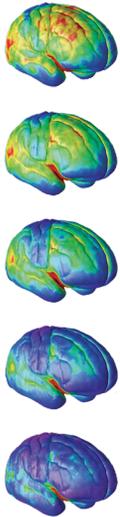


# Abstract Reasoning Facts & Stats



## Thinking by Age



<b>Birth - Age 2</b>	Concrete thinking in terms of what is observed through the five senses.
<b>Age 2 - 7</b>	Primarily concrete. The ability to reason and predict begins to develop.
<b>Age 7 -11</b>	Abstract reasoning starts to grow. The ability to understand why others act the way they do expands.
<b>Age 12 - Adolescence</b>	The capacity to analyze, extrapolate, generalize, and empathize expand.
<b>Adolescence - Adulthood</b>	Critical thinking skills grow allowing higher level thinking such as forming hypotheses to predict and consider alternatives when planning. Empathy expands.

**Abstract or conceptual reasoning is the foundational skill of empathy. To imagine someone else's thoughts and feelings and see their perspective takes higher level, abstract thinking.**

**+** Youth with higher abstract reasoning skills do better on math, language, history, social studies, philosophy, and political studies.

**—** Youth with higher abstract reasoning skills may overgeneralize their failures leading to higher anxiety and depression.

## Thinking Strategies

A thinking strategy or routine is a specific way of processing cognitive information.

**See-Think-Wonder:** 1. Carefully observe 2. Make thoughtful observations 3. Wonder about different meanings or what it can be used for.

**Circle of Viewpoints:** View a problem or issue from as many viewpoints as possible.

**Connect-Extend-Challenge:** 1. Connect an idea to something you already know 2. Extend your thinking and add new information 3. Challenge your assumptions and broaden your way of thinking about a topic, issue, or problem.

## Obstacles to Critical Thinking

**Concrete Thinking:** A literal, black-and-white way of thinking where new information is taken at face value. Although concrete thinking is a necessary step in understanding abstract ideas, people who solely use concrete thinking may have difficulty empathizing, being flexible, and creative.

**Confirmation Bias:** The tendency to interpret new evidence as true if it confirms what we already think or believe. The tendency to discount new information if it contradicts our views.

**Intellectual Arrogance:** The idea that one's knowledge is superior or always right. An inability to see from another's perspective.

**Sea Lioning:** Arguing just to waste someone's time or because you think your arguments are intellectually superior.

**Logical Fallacy:** Any kind of error in reasoning that renders an argument invalid by distorting or manipulating facts, drawing false conclusions, or distracting you from the issue at hand.