



Light Bulbs: Decisions about the type of light bulbs you use may seem trivial, but they are a good analogy for all energy choices we make: Will we buy things that are cheap but use a lot of energy, or spend more for an efficient model? What are the long term consequences, both for the environment and your wallet?

Incandescent Light Bulbs: These are the ‘regular’ light bulbs that most people use in their homes. They are relatively cheap to purchase, at about 25 cents per bulb, but use the most electricity to operate. A 60 watt bulb uses 60 watts of electricity every hour it’s on. To buy and operate these bulbs in this game costs 1.5 Bits. Since most of our electricity comes from coal power plants, using these bulbs contributes to CO₂ pollution, and other emissions, like mercury from coal plants. Since they don’t last long, and require so much energy, they have an Eco Score of 3 in this game. These bulbs last about 750 hours, but for the purposes of this game they must be replaced every round, and it takes 1 hour to shop for the bulbs.

Cost: _____ **Time:** _____ **Duration:** _____ **Eco Score:** _____

Compact Fluorescent Light Bulbs: Commonly called CFL’s, these bulbs usually have a spiral shape, because they are actually long tubes compacted into a small space. These bulbs are quite efficient, only consuming 13 watts to replace the light from a 60 watt regular bulb. While they are initially a little more expensive, at around \$2.50 each, they quickly pay for themselves by saving energy. To buy and operate these bulbs in this game costs 2.5 Bits, but because a CFL bulb should last 10,000 hours in real life, they last 2 rounds in this game. Don’t forget it will take 1 hour to shop for the bulbs. The bad news about CFL’s is that they contain mercury and must be properly disposed of in bins at Lowes, Ace Hardware, Home Depot, or other specific locations to prevent environmental damage. Being more efficient gives CFL’s an Eco Score of 2, but there is still room for improvement.

Cost: _____ **Time:** _____ **Duration:** _____ **Eco Score:** _____

Light Emitting Diodes: LED lights are the most advanced bulbs available, coming in a range of sizes, brightness, and even colors. There are LED bulbs appearing in appliances, vehicles, stoplights, and anywhere else you can find light bulbs. Despite their high cost up front, at about \$10 to replace a 60 watt bulb, you will save money over time because they only use 4.5 watts to operate! To buy and operate these bulbs in this game costs 4 Bits, but with an Eco Score of 1, it’s the Earth’s favorite option! An LED bulb is advertised to last 50,000 hours (about 45 years if you use it 3 hours a day) and for this game, after you take 1 hour to shop for it, it will never have to be replaced.

Cost: _____ **Time:** _____ **Duration:** _____ **Eco Score:** _____



Food: We know that the food we eat has immediate and long-term consequences for our health, but have you stopped to think about the effects of food choices on the environment?

Fast Food: We all know that fast food places are convenient and cheap, but what are the unintended consequences? You may get away with only spending 1 Bit and only taking 1 hour to eat there, but, environmentally, fast food has a BIG ecological footprint. It requires a lot of resources, and creates a lot of pollution. That ¼ lb beef patty in your burger may have required 450 gallons of water to produce! Also, considering the amount of gas used to transport the various food items all over the country, fast food is about as bad as it gets environmentally, so it gets an Eco Score of 3. It's not just the environment that suffers either. The highly processed nature of fast food means much of the nutritional value is gone and it's loaded with fats, sugar, salt, and other calories. Eating too much fast food can lead to long term health problems like obesity and diabetes.

Cost: _____ **Time:** _____ **Eco Score:** _____

Grocery Stores: Most people go to a grocery store at some point in their regular food shopping. There are usually deals, sales, or other savings offered on everything from fresh produce to frozen pizzas, so it's not terribly expensive – only 3 Bits for this game. Unfortunately, it'll take more time to do your shopping and cooking and you'll have to spend a little more for fresh produce, but it's better for you in the long run. The environmental impact of grocery stores depends on what you buy. Meat still has a large negative impact because of all the resources that go into producing it, and junk food still makes you unhealthy. Even the produce is typically grown with large amounts of fertilizer and pesticides. It also requires a lot of gas to transport it around the country, but this is still a better choice than fast food, getting an Eco Score of 2. When you factor in the shopping and cooking, it'll take 2 hours with this option.

Cost: _____ **Time:** _____ **Eco Score:** _____

Farmers Markets: Farmers markets are growing nationwide as small farmers join together to provide local, often organic, produce to the growing urban markets. There's typically a lot of seasonal produce and a growing variety of other pre-made goods like breads, sauces, jellies and pastas may be available. Due to the local and small scale/organic nature of most farmers markets, the environmental impact is much lower than industrial produce, getting an Eco Score of 1. Eating a farmers market diet will cost more at 6 Bits and takes 3 hours per round because the markets aren't as convenient to get to, but it can be incredibly healthy!

Cost: _____ **Time:** _____ **Eco Score:** _____



Transportation: We need to get around for work, play, and to buy the things we need. In the U.S., since the end of World War II, most people have turned to cars to meet this need. We're aware that emissions from fossil fuel vehicles contribute to climate change, but is that reason enough to change behavior?

Walking/Biking: Did you know that MOST trips Americans take in their cars are less than two miles? Walking and biking are easy options for those quick trips to the bank, or grocery store. With side streets, bike lanes, and even a Google Maps option for bike routes, it's not hard to get around! The biggest problem is that it'll take longer than driving, and you won't be able to carry much with you. Using this option takes 3 hours, but doesn't cost a thing! In addition to having minimal environmental impact with an Eco Score of 1, walking or biking is great for your health!

Cost: _____ **Time:** _____ **Eco Score:** _____

Public Transportation: For the low cost of a ticket, you can get anywhere you want to go by using the public bus system. Sit back and read or listen to music and let someone else worry about the traffic! For just 2 Bits you can forget about the expenses of car ownership, but it will take you 2 hours to get around because of transfers, and waiting at bus stops. This is a good option for environmentally conscious folks. It has an Eco Score of 2 because the emissions of public transportation are less than if everyone drove themselves.

Cost: _____ **Time:** _____ **Eco Score:** _____

Personal Vehicle: You can't beat the ease of driving yourself wherever you want to go. It requires no waiting for busses and is faster than walking or biking. All you need to do is pay 5 Bits for your gas, insurance, and regular maintenance, and set aside 1 hour to run your errands. Unfortunately, driving yourself around has the biggest environmental impact in the form of CO₂ emissions, so the Eco Score is 3. With a growing population in cities, traffic jams are also becoming more frequent. In Beijing, China, in August 2010, there was a traffic jam over 62 miles long that lasted over 11 days!

Cost: _____ **Time:** _____ **Eco Score:** _____