Juice Gummies/Popping Balls

Sections

Joey Scouts | Cub Scouts | Scouts | Venturer Scouts | Rover Scouts

Scouts VICTORIA

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Challenge Areas

COMMUNITY | CREATIVE | OUTDOOR | PERSONAL GROWTH

Scout Method Elements

COMMUNITY INVOLVEMENT | LEARNING BY DOING | NATURE AND THE OUTDOORS | PROMISE AND LAW | PERSONAL PROGRESSION | PATROL SYSTEM

SYMBOLIC FRAMEWORK | YOUTH LEADING, ADULTS SUPPORTING

SPICES Growth Areas

CHARACTER | EMOTIONAL | INTELLECTUAL | PHYSICAL | SOCIAL | SPIRITUAL

The Adventure

Ever dreamed of making your own gummy treats or popping balls (bursties) or had some juice that you wanted to make a bit more exciting? Well now with a bit of chemistry, you and your patrol can.

Plan

1. Investigate the main ingredients of juices. You may notice that they can vary significantly between brands, etc. Why do you think this might be? Hypothesis what effect it may have on the gummies.
2. You will be using two key chemicals in this experiment: sodium alginate and calcium chloride. Investigate these chemicals. What are they? What are some of their uses? What are some of the dangers of working with these chemicals? Where are these chemicals found in life and how are they produced for use?
3. Read the safety information and discuss with your leaders or another appropriate adult what safety equipment, precautions, and supervision may be required. Ensure that you have these safety measures in place before starting the 'Do' section.
4. Decide what flavour gummies you would like to make. You should consider any dietary requirements.
5. Gather all the equipment and ingredients that you will need to make your bursties. You will need the following: juice or nectar, sodium alginate, calcium chloride, two bowls, water, a syringe, a stick blender, a slotted spoon, and a plate.

Do

1. Make sure everyone is aware of the safety precautions and are wearing the appropriate safety equipment before starting.
2. Mix half to 1 teaspoon of sodium alginate into 100 mL of juice or nectar, and blend to remove any lumps. The mixture should start to thicken.
3. Let the liquid rest for an hour to remove bubbles. Depending on the age group and the time available, steps 2 and 3 may be done beforehand by a leader or other adult. It is best to store this liquid at room temperature as it becomes more viscous with cold making it harder to drop the balls into the solution.
4. Mix about 6 grams of calcium chloride with 1 litre of water and pour this mixture into a tray or bowl.
5. Prepare a second bowl with fresh water to rinse your gummies afterwards.
6. Fill a syringe with the juice mixture and slowly squirt it into the bowl with the calcium-water solution. Ideally, you want to be forming little balls through the drops. Do NOT submerge the syringe tip into the calcium chloride solution.
7. After about 10 minutes, remove the gummies from the tray and rinse in the freshwater bowl.
8. Try your gummies and record your observations. How do they compare to store-bought gummy worms and popping balls?
9. In your patrol, try making gummies with other types of juice to see how different juice mixtures affect your gummies. Record your changes and observations. You may also like to try experimenting with making gummies using half a teaspoon of sodium alginate or one and a half teaspoons in a cup of juice to see what difference this makes.

Review

1. Did your gummies turn out how you expected them to? Why or why not?
2. What did you enjoy the most from this experiment? What did you learn?
3. If you were to do this activity again, what would you do the same? What would you do differently?
4. Why do you think the gummies were formed? What do you think would happen if you left the balls in the calcium chloride solution for longer or shorter?

Safety

- Allergen warning: This activity uses ingredients that people may have allergies or intolerances to.
- Chemical warning: You will be using specialist chemicals in this activity, however, they are available for purchase from some cooking and molecular gastronomy shops. Make sure that you are aware of the risks for both humans and animals, especially as you are making food. Have an adult read or help you read the relevant safety information for calcium chloride and sodium alginate. It is important to remember that just because something is safe for humans, doesn't mean it is safe for animals.
    - As calcium chloride is hazardous, it is very important to make sure that you wash your gummies thoroughly before eating.
- Electronics/sharps warning: A blender is used in this experiment. Younger sections should have an adult do this step for them and older sections should have adult supervision to prevent injuries.

Variations

- Try making different shaped gummies – get creative. Can you make long gummies and balls?