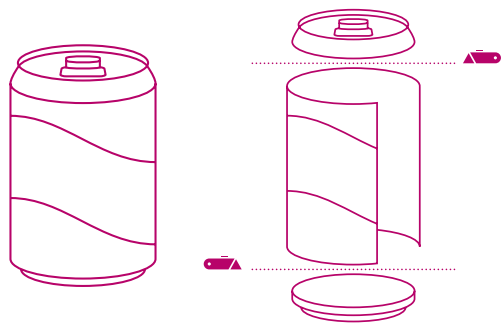


# How to make a STEAMBOAT

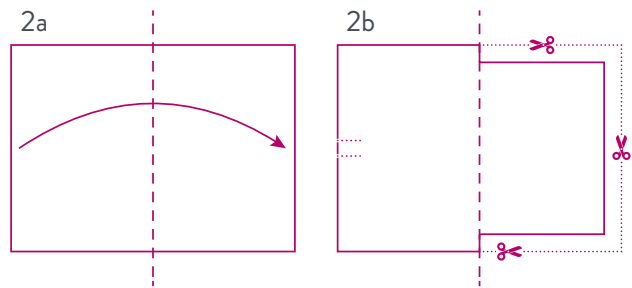
## LIST OF MATERIALS

- FOIL BREAD LOAF PAN (0.5 LB IS IDEAL)
- MINI SODA CAN
- 2 STRAWS
- EPOXY PUTTY
- EPOXY GLUE
- ALUMINUM FOIL
- TEA LIGHT CANDLE OR LIGHTER CUBE
- UTILITY KNIFE
- SCISSORS
- SYRINGE
- BOWL WITH WATER
- LIGHTER

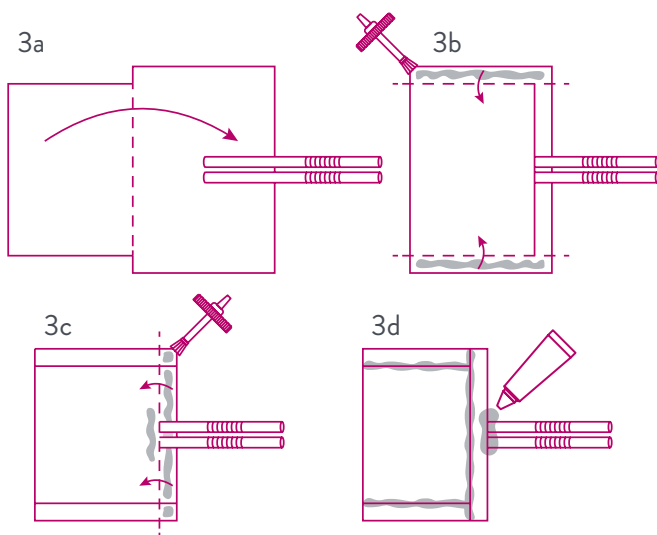
**IMPORTANT:** Check with an adult before starting this project.



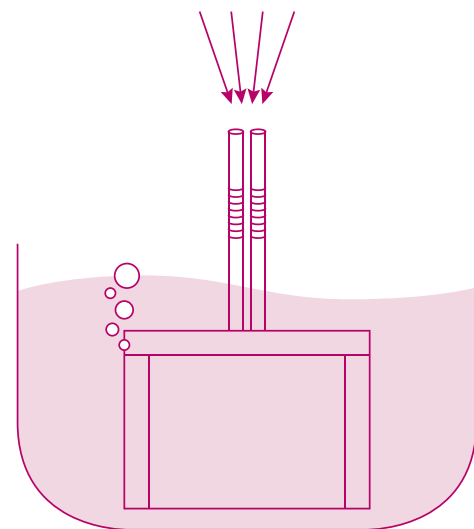
**1** Empty the mini soda can. Use a utility knife to remove the top and bottom of the can. Then cut the side of the can lengthwise from the top to the bottom. It is now ready to be used as the aluminum sheet that will make the boiler.



**2** (a) Fold the aluminum sheet in half (silver side is on the inside) to create a crease. (b) Open up the sheet and cut about .25 inch off the edges of one half as shown above. Then fold back in half.

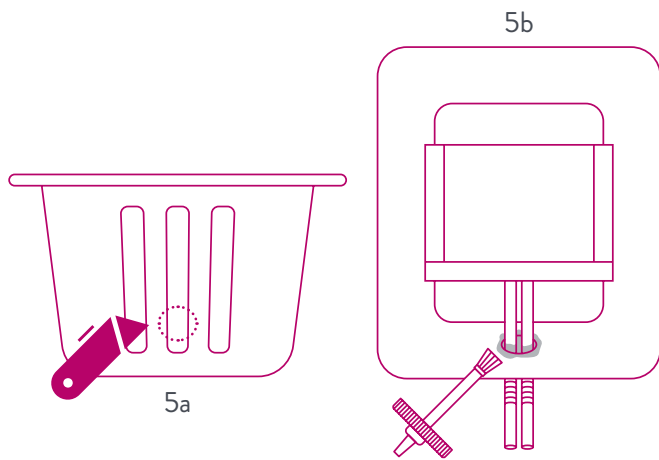


**3** (a) Insert two straws side by side into the folded aluminum sheets. (b) Apply epoxy putty along the open edges and fold over the longer edges to close the boiler. (c) Apply epoxy putty around the straws to close any gaps. (d) Add epoxy glue to the folds to seal them. Pay special attention to the area around the straws. Let the boiler sit for 30–60 minutes so the epoxy putty and glue can dry.

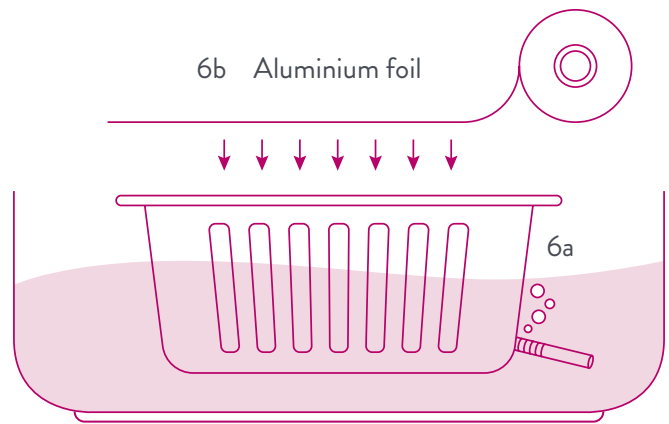


**4** Fill a bowl with some water. Immerse the boiler structure and blow air through the straws to see if there are any bubbles coming out of the gaps. Close any gaps with epoxy putty and/or glue and test again. If there are no bubbles/gaps, then the boiler is ready.

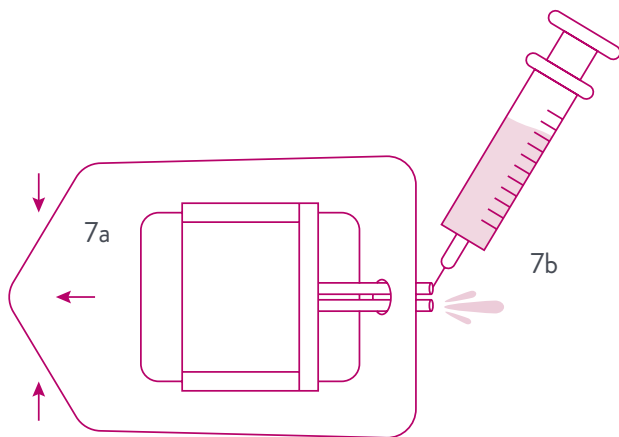
# How to make a STEAMBOAT



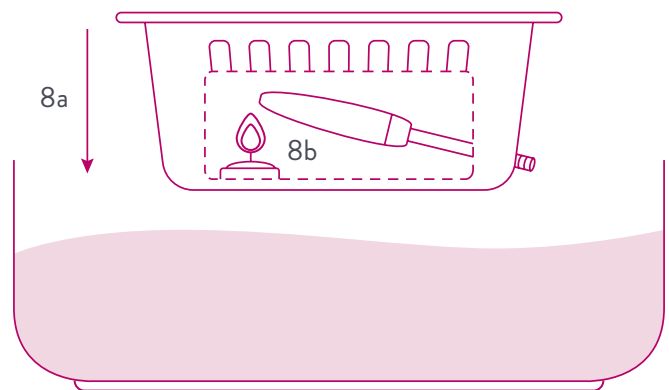
- 5** (a) Take the foil bread loaf pan and carefully use a utility knife to make a small hole in the center of one of the shorter sides. Insert the boiler straws through the hole and position the boiler in the middle of the pan. (b) Seal the area around the straws with epoxy putty and glue so water will not enter the pan once it is placed in water. Let it sit for 30–60 minutes so the epoxy putty and glue can dry.



- 6** (a) Fill a bathtub/kitchen sink/container with water (minimum three inches high). Place the boat (bread loaf pan) in the water to check for any leaks. Seal any leaks. Cut off any excess straw length. The straws should be under the water. (b) If there are no leaks, take the boat out of the water and cover the top of the boat with aluminum foil, leaving a small opening to place the tea light candle/lighter cube in the boat under the boiler. **If using a lighter cube:** Fold a few layers of aluminum foil to make a small bowl to hold a small piece of lighter cube.



- 7** (a) Bend the other shorter side of the pan into a point. This will be the front of the boat. (b) Using a syringe, fill water into the boiler through one of the straw openings until water comes out of the other straw. Now your engine is prepped to make steam.



- 8** (a) Place the boat in the water. (b) Light up the tea light candle/lighter cube with a lighter and wait a few minutes for steam to form. Once steam forms in the boiler, your boat should move forward, making a putt-putt sound.