Habits of Mind developed by Arthur Costa and Bena Kallick.

Personal Traits
- Persisting
- Managing impulsivity
- Striving for accuracy
- Finding humor

Acquiring Information
- Gathering data through all senses
- Listening with understanding and empathy
- Questioning and posing problems
- Thinking interdependently

Thinking Tools
- Thinking flexibly
- Thinking and communicating with clarity and precision
- Applying past knowledge to new situations
- Remaining open to continuous learning

Personal Responses to Thought
- Creating, imagining, innovating
- Responding with wonderment and awe
- Thinking about thinking (metacognition)
- Taking responsible risks
First Order Thinking
Processing Ideas

1. Treating facts or ideas as independent entities
   accumulating facts, generating new ideas

2. Simple analysis of collections of facts or ideas
   classify, sequence
   analogy/metaphor, compare/contrast
   parts/whole reasoning

3. More complex analysis
   inference
   causal reasoning
   generalization, prediction
   analogical reasoning
   deduction
   conditional (if ... then)
   categorical (some ... all)

4. Complex cognitive tasks (systematic thinking)
   decision making
   problem solving
   assumptions, order of magnitude estimates
   planning
   modeling and simulation
Second Order Thinking
Evaluating Ideas

1. Assessing the reasonableness of ideas
   assessing the reliability of information
   accuracy of observation
   reliability of sources

2. Evaluating the utility of ideas

3. Testing conclusions with reality
   uncovering and evaluating assumptions
   hypothesis and testing
   identifying reasons and conclusions

4. Reformulating ideas based upon assessment

5. Evaluation of the human element
   consensus
   personal feelings
Third Order Thinking
Metacognition

1. Being **aware** of the kind of thinking you are doing

2. Knowing the thinking **strategy** you are using.

3. **Evaluating** the effectiveness of your thinking.

4. **Planning** how you will do the same kind of thinking the next time it is needed.
Times to Remember

Sensory Memory
(1 - 2 seconds)

Working Memory
(≈ 18 seconds without attention)

Long Term Memory
(permanent, more or less)

Attention
Rehearsal
Refresh

sight
sound
feel
taste
smell

90 %
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