



# PRE-K MATH: HOW MANY LITTLE SEEDS?

## SUPPORTS FOR STUDENTS WITH DISABILITIES

# PRE-K Math: How Many Little Seeds?

## Instructional Supports for Students with Disabilities using UDL Guidelines

### **Background Information**

Learners differ in the ways that they perceive and comprehend information and may require a different process to acquire the same content. In addition, learners may differ markedly in the ways they engage, maintain attention to task and demonstrate what they know and have learned. Hence, the goal of a UDL curriculum is the interrelated components which comprise the goals, methods, materials and assessment. In this way, all students would then be able to generalize their mathematical understanding for real world application.

## **Day 1: PREPARING STUDENTS**

### ***Provide options for perception- Offer ways of customizing the display of information***

- Offer students individual desk top number lines.
- Illustrate and concretize concepts using prepared clothes pins containing arrows to represent counting down (subtracting) seeds from the Number Line.

### ***Provide options for physical action- Vary the methods for response and navigation***

- Offer students seeds of varying sizes (large vs. small) and rubber placemat or tray to facilitate manipulation of seeds.

### ***Provide options for comprehension- Guide information processing, visualization and manipulation***

- Display the Ten Little Flower Seeds song at eye level. Choral read the lines of the song one at a time.
- Sketch, illustrate or affix flannel board prompts to provide explicit models for learning the verse.
- Offer students the opportunity to echo, sing along and/or repeat the same verse using pair share or individualize support.
- Stop, orient and support comprehension and clarify vocabulary using illustration, clip art technology and or flannel board materials
- Record the song and offer students the opportunity to listen on headphones for reinforcement
- Ask students to replay the song in their mind and sing in large group, small group or individually.
- After removing one seed at a time, offer students the opportunity to count how many seeds are left, counting down from ten on their individual desk-top number lines

***Provide options for executive functioning- Enhance capacity for monitoring progress***

- Provide prompts, reminders and ground rules/management plans that reduce the frequency of off-task behaviors in response to struggles or low stamina, as appropriate
- Offer children models and mentors that support the range of attention, cognitive, sensory and language strengths and challenges

***Provide options for self-regulation- Facilitate personal coping skills and strategies***

- Provide options for self regulation when students assemble for group activities, e.g., requests/permission to assemble on the rug, in chairs around a table, take a short “stretch” and/or excuse yourself for other appropriate actions.
- Provide appropriate procedures for transitions when students assemble for group activities, e.g., excuse yourself for personal needs, to work with related service providers or to “rejoin” the group to decrease distractions.

***Provide options for comprehension- Highlight patterns, critical features, big ideas, and relationships***

- Provide feedback and models for incorporating positive strategies for success, e.g., group leaders to facilitate at the flannel board for the group.

## **Day 2: How many Little Seeds? A Mathematics Game**

***Provide options for recruiting interest- Optimize relevance, value and authenticity***

- Establish clear expectations for group work. Assign work group roles. Post class-created rubric where all students can view.
- Establish clear protocols for class discussions: whole group; small groups; think-pair-share; and turn and talk.

***Provide multiple means of action and expression- Provide options for physical action***

- Illustrate through multiple media- Offer students the opportunity to view a “gardener placing seeds into the ground” and “birds taking seeds out of the ground.” Generalize the concept, role play, demonstrate and practice the concept of using the flower pot and the flannel board number line and seeds. Think about using prompts or costumes, e.g., straw hat to portray the gardener and a feather headband to portray the bird in role.

- Enhance capacity for monitoring progress. Establish rituals and routines that prompt learners to identify the type of feedback, advice, and/or assistance as they practice taking the role of the Gardener, Bird and Record Keeper at the flannel board Number Line.
- Offer students the opportunity to create and perform a short skit.
- Increase mastery-oriented feedback. While students are observing/listening to classmates practice the steps needed to play the Mathematics Game, periodically select students to retell, sketch or elaborate to monitor comprehension.

#### **Provide options for perception- Offer alternatives for auditory information**

- If available, utilize an FM system to decrease distractions from extraneous/ambient noise.
- Offer children preferred seating, as appropriate.
- Repeat auditory prompts and encourage children to echo your questions, e.g., “How many seeds are in the pot now?”
- Provide alternatives to word call questions. Pointing to the Flannel Board Number Line, ask, “Do you see two seeds?” and “Can you come up and point to the number 5?” Or “Can you show me the total using your fingers?”

#### **Provide options for comprehension-Activate or supply background knowledge**

- Anchor instruction by linking to and activating relevant prior knowledge.
- Allow one or two students to model for the class.
- Ask children to predict, “What do you think would happen if there were five seeds in the pot and the gardener **added** two more seeds?” Ensure the students have a solid grasp of the vocabulary used for Operations and Algebraic Thinking.
- Prepare word cards for the following key words: gardener, bird, total, addition and subtraction. Place Velcro strips on the back of the word cards to connect actions in the mathematics game to the vocabulary words.

## **Formative Assessment Questions**

As students play the game, use flexible grouping to assemble students. Allow individual attention as appropriate. Offer students the opportunity to work in pairs and small groups as appropriate. Provide multiple entry points for all students as the teacher questions and documents how students respond to the questions while playing the game.

#### **Provide options for sustaining effort and persistence- Foster collaboration and community**

- A teacher should be pre-teach and be present at the table to create cooperative learning groups with clear goals, roles and responsibilities. Provide prompts that guide learners in when and how to ask peers and/or teacher(s) for assistance. Encourage and support opportunities for peer tutors and construct communities of learners engaged in the Math Game for an appropriate length of time prior to assessment.

**Provide options for sustaining and persistence- Increase mastery-oriented feedback.**

- As students are prompted to respond to the assessment questions, the teacher should explain that responses will be written in the student's exact words. Offer preferential seating and ensure that all students assessed have optimal conditions for response. Limit extraneous noise. Request parental permission AND practice using video equipment prior to the assessment, if a camera will be used to capture the student in process of playing the game for assessment. Encourage student response through question repetition as needed. Prompt students to refocus on task, as appropriate.
- Document the student responses on the Teacher Template applying the Rubric. Ensure that appropriate concrete objects (Flower Pot, Desk Top Number Line and large sized seeds) are in proper repair for all the students.