

Universal Design for Learning Model Lesson

Gathering Evidence: The Life Cycle of Plants

Introduction

Kirsten, a first grade teacher in Boston, MA, used this UDL lesson as part of her unit to teach the life cycle of plants in two forty-five minute sessions. Her class includes 21 students of diverse abilities including some students with identified learning disabilities, several students who receive extra literacy support, and one English Language Learner.

Before teaching this Kirsten introduced students to the science concepts about seed growth. She had students look inside fruits and vegetables and extract the seeds. She also had students plant some seeds, including fast-growing variety such as beans that sprout in a few days.

This lesson enabled Kirsten to work with science content and concepts during guided reading time, during a science workshop, and during read alouds. This model lesson features the guided reading portion of the unit.



Goals

McRel Standards

- *Science*
 - Knows that plants and animals need certain resources for energy and growth (e.g., food, water, light, air)
- *Language Arts*
 - Uses reading skills and strategies to understand a variety of informational texts (e.g., written directions, signs, captions, warning labels, informational books)
 - Relates new information to prior knowledge and experience



State Standards (Massachusetts)

- *Reading and Literature- Nonfiction*
 - Restate main ideas and important facts from a text heard or read.
- *Science*
 - Identify the ways in which an organism's habitat provides for its basic needs (plants require air, water, nutrients, and light; animals require food, water, air, and shelter).

District Standards (City of Boston Public Schools)

- *Science*
 - Living Things and Their Environments: Identify the ways in which an organism's habitat provides for its basic needs (plants require air, water, nutrients, and light; animals require food, water, air, and shelter).
- *English Language Arts*
 - Writing: Generate questions and gather information for research in classroom
 - Reading and Literature: Retell important facts from a story heard or read
 - Oral Presentation and Discussion: Follow agreed upon rules for group discussion: raise one's hand, wait one's turn and speak one at a time; be able to express ideas orally in complete sentences.

Goal:

Students will choose and read informational science texts in order to identify and answer questions about the resources on the life cycle of plants.



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Challenges

- This goal is challenging because it addresses multiple learning goals in science, literacy, and oral discussion. Young children with diverse abilities require specific supports and options in order to find the level of challenge in all of these areas that is appropriate for them.
- This lesson is also difficult because it integrates science content—traditionally taught during "science time"—into reading instruction where scaffolds such as guided reading are used.



Traditional Approach

- Traditionally, first grade teachers encourage students to explore scientific ideas and concepts during "science time." Often the teacher reads aloud a book about the topic that students will study. When studying the life cycle of plants, students might plant seeds and watch them grow.
- In a print-based environment, all students typically read or listen to the same book, respond to the same worksheet, and plant the same type of seed.

UDL Approach

Part One: (45 minutes)

Goals (5 minutes)

- Review what students have been learning about seeds.
- Practice developing awareness of themselves as readers, both at the decoding and comprehension level, through book selection activities.
- Teach students to scan books for information about a topic.

Preparation:

Prior to this science lesson, have students open fruits and vegetables and extract seeds. Also have students plant some seeds (choose a plant that will grow quickly).

Select four books at different reading levels that convey key science concepts about the life cycle of seeds. Obtain 4-5 copies of each book. Prepare or obtain a digital version of each book that can be used on the computer. In addition, prepare or obtain an audio version to be used in the listening center. (For directions on finding and creating digital content, as well as information about text to speech devices, see UDL Toolkits: Digital Content in the Classroom at http://www.cast.org/teachingeverystudent/toolkits/tk_resources.cfm?tk_id=41)



Introduction: (10 minutes)

- Students gather on the rug and discuss what they have been learning about seeds.
- Show students the books and explain that each will choose one that they would like to read and which they think would be a "just right" book for them.
- Explain the media options available for each book: students can choose from a print copy, a digital copy of the text, an audiotape version, or whatever media you have available for this lesson. Explain also any text-to-speech devices that are available for your students to use.
- Talk about choosing a "just right" book. Review that a "just right" book is one in which they can read and understand most of the words.
- Remind students that if they can read all of the words and understand the entire book, it is too easy.
- If they can read most of the words and understand most of the book, it is just right.
- If they have a hard time reading most of the words and they don't understand much of the book, then it is too hard.

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Guided Practice: (20-25 minutes)

- Place each book around the room so that there are 4-5 copies of the same book in different media placed at each station.
- Students rotate (in groups of four or five) to each station and browse the book for 5 minutes, then move onto the next station.

Closing: (5-10 minutes)

- Display the covers of the four books and ask each student to tell which they have chosen to read. As students announce their selection, write their name next to the book title on chart paper.
- This is also a good time to ask each student to choose the medium to use for reading and decide if the reading will be alone or with a partner.
- Ask students to share some things they noticed about the different books.

Assessment

- As students circulate through the stations, ask students opinions about which of the books is the one right for themselves. If any student has difficulty selecting a book, guide them through the selection process using the "just right" book criteria.

Part Two: (45 minutes)

Goals

- Read expository/informational text
- Find evidence in text to answer questions.
- Share knowledge through oral discussion

Introduction: (10-12 minutes)

- Display the book covers and the lists of who chose which book to read. Explain that as students read their chosen books, they will be looking for information to help them answer two questions.
- Display the questions on the chart paper. Below is an example, adjust to match the books you selected.
 - Question 1: What do seeds need so they can grow?
 - Question 2: What can seeds grow into?
- Review the questions with the class. Ask students to predict what answers they might find in the books. Post student responses on the wall as a reference.
- Instruct students to find answers to the questions in their books. Remind students that this information might be in the words, the pictures, or both.
- Review the choice of medium each student made in Part 1 and pair students who chose to read with a partner. Prepare two key questions about plants for the students to answer.
- Ask students who are reading the printed text (including those who listening to audiotape while following the text in the book) to attach a sticky note next to each page in the book that has information to help them answer the question. Students using digital version can use word processing or text-to-speech software to highlight this information in the digital copies.
- After they read the books, ask all to record (write, draw, or dictate) their responses to the questions on a sticky note and post it on the chart paper next to the question it answers.

Guided Practice (25 minutes)

- Students work independently or with partners to read and develop their responses.
- Providing support when necessary, prompting or asking questions as appropriate to help students.

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Closing:(10-12 minutes)

- As a group, review the sticky notes posted next to each question. Ask a volunteer to indicate where in the text that information was found.
- Ask students to share what was good or hard about this activity.

Assessment

Circulate among the students as they read. Use the Observation Form (.doc) to record students' names and note for each the following information:

- Did student's responses accurately answer the question?
- Could student designate where the information to answer the questions was found?

At the end of the lesson, teacher collects the sticky notes from the chart for each child and evaluates his or her responses to both questions.

Materials & Tools

- Four to five copies of each of four books about seeds at different reading levels appropriate for first grade students. Some titles to consider are: How A Seed Grows, Growing Vegetable Soup, Diary of A Sunflower, I'm A Seed.
- Digitized versions of the texts of books being used in the lesson.
- Software offering text-to-speech support.
- Commercially available or teacher prepared audio recordings of the books used in the lesson.
- Two key questions about seeds for students to research printed on a large chart. Leave space for students attach sticky notes with their answers to each question.
- Sticky notes in a variety of colors.
- Easel(s) or corkboard to post chart paper with questions.
- Observation Checklist.

UDL Highlights

Recognition supports:

Provide Multiple Examples:

- Choice of four different books about topic, varying by level of difficulty
- Students preview all four book before selecting one

Highlight critical features:

- Two key questions to guide reading
- Attaching sticky notes to relevant text

Provide multiple media and formats:

- Digital books with text-to-speech
- Audiotape version
- Partner reading of print version
- Independent reading of print version

Support background context:

- Students examine fruit and vegetable seeds and plant a seed prior to reading the books
- Students predict the kinds of answers they might find in the books. These ideas are posted as a reference while students read.



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Strategic supports:

Models of skilled performance:

- Text-to-speech reading
- Audio taped reading (teacher reading fluently)
- Partner reading

Provide opportunities to practice with supports:

- Various reading contexts

Provide ongoing, relevant feedback:

- Partner reading — partner offers feedback
- Teacher circulates to provide prompts and feedback to students

Offer flexible opportunities for demonstrating skill:

- Choice of writing, drawing, or dictating responses to questions
- Discussion context offers another avenue for demonstrating knowledge

Affective Supports

Offer choices of content and tools:

- Selection of book
- Selection of response mode

Offer adjustable levels of challenge:

- Reading levels of books range from grade one to grade three

Offer choices of learning context:

- Student book choice formed basis of group and partner formation
- Digital book, printed book, or audiotape