

Phases of **MATTER**

Dice Simulation
with Writing Connection



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Teaching in the Fast Lane

PHASES OF MATTER
Dice Simulation
AND WRITING CONNECTION

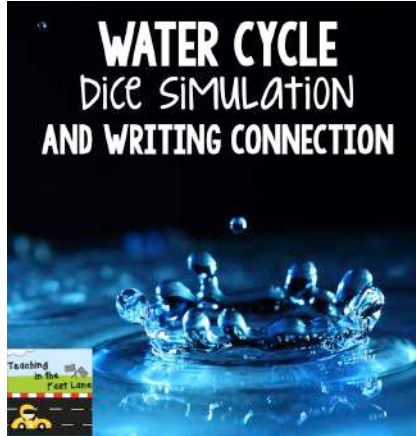


FOR MORE SIMULATIONS!

TURKEY IN HIDING
Dice Simulation
AND WRITING CONNECTION



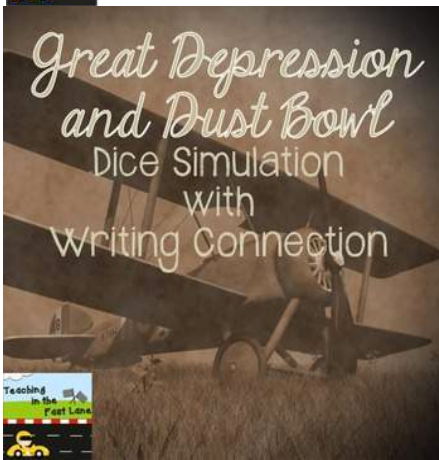
WATER CYCLE
Dice Simulation
AND WRITING CONNECTION



CIRCULATION OF A DOLLAR
Dice Simulation
AND WRITING CONNECTION



REINDEER GAMES
Dice Simulation
AND WRITING CONNECTION



MANY MORE TO COME!

INCLUDED IN THIS PRODUCT:

- Teacher and student directions for simulation
- Recording sheet
- Sample Recording sheet
- Teacher directions for narrative
- Sample narrative based on sample recording sheet
- Rubric for narrative
- Signs for each location with directions

For large classes, I would make multiple copies of each poster and directions, so that lines at each don't get too long.

You will need three dice to complete this simulation. I recommend the large foam dice that can be found at the dollar store.

NOTE TO TEACHER

This is a simulation meant to reinforce students' knowledge of the main three phases of matter. This simulation is a great way to connect science and writing within your curriculum.

TEACHER DIRECTIONS FOR SIMULATION

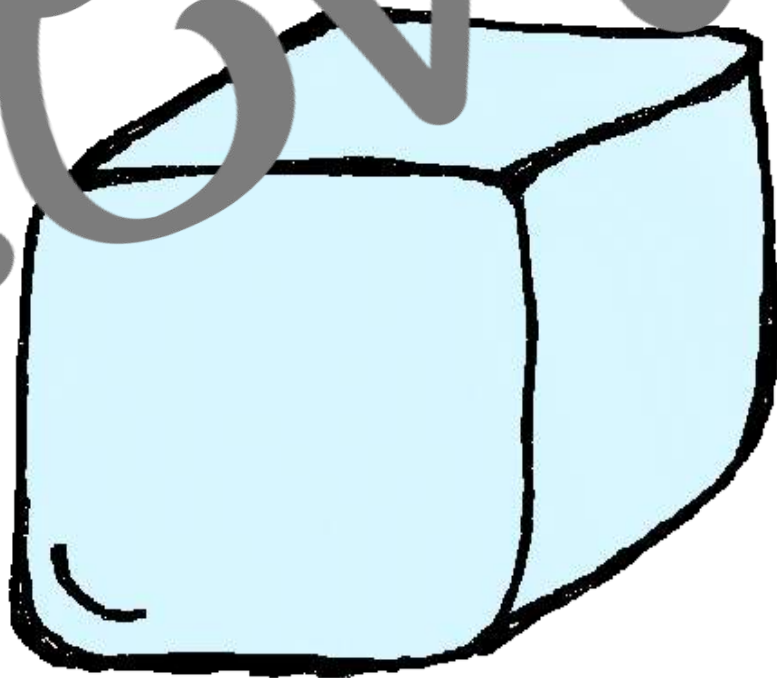
- Print and laminate each of the location signs and student directions.
- Hang the location signs and student directions around your classroom and place one die by each poster.
- Hand out recording sheets to students and review the directions with them:
 - Directions are found on the next page
- Monitor students as they travel around the classroom during the simulation and complete their recording sheet.

DIRECTIONS FOR SIMULATION

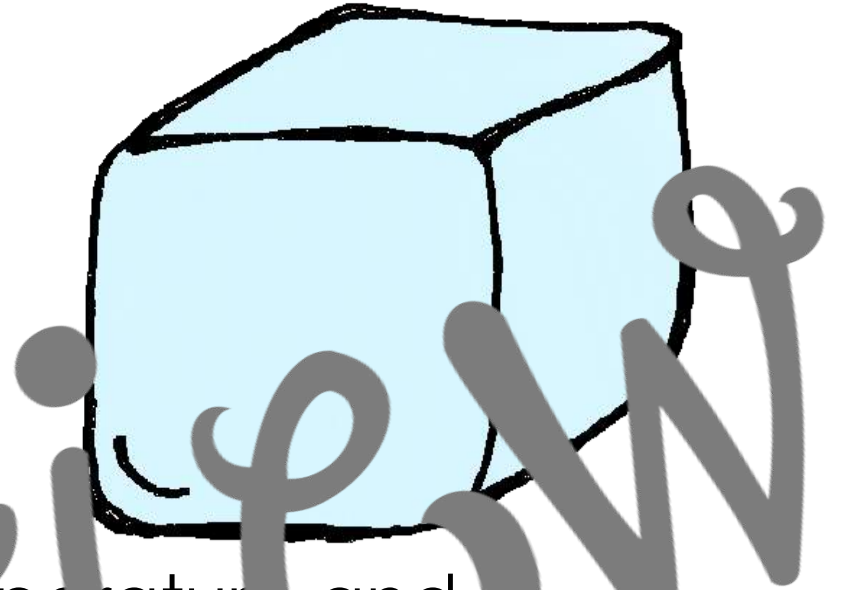
- Assign students to their starting location.
 - I try to split my students as evenly as possible to ensure that no one waits in line too long.
- After each student has their starting location, they should begin to circulate.
- At each location, roll the die and read the event associated with the number rolled. Use the underlined words to record your progress and travel to the next location.
- Once you have established your location, travel there quietly and wait in line to roll the die.
 - If your direction is to stay in the same location, then go to the end of the line and take another turn rolling the die.
- Students should continue to travel from location to location until they complete their recording sheet or time is up.
- I would recommend allowing students to complete the simulation for about 10-15 minutes.

SOLID

previews



SOLID



1. Stay at your current temperature and remain a solid.
2. The temperature increases and you melt into a liquid.
3. Stay at your current temperature and remain a solid.
4. You undergo sublimation and become a gas.
The temperature increases and you melt into a liquid.
5. You undergo sublimation and become a gas.

LIQUID

preview

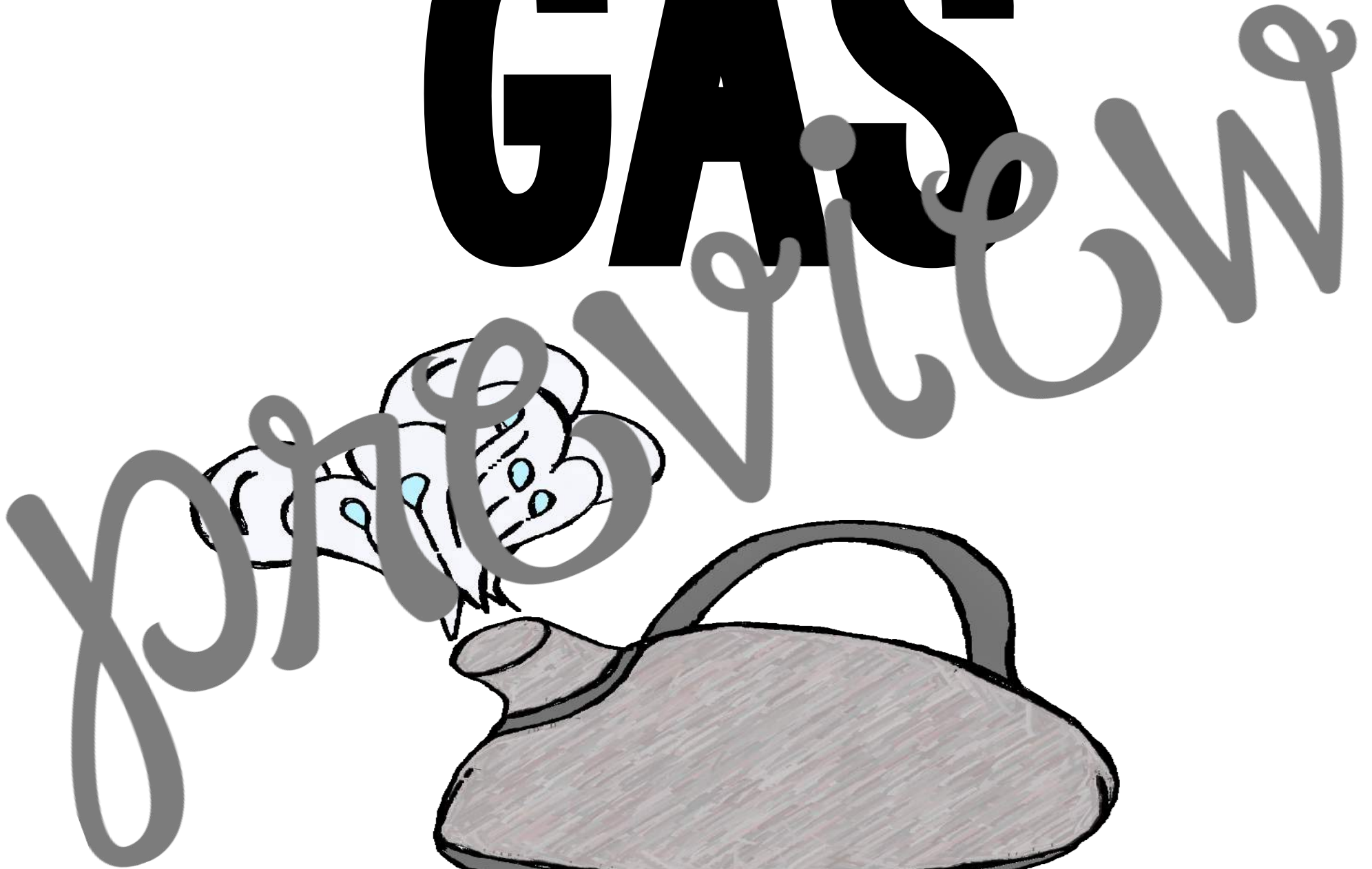


LIQUID



1. Freeze into a solid.
2. Stay at your current temperature and remain a liquid.
3. Boil until you vaporize into a gas.
4. Freeze into a solid.
5. Stay at your current temperature and remain a liquid.
6. Boil until you vaporize into a gas.

GAS



GAS



1. Condense into a liquid.
2. Stay at your current temperature and remain a gas.
3. Undergo deposition and freeze into a solid.
4. Condense into a liquid.
5. Stay at your current temperature and remain a gas.
6. Undergo deposition and freeze into a solid.

Name _____ # _____ Date _____

PHASES OF MATTER DICE SIMULATION

1	Begin as a	1 1	
2		1 2	
3		1 3	
4		1 4	
5		1 5	
6		1 6	
7		1 7	
8		1 8	
9		1 9	
10		2 0	

EXAMPLE PHASES OF MATTER DICE SIMULATION

SAMPLE RECORDING SHEET

1	Begin as a liquid	11	Stay a solid
2	Boil into a gas	12	Melt into a liquid
3	Undergo deposition into a solid	13	Stay a liquid
4	Melt into liquid	14	Stay a liquid
5	Stay a liquid	15	Evaporate into a gas
6	Evaporize into gas	16	Undergo deposition into a solid
7	Condense into a liquid	17	Stay a solid
8	Evaporate into a gas	18	Melt into a liquid
9	Undergo deposition into a solid	19	Stay a liquid
10	Stay a solid	20	Evaporate into a gas

TEACHER DIRECTIONS FOR NARRATIVE

- After completing the dice simulation, students are ready to write a narrative from the point of view of a piece of matter traveling through its different phases.
- Students should use their recording sheet of the locations they visited, to write a narrative piece about their journey.
- By following their recording sheet and adding details, students will have a narrative describing their journey.
- It is alright for students to not use all of the locations on their recording sheet, but they should include at least ten events.
- A rubric for the narrative is included

SAMPLE NARRATIVE

I was drifting through a glass with many of my water molecule friends. We sloshed back and forth as the glass was picked up. I narrowly escaped being swallowed by the large human that so awkwardly slugged most of my friends from our glass.

After our harrowing ordeal, we found our place back on the counter. I thought that we were safe, but suddenly our glass was turned upside down over a large, black pot. My friends and I started moving around rapidly, and we suddenly got very, very hot. Eventually, we moved fast enough that we began to boil, and I felt myself evaporate into the air.

I floated higher, and higher into the air. The higher I went, the colder I got. It became difficult for me to move as quickly. I underwent deposition and became a solid.

Falling back to the ground I began to feel very hot. I melted into a liquid before I was able to reach the ground. As I smacked into the cold cement I could feel myself slowing further and further, until I was frozen into a solid.

I stuck to the sidewalk where I remain. I feel a bit of guilt every time some poor soul slips on me.

RUBRIC FOR PHASES OF MATTER DICE SIMULATION

NARRATIVE

	1 point	2 points	3 points
Grammar, Mechanics, and Spelling	Many mistakes that make it difficult for the reader to understand.	A few mistakes, but the reader can understand.	Only 1-2 mistakes and the reader can understand.
Organization and Coherence	The story does not make sense or follow order of events.	The story follows order of events, but lacks coherence.	The story follows a logical order and is coherent.
Events from recording sheet	Includes less than 5 events from the simulation.	Includes 5-9 events from the simulation.	Includes 10 or more events from the simulation.
Details	No details are added.	A few obvious details are added.	Many imaginative details are added.

Total Score ___/20

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