Cognitive Session Facilitator Guide

Introduction

In this session, we will explore how the early educator can use a variety of learning experiences and teaching strategies to promote the development of cognitive skills in young children. The early years are a prime time for increasing the learning potential of each child. We will explore the following areas in this session

- Understanding the cognitive development of preschoolers
- Major theories of cognitive development
- Learning through play
- Learning throughout the day
- Supporting children's content learning

Introductory Activity 1: Defining Cognition	
Objective: Participants will examine the scope of the skills involved in cognition.	
Materials: • Whiteboard or chart paper and markers • Individual note taking for each student • *Essentials* text, pp. 198-199	
	**Procedure:** ● Give participants one minute to write down any words associated with cognition, working individually. ● After one minute, use the whiteboard or chart paper to scribe all the responses, but not repeating any words. ● As a whole group, read the Introduction paragraph on pp. 199 of the *Essentials* text. Also, read the description of Functional Area 5 on pp. 198. ● Add any new words to the list. ● Ask participants to reflect on the entire scope of the area of cognitive development.

1. Understanding the Cognitive Development of Preschoolers

Activity 1.1: Why Does Math Matter?	
Objective: Participants will identify the five math strands that form the basis for pre-k math instruction, and the connection to later math learning.	
Materials: • "Defining Mathematics in Pre-K" video in section 1 of the session • "Five Major Areas of Knowledge and Skill in Mathematics" information in section 1 of the session • Blank copies of the "Math Strands" handout (download from section 1 of the session)	
 	**Procedure:** • As a whole group, view the video. • Scroll down in the session for an explanation of five Math Strands. *(Explain that a strand is a major area of knowledge and skill in the area of mathematics.)* • Distribute the "Math Strands" handout to participants. • Divide participants into pairs and give them five minutes to fill in the blanks with any math activities that align with the strand. • Groups can also jot down any math manipulatives/games that fit in one of the strands. • After five minutes, ask for math ideas for each of the areas. • Discuss: ○ How are pre-k math skills related to later success in elementary school?

Activity 1.2: What Is and Isn't Active Supervision?

Objective: Participants will match the objective of a short math activity to the corresponding cognitive skill.

Materials:

- "Make a Match" blank handout and "Make a Match (Answers)" handout for each participant (download from the session)
- *Essentials* text, pp. 201-204
- "Math Strands" handout (from previous activity; download from the session)



Procedure:

- Read this statement to whole group: *Through active explorations young children begin to learn what their world is like and to make connections, compare and contrast, and categorize.*
- Emphasize that active learning is the opposite of using a math worksheet because it is hands-on learning.
- Direct students to the blank handout and explain that each listed activity is aligned with one of the cognitive skills listed from pp. 201-204:
  - Skills of Inquiry
  - Knowledge of the Physical World and Social World
  - Classification
  - Seriation
  - Numbers
  - Symbols
  - Spatial Relationships
  - Time
- The example may also align with one of the math strands, so that there may be more than one right connection:
  - Numbers and Operations
  - Geometry and Spatial Reasoning
  - Measurement
  - Algebra and Patterns
  - Analyzing Data
- Students may use the *Essentials* text to find the answers, if desired.
- Answers are found on a separate handout "Make A Match with Answers"

2. Major and Related Theories of Cognition

Activity 2.1: How Am I Smart?	
Objective: Participants will make a connection between one of the intelligences identified by Howard Gardner to their own strengths.	
Materials: • *Essentials* text, pp. 219-220 • "Intelligence table" handout (download from the session)	


 
	Procedure:
	• Refer to *Essentials* text, pp. 219-220. Explain that Howard Gardner believed that children are "smart" in different ways.
	• Add that Gardner's theory has been summed up as "Not how smart is this child, but how is this child smart."
	• In small groups or in pairs, have participants read through each of the intelligences on pp. 219-220; also have participants read through the handout with chart.
	• Each participant will look for one of the categories they can relate to. For example, a child with artistic ability, or math skills, or writing skills. Help participants who are having trouble making any connections.
	• Describe the following scenarios and have participants find the matching type of intelligence:
	  ○ Eric is always looking for worms and insects when he is outside. He likes to bring in things he finds to share with the class: An empty beehive, a broken bird eggshell, a cicada.
	  Response: Naturalistic
	  ○ Angela is very agile and coordinated. She loves to quickly climb to the top of the climber and would go higher if she could. She enjoys challenging other preschoolers to a race on the playground.
	  Response: Kinesthetic
	  ○ Ben has always been a "talker", and spends a lot of time looking through books during center time. He is eager to share the books he "writes" and illustrates.
	  Response: Linguistic

Activity 2.2: Theory Match Up	
Objective: Participants will align the major theories of cognitive development with their descriptions and principles.	
Materials: • "Theory Match Up" handout (download from the session) • *Essentials* text, pp. 210-221 • Names written on separate sheets of paper: Abraham Maslow, Jean Piaget, Lev Vygotsky, Urie Bronfenbrenner (fold paper in half) • Whiteboard or chart paper • Markers	
  	**Procedure:** • Begin by having grouping participants into four groups. Ask one person from each group to select a folded piece of paper. • Each group must find the information in the *Essentials* text that provides details about the theory represented by their name on their paper. They must find three important facts that they will share with large group, including the name of the theory. • After ten minutes, ask each group to share. Groups can use chart paper or whiteboard, if desired. • Then, direct participants to the handout "Theory Match Up." This can be completed individually or within their group. • If desired, have participants indicate the page number where answer is found. • As a whole group, read through each of the items and discuss more fully. • Ask participants if they can identify the four pictures on the handout. (Responses from left to right: Erikson, Maslow, Bronfenbrenner, and Vygotsky)

3. Learning Through Play

Activity 3.1: Learn What?	
Objective: Participants will identify the cognitive skills involved in play activities.	
Materials: • "Make a Match" handout (from activity 1.2; download from section 1 of the session) • "Math Strands" handout (from activity 1.1; download from section 1 of the session) • *Essentials* text, pp. 223, 227-228.	


 
 
 
	Procedure:
	• First, refer to pp. 223, paragraphs 3-4. Ask students to highlight how play is described in these paragraphs. ("highest form of research"; "most important way that children learn"; "every bit as essential" as basic needs)
	• Refer to pp. 227-228. Point out that column 4 lists the cognitive skill.
	• Find each of those cognitive skills in Figure 44a. Supporting Cognitive Development through Play.
	• In small groups, ask students to select the skills that connect to one of the five math strands from activity above. (Such as counting, taking away, adding to)
	• Looking at Figure 44a and 44b, ask students to select cognitive skills related to memory and attention (e*xpanding memory, concentration, problem solving.*)
	• Ask students to select cognitive skills related to social emotional area: (self-regulation, taking others' perspective, following rules)
	• As a whole group, ask:
	  ○ Do children learn through play?
	  ○ Who is it that facilitates these learning activities?
	  Response: the early educator

4. Learning throughout the Day

Activity 4.1: Scaffold for Learning	
Objective: Participants will identify the scaffolding strategy in two examples.	
Materials: • *Essentials* text, pp. 231-235 • "Scaffolding" handout (download from the session) • Scaffolding slides from section 4 of the session	
  	**Procedure:** ● Group participants into pairs. ● On p. 234 of the *Essentials* text, find the word "scaffold" in paragraph two. Explain that scaffolding "builds on the information the child already knows to help them learn new things." ● Review the first slide in the session that explain scaffolding and discuss the handout "Scaffolding" as a whole group. ● Explain that scaffolding is a teaching strategy that can be used either when a child DOES NOT KNOW the answer, and when a child DOES KNOW the answer. ● Review the two slides from the session that describe downward and upward scaffolds and discuss. ● Ask: "If a child does not know an answer, which strategy is used?" *Response: Downward* ● Ask for two volunteers to role-play the scenario on p. 234 for the whole group: Terrell and Mr. Griffin ● Ask each pair of students to read through the scenario and respond to these questions: ○ Find two pieces of information that Terrell was able to learn through this interaction. *Responses: the word "cocoon"; butterflies hatch from cocoons*

	○ Look for the first open-ended question Mr. Griffin asked? *Response: What makes you say that?* ○ How did Mr. Griffin use prior knowledge in this scaffolding moment? *Response: Brought over the book that the class has been reading together.* ● Lastly, have two volunteers role play this scenario, but Mr. Griffin <u>stops</u> after saying "*That's an interesting observation,"* and walks away. ● Discuss the difference in learning outcomes for Terrell with these two scenarios.

5. Supporting Children's Content Learning

Activity 5.1: Hands-On Is Best in Science	
Objective: Participants will plan for ways to include more hands-on exploration in the classroom.	
Materials: • *Essentials* text, pp. 241-242 • "Hands On Is Best!" handout (download from the session)	
   	**Procedure:** ● Distribute the handout with this as a starter: *Science for young children is more about learning how to examine and explore their everyday world than about learning science facts. What opportunities do the children in your classroom have to explore the world around them?* ● Ask participants to find the two action words in the first sentence: e*xamine and explore* ● Participants will make a list of items in their own classroom science center. Are there items to examine and explore? What about other areas of the room? Outside? ● Read through the bulleted items on pp. 241-242. Ask participants to select any items that encourage exploration and hands-on learning. (*For example, growing plants, sand and water, scales, gears, collecting leaves and acorns outside, or planting seeds.)* ● Next have the students complete second page of the handout: "*My plan for hands-on science"* and make a list by selecting from the items in *Essentials* text, or adding other possible natural and sensory items that are appropriate for exploring and examining.

Activity 5.2: Scaffold Learning

Objective: Participants will view an example of intentional teaching and identify four cognitive skills.

Materials:

- "Activate Your Knowledge" video in section 5 of the session
- *Essentials* text, pp. 241-242
- Note-taking material




Procedure:

- Start by reading this sentence from the video transcript: *Children need some "skill development" to practice using basic science skills*.
- As a whole group, watch the video. Participants will take notes to answer questions at the end of video.
- Watch video more than once if desired.
- Ask participants:
  - Describe what the teacher was doing with the rocks at the start of the video?
  - What senses were the children using? Was it hands-on?
  - What is the skill of comparing?
  - Sorting into categories is called? *Classifying*
  - Another way of saying predict is just "guessing."
- Divide participants into small groups to think and plan a lesson for a small group which would use these skills of observation, comparison, classification, and prediction.
- Remind participants that the lesson must be hands-on. For ideas, participants can look at the pictures and ideas from *Essentials* pp. 241-243. Possible ideas include examining soil samples, a collection of leaves, potatoes, or textures.
- Finally, ask "Why is it important to repeat this procedure more than once?" *Response: children need practice with these science skills.*