

Solids, Liquids and Gases – A Drama and Science Arts Integration Plan
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Shared by James Madison University

Strategies: Machine, Poster Dialogue, The Truth about me

Non-Arts Subject Area: Science

ITEAR: Extend and Review

Time Needed: 40 minutes

Materials Needed: Poster, markers, sticker name tags

Space Needs: Large amount of space to hang posters

Grade: 2nd

National Theatre Standards:

Creating- Rehearse:

TH:Cr3.1.2.b. Use and adapt sound and movements in a guided drama experience.

Performing- Prepare:

TH:Pr5.1.2.a. Demonstrate the relationship between and among body, voice, and mind in a guided drama experience.

Performing- Share/Present:

TH:Pr6.1.2.a. Contribute to group guided drama experiences.

Connecting- Interrelate:

TH:Cn11.2.1.a. Determine appropriate skills and knowledge from different art forms and content areas to apply in a guided drama experience.

VA State Standards:

2.3 The student will investigate and understand basic properties of solids, liquids, and gases. Key concepts include:

- a) identification of distinguishing characteristics of solids, liquids, and gases;
- b) measurement of the mass and volume of solids and liquids; and
- c) changes in phases of matter with the addition or removal of energy

Enduring Understanding:

There are three different states of matter that make up the the world around us: solid, liquid, and gas.

Essential Question(s):

What are the three states of matter and what makes them different?

How do we see these states of matter in our daily lives?

Lesson Objectives:

The students will compare different states of matter by modifying their bodies to create a machine. The students will apply their knowledge of different states of matter by using real world examples. The students will distinguish the states of matter from each other by applying their knowledge in truth about me.

Multiple Intelligences:

- Bodily- Kinesthetic
- Musical- Rhythmic
- Verbal- Linguistic
- Intrapersonal

Informal or Formal Modes of Assessment:

- D.A.R. Questioning Strategy is used for Reflection
- Machine and The Truth About Me use Teacher Observation to Check Understanding of Properties of States of Matter
- Poster Dialogue Creates Student Generated Brainstorms of Real World Transfers of the States of Matter

FACILITATION PLAN**CLASSROOM MANAGEMENT TECHNIQUE (2 Minutes):**

Please make a circle and stand up.

Throughout our lesson, if I need to get everyone's attention, I will say "Flat Tire" and you will say "Shhhh." Let's practice. After we say our parts, everyone should be quiet in order to hear my instructions.

Say Chant. Wait for quiet. Repeat again if necessary.

SCIENCE/THEATRE VOCABULARY ANCHOR CHART:

As we move through the lesson, we will use this anchor chart to note any science or theatre vocabulary we are using.

ENGAGE (13 Minutes) [Machine]:

Today we will be thinking about the three different states of matter: solids, liquids, and gases. To begin, we will review the properties of these states of matter by participating in fun strategy. In a moment I am going to separate into groups I going to count off 1 through 4, once I have given everyone a number everyone find their groups either sit or stand with them quietly.

Assign a number to each group.

We are going to construct three different machines with our bodies to represent the various states of matter. Group one will make a “solid” machine, group two a “liquid” machine, and group three a “gas” machine. In your groups, you may want to brainstorm what different sounds and motions your state of matter might make. Each person in the group must have a repeatable sound and motion to contribute to the machine. After about three minutes, we will give each group a chance to share their machine with the rest of the class. Are there any questions? You may begin.

Side-Coaching:

- "Make sure to choose a sound/motion that is repeatable for an extended period of time."
- "Try to find a movement that engages your whole body, not just your hands and arms."
- "Remember that our machine does not have to be a straight line, try to use the space 3-dimensionally."

Reflection:

D: What were some different parts of the various machines that you saw?

A: How did these different parts portray the state of matter that they represented?

R: What might be an example of a solid, liquid, or gas “machine” in the real world?

Transition: Now that we have reviewed some of the properties of the states of matter, we are going to test our knowledge with a game.

EXPLORE (10 Minutes) [The Truth About Me]:

If everyone could please stand up silently and get in a standing circle quietly we can begin our next strategy. When you find a space in the circle I will ask everyone to take off their shoes in order to mark your spot, if you are not comfortable taking off your shoes you can place another item in your place like your water bottle.

Hand out name tags with *the different states of matter*.

I have just handed to everyone a nametag all different states of matter, since there are only three there will be some repeats. In a minute I will have a volunteer stand in the center to start the game the person in the middle will say something that is true about their state of matter. If the “truth” they just said relates to the item/thing on your name tag move to different spot in the circle, if all of the spots are taken you are the next person in the center. Try to be creative, for example you could say “I am a state of matter that could be used when cooking” or “I am a state of matter found in abundance in an ocean”. Let’s try really hard to have no repeated statements and remember to be creative! Once we have done a few rounds we all can switch name tags with someone that has a different state of matter than you and start again.

Side Coaching

- Remember to be creative!
- You can take a minute to think.
- Try not to repeat something one of our other friends has said.

D: What did you find challenging or easy about coming up with the “truth about me...” statements?

A: Which statements made a lot of people move? Why do you think that is?

R: What did you learn about the different states of matter and how did this exercise help you notice these differences?

Transition: *Everyone did a great job, now lets continue to look at some real world examples.*

EXPLORE (10 Minutes) [Poster Dialogue]:

I have created 3 posters. Each poster has the name of a state of matter at the top. [Show the students the posters and hang them around the room.]

In a moment, you will walk around the room without talking to anyone. At each poster, you will write examples of solids, liquids, and gases in the real world. For example, what is something in this room that would be considered a solid? Once you have visited each poster, you will revisit them to see what has been added, and think of other ideas you might add. You should continue to brainstorm and walk around until you hear the music stop playing.

Play music while students add ideas to the posters. When complete, bring the posters to the front of the room. Have students sit in a semi-circle. Read the posters, highlighting the various ideas.

Side Coaching:

- Remember this is a silent activity
- Try your best to get to posters multiple times
- It's okay to take sometime to think about what you're going to write
- Dont worry spelling doesn't count just try your best.

Reflection:

D: Which state of matter was easiest for you to come up with a real world example? Which state of matter was the most difficult to come up with a real world example?

A: Out of the items on the posters, what are some that we might have in your home?

R: How might the states of matter relate to different types of weather in our world?

Transition: Based on all of our great thinking and what we have learned, let’s take a moment to reflect on what we’ve done together.

REFLECT (5 Minutes):

D: What kind of activities did we do here today and how did they relate to the states of matter?

A: How did these activities expand upon our knowledge of states of matter?

R: How do states of matter relate to other things we have learned this year or to things you have learned in the past?

Ending Statement: As you go about the rest of your day and week, think about places that you see solids, liquids, and gases in your surroundings (maybe ones that we did not discuss). Think about the roles that these states of matter play in helping our world to function.