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The
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Calming
Therapeutic
Slime

Calming Therapeutic Slime



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Goals and Objectives

These past two years dealing with our health and risk of our livelihood during COVID really have challenged our students' and faculty social and emotional well being. Upon returning back to the school house, students are struggling more than ever with their academics, self confidence and ability to network or communicate their feelings effectively. Never would I have ever imagined students informing me that they are stressed and are feeling anxious. I was shocked to hear my 3rd grade students expressing these concerns to me! They are worried and are assuming adult concerns such as getting sick or losing a family member due to this pandemic.

The goal of "Calming Therapeutic Slime " was to help students destress and cope with social and environmental changes.

The main objective of the project is to give students a soothing, aromatic and therapeutic experience in making slime. Students will also benefit from using slime as a stress relieving tool during brain breaks or recess. This method of tactile sensory manipulation also motivated students to learn about the science of how slime is made.

Florida Standards

SC.3.P.8.3 Compare materials and objects according to properties such as size, shape, color, texture, and hardness.

SC.3.N.1.1 Raise questions about the natural world, investigate them individually and in teams through free exploration and systematic investigations, and generate appropriate explanations based on those explorations.

SC.3.N.1.2 Compare the observations made by different groups using the same tools and seek reasons to explain the differences across groups.

SC.3.N.3.1 Recognize that words in science can have different or more specific meanings than their use in everyday language; for example, matter, energy, heat/cold, and evidence.

SC.3.P.8.1 Measure and compare temperatures of various samples of solids and liquids. Cognitive

SC.3.P.8.2 Measure and compare the mass and volume of solids and liquids.

Course Outline/Overview

Explain to students that Chemistry is all about states of matter including liquids, solids, and gasses. It is all about the way different materials are put together, and how they are made up. Chemistry is how materials act under different conditions or form new substances such as slime! So what is Slime? Slime is an endothermic reaction meaning that heat is absorbed as energy instead of giving off energy as heat. Have you ever noticed how cold your slime gets? That's because the slime activator that is used such as saline solution changes the position of these molecules in a process called cross linking! This is the reaction between the glue and the borate ions in the slime activator. Instead of flowing freely, the molecules become tangled and create the slimy substance. Think wet, freshly cooked spaghetti versus leftover cooked spaghetti!

The Science behind Slime

Slime acts as a Non -Newtonian Fluid

Inform students that a Non-Newtonian fluid is neither a liquid or a solid. It can be picked up like a solid, ooze like a liquid as well as slime does not have its own shape just like a solid. Slime can change its shape to take the shape of its container like a liquid, as well as it can bounce like a ball because of its elasticity. Slime will spread on a tray and if you pull it slowly it flows much more freely.

Slime acts as a Polymer

A polymer is made up of very long chains of molecules. The glue used in slime is made up of long chains which slide past one another keeping the glue flowing. When glue and activator are mixed together, the chains no longer slide easily.

Slime is a Shear Thickening Fluid

Stresses cause the substance to become more viscous., but too great a stress will make the slime break apart. If you pull it quickly, the slime will break off because you are breaking apart the chemical bonds. By using too little or too much activator can change the viscosity of slime.

Slime used for stress therapy

Making slime gives students a soothing, aromatic and therapeutic experience. Students will also benefit from using slime as a stress relieving tool during brain breaks or recess. This method of tactile sensory manipulation is used for both play and motivation for students to learn all while having fun.

In this project, students will learn about aromatherapy and how it can improve one's mind and emotional well-being based on the scents. Students will explore the most commonly used aromatherapy scents (i.e. lavender, peppermint, lemongrass, and eucalyptus) found in essential oils and their therapeutic purposes. Students will also get an opportunity to choose their favorite oil to include in their slime recipe.

EXPLORING SLIME THROUGH EXPERIMENTATION



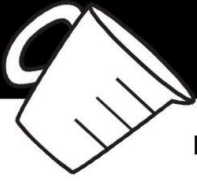
Is a slime a liquid or a solid? Or is it a Non-Newtonian fluid? How can you test this? Can you pick it up like a solid? Does it flow like a liquid? Does it take the shape of the container you put it in but spread out on a flat surface like a puddle?

Which slime recipe is the most viscous? Test each slime to see if it becomes more or less viscous when force is applied. What can you change next time to affect the viscosity of the slime? What would you add more of or leave out? Remember to change only one variable each time and record your observations carefully.

Experiment: Mix up two or more slimes and place each one in a cup, drop a penny in each one. After a set time to observe what has happened to the penny and record your observations. Which slime is more or less viscous? Does white glue or clear glue affect the viscosity of slime? Test multiple recipes and record your observations.

Does slime bounce when rolled into a ball? How can you make it more like the shape of a ball, or how can you make it bouncier? Slime is elastic because it is a polymer and will stretch before it breaks. Does gravity affect the flow or stretch of slime? Test hypothesis by holding slime out over table, let it dangle, and observe the flow. Then stand on a chair and hold slime out over floor. Observe the flow. Record your observations.

Does Temperature Affect Slime? What happens to slime if you put it in the freezer for five minutes, or the fridge for five minutes? Does the slime become a solid? Will it still flow like a liquid? What happens when the slime comes back to room temperature?



SLIMY VOCABULARY WORDS

Force: The push or pull on an object.

Gas: Matter that expands freely to fill available space regardless of amount.

Liquid: Matter that has a constant volume but flows freely.

Matter: Physical substances including solids, liquids, and gasses.

Mixture: Combination of two or more substances.

Molecule: Smallest particle in a substance that has all the chemical properties of that substance.

Newtonian Fluid: Fluid that pours and behaves like water with a constant viscosity.

Non-Newtonian Fluid: Fluid that is neither a liquid or a solid depending on the forces acting upon it and does not have a constant viscosity. An example of this is Oobleck.

Physical Properties: Characteristics about a substance that can be observed.

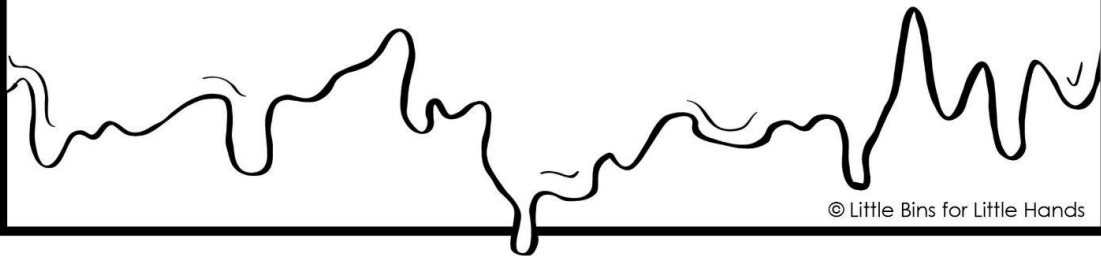
Polymer: Substance like slime with long chain molecules made up from many small molecules.

Shear Thickening: Fluid that increases viscosity when shear stress is applied. An example of this is slime.

Shear Thinning: Fluid that decreases viscosity when shear stress is applied. An example of this is ketchup.

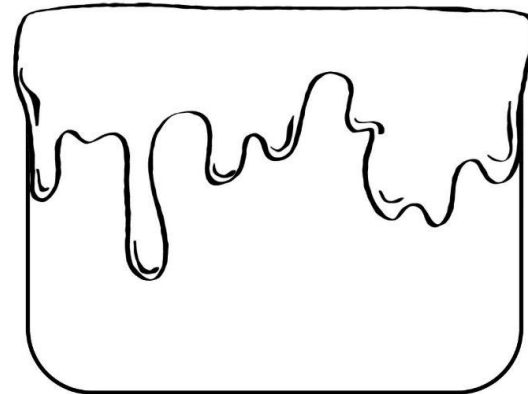
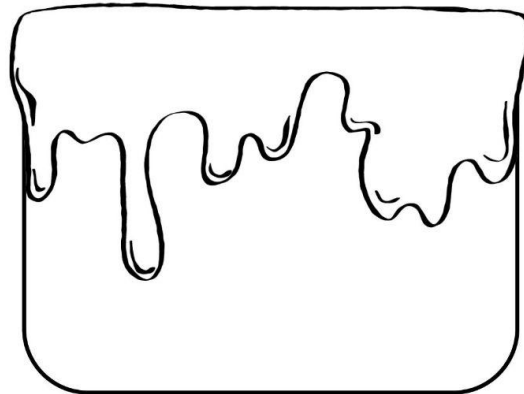
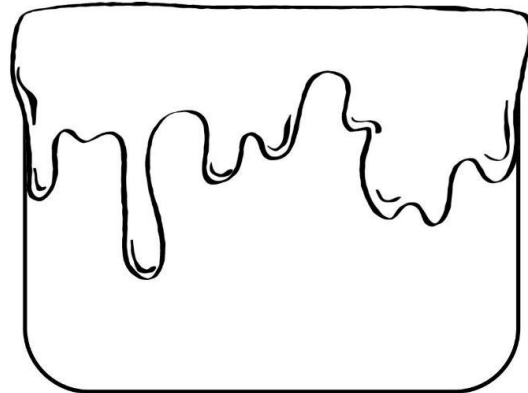
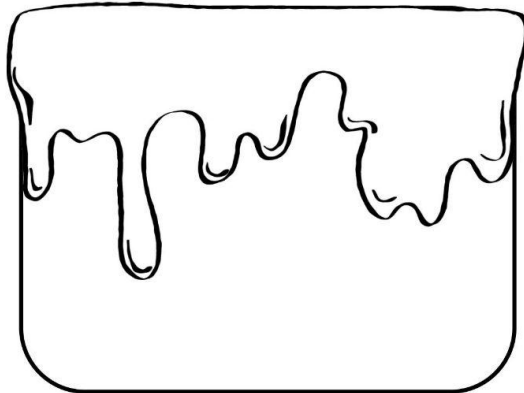
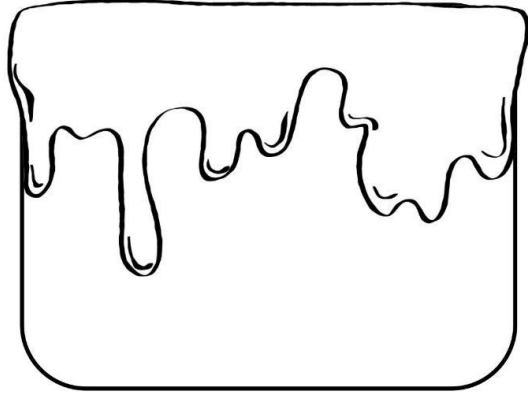
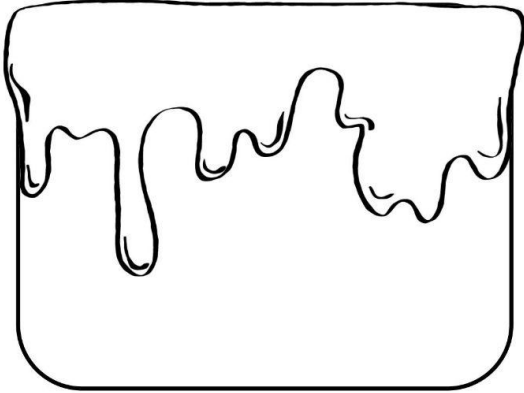
Solid: Matter that has a specific shape and volume and is not fluid.

Viscosity: Resistance of a fluid to flow. If a fluid is more viscous, it has less flow. If a fluid is less viscous, it has more flow.



SLIME LABELS

If desired, use these labels to label your child's slime. Child can add his or her name, the date the slime was made, and the type of slime. Cut out label and tape it to the child's slime container.



I WANT TO LEARN ABOUT SLIME!



1. What do you already know about slime?

2. What do you want to learn about slime?

3. What will you do to find out more about slime?

SLIMY REACTIONS AND OBSERVATIONS



WHAT HAPPENS TO THE SLIME IF YOU . . .

Twist It

Squeeze It

Bend It

Stretch It Slowly

Pull It Quickly

Classroom Preparation for making Slime

- Hand out and review slime making rules with students. (rules included in this packet)
- Inform student when making the slime they will need to choose a team captain for their group.
- Have supplies ready for each group on a tray so that the captain can take it back to the table.
- Arrange and select classroom desk to conduct the experiment.
- Give each group a sheet of slime label and a scissor to bring back to the team. Have table captain assign someone to cut out labels for team members.
- Student groups of 4-5 at table. Teacher will play video and stop it at different intervals for students to follow along as they are conducting the experiment.
*Captain will choose different team members to measure out the ingredients.
- Have ingredient list available for captains to create a checklist of items they need to have on their trays.
- K-1 students , teacher makes a batch while students help add ingredients.

SLIME MAKING RULES

1. Follow the directions given by the adult in charge.
2. Roll up our sleeves to keep slime off of our clothes.
3. Make slime on hard surfaces like tables, counters, or trays.
4. Put our slime in a container when we are finished with it.
5. Do not play with our slime on rugs or on carpets.
6. Do not eat our slime.
7. Do not throw our slime.
8. Do not put slime in our hair or other kids' hair.
9. Wash our hands well after playing with our slime.
10. Help clean up our slimy messes.
11. Thank our adults for making slime with us!

Lesson Plans

Day 1

Brainstorm:

1. Tell them that they will be making therapeutic slime. Have student brainstorm with you what they think it means.
2. Draw a KWL chart on the board and ask students the following question. (a) What do you already know about slime? (b) What do you want to learn about slime? (c) What will you do to find out more about slime? List their responses on the chart.
3. Give the students the worksheet titled "I WANT TO LEARN ABOUT SLIME" to fill in the responses from the chart.
4. You can use this as a grade

Day 2

Introduction:

1. Introduce lesson on what is slime found in the course outline and overview page of this packet. (Page 5)
2. Give students the slimy vocabulary words found in the packet. Go over vocabulary words and meaning with the students daily. Have them glue sheet into their science journal book.
3. Talk about science of slime with students. Share with them that slime is a non-newtonian fluid, a polymer and a shear thickening fluid.
4. Write notes on the board and have students copy it in their journal book.

Day 3

Question and answer:

1. Students will be asked to answer the following questions orally then they will be directed to write the questions and answers in the science journal books.
Questions: what is the meaning of non-newtonian fluid?
2. Ask students Does slime have its own shape?
3. Ask students how is slime like a liquid?
4. Ask students if glue is a polymer?
5. What is the meaning of a polymer?
6. Does slime have viscosity?
7. What is the meaning of viscosity?
8. Have students copy the questions in their science journals then use their notes to write the answer the questions .

Day 4

Introduction to essential oil

1. Introduce to students four therapeutic essential oils that they will used to scent their slime. (lavender, lemongrass, eucalyptus, and peppermint) Tell students that essential oils comes from the scents and oils in the plants that they are named from.
2. Inform students that lavender is used to bring relaxation, release stress, and give a feeling of calmness when used. Put 1 drop of lavender scent on cotton ball and give each student their own to smell.
3. Inform students that eucalyptus is used to clear the lungs and the environment and helps you to breathe easier. As you breathe the eucalyptus you automatically feel the freshness of the air and it also helps to relieve stress. Put 1 drop of eucalyptus scent on cotton ball and give each student their own to smell.
4. Inform students that lemongrass has a very clean smell and is used to keep your mind feeling clear with a feeling of happiness. Put 1 drop of lemongrass scent on cotton ball and give each student their own to smell.
5. Inform students that peppermint has a very fresh and minty smell. It reminds you of christmas and peppermint candy which brings a feeling of good mood. Peppermint is used for having a clear mind. Put 1 drop of peppermint scent on cotton ball and give each student their own to smell.
6. After students have smelled all cotton balls/ essential oils, encourage them to discuss which one did they like the best and which one or two oils would they put in their therapeutic slime and why.
7. Ask students which was their least favorite and why?

Day 5

Rules and review

1. Share the slime making rules with students. Print a copy of the ditto and have students glue it into their journal books. Have students read out loud with you the rules.
2. Review the slimy vocabulary words with students. You could create a quiz of the words and administer as an assessment for a grade.
3. Ask students questions about the science of slime and what it is.
4. Review the 4 different essential oils scents and its use with the students. If you would like to freshen up their cotton balls with the scents or give them a new one so that they can use for their personal emotional needs during the school day.
5. Create groups and select captains for the group for experiment day!!!!
6. Play slime video for students and inform them that they will be following the directions from the video to create their group slime.

Day 6

Experiment day

1. Assign groups to their tables and be sure that a captain was chosen for the group to bring supplies back to the group.
2. Play video for the groups and tell them when its time to start experiment you will be stopping the video at different parts for them to follow directions and conduct the procedure.
3. On each tray make sure there is glue, measuring cup, measuring spoons, a spoon for mixing and blending, mixing bowl, food coloring, baking soda, saline solution, essential oil chosen by the group/ captain, paper napkins, scissor, slime labels, sealed jar and a marker. Direct captain to pick up tray and to make sure he has each item listed on the tray.
4. Play video and stop at each application section for students to conduct their experiment. Give them time to complete each activity.
5. Once the project is completed, inform students that they should fairly distribute the slime amongst themselves so that each person will have a fair amount to put in their jar.
6. Have students label their jars with a creative name for their slime.
7. Tell student to keep their slime in the container and seal it and then clean up.

8. Once area is cleaned students can have fun with their slime.

Day 8

Slime investigation

1. Give students the ditto sheet titled "SLIMY REACTIONS AND OBSERVATIONS"
2. Tell students to play with their slimes and answer the questions that is on the worksheet orally.
3. Have them write their personal responses on the worksheet and then have them glue the worksheet in their science journal.
4. Have students use their slime during brain break session or recess. * I turn off the lights during brain breaks and tell students to play with their slimes and smell it for the aroma and therapeutic feelings it gives.

Day 9 and 10

Exploring Slime

1. Find the worksheet titled "EXPLORING SLIME THROUGH EXPERIMENTATIO"
2. For the next two days ask students the questions on the worksheet.
3. You have a choice to make another type of slime using other ingredients with the students that you can look up and do another inquiry with them.
4. There are many versions of making slime on youtube video and google.
5. Have fun exploring other versions of slime if you choose to do so.
6. Have students enjoy their slimes during brainbreaks, recess or during the school day and hope this was as much fun for you as it was for me.


Resources

Saline Solution Slime Recipe

Supplies:

- 4 oz white school glue (you can get bulk form from your art teacher)
- Food coloring (purchase from supermarket)
- 1 tablespoon saline solution (purchase from CVS)
- ½ tsp baking soda (purchase from supermarket)
- Mixing bowls (1 for each group) (Purchase from dollar store or target)
- Mixing spoons (1 for each group)
- Measuring cups (1 for each group)
- Measuring spoons (1 for each group)
- Essential oils (add a total of 8 drops to slime)

Steps: follow steps viewed on youtube video

 [DIY Essential Oil Aromatherapy Slime | Young Living Essential Oils](#)

Additional Slime recipes can be found on the links below:

<https://www.thebestideasforkids.com/fluffy-slime-recipe>

<https://www.onecrazymom.com/the-best-slime-activators>

You can purchase pack of essential oils from Amazon

You can also purchase sealed airtight container for storing slime from amazon

