**Spring Arbor University School of Education**

**Lesson Plan Guide: Direct Instruction**

**Title: Matter in the Liquid Form by Megan Muzljakovich**

**Subject: Matter in the Liquid Form**

**Grade Level: 2nd Time Allotted: 45 minutes**

**Materials Required:**

* **A large assortment of measuring cups, measuring spoons, graduated cylinders and beakers for the students to use**
* **Five item worksheet.**
* **“What is the World Made Of?” book**

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**Michigan Curriculum framework: Benchmark and/or GLCE/HSCE/EGLCE**

**P.PM. 02.14** Measure the volume of liquids using common measuring tools (measuring cups, measuring spoons, graduated cylinders and beakers).

**E.FE.02.13** Describe the properties of water as a liquid (visible, flowing, shape of container and recognize rain, dew, and fog as water in its liquid state.

**R.MT.02.03** self-monitored comprehension by re-reading or listening again if uncertain about meaning making inferences and summarizing the most important ideas and themes in the text.

**Common Core** by the end of the year read and compare literature including stories and poetry in the grade 2-3 text complexity, band proficiency, with scaffolding as needed at the end of the year.

**Objective(s): A portion of a GLCE or HSCE stated in terms of Bloom’s taxonomy –**

The student will demonstrate that they now what the properties of a liquid are by showing their rational for why a substance passes for fails the properties of matter. This is the application stage of Blooms taxonomy

**Purpose: To understand the liquid form of matter.**

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**Instructional Procedure:**

1. **Anticipatory Set: 5 min**
	1. Read to the class Pages 13 and 14 of “What is the World Made Of?”
		1. While I read these pages I want you guys to do power notes and then we will come together at the end and share what we wrote down. **(Strategy # 16/ Power Notes)**
	2. Yesterday we learned the properties of a solid.
	3. Today we are going to learn the properties of a liquid
	4. I need you to be on your best behavior, raise your hand if you have a question and do your best work.
2. **State Purpose and Objective of Lesson: 2 min**
	1. I want you to learn what properties a substance needs to have to be considered a liquid.
	2. It is important to know when matter is in the liquid form because you change matter to different forms in your daily life.
3. **Plan for Instruction:20 min**
	1. Modeling
		1. the properties of liquid are
			1. it does not have a definite shape
			2. it has a definite mass
			3. it has a definite volume
				1. Tell the class that these are the properties a substance must have to pass what we are going to call the liquid test.
				2. Post these properties on the board and keep them there for the whole lesson.
				3. Tell the class to remember that if the substance fails in one area it is not a liquid.
		2. “Watch while I pour the dish soap into another container and I’ll tell you what I'm thinking as I work.” (pour the dish soap as you talk through the problem) tell that class that they will need to answer the questions in this type of format with details as to why they think it passed or failed and they cannot just answer yes or no.
			1. when I pour it out of the container it takes the shape of the new container I pour it into- so it does not have a definite shape
			2. When I pour it from one container to another it has the same weight- so it has definite mass (weigh the dish soap before and after you pour it, make sure to take the weight of the container out of the total each time)
			3. When I pour it out of one container to another it takes up the same amount of space- it has definite volume (mark the container of where the top of the dish soap was before you poured it so that when you pour it back it should come to the same line)
	2. Guided Practice**:**
		1. Each of you is going to pair up.
		2. You have been given three items in front of you. For each item you need to see if the it passes the liquid test. I want detailed descriptions as to why you think it does or does not pass the test.
			1. You will be required to pour the substance from one container to another. You can use measuring cups, measuring spoons, graduated cylinders and beakers for this test, whatever measuring device that you both think will be the best for you to learn from.
			2. You will also need to weigh each item before and after you pour it.
			3. The two of you will have one paper to turn in and you must agree on the answers written down.
			4. Items are
				1. Water

passed property test 1

passed property test 2

passed property test 3

* + - * 1. Stick of butter

Failed has definite shape

Passed

passed

* + - * 1. Coke

Passed

Passed

passed

* + 1. Once the class has determined if each of the three items are a liquid or not go over each item with the class making sure to cover each property of each item to see if it passes the test.
	1. Independent Practice:
		1. Now have each student review the four items on their own. They will need to explain if each item has passed or failed each of the three properties with an explanation.
			1. They will be required to pour the substance from one container to another. They can use measuring cups, measuring spoons, graduated cylinders and beakers for this test, whatever measuring device that you think will be the best for you to learn from.
			2. They will also need to weigh each item before and after they pour it.
				1. Ice cubes

Failed

Passed

Passed

* + - * 1. Ketchup

Passed

Passed

passed

* + - * 1. Milk

Passed

Passed

passed

* + - * 1. Orange juice

Passed

Passed

Passed

* + 1. Once the class has determined if each of the three items are a liquid or not go over each item with the class making sure to cover each property of each item to see if it passes the test.
1. **Differentiation Considerations:**
	1. For those students who are unable to write their answers down they can tell the teacher what to write down.
	2. For those students who are move the substances from one container to the other the teacher can move the substances with the child directing the teacher what to do next.
	3. For those student who finish quickly they can go back to each item and guess if adding heat to the item would keep it in the form of matter that it is or if it would change to another form of matter.
2. **Assessment: 15 min**
	1. Eachstudent is required to review five items on their own. They will need to explain if each item has passed or failed each of the three properties with an explanation.
		* 1. They will be required to pour the substance from one container to another. They can use measuring cups, measuring spoons, graduated cylinders and beakers for this test, whatever measuring device that you think will be the best for you to learn from.
			2. They will also need to weigh each item before and after they pour it.
				1. Shampoo
				2. Apple
				3. Bar of soap
				4. Grape juice
				5. Chocolate milk
			3. Have the students fill out the 5 Substance worksheet for this assessment.
3. **Closure: 3 minutes**
4. As your ticket out the door I need each of you to tell me what the three properties are for the liquid state of matter. **(Strategy # 39)**
	1. it does not have a definite shape
	2. it has a definite mass
	3. it has a definite volume
5. I also want you to write down on a piece of paper some measuring tools that we can use to measure liquid substances?
	1. measuring cups
	2. measuring spoons
	3. graduated cylinders
	4. beakers

**Explanation of Identified Instructional Strategies:**

After reading pages 13 and 14 from “What is the World Made of?” by Kathleen Weidner Zoehfeld the students will do power notes. Power notes is a wonderful strategy because it helps assist students in organizing information while differentiating between hierarchies of importance. For the closure the students will write down on a piece of paper for their ticket out the door the three properties for a liquid state of matter. In the beginning of class the next day the teacher will explain in detail the answers as feedback and for review.