BYOP

(BRING YOUR OWN PUMPKIN)

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Event Details:

- When: ~ End of October on a Friday afternoon
- Where: On a grass field on our campus
- Target Audience: College students; Faculty and their kids
- Budget: $200-250

Brief Description:

BYOP is the Gamma Zeta Chapter of Alpha Chi Sigma's October fundraising event. We advertise to the entire school for students and faculty to bring their family and friends. At the event, they can buy pumpkins from us to smash or paint or carve (the name is misleading but the fundraiser is selling pumpkins to attendees). The "main event" or incentive for people to come is our chemistry professor performing multiple pumpkin explosion demonstrations.

If pumpkins aren't your thing, we also have other games for attendees such as cornhole, sports, costume contest, The Skeleton Walk (which has the same concept as a Cake Walk but people are given goodie bags of candy -- VERY popular with the kids).

Prep Checklist (chronological):

- ☐ Get approval from the school to host the event.
- ☐ Get the Prep Crew ready and assembled 1 month out before the event. Meet up with the Master Alchemist and professor(s) performing the explosion demos (weekly until the event) and discuss roles, what needs to be done before the event, and other logistics.
- ☐ Buy supplies for the event and make sure the professor(s) doing the demos have their supplies as well. Pumpkins should be purchased at most 1 week before the event (so they do not rot).
- ☐ Create and print out event fliers and have them posted around the school 1-2 weeks out from the event.
    - Have AXS activists ask professors in the Chemistry Department to make announcements about BYOP during their classes.
    - Ask the Chemistry Department to send an email announcement with the digital flyer to all students on their email lists.
- ☐ Assign tasks for the event to the Prep Crew and assemble clean-up crew (use pledges and incentivize with marbles).

Day-Of Event Checklist:

- ☐ Table and Decoration Set-Up
    - There should be two tables set up with decorations and tablecloths on top of each.
- ☐ Transporting Pumpkins to the Event Site
    - Get 2-3 people to transport pumpkins to the event.
- ☐ Cornhole Set-Up
- ☐ Cake Walk Set-Up
    - Obtain 10-15 Halloween-themed images with distinct numbers and put the same numbers inside of a hat on separate pieces of paper.
    - Place the images in a circle and tape them down. Make sure the hat is ready with the numbers inside.
- ☐ Assemble Goodie-Bags
    - Place assorted candy into a candy bag. Make sure they are tied and place them at the Cake Walk Station (preferably in a bucket).
- ☐ Carving Station
    - Set up the Carving Station on one of the tables after they have been set-up.
- ☐ Painting Station
    - Lay out the paints one the second table after it has been set-up.
- ☐ MC station (PA system setup)
    - Set up extension cords, if needed, and make sure the PA system is set-up and playing music.
- ☐ Lawn set-up (tarp and pumpkins)
    - Smashing Pumpkin Station
        - Lay out a giant tarp and place all of the small smashing pumpkins on the tarp/in a bucket.
        - Make sure the liquid nitrogen has frozen them all the way through.
    - Explosion Demonstration (should be set up by professor performing the demos)

AXS Committees Descriptions: Prep crew, Clean-Up crew ← Have pledges help for marbles

Advertising Committee ~2 people	• Print out fliers and hang up 1-2 weeks before the event • Have active sign-ups to contact professors and make announcements during their class periods.

Prep Crew ~5-7 people	Tasks to Assign:
	• Setting up tables and decoration
	• Transporting pumpkins to the event site
	• Cornhole
	• Cake Walk
	• Carving Station
	• Painting Station
	• MC station (PA system setup)
	• Lawn set-up (tarp and pumpkins)
	    • Smashing pumpkin station
	    • Explosion demo (should be set up by professor performing the demos)

Clean-Up Crew ~3 people	• Clean up so we don't get fined

General Supplies: For target audience of 20-30 people (outside of AXS)

Item	**Quantity**	**Where to Buy**	**What to Charge**
Large Pumpkins	15	Local pumpkin patch	
Small Pumpkins	20	Local pumpkin patch	$2 each on Venmo
Tables + Table Cloth	2 tables	Dollar store	
Seating	We did not provide extra seating because the field we hosted on had tables and places to sit - maybe encourage people to bring blankets to sit on the lawn	N/A	
Cornhole	1	Already had	
Candy goodie bags	Made 30-40	Target/Dollar Tree	
PA System	1	Already had - can rent from a media store/get tailgater	

Cake walk place holders (Halloween-themed pictures with numbers on them)	10-15 (place in a circle)	Printed out and laminated	
Pumpkin Carving Kit	2-3	Dollar store	
Paint	1 set	Michael's	
Liquid Nitrogen	1	Chem Dept	
Sledge hammer	1	Already had	
Large Tarp	1	Already had	
Trash cans	1	Used the ones around the field	
Trashbags	5 (just in case)	Chem Dept	
Misc. Halloween decorations		Dollar store	

Pumpkin Explosion Experiments and Supplies:
Have Dr. Costanzo Fill Out

Experiment	**Description**	**Supplies (Amount)**

Science Day Camp

Community Outreach Event

Designed by Alpha Chi Sigma, Gamma Zeta Chapter

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Event Details

When: Whenever conducive, Saturdays work best. Half-day long event (approx. 9 am to 1 pm)

Where: In classrooms/teaching laboratories

Target Audience: 3rd to 5th grade-aged students

Budget: ~$200

- Our chemistry department allowed us to utilize their stock room for the majority of our reagents, so budget was utilized primarily for food and supplementary materials
- experiments may have to be adjusted price becomes inhibitory or cannot obtain controlled reagents

Brief Description

This science day camp offers a unique and fun way to directly connect with future scientists in your area! This event will require a significant amount of planning and preparation to ensure it can be conducted safely and will require volunteers for a daylong event, but if your organization has the passion to pull it off it is a truly rewarding and engaging opportunity for scientific outreach!

Students will be able to engage with scientific ideas in two main settings: through watching flashy demonstrations conducted by more experienced scientist, and through hands-on, kid-friendly experimentation. Students who arrive at the day camp will be split evenly into groups, led by volunteers, which they will stick with for the entire day. All students will watch a demonstration, then their group leaders will take them to do a hands-on experiment, then lead them back to the demo room, until all students have gotten the chance to engage with all of the planned stations. Around Noon, we had a break for lunch, and at the end of the day, we took kids out onto the lawn and allowed them

Event originally designed and lead by undergraduate students at Cal Poly San Luis Obispo with the Gamma Zeta chapter of Alpha Chi Sigma.

Prep Checklist

- [ ] Assign certain volunteers to planning committees outlined below
- [ ] Oversee experimental committee

- [ ] Decide on experiments and demos
    - [ ] Research safety considerations for all experiments/demos
    - [ ] Practice all experiments/demos
    - [ ] Prep all materials prior to day of event
- [ ] Oversee Advertising/Outreach committee
    - [ ] Generate flyer/advertisements for event
    - [ ] Devise advertising plan
    - [ ] Reach out to local schools and request that they advertise to their students
    - [ ] Devise way for students to register
    - [ ] correspond with students' guardians leading up to the event
    - [ ] Generate waiver and distribute to guardians prior to event
- [ ] Communicate event details to day-of volunteers

<u>Day-of-event Checklist</u>

- [ ] Print out sign-in sheets for students
- [ ] Print out extra waivers, in case guardians haven't filled them out
- [ ] Have 2 volunteers stationed at sign-in table to greet and direct students
- [ ] Have group leaders present and ready to oversee their students when they're dropped off
- [ ] Ensure all materials for experiments are in their proper rooms
- [ ] Order lunch and have volunteer go retrieve it (if you choose to provide lunch)

<u>Planning Committees</u>

We suggest forming the following planning committees while generating the event

<u>Administration:</u> 2-3 people

- In charge of overseeing other committees and overall planning
- In charge of corresponding with venue ensure there are enough general materials (tables, chairs, etc.)
- Assist to ensure experimental team is able to obtain all the reagents/assistance they need
- In charge of assigning roles of volunteers for day of event
- In charge of corresponding with any professors or other outside collaborators
- Oversee timing and communication on day of event

<u>Advertising/Outreach:</u> 3-5 people

- Generate flyer/advertisements for event
- Devise advertising plan
- Reach out to local schools and request that they advertise to their students
- Devise way for students to register and correspond with their guardians leading up to the event
- Generate waiver and distribute to guardians prior to event

<u>Experimental</u>: ~7 people, must have scientific experience and safety training

- Determine what experiments/demonstrations will be performed at event
- Must research all safety considerations for all materials/experiments

- Must practice all experiments and demonstrations prior to event
- Must prepare educational materials/applications (how to present and teach the experiments to students)
- I recommend a team of ~3 to carry out the demonstrations
- Have at least one member of the experimental team take lead on running a hands on station

Experimental Planning

- Experimental planning committees should determine which experiments doing with/preforming for the students makes sense for their situation and resources. Here are some examples of experiments that worked well for us

Demos

- Fire Demos
    - Flame Test
    - Methane bubbles
- Iodine Clock
- Superconductor
- Grand finale
    - Elephant toothpaste (done in building entrance hall)
    - Nitrogen triiodide (done outside)

Hands-on sessions

- The Polarity Station
    - Colored milk

      Learning objective: give students a visual representation of polarity repulsion
        - Add food coloring to bowl of milk
        - Allow students to poke toothpick with soap on it into milk
    - Water on Penny

      Learning objective: teach students about polarity and how it enables surface tension
        - Have students use a disposable pipet to add drops of water onto penny
        - Can be made into game/competition between students
- Gas Decomposition

  Learning objectives: can be used to emphasize states of matter; can illustrate chemical reactions, can explain chemical vs. physical states
    - Add vinegar to plastic bottle
    - Add baking soda to balloon
    - Secure balloon to top of bottle and flip over balloon so baking soda pours into bottle
    - As reaction proceeds, produce CO_2 which will be captured in balloon
- The Metals Station
    - Coating penny

      Learning objectives: Learn about alloys and how metals can be altered
        - Combine 1g of granular Zn and 20 mL of 1 M Zn(OH)2 or ZnCl soln
        - Heat on hot plate on medium heat. Soln should not boil
        - Take 2 pennies per child. Place in soln. Stir soln or place pennies in the precipitate to speed up coating process

    - Once coated, remove pennies using tongs and place in a bath of water.
    - Rub off any excess Zn
    - Child can keep one "silver" penny. Bring the other penny to pledge manning a Bunsen burner
    - Pledge with use tongs to hold penny in flame till it turns to brass
    - Put the brass penny in water to cool
      (procedures from flinn scientific)
  - Gallium
    Learning objectives: properties of metals
    - Have students wear gloves
    - Allow them to handle gallium and observe how it has different attributes than other metals
- Acids and Bases
    Learning objectives: learn about pH and acidity
    - Boil red cabbage and obtain its juice to use as indicator
    - Set up solutions with indicator
    - Allow students to add acids and bases to the indicator solution and observe color changes

Experimental Supplies

Reagents:

Flame test

- Salts containing: Na^+, Li^+, K^+, Ca^+, Cu^{2+} to dissolve in soln

Iodine clock

- diH_2O
- KI
- Starch
- Sodium thiosulfate
- 15% H_2O_2

Nitrogen triiodide

- <1g Iodine
- Concentrated aqueous Ammonia

Superconductor

- Liquid nitrogen
- $YBa_2Cu_3O_7$ (superconductor)
- Magnet

Methane bubbles

- Soap
- Methane canister with hose

Elephant toothpaste

- room temperature water
- iodide crystals
- 30% H_2O_2
- dish soap
- Color dye

Colored milk

- Milk (fat)
- Food coloring
- Soap

Water on a penny

- Water

Gas decomposition

- Baking soda
- Vinegar

Penny coating

- Pennies
- NaCl
- Vinegar
- Water
- 1 M $Zn(OH)_2$ or ZnCl Solution

Gallium

- gallium

Acids and Bases

- Water
- Red cabbage
- Lemon juice
- Diluted Bleach
- And other household acid and bases

Glassware and other materials

- 1 L erlenmeyer flask
- Inoculating loop
- Various sized beaker (250s, 1L
- Weigh boats
- Filter paper

- ☐ Ring stand
- ☐ Disposable pipet
- ☐ Feather
- ☐ Long stick
- ☐ Styrofoam cup
- ☐ Big soda bottles
- ☐ Large ring stand
- ☐ Lighter
- ☐ Bowl
- ☐ Toothpick
- ☐ Balloon
- ☐ Funnel
- ☐ Beakers
- ☐ Tongs
- ☐ Hot plate
- ☐ Bunsen burner
- ☐ Pennies
- ☐ Matches