



RESOURCES



NAME: _____ HOUR _____



Biomass

	ADVANTAGE	FACT	DISADVANTAGE	RATING
1. Biomass is plants, trees, garbage, yard waste—anything that was alive a short time ago.				
2. All biomass contains energy that it has absorbed from the sun and stored as chemical energy.				
3. Biomass is a renewable energy source. We can grow biomass in a short time.				
4. We can burn biomass to make heat to make products, heat buildings, and make electricity.				
5. Biomass doesn't have as much energy as fossil fuels. We must burn more biomass to get the same amount of energy.				
6. Biomass can pollute the air and smell bad when it is burned.				
7. We can use biomass to make a fuel called ethanol, which is a cleaner fuel than gasoline.				
8. Biomass can be made into a gas called methane and burned like natural gas to make heat.				
9. We transport biomass mostly by trucks.				
10. A small amount (4.8%) of the energy we use in the U.S. is from biomass. Industry is the biggest user of biomass energy.				

TOTAL RATING _____



Coal

	ADVANTAGE	FACT	DISADVANTAGE	RATING
1. Coal is shiny, black rock that is buried underground. It was formed long ago from ancient plants.				
2. Coal is called a fossil fuel. It contains chemical energy that was stored in the ancient plants.				
3. Coal is a nonrenewable energy source. We can't make more in a short period of time.				
4. We burn coal to make heat. We use the heat to make electricity. Industry burns coal to make steel and other products.				
5. We have a lot of coal in the U.S. Burning coal is a cheap way to make electricity. Most of our electricity comes from coal.				
6. Burning coal can pollute the air and produces carbon dioxide—a greenhouse gas.				
7. Power plants and industry work hard to reduce the amount of air pollution from burning coal.				
8. We dig coal from huge coal mines. Coal mines can pollute our water if they are not carefully managed.				
9. We transport coal mostly by trains, and sometimes by barges and trucks.				
10. A little less than one-fifth (18.0%) of the energy we use in the U.S. is from coal. We use most of the coal to make electricity.				

TOTAL RATING _____



Geothermal

	ADVANTAGE	FACT	DISADVANTAGE	RATING
1. <i>Geo</i> means earth; <i>therme</i> means heat. Geothermal means earth-heat.				
2. The center of the Earth is very hot. This heat warms water and rocks near the surface. We can use this thermal energy.				
3. Geothermal energy is renewable energy. Rocks in the center of the Earth produce more heat all the time.				
4. Hot geothermal steam can heat buildings and make electricity. Hot steam reservoirs are found in western states and in Hawaii.				
5. Geothermal power plants are built on top of steam reservoirs. The plants are expensive to build, but the fuel (steam) is cheap.				
6. Geothermal steam can contain dangerous chemicals. Power plants clean the steam or put the chemicals back into the Earth.				
7. Low temperature geothermal energy is found everywhere in the U.S., just a few feet underground.				
8. Low temperature geothermal energy can be used to heat and cool buildings. The systems are a good bargain over the life of the systems.				
9. Geothermal energy is used where it is found. We can't transport it long distances.				
10. Geothermal energy provides the U.S. with a very small amount (0.2%) of the energy we use, mostly to generate electricity and heat and cool buildings.				

TOTAL RATING _____



Hydropower

	ADVANTAGE	FACT	DISADVANTAGE	RATING
1. <i>Hydro</i> means water. Hydropower is the energy of moving water.				
2. Gravity pulls water from high ground to low ground. There is energy in moving water—motion energy.				
3. Water is a renewable energy source. Rain will fall as long as the sun evaporates water from the oceans, rivers, and lakes.				
4. Dams can be built across rivers to harness the energy of moving water. Turbines at the bottom of the dams make electricity.				
5. Hydropower is the cheapest way to make electricity. The fuel (moving water) is free to use and isn't transported. Gravity moves it.				
6. Hydropower plants do not pollute the air since no fuel is burned.				
7. Hydropower dams can flood a lot of land when they are built. They can also disturb fish and wildlife habitats.				
8. The lakes made by the dams can be used for fishing, boating, and other sports. They can also help prevent floods.				
9. Most of the good places to put hydro dams have been used. The U.S. will not build many more hydro dams.				
10. Hydropower provides the U.S. with a small amount (2.5%) of the energy we use. Hydropower is used to make electricity.				

TOTAL RATING _____



Natural Gas

	ADVANTAGE	FACT	DISADVANTAGE	RATING
1. Natural gas has no taste, color, or smell. A smell, like rotten eggs, is added so we can tell if there is a gas leak.				
2. Natural gas contains energy—chemical energy. It was formed long ago from tiny sea plants and animals. It is a fossil fuel.				
3. Natural gas is buried underground in pockets of rocks. It is a nonrenewable energy source and took a long time to form.				
4. We can burn natural gas to make heat. We can use the heat to make products, warm buildings, and make electricity.				
5. We have just under a 85-year supply of natural gas at the rate we use it today.				
6. Burning natural gas produces some air pollution and carbon dioxide—a greenhouse gas.				
7. Cars with special engines can run on natural gas. Natural gas is cleaner than gasoline, but there are not very many fuel stations.				
8. We dig wells deep into the ground to get natural gas and send it to a plant to be cleaned.				
9. We transport natural gas across the country through pipelines. There are more than two million miles of natural gas pipelines in the U.S.				
10. A little over one-fourth (27.5%) of the energy we use in the U.S. comes from natural gas.				

TOTAL RATING _____



Petroleum

	ADVANTAGE	FACT	DISADVANTAGE	RATING
1. Petroleum is oil that is buried underground in the pores of rocks. We drill wells into the ground and under the oceans to reach it.				
2. Petroleum is a fossil fuel. It was formed long ago from tiny sea plants and animals. Petroleum contains chemical energy.				
3. Petroleum is a nonrenewable energy source. We can't make more petroleum in a short period of time.				
4. We burn petroleum for energy. We use it mostly for transportation fuel. It can also heat buildings and make electricity.				
5. Petroleum is also used to make plastics, medicines, paint, soaps, and many other products.				
6. Burning petroleum can pollute the air. Burning it also produces carbon dioxide—a greenhouse gas.				
7. Drilling for oil and transporting it can harm the land and water if the oil spills.				
8. We do not drill enough petroleum in the U.S. to meet our needs. We import about 48 percent of the oil we use from other countries.				
9. We transport petroleum by pipelines, oil tankers, and trucks.				
10. More than a one-third (34.9%) of the energy we use in the U.S. comes from oil. We use more oil than any other fuel, mostly for transportation.				

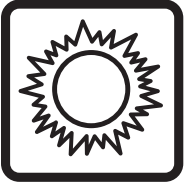
TOTAL RATING _____



Propane

	ADVANTAGE	FACT	DISADVANTAGE	RATING
1. Propane is a gas with no color, taste, or smell. It is buried underground with petroleum and natural gas.				
2. Propane contains energy—chemical energy. It was formed long ago from tiny sea plants and animals. Propane is a fossil fuel.				
3. Propane is a nonrenewable energy source. We can't make more propane in a short period of time.				
4. We can burn propane for energy. We use propane to heat buildings in rural areas. We also use it in grills and as a clean fuel for vehicles.				
5. Propane turns into a liquid under pressure and takes up less space. A one-gallon tank of liquid can hold 270 gallons of propane gas.				
6. Propane is a portable fuel. As a liquid, trucks can carry propane to rural areas that don't have natural gas pipelines.				
7. Propane is a cheap and clean-burning fuel. We use propane to fuel vehicles that we operate inside buildings—like forklifts.				
8. Propane produces some air pollution and carbon dioxide when it is burned.				
9. We transport propane by pipelines and trucks. We store propane in tanks under pressure—as a liquid.				
10. A small amount (1.6%) of the energy we use comes from propane. We use it mostly to make products and heat buildings.				

TOTAL RATING _____



Solar

	ADVANTAGE	FACT	DISADVANTAGE	RATING
1. <i>Sol</i> means sun. Solar energy is energy from the sun.				
2. The sun is a big ball of gas. It produces energy all the time. The sun's energy reaches the Earth in rays—radiant energy.				
3. Solar energy is a renewable energy source. We will have solar energy as long as the sun shines.				
4. We get light from the sun every day. We can also capture the sun's energy to heat water and buildings and to make electricity.				
5. Photovoltaic (PV) cells can change solar energy directly into electricity. PV cells are used in places with no power lines.				
6. Electricity from PV cells and concentrated solar plants is more expensive than electricity from power plants.				
7. Solar energy is free to use. It is also a clean energy source—no fuel is burned to make the heat or electricity.				
8. The sun's energy is spread out and hard to capture. The energy is only available when the sun is shining, not 24 hours a day.				
9. We cannot transport solar energy. We use it where we find it.				
10. Solar energy provides the U.S. with a very small amount (0.4%) of the energy we capture and use, not counting light.				

TOTAL RATING _____



Uranium

	ADVANTAGE	FACT	DISADVANTAGE	RATING
1. Everything in the universe is made of tiny particles called atoms. In the center of each atom is a nucleus, with smaller particles.				
2. The nucleus has energy that holds it together—nuclear energy. The nucleus of a uranium atom has lots of energy holding it together.				
3. Uranium is a mineral buried underground. It is a nonrenewable energy source—we can't make more uranium.				
4. We have a lot of uranium in the U.S. It is a cheap energy source.				
5. We can split atoms of uranium into two smaller atoms. When we split atoms of uranium, some of the nuclear energy is set free as heat.				
6. We can use this heat to make electricity. The uranium isn't burned, so there is no air pollution.				
7. When we split uranium, rays of energy—called radiation—are also produced. This radiation can be very dangerous.				
8. The waste from nuclear plants produces radiation for a long time. Many people are concerned about how to store this waste.				
9. We transport uranium mostly by truck.				
10. Almost one-tenth (8.3%) of the energy we use in the U.S. comes from uranium. It is used to make electricity.				

TOTAL RATING _____



Wind

	ADVANTAGE	FACT	DISADVANTAGE	RATING
1. Wind is air in motion—kinetic energy.				
2. The sun heats the Earth’s surface unevenly, causing the air over warmer surfaces to rise and cooler air to flow in—forming wind.				
3. Wind energy is a renewable energy source. We will have wind as long as the sun shines.				
4. Wind turbines can capture the energy in wind to make electricity. Many wind turbines placed together are called a wind farm.				
5. Wind turbines take up a lot of land, but the land can also be used for farming or grazing animals.				
6. Wind energy is free to use. It is also a clean energy source—no fuel is burned to make electricity.				
7. Electricity from new wind turbines is an economical source of electricity.				
8. Many places do not have enough wind to make electricity, and the wind doesn’t blow all the time.				
9. We cannot transport wind energy. We must capture and use it where we find it.				
10. Wind energy provides the U.S. with a very small amount (1.7%) of the energy we use. Wind is used to make electricity.				

TOTAL RATING _____