

### Lesson Plan Template

<b>Grade:</b> 6th		<b>Subject:</b> Physical Science	
<b>Materials:</b> PowerPoint, projector, water, rock, body spray		<b>Technology Needed:</b> Projector	
<b>Instructional Strategies:</b> <input type="checkbox"/> <b>Direct instruction</b> <input type="checkbox"/> Guided practice <input type="checkbox"/> Socratic Seminar <input type="checkbox"/> Learning Centers <input type="checkbox"/> <b>Lecture</b> <input type="checkbox"/> Technology integration <input type="checkbox"/> Other (list)		<b>Guided Practices and Concrete Application:</b> <input type="checkbox"/> <b>Large group activity</b> <input type="checkbox"/> <b>Independent activity</b> <input type="checkbox"/> Pairing/collaboration <input type="checkbox"/> Simulations/Scenarios <input type="checkbox"/> Other (list) Explain:  Students will be taking notes from the Power Point. There will be a couple interactive group activities embedded in the lecture. Then, they will have a practice to work on afterward.	
<b>Standard(s)-</b> Performance Standard MS-PS1-4 Develop a model that predicts and describes changes in particle motion, temperature, and state of a pure substance when thermal energy is added or removed.		<b>Differentiation</b>  <b>Below Proficiency:</b> Students will be able to identify different states of matter and identify whether energy was added or taken away during the phase change using their notes and with the help of a partner during work time.  <b>Above Proficiency:</b> Students will be able to apply their understanding of the phase changes and the relative energy necessary to do so in completing the practice without extra help. I also posed some questions about plasma for students to consider.  <b>Approaching/Emerging Proficiency:</b>  Students will be able to understand the different phase changes and the relative energy necessary to do so with reference to their notes.	
<b>Objective(s)</b>  At the end of this lesson students will be able to identify models of each state of matter (solid, liquid, gas) and its relative particle movement. Students will also be able to demonstrate in their summative assessment that they understand how a substance changes from one state of matter to another.  <b>Bloom's Taxonomy Cognitive Level:</b>  <b>Understand/Apply</b>		<b>Behavior Expectations- (systems, strategies, procedures specific to the lesson, rules and expectations, etc.)</b> Students are expected to be respectful and attentive as usual in the classroom. They will be using the Avid note taking sheet that is normally used when there is a lecture lesson.	
<b>Classroom Management- (grouping(s), movement/transitions, etc.)</b>  In this lesson, students will be sitting at their designated seats for the entirety of the lecture. Afterwards they can work with a partner and move seats if they wish.			
<b>Minutes</b>	<b>Procedures</b>		
<b>Set-up/Prep: None</b>			
<b>10</b>	<b>Engage: (opening activity/ anticipatory Set – access prior learning / stimulate interest /generate questions, etc.)</b> The first thing that we will do is go over the questions that students struggled with the most from pre-assessment (SEE ATTACHMENT) that students took the day before. This varied by class.  We will briefly review what matter is (everything we have learned up until this point: atoms, elements, molecules) I will ask if anyone can remind the class what else the universe is made of. (Energy!)		
<b>15</b>	<b>Explain: (concepts, procedures, vocabulary, etc.)</b> Students will take notes on the attached PowerPoint presentation. The essential questions they will be answering: What are the three phases of matter and how do they change?		

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	I will direct on students on what information is important to write down. There are also a few slides that are interactive activities that will help me to measure student engagement and understanding. I will be using the rock, water, and body spray to give students a practical/hands on example of each phase of matter.	
<b>10</b>	<b>Explore: (independent, concrete practice/application with relevant learning task -connections from content to real-life experiences, reflective questions- probing or clarifying questions)</b>  I will give student the last ten minutes to independently work on their practices on chemical and physical changes and on phases of matter.	
<b>2</b>	<b>Review (wrap up and transition to next activity):</b> Reminder of what is due at the end of the week and what will be on the summative assessment.	
<b>Formative Assessment: (linked to objectives)</b> <b>Progress monitoring throughout lesson- clarifying questions, check- in strategies, etc.</b>  During the lecture, there are a few slides that incorporate student engagement. See slides 15, 16, and 17. They challenge students to identify whether energy is being added or taken away in the phase change.  Additionally, students will be working on a practice to demonstrate their understanding of the content.	<b>Summative Assessment (linked back to objectives)</b>  Students will be given a summative/post assessment on this content at the end of the week. (See attached file)  <p style="text-align: center;"><b>If applicable- overall unit, chapter, concept, etc.:</b></p>	
<b>Reflection (What went well? What did the students learn? How do you know? What changes would you make?):</b>  Overall, the lesson went well, students were engaged in the material and I think the examples (specifically for gas) was engaging. I do think that the lecture got a little long, I could tell the students were getting a little antsy toward the end. Perhaps some of the notes could have been shortened by doing a fill in the blank instead of having them write everything themselves. Some students took a really long time to write the notes down and I could tell students who were faster at writing were getting bored. It could have been a good idea to shorten the notes or add more movement to the lesson. I was impressed by the classes quick and mostly accurate responses to the practice slides (15, 16, and 17).		

Pre-assessment:

# STATES OF MATTER

## MINQUIZ CHECKUP

Name \_\_\_\_\_ 15

Date \_\_\_\_\_ Per \_\_\_\_\_

1. Which is TRUE?  
 a. an atom is made of molecules                      b. A molecule is made of atoms
2. Which phase/state of matter has atoms that move the fastest?  
 a. solid                      b. liquid                      c. gas
3. Which phase/state of matter has atoms that are the closest together?  
 a. solid                      b. liquid                      c. gas

Label each of the following groups of atoms as SOLID, LIQUID or GAS.

4. \_\_\_\_\_



5. \_\_\_\_\_



6. \_\_\_\_\_



# Lesson Plan Template

Pre-assessment answers:

## STATES OF MATTER MINIQUIZ CHECKUP

16

Name \_\_\_\_\_

Date \_\_\_\_\_

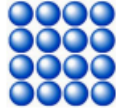
- Which is TRUE?
  - an atom is made of molecules
  - A molecule is made of atoms**
- Which phase/state of matter has atoms that move the fastest?
  - solid
  - liquid
  - gas**
- Which phase/state of matter has atoms that are the closest together?
  - solid**
  - liquid
  - gas

Label each of the following groups of atoms as SOLID, LIQUID or GAS.

4. **LIQUID**



5. **SOLID**



6. **GAS**



### Phases of Matter Slides:

<p><b>Phases of Matter</b></p> <p>Essential Question: What are the 3 Phases of matter and how do they change?</p>	<p><b>Phases of Matter</b></p> <ul style="list-style-type: none"> <li><b>Solids:</b> Particles are tightly packed together and DO NOT move past each other. They vibrate in place.</li> </ul>	<p><b>Phases of Matter</b></p> <ul style="list-style-type: none"> <li>Examples of Solids:</li> </ul>	<p><b>Phases of Matter</b></p> <ul style="list-style-type: none"> <li>Solids have a definite <b>SHAPE</b></li> <li>Solids have a definite <b>VOLUME</b></li> </ul> <p>Example—<b>Marble</b></p> <p>Shape = Sphere Volume = can be found using water displacement</p>	<p><b>Phases of Matter</b></p> <ul style="list-style-type: none"> <li><b>Liquids:</b> Particles are still tightly packed together and they <b>SLIDE</b> move past each other.</li> </ul>	<p><b>Phases of Matter</b></p> <ul style="list-style-type: none"> <li>Examples of Liquids:</li> </ul>
1	2	3	4	5	6
<p><b>Phases of Matter</b></p> <ul style="list-style-type: none"> <li>Liquids have a definite <b>VOLUME</b>.</li> <li>Liquids <b>DO NOT</b> have a definite <b>SHAPE</b>.</li> <li>They take the shape of their container.</li> </ul> <p>Example—<b>Orange Juice</b></p> <p>Shape = None, it takes the shape of the glass. Volume = can be found using a beaker or graduated cylinder.</p>	<p><b>Phases of Matter</b></p> <ul style="list-style-type: none"> <li><b>Gases:</b></li> </ul>	<p><b>Phases of Matter</b></p> <ul style="list-style-type: none"> <li><b>Gases:</b> Particles are not tightly packed together, and have so much energy they slip past each other quickly.</li> </ul>	<p><b>Phases of Matter</b></p> <ul style="list-style-type: none"> <li>Examples of Gases:</li> </ul>	<p><b>Phases of Matter</b></p> <ul style="list-style-type: none"> <li>Gases <b>DO NOT</b> have a definite <b>SHAPE</b></li> <li>Gases <b>DO NOT</b> have a definite <b>VOLUME</b></li> </ul> <p>Example—<b>Smoke</b></p> <p>Shape = Not definite. Volume = Not definite. Gases are usually always expanding.</p>	<p><b>Phases of Matter</b></p> <ul style="list-style-type: none"> <li><b>Plasma:</b> Particles are moving so quickly it is hard to see what they are actually doing.</li> </ul>
7	8	9	10	11	12
<p><b>Phases of Matter</b></p> <ul style="list-style-type: none"> <li>Examples of Plasma <b>on Earth</b>:</li> </ul>	<p><b>Phases of Matter</b></p> <ul style="list-style-type: none"> <li><b>Energy</b> is what changes a phase of matter.</li> <li>Argon <b>BOILS</b> at -186°C, so when you hold it at room temperature you can see ALL 3 phases at the same time.</li> </ul>	<p><b>Phases of Matter</b></p> <p><b>ADDED</b></p> <p>The added energy has caused the chlorine particles to <b>spread out</b>. Before they were vibrating in place, now they are moving fast enough to slip past one another.</p> <p>Solid      Liquid</p>	<p><b>Phases of Matter</b></p> <p><b>ADDED</b></p> <p>The added energy has caused the water particles to <b>spread out</b>. Before they were moving fast enough to slip past one another, now they have enough energy to break away from one another and expand.</p> <p>Liquid      Gas</p>	<p><b>Phases of Matter</b></p> <p><b>Taken Away</b></p> <p>Taking away energy from a rain drop allows the water molecules down so that they no longer slide past one another.</p> <p>Liquid      Solid</p>	<p><b>Phases of Matter</b></p> <p>Essential Question: What is the difference between a physical change and chemical change of matter?</p>
13	14	15	16	17	18

Phase Change Practice:

Name \_\_\_\_\_ Date \_\_\_\_\_ 6

# ATOMS and the PHASES OF MATTER

Use your notes and/or textbook to answer the following questions.

## SOLIDS

1. Are the particles (atoms) in a solid **close together** or **far apart**? \_\_\_\_\_
2. How do the particles in a solid **move**? \_\_\_\_\_
3. Why are solids so *solid*? \_\_\_\_\_

## LIQUIDS

4. Are atoms in a **liquid** closer together or further apart than atoms in a solid? \_\_\_\_\_
5. How do the **motion** of atoms in a liquid compare to atoms in a solid? \_\_\_\_\_  
\_\_\_\_\_
6. How does this make a liquid able to **spill**? \_\_\_\_\_  
\_\_\_\_\_

## GASES

7. How close together are the atoms in a **gas**? \_\_\_\_\_
8. Gas atoms aren't in any set pattern. What does this mean about how they **move**? \_\_\_\_\_  
\_\_\_\_\_
9. Are gas particles *visible* or *invisible* to the naked eye? \_\_\_\_\_
10. How often do you think gas particles hit each other? \_\_\_\_\_

**DRAW THE ATOMS**



**SOLID**

**LIQUID**

**GAS**

Phase Change Practice Answers:

Name \_\_\_\_\_ Date \_\_\_\_\_ 7

# ATOMS and the PHASES OF MATTER

Use your notes and/or textbook to answer the following questions.

## SOLIDS

1. Are the particles (atoms) in a solid close together or far apart? CLOSE TOGETHER
2. How do the particles in a solid move? THEY VIBRATE/SHAKE IN PLACE
3. Why are solids so...solid? ATOMS ARE STUCK IN PLACE, SO THEY HOLD THEIR SHAPE

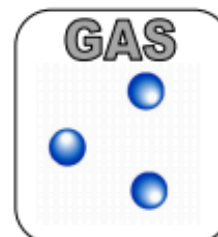
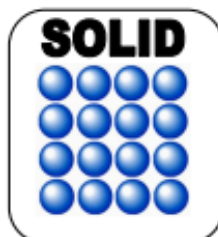
## LIQUIDS

4. Are atoms in a liquid closer together or further apart than atoms in a solid? FURTHER APART
5. How do the motion of atoms in a liquid compare to atoms in a solid? THE ATOMS IN LIQUIDS CAN TRADE PLACES, WHICH IS DIFFERENT FROM A SOLID. THEY'RE ALSO A LITTLE FASTER.
6. How does this make a liquid able to spill? A LIQUID CAN SPILL BECAUSE THE ATOMS ARE ABLE TO TRADE PLACES. THIS MEANS THAT THE SHAPE CAN CHANGE!

## GASES

7. How close together are the atoms in a gas? THEY ARE THE FURTHEST APART
8. Gas atoms aren't in any set pattern. What does this mean about how they move? THEY SPREAD OUT EVERYWHERE!
9. Are gas particles visible or invisible to the naked eye? INVISIBLE - TOO FAR APART TO SEE
10. How often do you think gas particles hit each other? BILLIONS OF TIMES PER SECOND!

**DRAW THE ATOMS**



Name \_\_\_\_\_ Date \_\_\_\_\_

How well do you know the states of matter?

For each example, write **SOLID**, **LIQUID**, or **GAS**!

**SOLID, LIQUID OR GAS?**

1. \_\_\_\_\_ own volume, no set shape

2. \_\_\_\_\_ atoms stuck in place



3. \_\_\_\_\_

4. \_\_\_\_\_ atoms have lots of energy

5. \_\_\_\_\_ atoms move the slowest



6. \_\_\_\_\_

7. \_\_\_\_\_ made of atoms

8. \_\_\_\_\_ atoms kind of close together

9. \_\_\_\_\_ atoms move at medium speed

10. \_\_\_\_\_ set shape and volume

11. \_\_\_\_\_ atoms go anywhere



12. \_\_\_\_\_

13. \_\_\_\_\_ no set volume or shape

14. \_\_\_\_\_ atoms move the fastest

15. \_\_\_\_\_ atoms have little energy

16. \_\_\_\_\_ atoms very close together

17. \_\_\_\_\_ atoms trade places

18. \_\_\_\_\_ atoms are really far apart

19. \_\_\_\_\_ atoms have medium energy

20. \_\_\_\_\_ made of molecules

Name \_\_\_\_\_ Date \_\_\_\_\_

How well do you know the states of matter?  
For each example, write SOLID, LIQUID, or GAS!

**SOLID, LIQUID OR GAS?**

1. LIQUID own volume, no set shape

2. SOLID atoms stuck in place

3. SOLID 

4. GAS atoms have lots of energy

5. SOLID atoms move the slowest

6. GAS 

7. ALL 3! made of atoms

8. LIQUID atoms kind of close together

9. LIQUID atoms move at medium speed

10. SOLID set shape and volume

11. GAS atoms go anywhere

12. LIQUID 

13. GAS no set volume or shape

14. GAS atoms move the fastest

15. SOLID atoms have little energy

16. SOLID atoms very close together

17. LIQUID  
(gas ok too) atoms trade places

18. GAS atoms are really far apart

19. LIQUID atoms have medium energy

20. ALL 3! made of molecules