

# The Challenges of Basic Concept Assessment: Linking Assessment to Intervention



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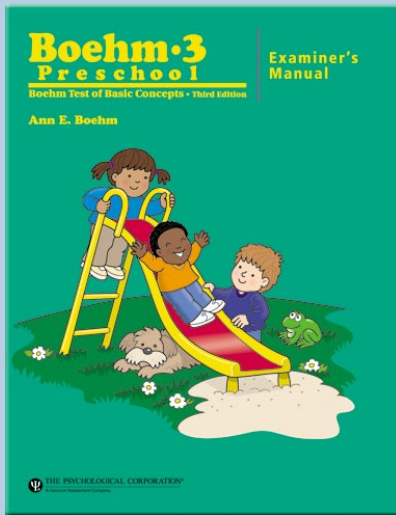
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# Areas to be Covered:

- Review of Functions of the Boehm Test of Basic Concepts-3 as they Relate to the Roles of Early Childhood Educators
- Application of Multiple Step Procedures for Assessing Basic Concepts
- Strategies for Developing Intervention and Monitoring Progress

# Boehm Test of Basic Concepts- Third Edition

## Boehm 3



Two age ranges available:  
**Preschool and School Age**

- Assesses receptive knowledge of basic concepts essential for learning to read, solving math problems, and follow directions
- Directions and items presented in English and Spanish with norms for both languages
- Directions presented twice to focus on the child's knowledge of basic concepts rather than memory
- Teacher-Report, Ongoing Observation and Parent-Report are included in the response form to help document progress
- Two forms of school-age version available for convenient test-retest

# Boehm 3 Test Development

- Test items were chosen to align with early childhood curricular materials and benchmarks, and to reflect language usage in the classroom
- A major function of the test is to identify gaps in learning where intervention can begin early

# Basic Concepts Covered on the BTBC-3

Basic concepts as defined here are **relational** concepts, such as *more-less*.

They:



- Are important for language and cognitive development
- Play a central role in everyday language
- Are used across all areas of school learning
- Are fundamental to following directions and classroom routines

# Why Basic Concepts Present Difficulty

Basic concepts are difficult for many students because they:

- Refer to a broad variety of situations in everyday life
- Are applied across contexts:
  - Space** - *Under the bed*
  - Quantity** - *Many toys*
  - Time** - *Before school*
- Are used at many levels of difficulty from concrete to abstract

# Why Basic Concepts Present Difficulty

Basic concepts are also difficult for many students because they present different challenges:

- Identifying the *front* and *back* of objects with a defined front and back, such as a chair, is easier than *front* and *back* of a table which depends on the perspective of the viewer



# Uses for the Boehm 3 Scores

Norm-referenced scores allow the examiner to know if a child is progressing similarly to same-age children by assessing basic understanding of receptive concepts



As a criterion-referenced measure, the examiner can analyze errors to differentiate between known, emerging, and undeveloped concepts in order to develop concrete teaching goals



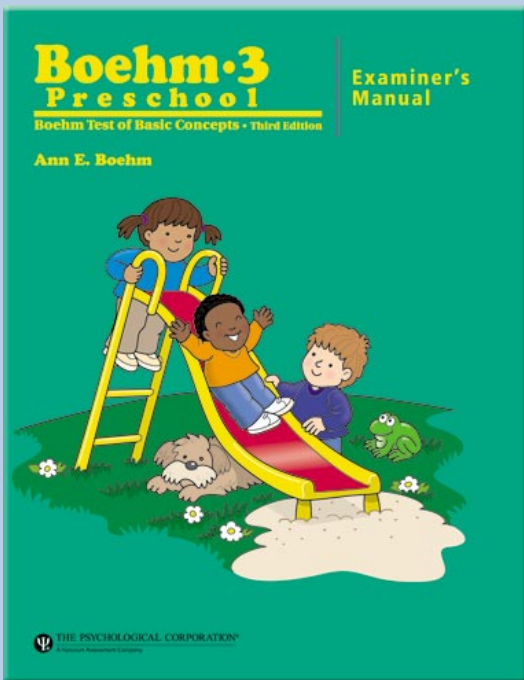
As a strategy-based assessment, results can be analyzed with regards to the child's language background in order to develop interventions for concepts still being acquired and track child's progress



# Boehm-3: Preschool

Assesses 26 concepts at each of two age levels:

- 3 years 0 months to 3 years 11 months
- 4 years 0 months to 5 years 11 months
- Two items are included to assess each concept
- Norms and interpretation information are presented by 6-month age intervals



**Boehm-3 Preschool**  
Boehm Test of Basic Concepts - third edition  
Ann E. Boehm

**Record Form**

Name: \_\_\_\_\_  
Address: \_\_\_\_\_  
Gender:  M  F Grade/Class: \_\_\_\_\_  
School/Site: \_\_\_\_\_  
Teacher: \_\_\_\_\_  
Examiner: \_\_\_\_\_  
Language(s) spoken in the home: \_\_\_\_\_  
Date Tested: Year \_\_\_\_\_ Month \_\_\_\_\_ Day \_\_\_\_\_  
Date of Birth: Year \_\_\_\_\_ Month \_\_\_\_\_ Day \_\_\_\_\_  
Chronological Age: Year \_\_\_\_\_ Month \_\_\_\_\_ Day \_\_\_\_\_

**Practice Items**

a. Score:

b. Score:

c. Score:

d. Score:

**Test Results**

Raw Score	Percent Correct	Performance Range	Percentile
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

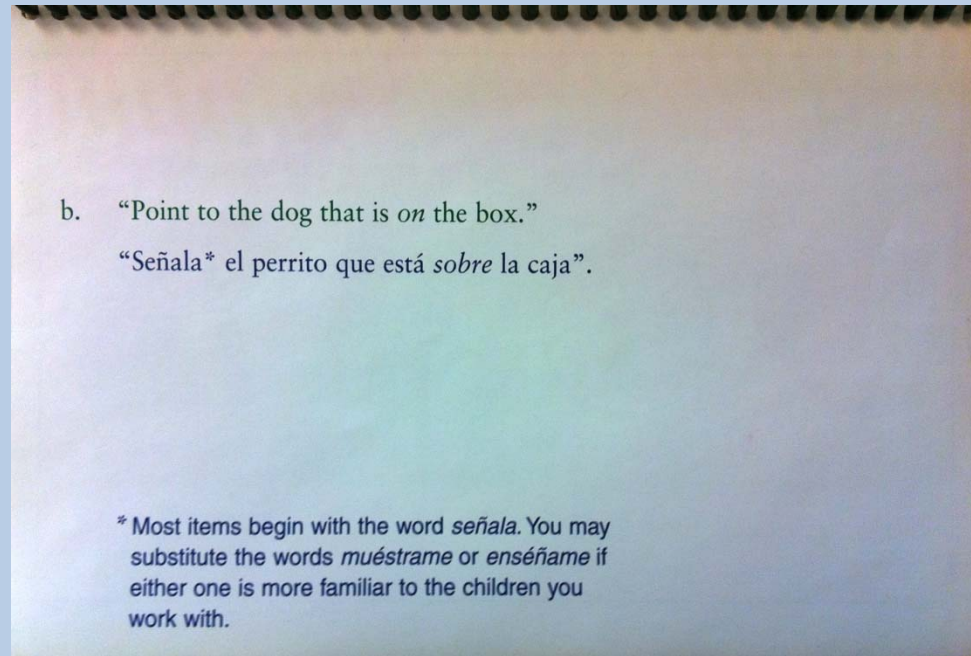
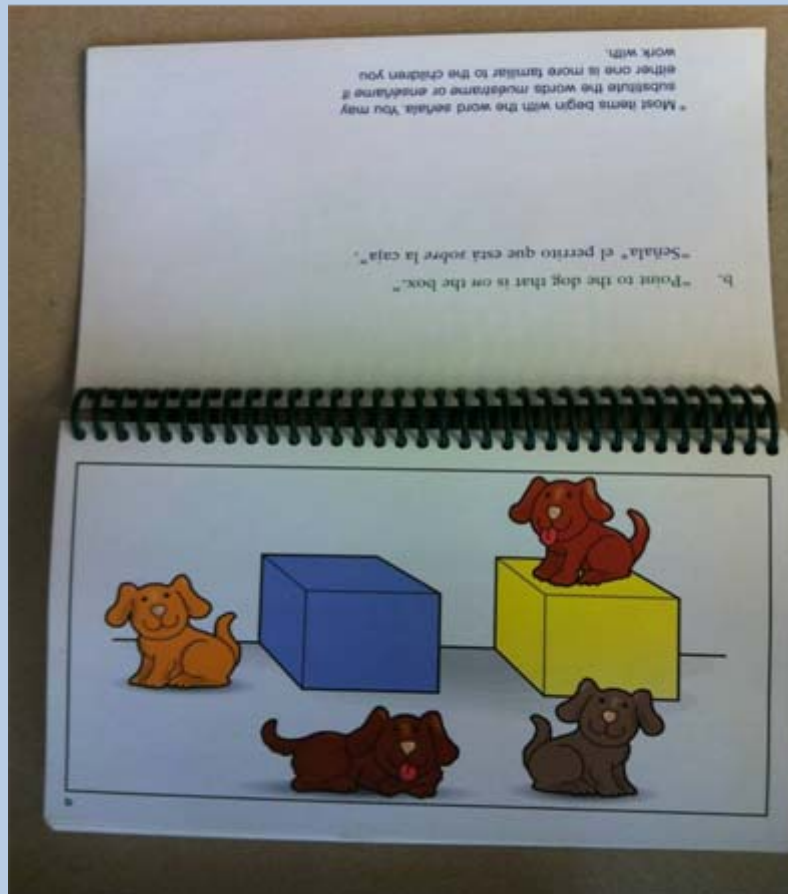
Comments: \_\_\_\_\_  
Reason for Testing: \_\_\_\_\_

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# Sample Item on the Boehm-3 Preschool

Spanish and English:  
“Point to the dog that is *on* the box.”



# Boehm-3 School Version

- Assesses 50 basic concepts in a group administration format
- Norms are provided by grade level (K-2) for both fall and spring. This allows for pre- and post-testing to assess within-year progress
- Two forms are available in both English & Spanish



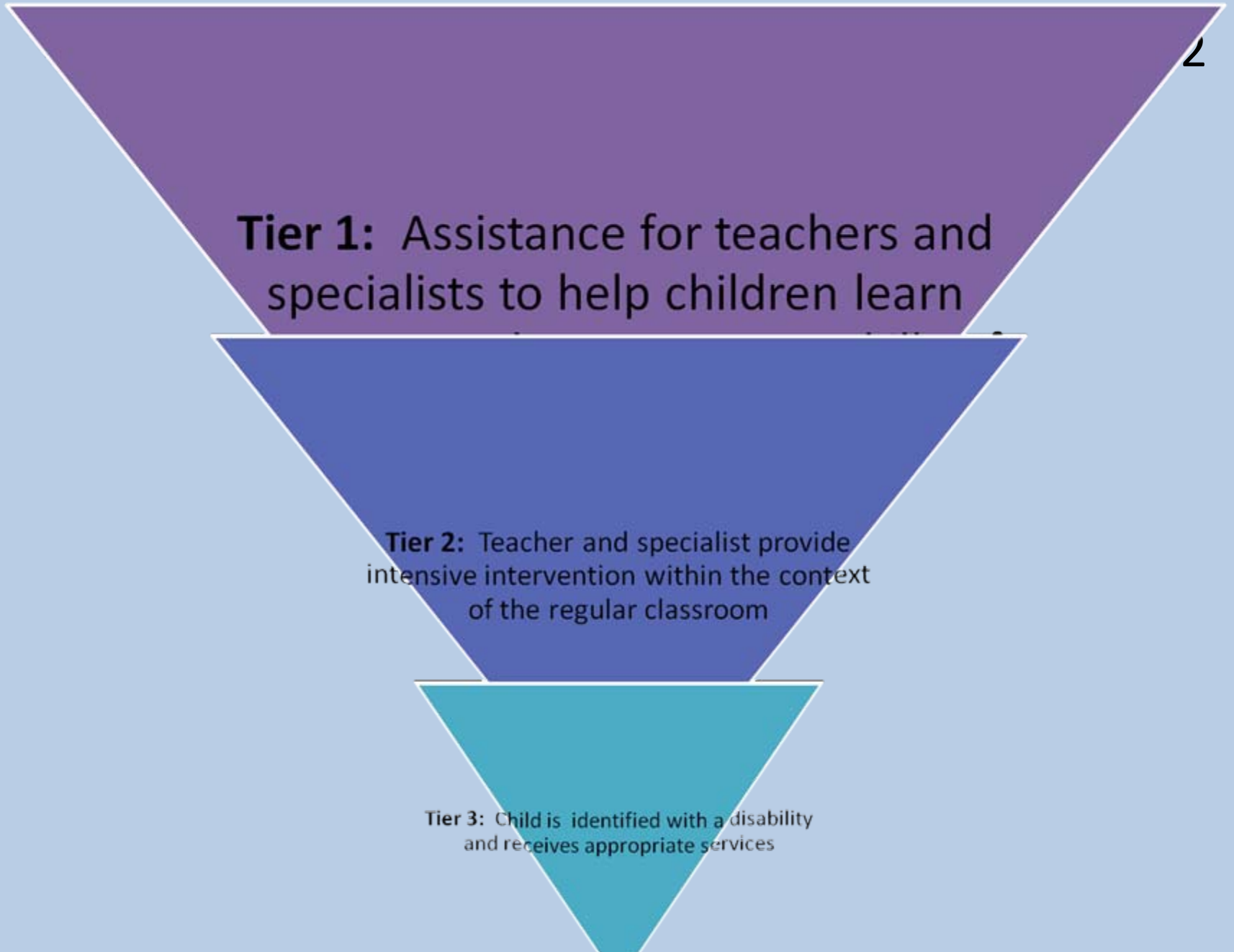
# Multiple Outcomes for the Boehm-3 School Age Version

- Class record form allows the assessor to review entire class performance
- Helps assessor identify concepts that are difficult for a number of children and should be embedded into ongoing instruction
- Allows assessor to identify concepts that are difficult for individual children and should be addressed through individualized intervention
- Error types can be identified to contribute to planning instruction

# Today's presentation focuses on how the BTBC-3 is useful to Early Childhood Teachers and other Specialists

- Identify problems with basic concepts
- Inform instruction and intervention consistent with evidence-based practice
- Provide intervention appropriate to student's age and learning needs
- Track student progress

# Levels of Response to Intervention



# **Factors to Consider in the Assessment Process and Planning Intervention**

# The importance of the early language learning environment

The age and background experiences of the child make a difference in the ease of learning concepts.

Hart & Risley (1995) found large differences in language usage at home across different economic backgrounds. But, **regardless of parents' economic background, the more parents talk, the greater the vocabulary growth in their children.**

**The Bottom Line:** Enriched early language exchanges facilitate the ease with which concepts are learned.



# The importance of the early language learning environment (cont.)

- The *nature of the exchange* between parents and children as partners plays a central role (Hart & Risley, 1999). This is a reciprocal process as parents and their child interact with each other
- Heath (1983) found large differences in frequency of adult-child conversations and conversational forms used by adults in 3 communities in the Piedmont areas of North and South Carolina

**The Bottom Line:** Children come to school with very different types and degrees of oral language practice

# The importance of the early language learning environment (cont.)

- Familiarity with *task demands* is another key issue
- Many children have not had the opportunity to name (label) pictures or respond to “what, when, why, where” questions
- There are discontinuities between the demands and expectations of home versus academic contexts (a child may know the function of objects but not their name) (Peña & Quinn, 1997).

**The Bottom Line:** Children may perform poorly due to the unfamiliar format of test directions and unfamiliar types of tasks. This poor performance can be *misinterpreted* as a language delay or lack of readiness skills.



# An Integrated Assessment Process Using the BTBC-3

## 6 Important Steps:

- Assess the entire class at the K-1 levels
- Observe children of concern in ongoing classroom activities
- Conduct a Brief Strategy Interview
- Engage child in a mini-teach and test out possible reasons for difficulty
- Develop intervention activities
- Chart student progress

# An Integrated Assessment Process Using the BTBC-3

Assess the entire class at the K-1 levels

The goal here is to identify concepts that may be difficult for the class as a whole as well as for individual children

*Leads to instructional and intervention planning*

# An Integrated Assessment Process Using the BTBC-3

## Observe children of concern in ongoing classroom activities

- Identify sources of environmental support and related curricular activities
- In what ways are basic concepts embedded into classroom routines and activities?
- In what ways are basic concepts used across activities?
- In what ways does the teacher provide feedback to children who are still learning concepts or for whom English is not their home language?

# Outcomes of Ongoing Observation

Raise hypotheses related to areas of difficulty or strength:

- Unfamiliar with concept term
- Familiar with term in home language
- Familiar with term in another context
- Ready to learn – has not had experience with term
- Can understand the term when used in a story
- Can use term in everyday talk when engaged in a familiar activity

# An Integrated Assessment Process Using the BTBC-3

## Conduct a Brief Strategy Interview

- Assessor engages in an interview with the child who has not yet learned many many concepts on the test to understand how she or he solved the items
- Select 1 or 2 correct items and 1 or 2 incorrect items to discuss with the child
- Ask the child a question such as, *“How did you figure out that answer?”*
- This technique helps to identify sources of error or emerging concepts and strategies used
- Areas to be informed include: attention, memory, language, testing situation, lack of exposure, and child’s cognitive processes



# An Integrated Assessment Process Using the BTBC-3

## Engage child in a mini-teach and test out hypotheses

- Find out if the child is *familiar with the concept in his or her home language*. If yes, we are dealing with a vocabulary vs. concept issue
- Teach the concept using objects such as toy cars or an example drawing on the child's background experiences
- Some children catch on right away – they may not have been introduced to the concept term in every day experience
- Let's say we are interested in the concept *middle*. You might want to use a toy car, bus, and truck to avoid color names



# Develop instructional activities

Develop a systematic plan for teaching basic concepts

Use target concepts frequently during everyday activities

Emphasize basic concepts as tools to follow directions

Build on basic concepts as tools of thinking



Scaffold learning by expanding on what children say and making connections to previous learning

Ask many open-ended questions that elicit language

*Examples: “Tell me about your picture” “Why do you think that happened (in the story)?” “How would you change the story or picture?”*

# Chart student progress

The end goal is for the child to use the target basic concept being taught across learning areas that often are benchmarks in state or local standards

Aspect of Concept Mastery	John S.	Pat A.	Annie C.	Jessica F.	Tom B.
Moves body parts near & far from each other	✓	✓	✓	✓	✓
Moves near and far from other children	✓	✓	✓	✓	✓
Understands effects of moving close to/away from mirror	✓	✓	✓	✓	✓
Uses concepts to describe concept card scenes	✓		✓	✓	✓
Uses comparative and superlative forms of concepts	✓			✓	

# Helping Children Learn Basic Concepts

We use basic concepts in many ways everyday.

For example, we can talk about the *first* tomato of the Season, the *small* strawberries we wish to eat, or the ball *under* the chair.



Since these concepts are **relational**, they are applied to many situations that change – the *tallest* child in one group might be the *shortest* in another; the box on *top* of the pile can be moved to the *bottom*.

This shifting use of concepts makes them difficult for many children.

# Focus on Relational Concepts Assessed by the BTBC-3 Across Learning Areas and Contexts

Concepts are used across contexts such as those:

- related to time and sequence, such as: *beginning, end*
- that describe position in space, such as: *near, far*
- that describe quantity and are used to count and make comparisons, such as: *more, less, few, some, many*
- that describe size, speed and distance, such as: *large, small, near, far*
- that are important when using books, such as: *front, back, top, bottom*
- that relate to sound (*high-low*) as well as emotions (“*I feel the same way as you*”)



# The Importance of Basic Concepts for Children's Success on other Tests and Assessments

Examples of commonly used basic concepts:

## In test items

- How are these two things the *same*?
- How are these two things *different*?
- Find the object that is *missing* from the picture.
- Point to the flower *under* the tree.

## In test directions:

- Start at the *top* of the page and work your way *down* to the *bottom*
- Go to the *next* item when you are *finished*
- Work *across* the page from left to right

# Research –Based Points to Consider When Planning Basic Concept Intervention

- There is an order of concept difficulty
- There are systematic, sequential stages of acquiring concepts
- The orientation of objects influences their difficulty:

Real life examples of  
*top and bottom*



After these are learned, begin to place objects with a *top* and *bottom* in different positions



# Common steps in acquiring concepts

- Child is unfamiliar with both members of a concept pair such as *top-bottom*
- Knows something about the concept but not the concept term
- Learns one member of the concept pair such as *top*
- Confuses the concept with its opposite (*bottom*)
- Learns both members of the concept pair
- Uses concept at different levels of complexity



# More Points to Consider

- Transfer is more likely to occur if child uses the concept name **and** can manipulate objects
- Feedback facilitates learning (including prompts, familiar examples, and encouraging comments)
- Learning the concept in one context does not necessarily mean the child can use it in another. Children need to have lots of practice with activities in different contexts
- A major goal is the use of basic concepts across different contexts and in everyday language
- Learning basic concepts facilitates the learning of new concepts and is an important component of problem solving

# The Central Role of Basic Concepts to Reasoning

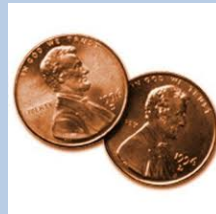
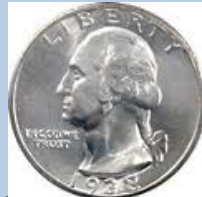
- Positions of objects and events can be reversed



- Essential to make comparisons



- An integral part of ordering and sequencing
- A critical feature for classifying



- Often used in combination for multi-step directions

*(ex. Open your books and begin at page 10)*

# The Benefits of Using the BTBC-3 for early childhood educators

- Clearly identify concepts the child is missing that will impede academic success
- Help children follow directions of increasing length and complexity.
- Used over time can help educators track progress
- Provide a road map for intervention and developing IEP's
- Contribute to documentation related to state or local learning standards

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