INSTRUCTOR GUIDE

SESSION SIX

STUDENT LEARNING GOALS

❖ Experience bubble explorations as an opportunity for playful learning in science and math.
❖ Become familiar with principles of developmentally appropriate practice.
❖ Discuss the meaning of “integrated curriculum.”

Materials List

**General**
- Computer with internet access/speakers
- PowerPoint slides for Session 6 (downloaded from website)
- Data projector
- Sign-in sheet (customizable printable)
- Course Reader
- *Big Ideas of Early Mathematics* textbook

**Other Printables and Handouts**
- Making Mixtures Group Activity guidelines (customizable printable)

**For the Science Focus**
- Bubbles exemplar activity guide

**Engage**
- Small container of bubble solution (see recipe below)
- A few simple bubble blowers such as a wand made from a pipe cleaner, straw, slotted spoon, etc.

**Explore**
- Dish tubs or similar containers, filled several inches high with bubble solution, ⅓ - ¼ gallon per tub (1 per group)
- Towels or rags (1 per group)
- Spray bottle filled with ½ vinegar and ½ water to clean bubble solution off the tables
- Optional: extra objects for bubble blowers, sheets or newspaper to place on or under tables

**Students provide:** assorted “non-traditional” bubble blowers

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**Bubble Solution Recipe**

- Mix together:
  - 1 cup of liquid soap (Dawn® recommended)
  - 1 gallon of water (tap water is okay, but distilled water makes the best solution)
  - Optional: ¼ cup glycerin, available in pharmacies or from chemical supply companies
- Bubble solution gets better with age and can be reused.
- Store in a closed container.

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### Session at a Glance

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<th>Topic</th>
<th>Description</th>
<th>Estimated Time (In Minutes)</th>
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<td>Arrival Activity</td>
<td>Students look at and compare their homemade discovery bottles. Students reflect on the learning value of discovery bottles for children.</td>
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<td>Welcome, Announcements, and Agenda</td>
<td>Give a general overview of the session and any relevant announcements, and provide time for sharing.</td>
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<tr>
<td>Discussion: Developmentally Appropriate Practice</td>
<td>Discuss Developmentally Appropriate Practice (DAP) and review the three core considerations. In small groups, students discuss different teaching scenarios in the context of DAP.</td>
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<tr>
<td>Science Focus: Bubbles</td>
<td>Students participate in the exemplar activity: Bubbles. They complete “An Integrated Approach to Curriculum” worksheet to illustrate learning across domains.</td>
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<tr>
<td>Introduce Group Activity: Making Mixtures</td>
<td>Introduce the Making Mixtures Group Activity and review expectations for students’ participation.</td>
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<tr>
<td>Looking Ahead to Next Session</td>
<td>Discuss the homework and reading assignment to be completed before next session, and address the materials that the students will be responsible for bringing.</td>
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**Total Estimated Time:** 2 hr 30 min

### Before Session

- Review the materials relevant to this session:
  - Exemplar activity guide: Bubbles
  - PowerPoint for Session 6 (downloaded from website)
  - Reader Section: Session 6
  - Making Mixtures Group Activity guidelines
- Make copies of any printables and/or handouts.
- Set up materials:
  - For each group of 4-6 students, fill a tub 1-2 inches deep with bubble solution. Place tubs to the side until needed. (See the materials section for directions on making the bubble solution.)
  - Prepare a demonstration tray for the Engage part of the Bubbles exemplar activity. On the tray, place a small bowl of bubble solution and a simple bubble blower, such as pipe cleaner bent into a circle at the top, or a straw, slotted spoon, etc.

### As Students Arrive

- Have students sign in on attendance sheet and mark if they brought their bubble blowers and discovery bottle to class.
- Have students turn in their homework.
Arrival Activity: Have students share their discovery bottles with each other. Have them reflect on the process of making the discovery bottles.

- Some questions you could ask are:
  - What kind of experimenting did you do? What surprises, discoveries, and challenges did you encounter?
  - How might you use discovery bottles with children?
  - What kinds of things do you think children would learn?

1. Announcements and sharing.
   - If you have students who are working with children, ask if anyone tried any activities from previous sessions and to share their observations and insights.
   - Share any observations, clarifications, or notable comments that you feel should be mentioned related to the previous session’s homework.
   - Provide Midterm Project assignment sheets to students who need them.

2. Review agenda.

Early Childhood Topic

3. Lead a discussion about Developmentally Appropriate Practice.
   - Ask, “What comes to mind when you think of Developmentally Appropriate Practice?”
   - Brainstorm at tables or as whole group.
   - Explain that DAP is a term coined by the National Association for the Education of Young Children (NAEYC) to provide a set of guidelines suggesting curriculum content and practice serving children 0-8. The teaching strategies associated with DAP are relevant to science and mathematics and are integral aspects of this course. Show and briefly discuss each of the strategies (slide is animated so they appear on click).
     - Build on children’s prior knowledge.
     - Make learning concrete and experiential.
     - Scaffold learning to support growth.
     - Accommodate different learning styles.
     - Provide child-initiated and teacher-planned experiences.
     - Integrate subject areas.
     - Value the importance of play.
     - Make home-school connections.
   - Review the 3 Core Considerations of DAP as defined by the National Association for the Education of Young Children (NAEYC):
     - Teaching in developmentally appropriate ways requires teachers to make decisions based on what is:
       1. Appropriate for a child’s age or developmental stage: Knowing what is typical at each age and stage of early development is
crucial. Child development (cognitive, physical, social and emotional) follows general, sequential patterns. This knowledge is based on research. Teachers need to know and understand milestones and sequences of development in all domains and use child development information for planning and identifying activities, environments, experiences, and strategies to best promote growth and learning.

2. **Individually appropriate:** Each child is an individual and develops in her own, unique way. Teachers need to know each child’s strengths, abilities, needs, challenges, interests, temperament, and learning styles. This can be done through time spent together, observation, assessment, work samples, documentation, and information from families and past teachers/programs.

3. **Socially and Culturally appropriate:** Each child is shaped by their lives at home and in their communities. Teachers need to know each child’s cultural and family background – his unique family, values, language, and lifestyles. They need to ensure that the experiences they provide respect these and are meaningful for each child/family. Teachers must make an effort to get to know the children’s families and learn about the values, expectations, and factors that shape their lives at home and in their communities. This background information helps provide meaningful, relevant, and respectful learning experiences for each child and family.

- Emphasize that as early childhood professionals working with young children, teachers are decision-makers, and they make many decisions about the children in their programs on a daily basis. Understanding DAP – its meaning and intentional practices – is essential in guiding the decisions teachers make for young children.

4. **Use the “DAP Discussion Prompts” to engage students in discussing Developmentally Appropriate Practice.**

- Have students refer to the “DAP Discussion Prompts” in their Course Readers. Let them know that the prompts are meant to spark conversation about DAP in the context of science.
- You may want to divide the students into new groups to broaden the range of perspectives beyond their regular group-mates.
- Let students know that these prompts are not designed to illicit a “correct” answer. Everyone brings different views to any given situation. Sharing different perspectives helps us all grow. With this in mind, ask if all can agree to the following **Agreements for Productive Discussion:**
  - We agree to listen respectfully to the experiences and perspectives of other people.
  - We trust that everyone has something of deep value to offer.
  - We will value difficult conversations.
  - We will ask for clarification when needed.
We agree to pay attention to the group process, making sure that everyone has the opportunity to speak and to listen.

- Direct students to read the three scenarios and use the prompts as discussion starters. Let them know how much time they have. They may or may not have time to discuss all three scenarios. They may go in any order.

5. **Debrief their discussions.**
This can be done with the whole group, or by having each student talk with someone from another group. Questions you might ask:

- Did their discussion cause them to broaden their perspective? If so, how?
- What was one good idea that someone in your group suggested?
- How can you apply “take-aways” from this activity to your life and work?

Wrap up by reiterating that developmentally appropriate teaching is about continually asking ourselves:

1. Is this practice in keeping with what I know about child development and learning?
2. Does this practice take into account children’s individual strengths and needs?
3. Does this practice demonstrate respect for children’s social and cultural lives?

6. **Introduce the Bubbles exemplar activity.**

- Show the slide with the bubble solution recipe; students are often interested in seeing this at the start of the activity.
- Let students know that you are going to model the Engage part of the activity in much the same way as if you were doing it with children in order to help them experience the activity through a child’s eyes and to demonstrate the teaching strategies as written in the exemplar activity guide.

**Engage**

- Ask, “Have you ever made bubbles?” “What things did you use to make bubbles?”
- Show the students a container of bubble solution.
- Show the students the materials to experiment with and ask them if they think these objects can be used to make bubbles and what kinds of bubbles they might make.
- Demonstrate dipping one of the objects into bubble solution. You may want to model what happens if you blow too hard and let them tell you what you should try next time (blow gently). Emphasize that if it doesn’t work the first time, just try again.
• Say, “My hands are all soapy, what should I do?” (They’ll probably say to wash them.) I’m just going to wipe them on my pants. That’s what you will get to do today because it’s just soap and water. Now you don’t have to add soap to your laundry! **Note:** Adults may not wish to dry their hands on their clothes, so have towels handy or a sink nearby. This is still a great tip to mention for when working with children.

• Share the following rules and reminders that are important to talk about with children:
  o Do not put the bubble blowers in their mouths. Tell them that if they do accidentally get a little bubble solution in their mouths, it will taste awful, but it won’t hurt them. If it does happen, they can rinse their mouth out with water.
  o If they get bubble solution in their eyes, don’t rub them with their hands. Just blink and blink and their tears will wash it out.
  o Reminder to walk, not run. Bubble solution is very slippery.
  o Only pop your own bubbles. Leave other people’s bubbles alone unless you ask first.

**Explore:** Have the groups spend approximately five minutes at each table, and then rotate, so that each group gets to try all of the different items.

• As students explore, circulate around the room and encourage students to make predictions, test the different objects, and observe what happens. Students will be more engaged if you show an interest and join the fun!

• Ideas for things to try:
  o Blow bubbles using air from their bodies.
  o Wave objects in the air to make bubbles.
  o Use their own hands as bubble blowers.
  o Look for all of the different ways one object could be used to make bubbles.
  o How can you make big bubbles? How can you make tiny bubbles?
  o Try to catch bubbles on their hands.
  o Try to catch a bubble or poke a finger in a bubble without popping it. (Hint: Bubbles like wet things.)

**Reflect**

• Encourage the students to share about their experiences using the different bubble blowers. What did you discover about making bubbles? Which were your favorite bubble blowers? Why?

• Ask the students what their ideas are for doing this activity with children.

**Clean up:** Direct students to clean up the bubble solution and materials. Bubble solution can be poured into a sink or outside on the ground, or saved for reuse. Wipe tables with towels. If you have it, pour the vinegar and water solution directly on tables or apply with a spray bottle for best results. Dry tables with towels. Place necessary items on towels to dry.
8. **Song and movement:** Have everyone stand up and sing along

   **“I’m a Little Bubble”**  
   (tune: I’m a Little Teapot)  
   I’m a little bubble, shiny and round.  
   I gently float all around.  
   The wind lifts me up, but then I drop.  
   Down to the ground where I pop.

9. **Show photos of children exploring bubbles.**  
   Ask for students’ ideas on modifications for different ages and developmental levels. Ask students to share other bubble activities they have done.

10. **Have students complete “An Integrated Approach to Bubbles” worksheet.**
    
    - One of the teaching strategies associated with Developmentally Appropriate Practice is an integrated approach to curriculum. Ask students what that means to them.
    - The NAEYC Position Statement states:

      **Integrated Curriculum:** “Effective curriculum plans frequently integrate across traditional subject-matter divisions to help children make meaningful connections and provide opportunities for rich conceptual development; focusing on one subject is also a valid strategy at times.”

    - Refer students to “An Integrated Approach to Bubbles” worksheet in their Course Reader. Have them work with a partner or as a table group to think about how Bubbles explorations can be integrated throughout different developmental domains. Ask them to imagine doing an in-depth investigation of bubbles with young children in a classroom. Write down their ideas on the worksheet about how a teacher might integrate bubbles across the curriculum. Let them know how much time they have.
    - To debrief, you can have them share out some ideas orally, or have them exchange and talk about their worksheet with someone from another group.

11. **Introduce the Making Mixtures Group Activity, review guidelines, and assign recipes.**
    
    - Refer to the Making Mixtures Recipes handout in the Course Reader.
    - Pass out the Making Mixtures Group Activity guidelines and make sure everyone is clear on what the assignment entails.
    - Refer to the Making Mixtures Recipe handout in the Course Reader. Determine which mixture each table group will be making - **each group should be assigned a different mixture.** (You can randomly assign mixtures to groups or let them choose.)
    - Tell students that next session’s class will be devoted to the group mixture activity. Group members need to bring everything listed in the materials
section of their recipe including the ingredients, newspaper to cover table, bowl, spoons, sponge for clean up etc.

- Give them a few minutes to plan who will bring what. Suggest that group members share contact information with each other so that if someone unexpectedly misses class, they can call someone else in their group and have them bring the items for them.

**Wrapping Up**

12. **Looking ahead to next session.**

- **Review homework assignment due next session.**
- **Review materials to bring for next session:** Emphasize that student-supplied materials are essential for the hands-on activities in each class.
  - Materials for Making Mixtures in-class activity.

**Note:** If students are absent, they will not know what to bring for the Making Mixtures group activity. Some ideas that will still allow them to get participation points are:

1. Assign absent students to one of the existing groups through email and ask them to bring an old towel, as it is helpful to have extras for clean up.
2. Create a group made up of the absent students and email each of them with specific materials to bring for one of the remaining mixtures.