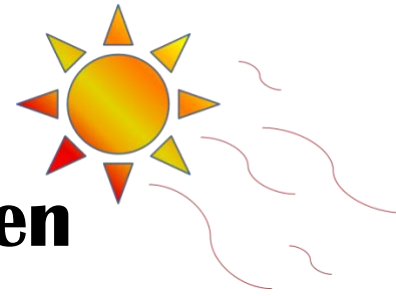




DIY Air Force Activities:

Sizzling Solar Oven



Materials:

- plastic milk jug or iced tea container (½ gallon used in example)
- aluminum foil
- long bamboo skewer (must be at least 2” longer than your container)
- plastic wrap
- tape
- scissors or exacto knife *** **parent supervision is needed**
- clock or timer
- marshmallows, chocolate, and graham crackers



The sun contains a huge amount of energy. Light from the sun powers all life on earth, even after travelling millions of miles to reach us. If we could capture and convert 100% of this energy we could power the world, making us no longer dependent on fossil fuels (coal, oil, and gas). Although scientists are working every day to achieve a more efficient means of solar energy conversion, technology has not yet advanced this far. Still, we are able to use solar power to heat our homes and create electricity! In the following experiment you will harness the power of the sun’s radiant heat energy and use it to create a tasty treat!

Directions: ****Using sharp objects can be dangerous, ask an adult for assistance****

1. Use the scissors or an exacto knife to cut the handle side away from the container. Be sure to leave the mouth intact.
2. Carefully line the sides of the container with aluminum foil, try to avoid wrinkles and keep the foil as smooth as possible (this is challenging!).
3. Poke a hole across from the mouth of the bottle.
4. Push the skewer through the bottom hole, then through your marshmallow, and pass the end into the mouth of the bottle.
5. Cover the open part of the oven with plastic wrap
6. Place the oven in direct sunlight. Start your timer! How long does it take your marshmallow to cook?? Once it’s done **CAREFULLY** remove it from the oven and use the crackers and chocolate to enjoy your s’more! *****Contents may be hot! Handle with care!**

Can you make your oven cook faster? Try using additional supplies like construction paper or cotton balls to insulate it. What about wrapping a blanket around it? Does the angle of sunlight or the time of day alter your results? Have fun experimenting!

Air Force Associations:

With the intent of making military bases more energy resilient and secure in the event of a disaster, there has been a move toward renewable energy sources. Many bases occupy large areas of land, making them ideal sites for solar installations. Using the sun is a cost effective way to update aging power grids! Currently the Air Force is engaged in an \$11.2 million energy and efficiency infrastructure plan that is projected to generate more than \$21 million in energy savings over the next 23 years. The project includes a 2.5 MW on-site solar array.



***You may need to prop your oven up with rocks to make sure it is angled in a manner that it gets the most sunlight (you should be able to see how well the foil is reflecting the light!)