

Grade: 2	Subject: Science
Materials: Root beer, Ice Cream, cups, spoons, observation sheets	Technology Needed: informative video
<p>Instructional Strategies:</p> <ul style="list-style-type: none"> ◦ Direct instruction ◦ Guided practice ◦ Socratic Seminar ◦ Learning Centers ◦ Lecture ◦ Technology integration ◦ Other (list) 	<p>Guided Practices and Concrete Application:</p> <ul style="list-style-type: none"> ◦ Large group activity ◦ Independent activity ◦ Pairing/collaboration ◦ Simulations/Scenarios ◦ Other (list) <p>Explain:</p>

Standard(s)
Sci 02-PS1-1.

Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties.

[Clarification Statement: Observations could include color, texture, hardness, and flexibility. Patterns could include the similar properties that different materials share.

Differentiation

Below Proficiency:

Below proficient students will be asked clarifying questions by the teacher and be paired up with or near an above proficient learner. These students could have a small review time before science the next day as well.

Above Proficiency:

Students above proficiency will be called on to provide explanations and examples. These students will also be asked the toughest clarifying questions as the teacher moves around the classroom and observes.

Approaching/Emerging Proficiency:

Students at this stage in their learning will be asked clarifying questions and will also be paired close to an above proficient learner. These students will have the same expectations as above proficient students.

Modalities/Learning Preferences:

Visual:

Visual learners can view their experiment in action to observe properties and states of matter. These students will also be engaged by drawing their observations in the worksheets.

Auditory:

In class discussions with their peers and teacher along with listening to the instructional video.

Kinesthetic:

These students will be allowed to pair share with their table and get out of their desk to best observe their experiment.

Tactile :

Tactile learners will be able to build and physically observe the experiment they are participating in. They will even be allowed to touch, feel, taste, and eat the experiment which could help them learn more about observable properties of the states of matter.

<p>Objective(s) The learner will apply prior knowledge of states of matter and identify solid, liquid, and gas states while analyzing a root beer float they created.</p> <p>Bloom’s Taxonomy Cognitive Level: Apply, Analyze, Identify</p>	
<p>Classroom Management- (grouping(s), movement/transitions, etc.)</p> <ol style="list-style-type: none"> 1. Students will be seated in tables or pods for discussion. 2. Students will get up and move to get their cup filled with root beer and their ice cream before returning to their desks. 3. Students are allowed to get out of their seat and move from their desk to get a good angle on making observations of their float. 4. The learners will transition to clean up after the lesson is finished and they have finished eating their float. 	<p>Behavior Expectations- (systems, strategies, procedures specific to the lesson, rules and expectations, etc.)</p> <ol style="list-style-type: none"> 1. Students are asked to have their voice levels low while the teacher is talking and explaining. 2. Students are asked to be in their desk or standing very close to their desk unless otherwise allowed to do so. 3. Students are expected to participate in discussions with their peers and teachers. 4. Students are asked to respect the personal space of others and keep their own space clean before and after the experiment. 5. Students will do their own work.
<p>Minutes</p>	<p>Procedures</p>
<p>5</p>	<p>sily accessible. (root beer could be pre-poured in cups so the students wouldn’t spill)</p> <ul style="list-style-type: none"> · Pass out both of the worksheets the students are expected to complete. · Ask for students to return to their seats and give their undivided attention.

<p>10</p>	<p>Engage: (opening activity/ anticipatory Set – access prior learning / stimulate interest /generate questions, etc.)</p> <ul style="list-style-type: none"> · Class since we achieved our behavior goals for the month I promised we would make root beer floats one afternoon. Have you ever thought about the science involved inside of this tasty treat? <ul style="list-style-type: none"> • Discuss what has been learned in the previous science lessons to start students science thinking processes and help them to remember · Believe it or not, there are three states of matter involved in our treat which we can identify through their properties of texture, hardness, or flexibility. · If we only have our two ingredients in our float would anyone be able to identify the three states of matter through observation? · Turn and talk to a partner at your table and predict the three states of matter involved in your float. Tell your partner why you made your prediction.
<p>15</p>	<p>Explain: (concepts, procedures, vocabulary, etc.)</p> <ul style="list-style-type: none"> · Review and discuss matter and how its properties can be observed. (confirmation level of inquiry) · Review and discuss how matter’s properties and states can be changed based on temperature and pressure. (confirmation level of inquiry) · Discuss the three states of matter and allow the students to provide examples. (make sure to use water as a primary example)—(confirmation level of inquiry) · Watch a video on the activeboard describing matter and its states. · Ask the students if there are any properties they can observe from the three states of matter. (guided inquiry) · A <u>solid</u> has a fixed shape. It cannot be compressed to form a smaller shape unless it has melted, in which case the state has begun changing. This is because the particles in a solid are close together. (ask for examples) · A <u>liquid</u> takes its shape from the container it is in. They cannot be compressed, and the particles move freely with one another. (ask for examples) · <u>Gases</u> flow and fill their container where there is room to do so. They can be compressed, as their particles are far apart, can move quickly in all directions, with space to move into. (ask for examples) · Ask the class to share the predictions they made with their table partners who they turn and talked with.

<p>15</p>	<p>Explore: (independent, concrete practice/application with relevant learning task -connections from content to real-life experiences, reflective questions- probing or clarifying questions)</p> <ul style="list-style-type: none">· Each student will then be provided with a small cup pre-filled with root beer. A teacher or instructional aide will walk around giving each student one scoop of ice cream. (structured level of inquiry)· Once every student has had the opportunity to combine Root Beer with ice cream in their cup they will use the provided worksheets and begin observing the states of matter in their root beer float.· Students will draw and describe what they see in their root beer float.· Ask the students to complete their worksheets as they make their observations.
<p>10</p>	<p>Review (wrap up and transition to next activity):</p> <ul style="list-style-type: none">· Can you identify the states of matter (solid, liquid, and gas) based on your observations of their properties? (ask for student participation)· Did your predictions or discussions change after you observed your root beer float? What changed and what did you observe? (ask for student participation)· Inform the students of the states of matter. (solid= ice cream, Liquid= root beer, gas= bubbles in the root beer)· Allow the students to eat and drink their float.· Clean up materials.· Turn in worksheets and discuss them if time allows.

Formative Assessment: (linked to objectives, during learning)

· **Progress monitoring throughout lesson (how can you document your student's learning?)**

· The students will be sharing their findings, observations, or predictions within their table which will then be a form of formative assessment.

· We will go around to each of the students to make sure that they are grasping the key ideas of matter; including liquid, gas and solid.

· Observations will be made regarding student feedback, participation, and the sharing of their ideas throughout the lesson. (thumbs up thumbs down, fist to five)

· The students will hand in their completed worksheets and the worksheets will be used as the assessment to see where our students are at.

· The booklet and sheet could also be used as a form of an exit slip. The booklets and observation worksheets could be displayed in the student's portfolios highlighting their learning of the three states of matter.

Summative Assessment (linked back to objectives, END of learning)

· This lesson could precede a unit quiz or test and serve as a good practice for students.

Reflection (What went well? What did the students learn? How do you know? What changes would you make?):

Overall, I feel like today's rootbeer float lesson went very well. You plan for the worst and hope for the best, and I would say this lesson fell in between. It certainly could have gone better but it also could have gone worse. I left the lesson pleased with a variety of areas. I will say it was very important to have help when teaching this lesson. It would be nearly impossible to try and do everything by yourself as far as getting the materials ready for the students and teaching at the same time. Mrs. Allen certainly helped me to get my materials ready to go for the students. The positives from my lesson would include the time management aspects as the lesson actually finished up with time to spare which I was not necessarily expecting. In addition, the video I shared with the students regarding the observable properties of matter proved to be a great help for the students in their learning. I could remind the students of the video and they could quickly remember what the video was about. It proved to be a great review strategy and made the lesson strong. Another successful piece of the lesson was the thinking strategies the handouts forced the students to do. The students were expected to make predictions, draw the experiment, analyze, and use describing words. I know the students learned because they correctly identified the states of matter in the root beer float both on their paper and during probing or clarifying questioning. In addition, almost all of the students contributed to class discussions in some way. I was pleased with how the students completed their handouts. If I were to change any aspects of my rootbeer float lesson it would be some of the strategies I used to get knowledge out of the students. It became hard to get what I wanted from the students as far as their learning went with simple clarifying questions. I think I could have had a more organized agenda or nuts and bolts of my lesson. For example, after going over this, immediately teach or clarify this, and so on. I believe this would come with time and repetition of this lesson. I would change how I would organize my thoughts and the student's thoughts on the board in order to make it more visually appealing and easier to understand. A nice chart became a bit messy and it may have been hard for the students to know the message I was trying to promote. I think the lesson was a success and I would not be afraid to give it a try again. I know the students enjoyed it also!

Summative Assessment

SCI -02.PS1-1-- Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties.

[Clarification Statement: Observations could include color, texture, hardness, and flexibility. Patterns could include the similar properties that different materials share.

Describe and classify the material as a solid, liquid, or a gas





SHUTTERSTOCK









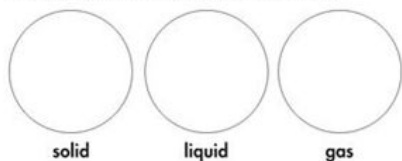
Criteria	Proficiency Level
All states of matter are correctly identified.	3
Over half the states of matter are correctly identified.	2
Less than half the states of matter are correctly identified.	1

Lesson Handouts

Root Beer Float States of Matter

solid, liquid, and gas treat!

Draw what the molecules look like for each state of matter.



What state of matter do you think each ingredient is?!

root beer

ice cream

foam

Make a prediction!

Do you think there will be more foam if ice cream is added before or after the root beer? Why?!

Conclusion

Were you correct?!



Esstr**EXPLORE!**

Rootbeer Float Matter!



Types of Matter:

The Solid is the _____

The Liquid is the _____

The Gas is the _____

Describe the
properties of each:

The 3 properties of
Matter are: _____,
_____, and _____.

The amount of matter
an object has is called
_____.

Solid	Liquid	Gas