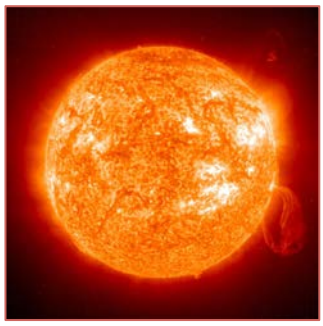
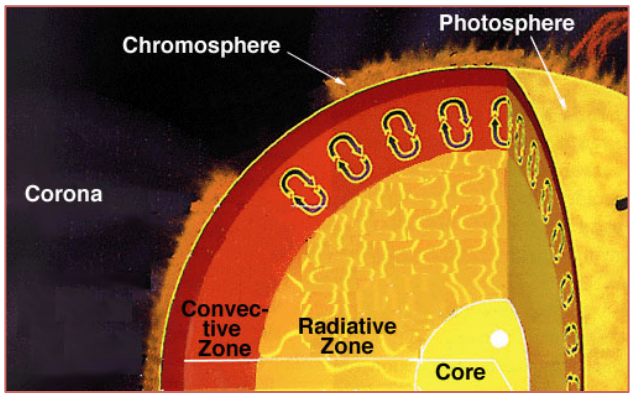
Name:

Hot Stuff!



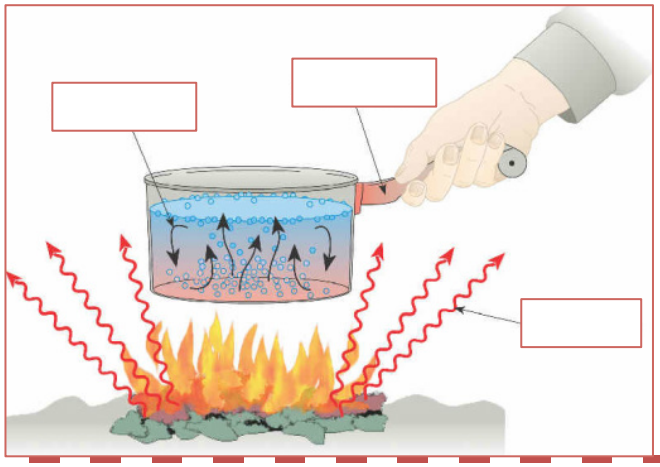
Our Stellar Sun!

We know that the sun provides light and heat, and we will explore how we can make energy from the sun do work for us.



Did you know that there are 6 layers to the sun? It only takes 8 minutes for the sun's rays to reach us once it has left the chromosphere (outer surface), but it can take several hundred thousand years to get through the radiative zone. Why do you think this is?

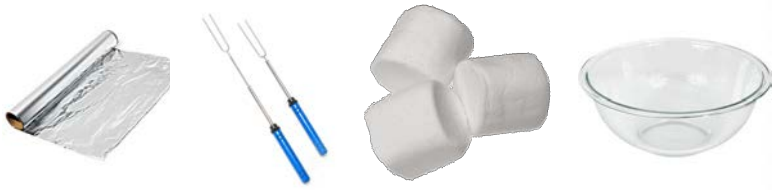
Energy transfer also happens in everyday situations as well! Label the following diagram with the 3 types of energy transfer (radiative, convection, and conduction).



Let's Make a Solar Cooker!

Materials:

- Aluminum Foil
- Stick/Long fork
- Marshmallows
- Empty Mixing Bowl



Caution: Never look directly into the sun or any glaring or bright spot on the solar cooker. Concentrated spots of sunlight can burn skin, so be careful with the concentrated sunlight gathered by the cooker.

Instructions:

1. Line the mixing bowl with aluminum foil, making sure the shiny side is facing upwards.

2. Put your solar cooker in a bright, sunny spot. Try to place it so that sunlight shines directly on the foil.

3. Find the hot spot in your cooker by holding your hand above it and bringing it down slowly until you find it.

4. Put a marshmallow on your sick and hold it so that the marshmallow is in the hotspot.

Source: Norris, Jill. Science Experiments For Young Learners. Monterey: Evan-Moor Educational Publishers, 2000. Print.

Name:

Follow-Up Questions:

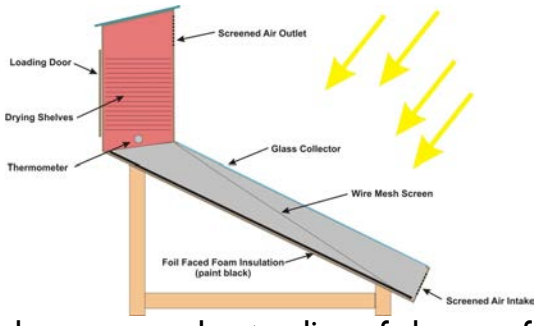
1. How does the cooker work?

2. Why is the hotspot in that place?

3. What happens when we leave things in direct sunlight? (piece of bread, plant without water, child without sunscreen).

Dehydration Station

Dehydrating foods goes back at least 500 years. Native American's were known to make jerky out of venison and other meats, and ancient Egyptians would dry their grain to preserve it as well. Nowadays, dehydration is still a great option because it prevents bacteria from destroying food. Using a two-part solar collector and a drying cabinet, we can evaporate the water out of fruits and meats.



Based on your understanding of change of state and solar energy, try to write an explanation of how this sort of dehydrator works:

Solar Energy

We've seen how solar energy can be used to generate heat. However, solar energy can actually be used to provide electricity.

Solar Energy can be changed to electricity in 2 ways:

Photovoltaic/Solar Cells: Panels that change sunlight directly into electricity

Solar thermal/electric Power Plants: Use solar energy to make steam and power a generator.

Can you think of two benefits of solar energy?

Can you think of two disadvantages of solar energy?

Source: Norris, Jill. Science Experiments For Young Learners. Monterey: Evan-Moor Educational Publishers, 2000. Print.