



# TRY THIS OUT!



## SOLAR STILL

Time: 3 to 5 hours  
Difficulty: Medium

Over 70 per cent of the Earth's surface is covered in water, yet only 2.5 per cent of that is drinkable freshwater. This freshwater can contain contaminants, and still needs to be purified before drinking. However, there's a very simple way to purify water – using materials already in your kitchen!

### WHAT YOU NEED:

- Table salt
- Tap water
- A deep bowl
- A teaspoon
- Dish soap
- A glass jar that fits inside the bowl
- Cling wrap
- Duct tape
- A measuring cup
- A small rock or other weight
- A marker
- A sunny day

### MAKE IT:

1. Clean your jar and bowl with dish soap and water.
2. Place the jar in the centre of the bowl.
3. Measure the water you will use with a measuring cup. The amount of water should be enough to fill the bowl about 5 cm lower than the brim of the jar.
4. Pour the water into the bowl around the jar.
5. Add a few teaspoons of salt into the tap water. Stir to dissolve the salt into the water.
6. Put your finger in the water and taste it. Can you taste the salt?
7. Cover the bowl tightly in cling wrap. You may need to use tape to secure the cling wrap.
8. Put the weight on top of the cling wrap in the centre. This should cause it to bend a bit in the middle, over top of the jar.
9. Move your solar still into the sun and wait for 3 to 5 hours. To help track the time, use a marker to write the time you started at on the cling wrap.

### TEST IT:

Return to your solar still after waiting few hours. Did any water collect inside of your jar? Take the jar out and taste the water. Is it still salty? Collect the rest of the salt water back into your measuring cup. How much was lost?

**Note:** If you try this experiment with dirty water, do not taste it at any point. Small contaminants may still be present which can make you sick.





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### EXPLAIN IT:

When you leave your solar still out in the sun, it causes the water to heat up. Because of this change in temperature, the water evaporates, changing from a liquid to a gas. However, the salt does not evaporate with it! When the water vapor hits the cling wrap, it condenses (from a gas to a liquid once more). The bend in the cling wrap causes the droplets of water to move toward the centre, and drip into the jar. This leaves you with clean water free of salt.

### OBSERVE IT:

In many areas of the world, access to clean water is still a major concern for people. Originally, it was thought that solar stills could not purify contaminated water at a fast enough rate to be useful. Engineers are working on developing cost-efficient, fast-working solar stills to be distributed to areas where drinking water is scarce.

### GO FURTHER:

The solar still you made wouldn't work fast enough to sustain a person on its own. How would you improve the design in order to make it more efficient? Come up with a few ideas, like changing the bowl colour or size. Test it out again, and see if you collect more water this time!