



FOR EXCELLENCE IN MIAMI-DADE PUBLIC SCHOOLS

2023
2024

Ideas with

IMPACT

HEALTH & WELLNESS

**Poppin'
Boba Balls**

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GOALS & OBJECTIVES

The objective of this activity is to help teachers incorporate STEAM into the classroom at any level. The one thing I really enjoy about this is food is approachable to anyone. Food brings people together and uses all of our senses. It fuels our minds and connects as human beings. We know through research that once a student is connected and engaged learning will happen. This activity helps engage even the most reluctant learners, no matter their level of learning or language abilities or how old they are.

GOALS & OBJECTIVES

Currently you can see Boba tea at almost any corner. This example of molecular gastronomy is not such a foreign concept to pop culture. Many students are familiar with the teas and combinations of boba, but not necessarily how it is made. The goal is to give an opportunity for minds to connect with science using hands-on learning and build on to more complex and specific learning goals and objectives. The students can participate at different levels of integration. Depending on your group's level, you can decide to release the responsibilities of the activity to your students or keep it as a demonstration and sampling or tasting.

GOALS & OBJECTIVES

The objective of the lesson is to use the hands-on experience and visualization of the sphere to tie into other concepts and objectives. These are some examples:

- You can engage your students prior to connecting to the idea of a sphere in mathematical concepts.*
- Connect spherification with the concepts of changes in matter in science.*
- You can use it for Art expression in the difference between shapes and dimensions, circles and spheres, and drawing them.*
- You can use them and creating original writing samples. Students can show their understanding of order with their writing depicting the steps of the process.*
- They can compare and contrast differences between circles and squares.*

LESSON PLANS AND STEP-BY-STEP GUIDE IN IMPLEMENTING

The objective of the lesson is to use the hands-on experience and visualization of the sphere to tie into other objectives. You can engage your students prior to connecting to the idea of a sphere in mathematical concepts. Connect spherification with the concepts of changes in matter in science. You can use it for Art expression in the difference between shapes and dimensions, circles and spheres, and drawing them. You can use them and creating original writing samples. Students can show their understanding of order with their writing depicting the steps of the process. They can compare and contrast differences between circles and squares.

LESSON PLANS AND STEP-BY-STEP GUIDE IN IMPLEMENTING

Materials

- *Tea (or other drink) to add Boba to or Dessert*
- *digital scale*
- *50ml flavored syrup or juice*
- *100ml water*
- *1000ml water*
- *2 large glass bowls*
- *2.3 gram sodium alginate*
- *An electric hand mixer or whisk*
- *Large cooler with ice or refrigerator*
- *7 gram calcium citrate powder ,*
- *Caviar maker (syringe, hand held spherificator or electric spherificator)*
- *Slotted scoop*
- *Cup or bowl to collect boba*

LESSON PLANS AND STEP-BY-STEP GUIDE IN IMPLEMENTING

- 1. Decide your level of comfort with students' ability to participate.*
- 2. Lay out all materials necessary for lesson.*
- 3. Assign students to each step that corresponds to them.*
- 4. Measure all ingredients and set them aside.*
- 5. Begin combining measured chemicals with liquids in the order indicated on the next page: (steps 1-8)*
- 6. Once your boba balls are created in the water and have been removed into another jar you may add them to another drink such as tea, juice or soda. It can also be added to a dessert such as ice cream or cake. You can simply place a few on a spoon for them to taste.*

LESSON PLANS AND STEP-BY-STEP GUIDE IN IMPLEMENTING

1. *Pour 50ml flavored syrup into 100ml water.*
2. *Add 2.3 gram algin in.*
3. *Stir them with a hand mixer until they mixed well, set aside or refrigerate it until the bubbles disappear.*
4. *Add 7 gram calcium powder into 1000ml water, then stir until the calcium powder completely dissolved.*
5. *Pour the stirred syrup into the container, put the caviar maker on the top of the syrup.*
6. *Twich the vacuum extractor to suck the stirred syrup into the caviar maker box.*
7. *Push the vacuum slowly and release the syrup into the calcium powder solution.*
8. *Scoop up the vegan caviar with the colander spoon.*

FLORIDA STANDARDS

Culinary Arts

CTE.13.04 Compare and contrast the reactions of different chemicals on foods.

Science

SC.5.P.9.1 Investigate and describe that many physical and chemical changes are affected by temperature.

Language Arts

LA.6.3.2.2 The student will draft writing by organizing information into a logical sequence and combining or deleting sentences to enhance clarity.

RESOURCE LIST

Amazon Purchases

Pure Sodium Alginate (Molecular Gastronomy) Ⓞ Non-GMO 🌱 Vegan 🌿 OU Kosher Certified - 50g/2oz <https://nam10.safelinks.protection.outlook.com/?url=https%3A%2F%2Fa.co%2Fd%2FdEsEYm1&data=05%7C01%7Ccmduran%40dadeschools.net%7C81684663b8ed4d18b25408db9ec5099b%7C4578f68f86cd4af9b31793e3826ca0f5%7C0%7C0%7C638278341327722519%7CUnknown%7CTWFpbGZsb3d8eyJWljiMC4wLjAwMDAiLCJQIjoiV2luMzliLCJBTil6lk1haWwiLCJXVC16Mn0%3D%7C3000%7C%7C%7C&sdata=mVLJtsz4UegpQr8i6EIThECyQtwxmhkIK4smR2xP5U%3D&reserved=0>

Pure Sodium Citrate Ⓞ Non-GMO ❤️ Gluten-Free 🌱 Vegan 🌿 OU Kosher Certified (Molecular Gastronomy) - 50g/2oz <https://nam10.safelinks.protection.outlook.com/?url=https%3A%2F%2Fa.co%2Fd%2F9k3EUZE&data=05%7C01%7Ccmduran%40dadeschools.net%7C00e343a3cd4c44104efe08db9ec4d7eb%7C4578f68f86cd4af9b31793e3826ca0f5%7C0%7C0%7C638278340526837724%7CUnknown%7CTWFpbGZsb3d8eyJWljiMC4wLjAwMDAiLCJQIjoiV2luMzliLCJBTil6lk1haWwiLCJXVC16Mn0%3D%7C3000%7C%7C%7C&sdata=tfQMYr9zG3Mi3jQEAVZTosTP1C3Bxn%2FgdFO5Ah6CVdE%3D&reserved=0>

GDEALER Food Scale, 0.001oz/0.01g Precise Digital Kitchen Scale Gram Scales Weight Food Coffee Scale Digital Scales for Cooking Baking Stainless Steel Back-lit LCD Display Pocket Small Scale, Silver <https://nam10.safelinks.protection.outlook.com/?url=https%3A%2F%2Fa.co%2Fd%2F4GaU1Sy&data=05%7C01%7Ccmduran%40dadeschools.net%7Cc8cb8a79b6984f887ae108db9ec455f7%7C4578f68f86cd4af9b31793e3826ca0f5%7C0%7C0%7C638278338316045348%7CUnknown%7CTWFpbGZsb3d8eyJWljiMC4wLjAwMDAiLCJQIjoiV2luMzliLCJBTil6lk1haWwiLCJXVC16Mn0%3D%7C3000%7C%7C%7C&sdata=yDpkbadCCYF%2FDt2QJUMWrx0SsnshaErVSBGUrQMnNS8%3D&reserved=0>

Cedarlane Imperial Spherificator Edible Food Pearl/Caviar Former for Modernist Cooking Techniques (Newest Version), One Size, black <https://nam10.safelinks.protection.outlook.com/?url=https%3A%2F%2Fa.co%2Fd%2F7ZvGR7j&data=05%7C01%7Ccmduran%40dadeschools.net%7Cb2ba0d301eb340b036e508db9ec43768%7C4578f68f86cd4af9b31793e3826ca0f5%7C0%7C0%7C638278337799204336%7CUnknown%7CTWFpbGZsb3d8eyJWljiMC4wLjAwMDAiLCJQIjoiV2luMzliLCJBTil6lk1haWwiLCJXVC16Mn0%3D%7C3000%7C%7C%7C&sdata=dzcE%2FFRRK%2FTk6ehK4arVE8Nrcb5nnLklf2udk6d5tRU%3D&reserved=0>

RESOURCE LIST

YouTube Link

<https://youtu.be/6kp6qhxchdg>

PHOTOS

