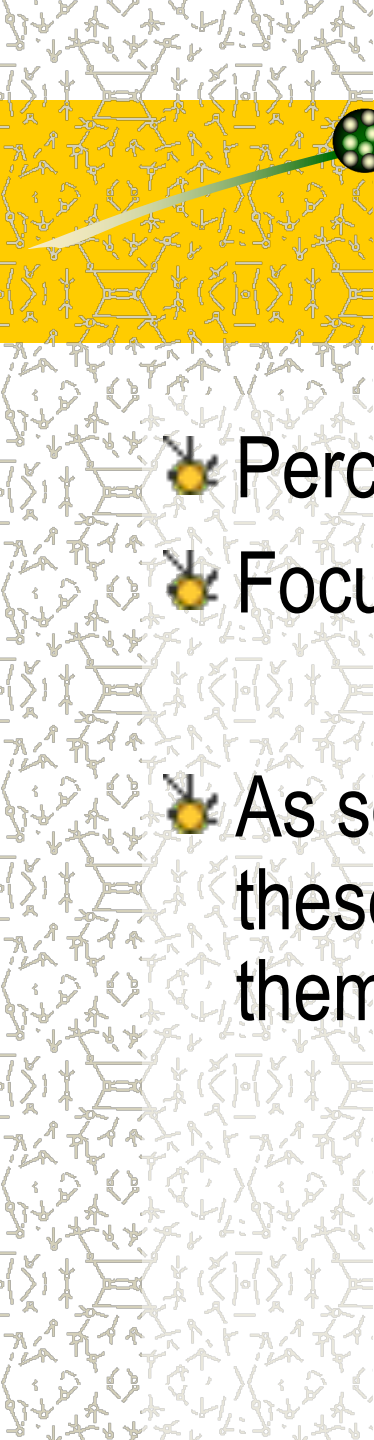


# Affordance

 Two universal principles of infant perception

**1. Dynamic Perception**

**2. Perception of People Preference**



# Movement and People

- ✶ Perceptions are *dynamic*:
- ✶ Focuses on movement and change.
- ✶ As soon as they can grab, scoot, crawl & walk, these movements change what the world affords them.



# People Preference

✿ *Perceptions show people preference:*

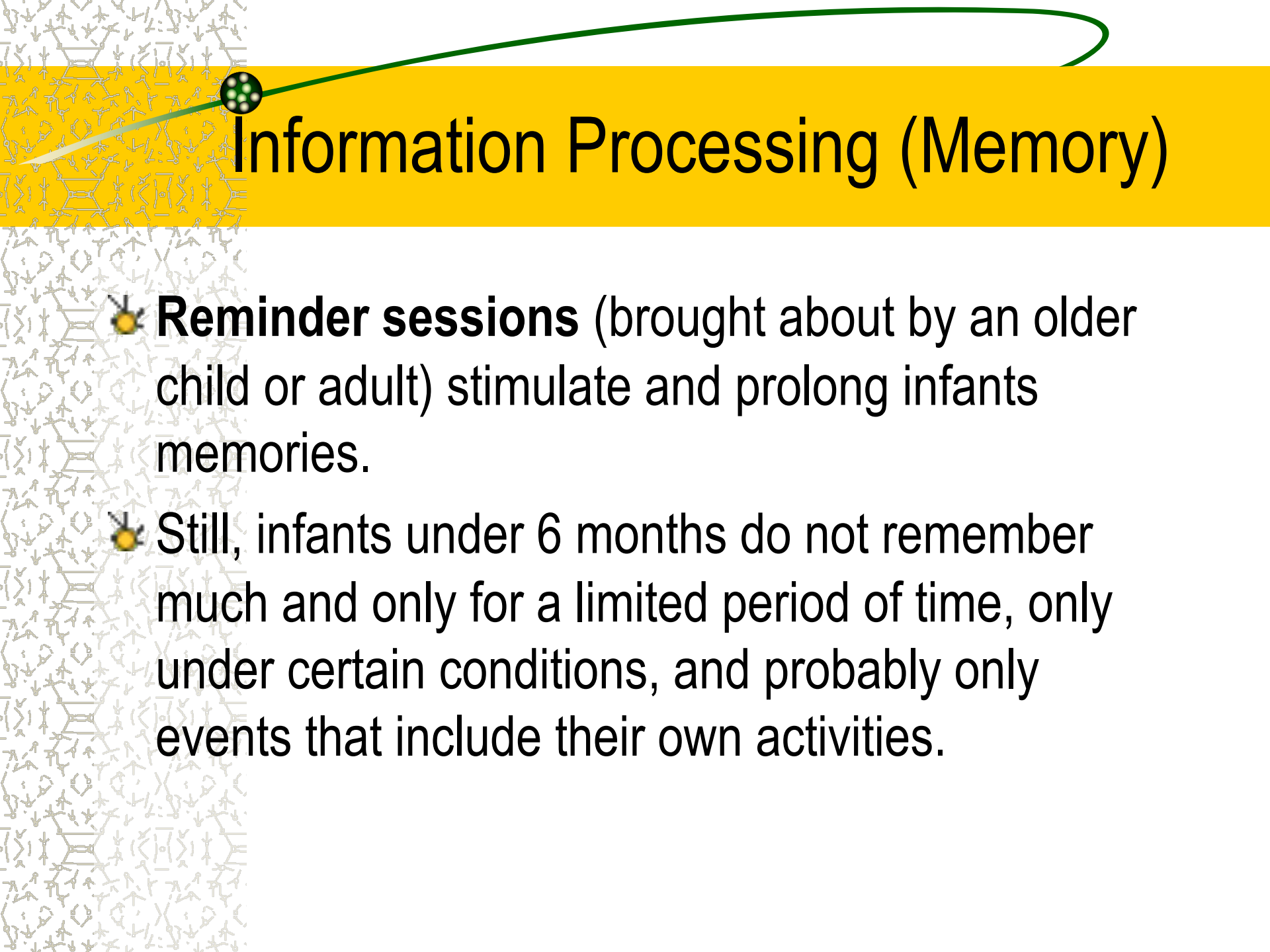
✿ universal principal of infant perception, specifically an innate attraction to other humans, evident in visual, auditory, and other preferences.

# People Preference

- ☀ Infants are fascinated by other people.
- ☀ From their 1<sup>st</sup> days of life, infants listen to voices, stare at faces, and are comforted by human touch, and soon they prefer the particular voice, face, and touch of their parent.
- ☀ Infants connect facial expressions with vocal tone long before they understand language.

# Information Processing Theory (con' t.)

- ✱ **Memory** The second aspect of infant cognition. Scientists tell us that infants have difficulty storing new memories in their first year and older children are unable to describe (*retrieve*) what happened when they were young.
- ✱ But, the capacity is present in early life, and under the right conditions it is much more developed than was once believed (reminders and repetition-reminder session).

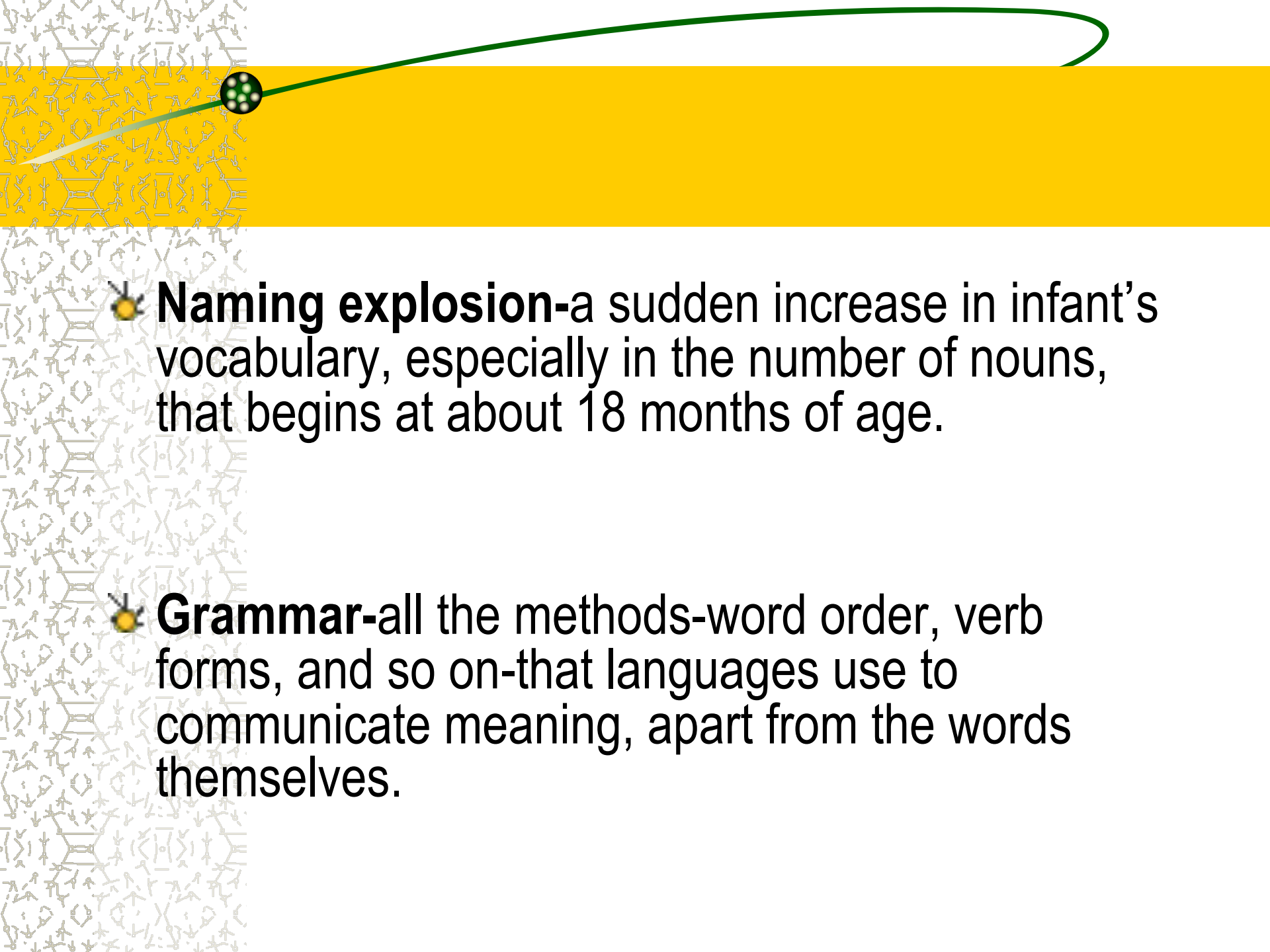


# Information Processing (Memory)

- ✶ **Reminder sessions** (brought about by an older child or adult) stimulate and prolong infants memories.
- ✶ Still, infants under 6 months do not remember much and only for a limited period of time, only under certain conditions, and probably only events that include their own activities.

# Language Development

- ✨ The most significant cognitive development.
- ✨ All children follow the same sequence of accomplishments.
- ✨ **Child-directed Speech**-The high-pitched, simplified, and repetitive way adults speak to infants and children. (Also called baby talk or motherese).
- ✨ **Babbling** – An infant's repetition of certain syllables that begins when babies are between 6-9 months old.
- ✨ **Holophrase**- A single word that is used to express a complete, meaningful thought.
- ✨ **Speaking a few words** at about 1 year



✶ **Naming explosion**-a sudden increase in infant's vocabulary, especially in the number of nouns, that begins at about 18 months of age.

✶ **Grammar**-all the methods-word order, verb forms, and so on-that languages use to communicate meaning, apart from the words themselves.



# Theories of Language Development

## **Theory One: Infants Need to be Taught**

**B.F. Skinner's** theory is associated w/ Learning Theory.

He believed that most parents are excellent instructors, replying to their infant's gestures and sounds, thus reinforcing speech.

The core ideas of this theory are the following:

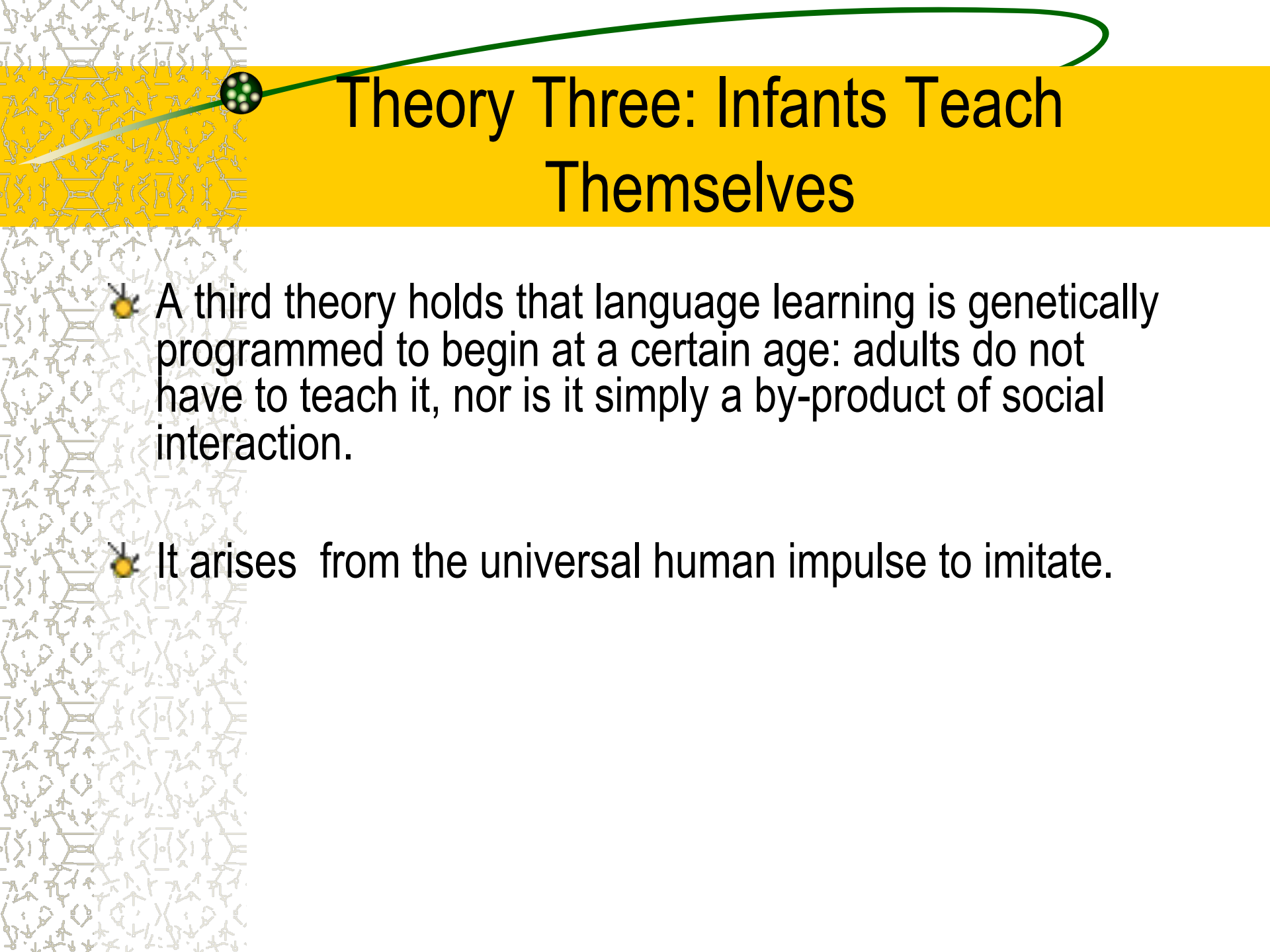
- parents are expert teachers, although other caregivers help
- frequent repetition is instructive, especially when linked to daily life
- well-taught infants become well-spoken children



## Theory Two: Social Impulses Foster Infant Language

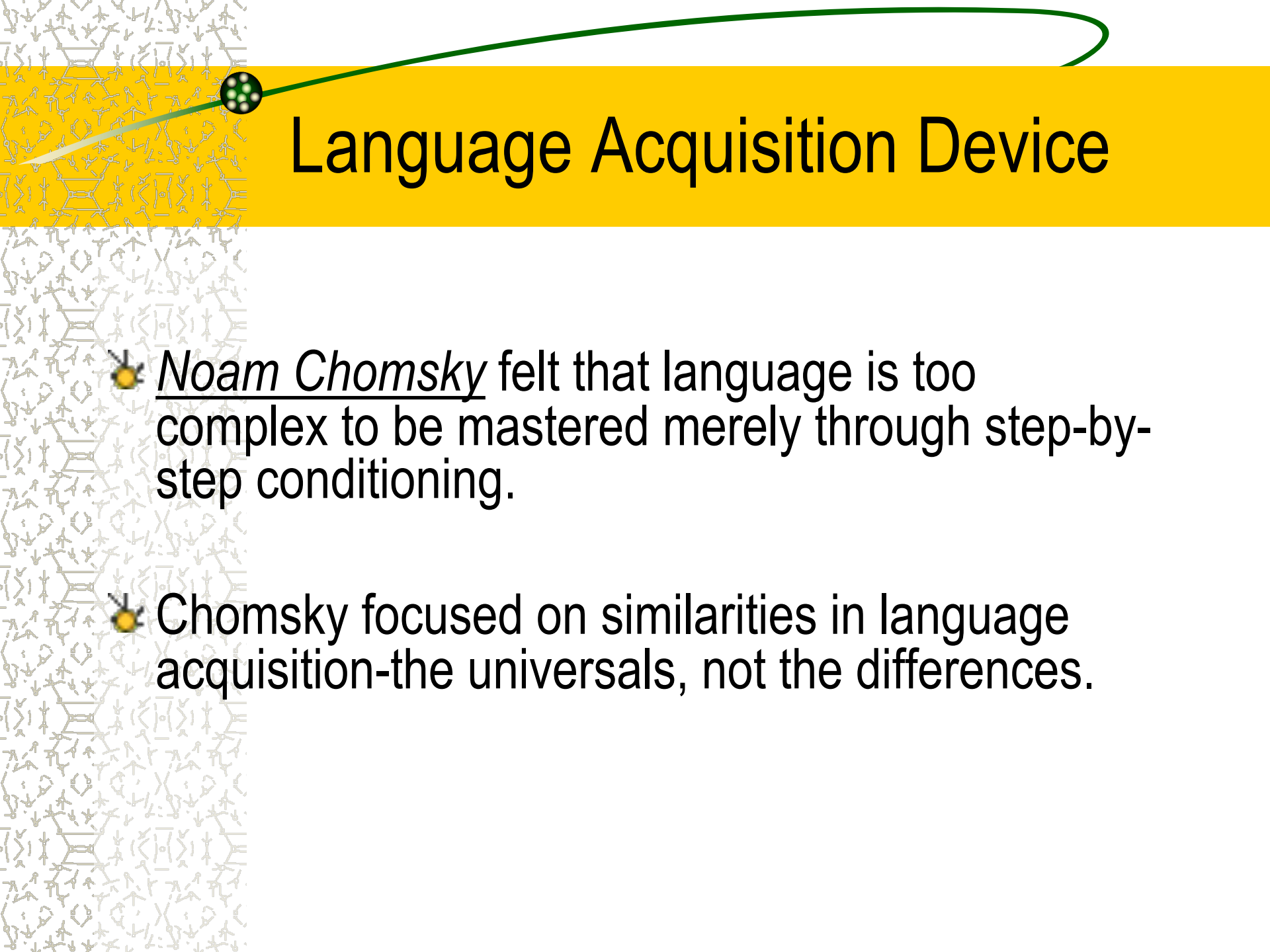
- ✿ The second theory is called social-pragmatic.
- ✿ It arises from the sociocultural reason for language: communication.
- ✿ According to this perspective, infants communicate because humans are social beings, dependent on one another for survival and joy.
- ✿ Each culture has practices that further social interaction; talking is one of those practices.





## Theory Three: Infants Teach Themselves

- ✱ A third theory holds that language learning is genetically programmed to begin at a certain age: adults do not have to teach it, nor is it simply a by-product of social interaction.
- ✱ It arises from the universal human impulse to imitate.



# Language Acquisition Device

- ✦ Noam Chomsky felt that language is too complex to be mastered merely through step-by-step conditioning.
- ✦ Chomsky focused on similarities in language acquisition-the universals, not the differences.

# Language Acquisition Device

## ✶ **Language Acquisition Device (LAD):**

✶ Noam Chomsky's term for a hypothesized mental structure that enables humans to learn language, including the basic aspects of grammar, vocabulary, and intonation.



# Theories of Language Development

- Which of these 3 perspectives is correct?
- Perhaps all of them.
- **Hybrid Theory**-which combines aspects of several theories about the emergence during infancy.

# ● The Role of Parents in Language Development

- ✱ Parents and others need to respond appropriately
- ✱ We need to provide rich and stimulating language experiences at the proper level for learning
- ✱ We should read to our children one to one every day
- ✱ Taking time for books should also include conversation to surround the story