

**SC Education Oversight Committee:
Early Readiness Assessment Subcommittee**

Examining Cognitive Skills for School Readiness

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What is the Cognitive Domain?

SC School readiness definition calls for assessment in:

- Physical health and motor skills;
- Emotional and social competence;
- Language and literacy development;
- Mathematical thinking and cognitive skills.

Cognitive Domain:

- Representational thought
- Problem-solving
- Mathematical knowledge
- Social knowledge
- Abstract thought and imagination

"Cognitive development is far more than recognizing shapes, colors, and letters of the alphabet -- it is how children think and understand the world around them." (National Education Goals Panel)

School Readiness Indicators from the Cognitive Domain

- Linder, Ramey, & Zambak, 2013

Indicator	Description
Playing board games	Playing linear type board games where counting is required has been established as a predictor of success. These games should be implemented in both home and school environments (Ramani & Siegler, 2008; Siegler & Ramani, 2008).
Focus on counting and number sense	Developing tasks that encourage children to use counting skills and begin to explore quantities and make comparisons has been linked to school success and later school achievement (Siegler & Ramani, 2008).
Engaging in block building	Construction activities that encourage children to build structures with blocks or LEGOs and engage in discussions about their buildings have been linked to later school achievement (Hanline, Milton, & Phelps, 2009; Wolfgang, Stannard, & Jones, 2001).

- Fairly limited research in this area
- Implications for assessment: often assessments are limited in scope to numbers and operations and geometry- unclear if other content strands are predictive of school readiness
- Often skill-based

Standards for Mathematics

- SC Early Learning Standards (2009)
- Very similar to National Council of Teachers of Mathematics Principals and Standards (2000)
 - Process Standards (written on outline)
 - Content Standards (see synopsis of Good Start/Grow Smart)
- Content is *what* students should know- Process is *how* students should learn the content.
- Process standards are often overlooked, forgotten, or thought of as a separate set of items to teach.
- [Example video of kindergarteners displaying process standards](#)

Example items on a School Readiness Assessment

- Completed by the teacher (checklist)
- Positive: Has to be observed during practice (naturalistic), easy to complete
- Negative: Doesn't examine processes/limited in scope
- Teacher checks yes/no/don't know

Example items:

29. is able to count to 20

30. is able to recognize numbers 1 - 10

31. is able to say which number is bigger of the two

32. is able to recognize geometric shapes (e.g., triangle, circle, square)

33. understands simple time concepts (e.g., today, summer, bedtime)

34. demonstrates special numeracy skills or talents

Example items on a Mathematics Assessment

- Tools for Early Assessment in Mathematics (TEAM, Clements & Sarama)



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Example items on a Mathematics Assessment

Item 4

Counting

Materials



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Next Item



page X

4 

A
Assess

- 1. Do!** In front of the child on the shopping cart place 5 bananas in a horizontal line, equally spaced.
- 2. Say!** "I bought these bananas. Count these bananas to tell me how many there are." "Yo compré estos plátanos. Cuenta estos plátanos y dime cuántos hay." Child is allowed to touch bananas.

B
Results
See Teacher's Guide for Analyzing Results

Response Code	Strategy Codes*	
<p>4A: 0 = incorrect 1 = correct <i>(5; and either said "5" or enumerated each item out loud up to 5, keeping one-to-one correspondence)</i> 9 = no response</p>	<p>4B Did the child point to or touch items? Code 4B: 0 = no 1 = yes 9 = NA</p> <p>4C What did the child do? Code 4C: 1 = said an incorrect number (assumed guess) 2 = pointed at some bananas more than once</p>	<p>3 = skipped some bananas</p> <p>4 = "skim" or "flurry" error, pointing over all or several at a time</p> <p>5 = omitted saying some number words</p> <p>7 = repeated saying some number words</p> <p>8 = other (describe on Assessment Record)</p> <p>9 = NA</p>

*Strategy codes give further insight into student thinking and result in more accurate reporting.

Part A
Item 4 • Counting 4

Things to consider: Purpose of Assessment

- The National Education Goals Panel identify and describe five major purposes for assessing young children (Shepard, Kagan, & Wurtz 1998)
 1. Improving learning
 2. Identifying children with special needs
 3. Evaluate programs
 4. Monitor trends over time
 5. Use for high stakes accountability

Questions to consider:

- What is the purpose of the SC school readiness assessment?
- Does it fall under any/all of these five purposes? Which ones?
- Are there other purposes that are not listed?

- Ie: High Stakes- will it be used for ability grouping?

Things to Consider: Conducting Assessment

- Teachers' perspective: Assessment should be useful to practice and easy to implement
 - When will it be administered? How old are children?
 - Who will administer?
 - Who will see results?
 - How much time of the year will be allotted?
 - How long should the assessment take for each child?
 - Is it an individual or collective implementation?
 - Will there be external support for conducting assessments?
- These questions are important to consider when examining assessments
 - The first example is easy and quick to do
 - The second example takes much longer but gives much more **useful** information

Recommendations

- Consider teacher's perspective as a priority
- Consider an assessment triangulated with ongoing observations and artifact collection
- Test should include performance-based tasks where teachers can gather evidence related to process standards
- Priority given to assessments that focus on both process and content
- Tests that allow for electronic input and scoring (from the teachers) are recommended- however more research needs to occur (for children in all parts of the state) before choosing an electronic test for children