## CLOVERBUDDIES

#### A 4-H EXPLORATION ACTIVITY SERIES FOR CLOVERBUD MEMBERS

### **FEBRUARY 2024**

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### PROJECT EXPLORATION:

S.T.E.M

# LAB SAFETY



that shows all of the things NOT to do in a laboratory! Then tell an adult why you think each STEM projects have a lot of strategy, and lots of safety precautions! Color in the scene below of these things were dangerous and how they could be avoided

### FROZEN BUBBLES

Did you know that snowflakes are formed when an extremely cold water droplet freezes onto a pollen or dust particle in the sky? This creates ice crystals, and those crystals continue to grow as the snowflake falls to the ground. In this exercise you can watch ice crystals grow by blowing frozen bubbles!

#### **MATERIALS:**

- Bowl and spoon
- 200 mL warm water modeling clay or
- 2.5 Tbsp corn syrup
- 2.5 Tbsp dish soap
- 1 straw

- 1 water or pop bottle
- plaudough
- 2 tablespoons sugar A day that is cold with no
  - wind
  - A container with a lid



#### **TO MAKE BUBBLE JUICE:**

- 1. In your container, make the bubble juice by adding warm water, then stir in the corn syrup until the water is clear.
  - 2. Add the sugar and stir until it is completely dissolved.
  - 3. Add the dish soap and stir until combined. (but don't stir too much and create bubbles!)
  - 4. Put the lid on your container and place it in the freezer (or outside if it's cold enough!) but only for about 20 minutes to get your mixture nice and cold (NOT frozen).

#### **TO MAKE BUBBLE BLASTER:**

- 1. Take the cap of your water or pop bottle and drill a hole in the cap just big enough to fit your straw through (have an adult do this for you).
- 2. Place your straw through the hole in the cap and secure it using the modeling clay/playdough to create a seal.

#### **TO BLOW THE BUBBLES:**

- 1. Using your bubble blaster, dip the end of the straw into your bubble juice, then squeeze the bottle to "blow" your bubble.
- 2. Set the bubble onto some snow, or drop it somewhere really really cold, and watch it crystallize.

#### **SPECIAL NOTES:**

- It must be less than or equal to 14 degrees Fahrenheit—the colder the better!
- Fill make sure your straw if coated with your bubble juice really well, if you can dip it in an inch or more of juice that works best.

Activity source: https://frugalfun4boys.com/?s=frozen+bubble



Samuel Morse invented Morse Code, which is a series of dots and dashes that represent different letters and numbers. Morse Code is used in many different scientific ways. Use Morse Code to discover the secret words below!





## **CONNECT THE CONSTELLATION**

Outer space is full of mystery and discovery - like the constellations. A constellation is an area on the celestial sphere n which a group of visible stars form a perceived outline or pattern, typically representing an animal, mythological person or creature, or an inanimate object. Count by 2 to connect the dots to complete the aquila constellation.





Did you know detectives use science to solve crimes? Everyone's fingerprints are unique, so detectives just need to match up prints at crime scenes to the correct person to solve the crime. You can use science to see how they find fingerprints at crime scenes using your own fingerprints by following the directions below!

#### **MATERIALS:**

- Cocoa powder
- Glass cup, jar, or window
- Small paintbrush
- Clear tape
- Black paper



#### **DIRECTIONS:**

- 1. Wipe your finger alongside your nose so that it is oily.
- 2. Press the same finger on the side of your glass.
- 3. Sprinkle cocoa powder onto the fingerprint you just left. Lightly dust off the excess powder using the paintbrush.
- 4. Place a piece of clear tape onto the cocoa-covered fingerprint, then lift it off the glass and stick the tape onto the black paper.
- 5. Look closely at your completed fingerprint!

#### **QUESTONS:**

What do you notice about your fingerprint? \_\_\_\_\_

Now dust and take a fingerprint of a friend or family member. Is their fingerprint like yours?

Why do you think everyone has different fingerprint? \_\_\_\_\_

### **ROBOTS AROUND**

Robotics is another popular 4-H project within the S.T.E.M. category. There are many things that use robotics these days - restaurants, hospitals and security companies to name a few. Even some vacuum cleansers utilize the principles of robotics! Color in the robots, gears, and tools below to see how many different kinds there can be! Can you name the robots you see below?



### JANUARY ANSWER KEYS

Answers to all Cloverbuddies activities will appear on the back cover of the following month's issue. For answers to this issue, watch for March's installment of Cloverbuddies!

![](_page_7_Figure_2.jpeg)

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