**Spring Arbor University School of Education**

**Lesson Plan Guide: Direct Instruction**

**Title: Matter in the Form of a Gas by Megan Muzljakovich**

**Subject: Science**

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

**Materials Required:**

* **Smart Board**
* **KWL**
* **Examples of forms of matter worksheet**
* **Gas assessment sheet**
* **The book called, “What is the World Made of?”**

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

**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.CM.02.04** Apply knowledge from grade-level science, social studies and mathematics texts.

**Early Childhood Standards**

**1.7** Application of their knowledge of theory and research to construct learning environments that provide achievable and challenging experiences for all children, including children with special abilities and children with disabilities or developmental delays.

**3.6** Knowledge and skills for integrating technology into assessment and instructional practices.

**Common Core**- Describe the connection between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text.

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

The student will be able to differentiate the gas from of matter from the other forms of matter. This is the analyzing stage of Bloom’s taxonomy.

**Purpose: to learn the properties of the liquid state of matter.**

**Instructional Procedure:**

**Anticipatory Set: 5 minutes**

* 1. Yesterday we went over the liquid form of matter and its properties
	2. Today we are going to learn about the gas form of matter
	3. I want you to fill out on your KWL chart what you know about the gas form of matter and want to learn. **(Strategy # 50/ KWL)** When you are done please turn your paper over and get a book out to read until everyone else is done.
	4. Read pages 14-16 of in “What is the World Made Of?”

**State Purpose and Objective of Lesson: 2 minutes**

* 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.

**Plan for Instruction: 25 minutes**

* 1. Modeling
		1. Today we are going to use a the Smart Board to organize and review the forms of matter
		2. I am putting the three forms of matter on the Smart Board so we can fill in our graphic organizer.
			1. Solid
			2. Liquid
			3. Gas
	2. Guided Practice**:**
		1. Now that we have the Smart Board up and our three forms of matter let’s see if we can as a group list all the properties of a solid and liquid. Ask the class to tell you what the properties of each are. If they are struggling have them review their work from the past two days.
		2. Solids properties are
			1. It has a definite shape
			2. It has a definite mass
			3. It has a definite volume
		3. Liquid properties are
			1. It does not have a definite shape
			2. It has a definite mass
			3. It has a definite volume
		4. Now let’s see if we can guess what the properties of a gas might be by looking at the solid and liquid properties. List the guesses on the Smart Board for the class to see.
		5. Once the class has listed all their guesses write the properties under Gas on the board. Make sure to point out any of the guesses that were correct.
			1. It does not have a definite shape
			2. It does not have a definite mass
			3. It does not have a definite volume
	3. Independent Practice: I want each of you to fill out the worksheet titled three forms of matter. I have listed solid, liquid and gas on the sheet. You will need three examples of each form of matter along with the properties of a gas. You should be able to think of three items of solids and liquids as that is what we have learned about the last two days. When you get to the gas portion of the worksheet review these three websites to see if you can come up with examples of gases.
		1. <http://www.nyu.edu/pages/mathmol/textbook/statesofmatter.html>
		2. <http://www.chem4kids.com/files/matter_gas.html>
		3. <http://chemistry.about.com/od/lecturenotesl3/a/statesmatter.htm>
		4. Once the class has finished the worksheet include their examples on the Smart Board under the gas heading.

**Differentiation Considerations:**

* 1. For those students who are having a hard time remembering examples of solids and liquids let them use their work from the past two days to get ideas.
	2. For those students who are having a hard time navigating the websites, read the heading to them and ask them does that sound like what we are looking for?
	3. For the students who finish quickly have them see if they can find more than three websites.

**Assessment**: **10 minutes**

* 1. Have the students fill out the gas assessment worksheet. They will need to list the three properties of a gas and two examples of a gas. Then the student will go to the Smart Board and write down their two examples of a gas.
	2. If any of the students write down an example that is not considered a gas then we will explain why their answer is incorrect.

**Closure: 3 minutes**

1. What are the three properties of a Gas?
	* + 1. It does not have a definite shape
			2. It does not have a definite mass
			3. It does not have a definite volume
2. As your ticket out the door I need three examples of a gas and you to fill out the rest of your KWL chart (What you learned).

**(Strategy # 39/Ticket Out the Door)**

**Explanation of Identified Instructional Strategies:**

During the anticipatory set the students started filling out the KWL chart before starting the lesson to see what they know about the gas form of matter and want to know column. KWL charts are a great strategy for note taking. For the closure the students will write down three examples of a gas for their ticket out the door and the teacher will provide feedback the next day in the beginning of class. They will also fill out the “What you Learned” column on the KWL chart to show the students how much they learned in class and to help them gather their thoughts before the end of class.