



Quick Recipe Science Unit

Some early childhood teachers are enthusiastic about jumping right in and implementing an all-day, every-day science-based curriculum. Others are more cautious, yet appreciate the importance of providing children with a coherent approach that will support the development of a rich knowledge base. For these teachers, we have developed what we call the **Quick Recipe**.

Each Quick Recipe integrates literature, language use, and extended exploration of a particular phenomenon. The lesson may take only 45 to 90 minutes or may extend over a three- to five-day period. **Ingredients include a topic, two books related to the topic, three activities, and several open-ended questions about the topic.**

For example, if the children are interested in insects, the teacher might introduce the topic by reading a book such as *Bumblebee*, *Bumblebee, Do You Know Me?* by Anne Rockwell or might talk with the children about the topic prior to reading aloud. Together, the teacher and children can generate some questions, or “wonder,” about the topic. The children may ask what kinds of insects there are, what insects like to eat, or can they all fly.

Using the children’s questions and her own ideas as a basis, the teacher can plan a set of interrelated activities. She can introduce each

activity in a large or small group setting; then, in a small group setting, she can support children as they work through the science cycle (plan and predict, act and observe, report and reflect). Note: If the teacher offers all activities on the same day, with children rotating from one activity to the next, it is important to have an adult available to support each activity.

For an insect exploration, activities might include an outdoor hunt for insects, observing the insects with magnifying glasses and drawing them, and feeding insects in a terrarium. After all the children have participated in the three activities, the large group can reconvene and discuss what was learned. This learning can be related to the questions generated and written down during the earlier discussion.

Then the teacher can read and discuss another book, such as *Are You a Ladybug?* by Judy Allen and Tudor Humphries. At this point, she may feel there is enough interest and curiosity for the class to continue exploring the topic, or she may decide to move on to a different one.

A sample Quick Recipe for Liquids follows. Using this same format, teachers can readily create their own Quick Recipes in response to children’s interests.

—Kathleen Conezio and Lucia French

Quick Recipe for Liquids



Moving Water

Learning Objective

Water can move and be moved in many different ways. Water does not have a shape of its own. It takes the shape of whatever you put it into. If you just drop water onto a surface, it makes a puddle.

Materials Needed

baster • straws • eyedroppers • wide-mouth containers • dishpans • wax paper • towels for spills • cookie sheets (for a ramp) • water

Experiment

1. Set up three water stations with different tools: (a) baster, (b) straws, and (3) eyedroppers. Make a ramp by propping up against a stack of blocks one end of a cookie sheet covered with wax paper. Have the end of the cookie sheet drain into a dishpan.
2. Take water out of a container with one of the tools and release it down the ramp into the dishpan. Change the height of the ramp by adding or removing blocks.
3. Observe how the water moves.

Two books

Wet or Dry by Bruce MacMillan
Down Comes the Rain by James Hale

Two guiding questions

What are the characteristics of liquids?
What liquids do we have around us?

Three activities

Moving Water
Varieties of Liquids
Magic Touch Bags

Discovery Questions

1. What tool moved the water the fastest?
2. How long did it take to move the water from the container using an eyedropper? the baster? a straw?
3. Describe what the water looked like when it went down the ramp. Did it move quickly or slowly?
4. What other tools could we use to move water?
5. What would have happened if you had tried to do this with wood blocks instead of water? Would they have moved the same way?

Connections

1. Make different size drops of water on the waxpaper lying flat.
2. Measure the height of the ramp needed to make the water flow faster.
3. Make a plan to watch the weather and the effects of rain outside.
4. Sing *Rain, Rain, Go Away*.
5. Make a rainstick musical instrument.
6. Play with a marble maze.

Follow-up Book

Rain by Robert Kalan or *The Rain-player* by David Wisniewski

Varieties of Liquids

Learning Objective

There are many different kinds of liquids in our world. In some ways they are all the same—they all take the shape of their container, for example. In other ways, they can be different. We can find out about these similarities and differences by doing things with liquids and making observations.

Materials Needed

baster • straws • water • milk • juice • molasses • cooking oil • eyedroppers • wide-mouth containers • paint • dishpans • wax paper • dish soap • towels for spills • cookie sheets (for a ramp)

Experiment

1. Set up three water stations as in the previous activity.
2. This time have a variety of liquids at each station.
3. Move liquids with the various tools and observe what happens.
4. Think about how you will remember and keep track of what happens.

Discovery Questions

1. Are all liquids wet?
2. Do all liquids flow down the ramp? Do they all flow the same way? Describe what happened.
3. Why do some liquids flow quickly and other flow very slowly?
4. Which liquids did you try today that were most like water?
5. What other liquids could you try?
6. What would happen if you mixed them all together?

Connections

1. Measure the length of a drip on the ramp made with various liquids. Compare.
2. Make droplets out of various liquids. Describe the droplets by using *small*, *medium*, and *large*.
3. Discuss the uses of each of the liquids. Does the use have anything to do with the characteristics?
4. Act out a thunderstorm.
5. Do straw painting.
6. Go outside and walk and jump through puddles.
7. Make Kool-Aid and lemonade.

Follow-up Book

The Milkmakers by Gail Gibbons or *Lulu's Lemonade* by Barbara Derubertis



Magic Touch Bags

Learning Objective

Liquids may mix together very well or may separate when they are mixed.

Materials Needed

heavy-duty sandwich-size Ziplock bags (one per child) • cornstarch • water • oil • food coloring or dry tempera paint

Experiment

1. Combine 5 Tbs. of cornstarch, $\frac{1}{2}$ cup of water, and 5 or 6 drops of food coloring in each Ziplock bag. Gently mix.
2. Add $\frac{1}{2}$ cup of oil to the bag.
3. Seal the bag tightly.
4. Lay the sealed bag flat on the table and press the ingredients in the bag with a finger.
5. Watch for the colors to mix and separate.
6. Shake the bag gently in front of you and watch what happens.

Discovery Questions

1. How did you make the liquids move?
2. What happened to the color in the liquids when you pressed with your finger or shook the bag?
3. Why didn't the oil and water stay mixed together?
4. Where did the oil go when they separated? Did this happen every time you mixed them?
5. What do you think would happen if you used milk instead of water? Milk instead of oil? Try this and see what happens.

Connections

1. Count and measure all ingredients.
2. Identify colors when the liquids mix together.
3. Play Laundromat in the housekeeping area.
4. Wash clothes in the water table using soap and water.
5. Sponge paint.

Follow-up Book

Mouse Paint by Ellen Stoll Walsh

Quick Recipes excerpted from the ScienceStart! Curriculum, Kathleen Conezio, M.S., and Lucia French, Ph.D., University of Rochester. Curriculum development funded by the National Science Foundation (Award ESI-9911630), U.S. Department of Education (Award S349A010171), the A.L. Mailman Family Foundation, and Rochester's Child.



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