Minnesota Early Childhood Indicators of Progress

Scientific Thinking - Cognitive

Components ST1-2: Discover

ST1 Observe and question: Child demonstrates awareness and engagement with phenomena, materials, and environment ST1

0-1 year

ST1.1 Observes and responds to external stimuli ST1.1

ST1.2 Indicates surprise, curiosity, or hesitancy when presented with unfamiliar items, people, situations ST1.2

1-2 years

ST1.3 Indicates interest by looking, pointing or verbalizing ST1.3

2-3 years

ST1.4 Asks questions readily ST1.4

3-4 years

ST1.5 Notices differences or similarities among materials, objects and phenomena ST1.5

ST1.6 Uses experiences to stimulate questions ST1.6

4-5 years, K Readiness

ST1.7 Verbally identifies obvious differences and similarities ST1.7

ST1.8 Expresses curiosity and/or formulates questions of complex concepts ST1.8

ST2 Investigate: Child actively shows wonder by demonstrating curiosity of self, others and surroundings ST2

0-1 year

ST2.1 Explores people and objects using senses ST2.1

1-2 years

ST2.2 Seeks out and explores objects and items with apparent interest ST2.2

ST2.3 Begins using objects as tools ST2.3

2-3 years

ST2.4 Engages with objects of interest – whether familiar or new- for extended periods of time ST2.4

ST2.5 Explores properties of objects/ materials to gain understanding ST2.5

ST2.6 Identifies and uses some tools for their intended purpose ST2.6

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3-4 years

ST2.7 Seeks to gain additional knowledge in areas of interests ST2.7

ST2.8 Explores with the intention of finding out something specific ST2.8

ST2.9 Uses many tools as designed ST2.9

4-5 years, K Readiness

ST2.10 Starts with a useful, general approach to investigation even if details may be lacking ST2.10

ST2.11 Uses discernment to inform exploration ST2.11

ST2.12 Uses tools in new and novel ways ST2.12

Components ST3-4: Act

ST3 Experiment: Child develops and completes a process based on a question, interest or anticipated outcome, adjusting as needed. ST3

0-1 year

ST3.1 Demonstrates recognition of familiar items, people, and situations ST3.1

ST3.2 Persists in looking for missing object(s) ST3.2

1-2 years

ST3.3 Demonstrates willingness to try new things ST3.3

ST3.4 Uses simple strategies to carry out ideas ST3.4

ST3.5 Demonstrates ability to focus on one element of a situation ST3.5

ST3.6 Persists in actions or attempts to affect environment or objects ST3.6

2-3 years

ST3.7 Approaches situations with intent to achieve a simple outcome ST3.7

ST3.8 Uses a variety of strategies to carry out ideas ST3.8

ST3.9 Demonstrates ability to focus on multiple elements of a situation ST3.9

ST3.10 Demonstrates resilience in trial and error process ST3.10

3-4 years

ST3.11 Makes a simple plan in advance to see what will happen ST3.11

ST3.12 Uses a greater variety of strategies to carry out ideas ST3.12

ST3.13 Attempts to make a prediction of an expected outcome ST3.13

4-5 years, K Readiness

ST3.14 Makes a plan in advance with an intended outcome ST3.14

ST3.15 Demonstrates awareness that different circumstances, materials and variables impact strategies and outcomes ST3.15

ST3.16 Makes a prediction when prompted ST3.16

ST3.17 Changes a plan or refines actions when outcome is not as expected ST3.17

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ST4 **Evaluate: Child analyzes, examines, critiques, and synthesizes outcomes in order to draw conclusions** ST4

0-1 year

ST4.1 Shows a preference for certain materials, people or situations ST4.1

ST4.2 Indicates surprise when outcome is not as expected ST4.2

1-2 years

ST4.3 Associates objects that belong together ST4.3

ST4.4 Asks “what happened?” or “where did it go?” as a result of an experiment ST4.4

2-3 years

ST4.5 Recognizes obvious differences among like objects ST4.5

ST4.6 Makes guesses at possible explanations or conclusions ST4.6

3-4 years

ST4.7 Describes all parts of an outcome by comparing, sorting, classifying and/or organizing ST4.7

ST4.8 Open to more than one solution or answer to a problem ST4.8

ST4.9 Begins to rely on or expect evidence, things seen or experienced directly, as reasons for results obtained ST4.9

4-5 years, K Readiness

ST4.10 Offers critique of an experience based on examination of outcomes ST4.10

ST4.11 Sees outcomes as the result of one’s behavior or actions ST4.11

ST4.12 Reflects upon evidence and draws reasonable conclusions using data gathered ST4.12

Understanding Components ST5-6: Integrate

ST5 **Communicate: Child effectively verbalizes thinking and share thoughts, ideas, conclusions with self and others** ST5

0-1 year

ST5.1 Vocalizes in response to stimuli or individual needs ST5.1

ST5.2 Seeks out/initiates interactions from others in service of own needs ST5.2

1-2 years

ST5.3 Uses gestures, body language or a few words to express emotions related to an activity, person or experience ST5.3

ST5.4 Invites others to observe actions and results ST5.4

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2-3 years

ST5.5 Describes details associated with an experience such as materials, possible causes and effects ST5.5

ST5.6 Listens to others ideas and points of view ST5.6

ST5.7 Shares stories and related experiences with others unprompted ST5.7

ST5.8 Scribbles or draws to show and/or share ideas ST5.8

3-4 years

ST5.9 Verbally expresses ideas/thought process ST5.9

ST5.10 Seeks input from others regarding an experience ST5.10

ST5.11 Verbalizes possible explanations for an outcome ST5.11

ST5.12 Uses drawing, writing, models, or other creative expressions to present ideas ST5.12

4-5 years, K Readiness

ST5.13 Retells/describes own actions in process of experimenting ST5.13

ST5.14 Talks with others about questions, actions, ideas, observations or results ST5.14

ST5.15 Articulates and shares aloud explanations based on reasoning and evidence ST5.15

ST5.16 Uses more detailed drawing, writing, models, or creative expressions to present ideas ST5.16

ST6 Apply: Child leverages and uses knowledge unprompted or in a new situation. ST6

0-1 year

ST6.1 Finds comfort in familiar people and objects ST6.1

1-2 years

ST6.2 Revisits and builds on past experiences ST6.2

2-3 years

ST6.3 Generalizes knowledge gained from one situation to another ST6.3

ST6.4 Recognizes relevant attributes to inform the development of a rule ST6.4

3-4 years

ST6.5 Recalls and uses information in new/ different experiences ST6.5

ST6.6 Generates new and more complex questions ST6.6

ST6.7 Uses prior experience to identify details that may be relevant ST6.7

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4-5 years, K Readiness

ST6.8 Compares findings to predictions or expected results ST6.8

ST6.9 Identify what to look for, measure, or test to answer questions ST6.9

ST6.10 Develops and applies rules ST6.10

ST6.11 Determines approach to situation, problem or challenge based on previous experience ST6.11