FAMILY ACTIVITY: POTIONS LAB

In this activity, youth will play in a chemistry lab, engaging with an open-ended experiment using materials from around the house. They will be introduced to the scientific field of chemistry, think about ways they engage with chemistry in their everyday lives, create an experimental potion, and present their findings. Because scientists usually work together to design experiments and work on solutions, youth will communicate their ideas by recording and sharing their process.

MATERIALS AND INSTRUCTIONS

Materials

- Cups (clear is ideal)
- Stirring utensils (e.g. coffee stirrers, chopsticks)
- Food coloring or liquid watercolor (optional)
- Potions Lab Report (optional, at the end of this document)
- Liquid potion ingredients, for example:
  - Vinegar
  - Dish soap
  - Oil (e.g. canola, vegetable, corn)
  - Corn syrup (or honey)
  - Water
  - Liquid glue (e.g. Elmer's)
- Dry potion ingredients, for example:
  - Alka Seltzer (ground or broken)
  - Baking soda
  - Corn Starch
  - Salt
  - Pepper

Instructions

1. EXPLAIN We’re going to mix ingredients and use our creativity to imagine what they can be used for.
2. Create an experimental potion:
   a. Mix two ingredients together.
      i. What do they look like separately, and once they’re mixed?
   b. Choose a third ingredient to mix in.
      i. How did the mixture change?
   c. Continue adding new ingredients to this mixture, or move on to the next step.
3. ASK What can the potion be used for?
   - A potion is a mixture used for magic!
4. ASK What is the name of the new potion?
5. Continue to test out new potions, and share your ideas!
QUESTIONS TO EXPLORE

1. What is chemistry?
   - Chemistry is one of the main branches, or areas, of science.
   - People who work in chemistry are called chemists.
   - Chemists study what makes up matter, which is everything that takes up space in the universe.
   - Chemists study changes that happen when substances are combined, which are called chemical reactions.
   - Chemists create new substances, including many things we use every day! For example: plastics, bathroom items like shampoo and toothpaste, processed foods, etc.

2. Why is chemistry important?
   - Many chemists work hard to make things that will make the world a better place. For example, when we use soap, it goes back into our water and can hurt the animals and plants that live there, which hurts people too. Some chemists work on making soap that is safer for everyone.

3. What is something you learned during this activity?

4. What were some challenges you faced while doing this activity?
   a. Were you able to overcome them? How?

IDEAS TO INCLUDE YOUNGER SIBLINGS! (ADAPTATIONS FOR 0-5 YEAR OLDS)

- For little ones, you may consider mixing up something for them to play with while older children experiment and document what they are learning along the way.
- For preschool age children, you can engage them by narrowing the number of choices and helping them with measuring and mixing the ingredients together. Help with documenting for little ones who aren’t writers yet by asking some of the questions and taking dictation. You can also choose to allow little ones to make their own notes - use invented spelling or make up words to share their findings. Experimenting with writing is an important step on the path to becoming good spellers and writers in the elementary grades.
- For infants who are sitting up - mix cornstarch and water into a liquid-paste consistency and pour it onto a rimmed baking sheet or small unbreakable container (with lower sides if you have this), it also works to place this directly in your baby’s highchair tray. They will love how it moves from firm to liquid in their hands – and it quickly cleans up with water.

REFERENCES, MODIFICATIONS, & EXTENSIONS

References
Chemistry discussion adapted from Britannica Kids.

Modifications
- Use the Potions Lab Report (at the end of this document) to guide the exploration. If there are more than one youth and/or adults working together, work on collaboration by assigning team roles.
- Color is optional, but can make the potions more exciting!
- Temperature will influence how the potion ingredients behave. Take notice of this by having warm and cold water (or ice) available.

Extensions
- Design a logo or bottle label for your potion.
• Create a commercial or flyer advertising your potion.
• Research the chemistry explanations for why their mixtures behave the ways they do.
• Learn about how the ingredients they used, or combinations thereof, are used in practical ways.
POTIONS LAB REPORT
Working as a team, create an experimental potion using chemistry!

1. ASSIGN TEAM ROLES
Scientists work in teams to solve problems and make new discoveries. What will be each person’s role in today’s experiment?

RECORD KEEPER: ____________________________
Write down what your team does on this sheet.

LEADER: ____________________________
Keep each team member on task.

MIXER: ____________________________
Mix the potion and tell the record keeper what you’re doing.

PRESENTER: ____________________________
Share your group’s potion at the end of the activity.

2. MIX!
CHOOSE two ingredients to start.
What did you choose?
____________________ + ______________________
DESCRIBE what each looks like:


DESCRIBE what happens when they’re mixed:

3. KEEP MIXING!
CHOOSE one more ingredient.
What did you choose?

____________________
DESCRIBE what happened when you added the third ingredient:

4. MAYBE MORE!
RECORD anything else you add, and describe how it changes the mixture.

5. WHAT’S THE MAGIC?
What can your potion be used for? Use your creativity to give your potion a purpose!

DESCRIBE what the potion can do:

NAME your potion: ____________________________
If you have time, DESIGN a logo or label for your potion on the back!

6. SHARE YOUR FINDINGS
An important part of science is sharing the results of experiments with other people.

PRESENTER will share...
★ Name of the potion
★ What it’s used for
★ What went into it