

# Juice Gummies/Popping Balls

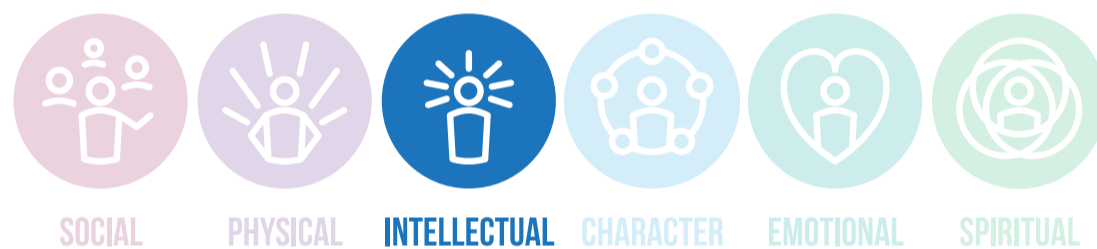
## Special Interest Areas



## Sections



## SPICES Growth Areas



## Challenge Areas



## Scout Method Elements



# The Adventure

Ever dreamed of making your own gummy treats or popping balls 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 chemical 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. A risk assessment should also be completed.
4. Decide what flavour gummies you would like to make. You should consider any dietary requirements.

## Do

1. Make sure everyone is aware of the safety precautions and are wearing the appropriate safety equipment before starting.
2. Mix 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.
4. Mix 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.
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?
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. 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 (<http://www.labchem.com/tools/msds/msds/75446.pdf>) and sodium alginate (<https://shop.chemsupply.com.au/documents/SL1171CH66.pdf>). 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?