

Trees Produce Energy - Handout

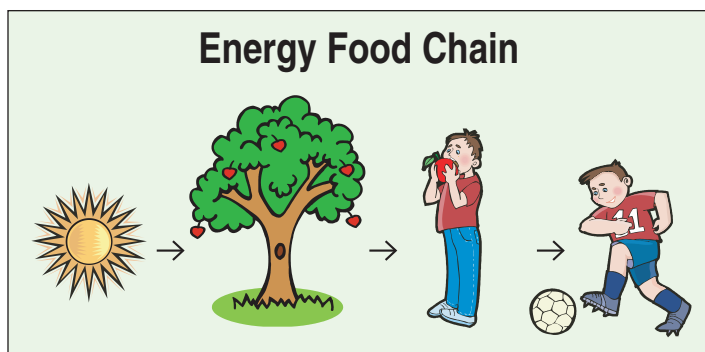
Energy is defined as the ability to do work; it powers everything in nature. Energy warms and cools our homes, fuels our cars, powers our TVs and DVD players, and runs our manufacturing plants. It takes energy for us to walk, talk, digest our food, and even breathe. The following two concepts will help you understand how you can plant trees to produce energy.

Concept 1: Plant Trees to Produce Food Energy for People and Wildlife

What you should know – Trees and other green plants are the source of energy for all animal life to live and grow. Through the process of photosynthesis, plants change light energy from the sun into chemical energy that is stored in the plant as carbohydrates (sugars) as it grows. All animal life, including human life, depends on that stored energy. When you eat an apple, the chemical energy stored in the fruit becomes the energy “fuel” that allows you to work, play, run, and grow. Every living animal either gets its energy directly from plants or depends on other animals that depend on plants for food.

What you can do – Plant many different kinds of trees that have high food value. This will increase healthy food energy for people as well as provide food and habitat for

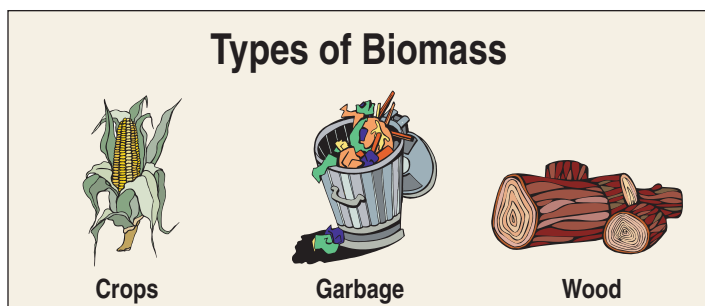
many kinds of wildlife. Plant fruit and nut trees that will grow in the climate where you live. Trees or shrubs with high-energy food value for people or wildlife can include: apple, orange, cherry, peach, oak, hazelnut, plum, etc.



Concept 2: Grow Trees as an Energy Crop

What you should know – While the fruits, seeds, and nuts of trees provide fuel (either directly or indirectly) to run our bodies, the wood from trees can be burned to release energy for heat to keep us warm or power to make things run. This homegrown source of energy is referred to as **biomass energy**...it is energy you can grow. Wood, animal waste, crops, and even garbage can be used as a biomass energy source. Agricultural biomass crops like corn and soybeans can be burned directly or turned into other liquid fuels (ethanol, methanol, and biodiesel) that can be used to power vehicles or machinery. When not burned efficiently, wood and other biomass products can cause air pollution. However, modern heating/cooling systems, and even efficient wood burning stoves, burn the biomass at such a high temperature and so completely that there is often less pollution with it than with conventional fuels like oil and coal.

Wood manufacturing waste and wood from street tree



trimmings can also be burned for fuel, which saves fossil fuels and landfill space. Biomass not only produces energy, but it is good for the environment too.

What you can do – Plant trees or other biomass energy crops on land that is considered unfit to grow food crops. Plant new trees when trees are cut down. Take care of the soil in which our crops grow. With careful management, wood and other biomass fuels will always be a renewable resource.

Activity Directions: Research what tree species will grow in your community. Look at the *Neighborhood Design Plan* you created in the last activity. Add trees to your plan that will produce either food or biomass energy. Label your tree species. Discuss how these changes benefit the neighborhood.