# Your Infant as a Scientist

"Hypothesize" is not a word you typically associate with an infant, but - in fact - infants are constantly observing and making predictions about the world around them. The following is a collection of research findings that support this claim and explain how and what infants hypothesize.

## What predictions can infants make?

### Generalizations

Infants can generalize from previous experiences by building off of past knowledge to predict what will happen in new situations.

Example: Infants have an understanding of gravity, so they know that an unsupported object will drop. When an infant encounters a balloon for the first time, they might be extremely surprised because this object defies their prediction about what should happen.

### Sequences & Patterns

Infants that are exposed to a repeating event for a period of time will be able to identify the pattern and predict the result.

Example: Infants are able to track an object with their eyes, and after watching the repeated movement multiple times, they are able to predict where the object will end up.

### Motor Responses

Infants can use vision to predict and prepare their physical responses to situations.

Example: Infants are able to prepare their hands to grasp an object that is moving in front of them. This is an ability that develops gradually. Younger infants rely on touch to orient their hands, but as they get older they begin to rely on sight alone when preparing to grasp an object.

### Emotions

Infants use other's facial expressions to predict their mood.

Example: When shown their mother's facial expression, infants can properly mimic the facial expression in a purposeful way, and properly pair emotion with a facial expression. For example, when infants were shown a picture of their mother smiling, they mimicked that facial expression by smiling back.

## How can infants make predictions?

- By observing tone of voice and facial expressions
- By using retained knowledge from previous events
- By tracking objects' movement with their eyes to notice patterns and actions
- By understanding and noticing when something is different
- By using touch to communicate and explore
- By using vision to prepare responses

## How We Know:

Scientists use many methods to better understand how infants learn, grow and develop!

These are some of the methods researchers use to study infants, in order to better understand their capabilities:

Reaching: Scientists watch what infant reach for. Infants rely on touch to explore the world and encounter new objects. Infants reach for objects they most want to explore first and may be more interested in objects they hold onto longest.

Eye Tracking: Scientists study where infants look. Infants are able to track different objects with their eyes. The longer an infant looks at something, the more likely it is that they are interested in that object.

Emotional Reaction: Scientists record how infants seem to feel. Older infants are able to predict other people's emotional states and can also mimic facial expressions of others.

Repetition: Scientists observe tasks that infants repeat. Tasks that are repeated reflect actions that may be a part of the infants' memory.

## Experiments you can try!

You can try all of the above experiments, but here are a few more you can try!

- Hold a block in front of your infant and let it fall to the floor. Then hold a helium balloon in front of them and let go. Watch their reaction as it drifts upward instead of down! Do they stare at the balloon? Do they appear surprised?
- When encountering a new object with your child, choose to react to it with either fear or joy. Then let your child explore the toy. Watch their emotions as they experience the toy. Do their emotions mimic your own?

**More information:** Learn more about how scientists study children's development by visiting the Living Laboratory website: **www.livinglab.org.**

Living Laboratory
Developed at the Museum of Science, Boston