COACH ART connect | starlight children's foundation

In partnership with

Baking Part 1 of 2

ages 11-18

Captain Starlight, here!

I just landed on Earth with some exciting news:

Starlight Children's Foundation has partnered with the organization **CoachArt** to work together to add fun STEAM (Science, Technology, Engineering, Art, Math) lessons into all the activities! How cool is that?!

Over the next few weeks, I will lead you and your student through four action-packed lessons using these nifty curriculum guides!

Did you know kids learn best when they are having fun? That's why I have thoughtfully sprinkled in a **STEAM** learning moment into each exciting lesson. Make sure you highlight those as you work your way through this curriculum guide.

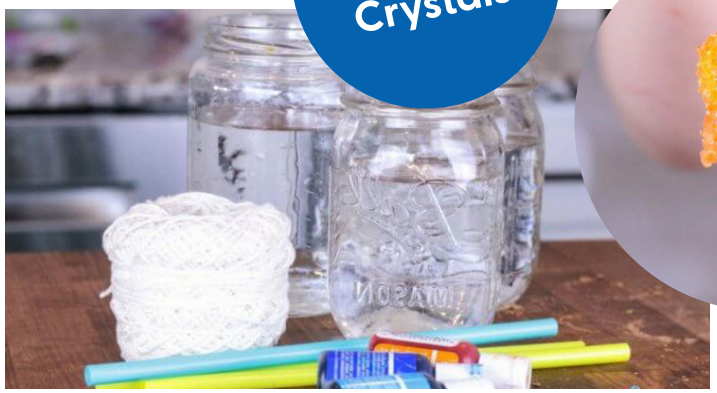
If you have any questions throughout your mission, check out the Coach Corner website or email ***match@coachart.org.***

Now, buckle up and get ready to blast off in *3...2...1!*

Fun With Food: Lesson 1

- Skill Level: Beginner
- STEAM: Math - Fractions
- Adult Helper Required: As needed.
- Recommended: ages 11-18.

Deep Space Crystals



Science can be SWEET!

What you need:

- 1 cup water
- 4 cups sugar
- Mason jars
- String
- Edible glitter
- Food coloring
- Straws
- Cooking thermometer

STEP 1. The day before starting your sugar crystal experiment, wash your hands, then cut a piece of string a little longer than your jars. Tie one end of the string to a straw. Tie a knot in the other end. Get the strings wet and coat them in sugar. Let them dry overnight.

STEP 2. The following day, add four cups of sugar and one cup of water to a saucepan and heat until boiling. This will form your supersaturated solution. Be careful not to heat the sugar so much that it starts to turn into candy. Keep the temperature right at 210 degrees (check with the thermometer). Stir until the sugar is fully dissolved. Then remove the solution from the heat.

STEP 3. Adult supervision is recommended. Pour your sugar mixture into the jars. Add edible food coloring to each jar and add some edible glitter.

STEP 4. Lower the string into the jar and place the jars in a safe place. Let the sugar crystals form for at least a week.

Did you know?

Sugar crystals are formed as a result of a supersaturated solution. A supersaturated solution contains more sugar than could be dissolved in water under normal conditions.

In a saturated solution, the sugar molecules have a higher chance of bumping into one another because there is less space to move around. When this happens, the sugar molecules start sticking together.

When you give the sugar molecules something to cling to (in this case the string), they form into crystals faster. The more molecules bump into each other, the bigger the sugar crystals get. The bigger the crystals are, the more they pull other sugar molecules toward them, making even bigger crystals.

Cookielicious: Lesson 2

Quick and Easy Goober Cookies

- Skill Level: Beginner
- STEAM: Math - Fractions
- Adult Helper Required: As needed.
- Recommended: ages 11-18.

Prep Time: 10 minutes / Cooking Time: 12 minutes / Lesson Length: 10 minutes

Hey Goober!

Did you know that a peanut is not actually a nut? A peanut is a legume, Yep, a peanut is really a bean! Peanuts are edible seeds that are enclosed in a pod or shell, like peas, and that makes them a member of the bean family. What makes them different from the rest of the bean family is that peanuts like to grow in their pods underground, instead of on vines like some beans. P.S. "goober" is another name for peanut.

Ingredients:

- 1 cup peanut butter (creamy works best) -- for people with nut allergies, substitute SunButter
- 1 cup sugar
- 1 egg

Tools:

- Baking Sheet
- Flip spatula
- Fork
- Large mixing bowl
- Measuring cup
- Small bowl
- Spatula

Baking ages 11-18

What to do:

Adult helper:

- Preheat oven to 350 degrees F.
- Wash and dry hands

1. Measure peanut butter and sugar and place in bowl.
2. Crack the egg, then put it in a small bowl with the peanut butter and sugar. Baker's note: cracking an egg in a separate container first is best, in case the egg is bad. It also allows you to easily remove any shells that might have fallen in.
3. Mix the egg-peanut butter-sugar mixture until it forms a smooth and creamy dough.
4. Roll the dough into equally-sized balls and place them on the baking sheet. Try to leave about one inch between balls.
5. Using a fork, flatten each ball, then make a criss-cross pattern on top.
6. Bake for 10 minutes in a 350-degree oven. Let cool on baking sheet for 2 minutes before transferring to serving plate.

Coaches Notes – What's with the lines?

Baking Term of the Week:
Criss-Cross: A pattern of intersecting straight lines or paths. In baking a fork is used to make a criss-cross pattern.

Lesson: Why do peanut butter cookies have a criss-cross pattern? Whenever you see a tray of assorted cookies, it's easy to spot the peanut butter ones because they have a criss-cross pattern. Peanut butter cookie dough is denser than most other cookie doughs, and pressing a fork into the dough to make the criss-cross pattern helps to flatten the dough so it bakes more evenly. If you left the cookie dough in its round state it would not cook evenly and most likely would not flatten into a cookie shape. The next time you make Goober cookies, try leaving one as a round ball, and observe what happens.

STEAM Science Word of the Week:
Dense: Having particles that are close together.

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Avocadabra: Lesson 3

The Truffle

- Skill Level: Beginner
- STEAM: Math - Fraction
- Serving Size: 10-12 Truffles
- Adult Helper Required: As needed.

Prep Time: 10-15 minutes / Refrigeration Time: 30 minutes / Lesson Length: 10 minutes

Truffle Lovers!

Today we are making a fruiting body of a subterranean ascomycete fungus. Just kidding! In the culinary arts world, "truffle" can refer to a dessert such as chocolate truffles OR to a subterranean ascomycete fungus (basically a mushroom) that is added to many dishes and sauces for flavoring. Chocolate truffles got that name because they resemble that dark and rumpled kind of mushroom.

Ingredients:

- 1 ripe avocado, mashed
- ¾ cup dark chocolate, melted (baker's or Ghirardelli)
- ½ teaspoon vanilla
- ¼ teaspoon cinnamon

Tools:

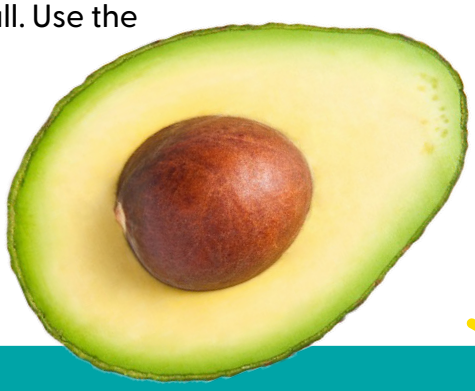
- Large mixing bowl
- Measuring cup
- Measuring spoons
- Microwave-safe small bowl
- Plastic wrap
- Serving plate

What to do:

Adult helper:

- Preheat oven to 350 degrees F.
- Wash and dry hands

1. Using a fork, mash the avocado until it's smooth and has no visible lumps, and set aside.
2. Break the dark chocolate bar into equally-sized pieces and place in a microwave-safe bowl (small, deep bowls work best).
3. Set the microwave time for 30 seconds and heat the chocolate.
4. After 30 seconds, check the chocolate and stir. Microwave it for another 10 seconds, then check and stir. Repeat until the chocolate has melted. Be careful, because chocolate can burn quickly.
5. Once the chocolate has melted, stir it until it's smooth and creamy, then add the mashed avocado. Stir, then add the vanilla and cinnamon. Continue stirring until all ingredients are incorporated and there are no lumps. The viscosity will be similar to mashed potatoes.
6. Cover the bowl with plastic wrap and place it in the refrigerator for 30 minutes. You want the mixture to cool and harden.
7. Time to wash the dishes. Remember, keep your work area clean!
8. Once the mixture has cooled and hardened, use a teaspoon to scrape enough of the mixture out of the bowl to form a small ball. Use the palms of your hands to gently it roll into a ball.
9. Gently roll the truffle in cocoa powder and place it on the serving plate. If you have any leftover truffles, place them in an air-tight container.



Coaches Notes – There's an avocado hiding in my food!

Baking Term of the Week:
Incorporate: To blend or combine thoroughly.

Lesson: Why can you use avocado in baking?

Did you know that an avocado is a kind of fruit, and specifically is a berry? Yep, that single seed, known as the "pit," technically classifies it as a berry. In baked desserts, avocado can be a great substitute for butter, shortening, and sometimes even eggs. Avocados give desserts a creamy and velvety texture and makes them super moist. Don't worry if you are not a fan of avocados -- when you use them in baked desserts, you will hardly know they're there.

STEAM Science Word of the Week:
Viscosity: A measure of a fluid's resistance to flow.

Chocoriffic: Lesson 4

Chocolate Zucchini Muffins

- Skill Level: Moderate
- STEAM: Science, Math
- Serving Size: 20 Muffins
- Adult Helper Required: As needed.

Prep Time: 10 minutes / Baking Time: 22 minutes / Lesson Length: 10 minutes

The Science of Baking

Did you know baking is both a science and an art? It involves chemistry and physics, as well as creativity. Baking uses basic key ingredients, like flour, eggs, fat, sugar, and a leavening agent (like baking powder or baking soda), and follows a sequence of steps. Science is about accuracy in its methods and results that can be reproduced consistently. In baking it is important to follow both exact measurements and steps.

Ingredients:

- 1.5 cups granulated sugar
- 1/2 cup packed light brown sugar
- 1 cup vegetable oil
- 3 large eggs
- 2 teaspoons pure vanilla extract
- 2.5 cups all-purpose flour
- 1/2 cup unsweetened cocoa powder (Hershey's Special Dark works well)
- 1 teaspoon salt
- 1 teaspoon baking soda
- 1 teaspoon ground cinnamon
- 2 cups finely grated zucchini, slightly drained
- 1 cup semisweet chocolate chips
- 1/2 cup mini milk chocolate chips, optional

Tools:

- Cookie/ice cream scoop (a tablespoon will work too!)
- Electric stand mixer (a hand-held mixer works well too!)
- Grater
- Measuring cup
- Measuring spoons
- Muffin tin (spray with nonstick spray or line with baking liners)
- Whisk
- Serving plate

Baking ages 11-18

What to do:

Adult helper:

- Wash and dry hands.
- Preheat oven to 350 degrees

1. Line muffin tin with baking liners or nonstick spray and set aside.
2. Using a grater, carefully grate the zucchini. Gently squeeze the grated zucchini with a paper towel or clean kitchen towel to remove any excess water, then set aside.
3. In a medium bowl, measure and whisk together the flour, cocoa powder, salt, baking soda, and cinnamon, and set aside.
4. Measure out and place your sugars, oils, and vanilla in the mixing bowl.
5. Crack eggs one at a time into a separate bowl. (Remember, it's best to crack eggs in a separate bowl, just in case an egg is no longer good.) Then add to your mixing bowl.
6. Turn mixer to medium speed and beat together the sugars, oil, vanilla, and eggs until thoroughly combined. This can take up to 2 minutes.
7. On low speed, gradually add the dry ingredients (the flour blend) into the mixture and mix until just combined. Using a large spoon helps.
8. Remove bowl from mixer and place in workspace.
9. Using a baking spatula, "fold" in the zucchini (bring the mixture over and on top of itself) until it is evenly distributed into the batter.
10. Stir in chocolate chips.
11. Use a large cookie scoop (about 3 tablespoons) to divide the batter into the prepared baking liners.
12. If desired, sprinkle mini milk chocolate chips onto the top of each muffin.
13. Bake in preheated oven for 18-22 minutes. Once baking is complete, let cool, then enjoy!

Coaches Notes – The art of baking!

Baking Terms of the Week:

Whisk: A cooking utensil that can be used to blend ingredients. Whisking can make a mixture smooth or add air into the mixture, which is what makes cakes and muffins light and airy.

Fold: The process of combining ingredients gently without stirring, beating, or otherwise agitating the mixture.

Lesson: How is baking an art?
Baking is a form of creative expression. Like a sculpture, a baked item has shape, color, and texture.

STEAM Science Word of the Week:
Maillard Reaction: A chemical reaction between amino acids and reducing sugars that gives browned food its distinctive flavor.

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