

The Thingamabob Game Role Sheet

You are managers of a company that produces thingamabobs. You are in competition with other thingamabob companies. In today's global economy there is especially fierce competition as you search out new markets around the world for your products — and as you seek to lower production costs by finding places where your thingamabobs can be produced more inexpensively. Even though you have important and highly paid managerial jobs, these jobs are not necessarily secure. As with any capitalist company, you need to continually grow and make a profit. Your stockholders expect a high rate of return on their investments. If you don't deliver, stockholders will be unhappy, you may have difficulty attracting new investors, and banks may be unwilling to lend you money. Fail to return a sufficient profit and you'll lose your job.

But the threat of global warming raises some questions about your thingamabob business. Here is what the best science tells us: Over the past 350 million years or so, the sun's energy has been stored on earth in the form of carbon — especially in oil, coal, and natural gas. Burning carbon-based fuels provides energy — to run our cars and heat our homes. This carbon-based energy also produces and transports your thingamabobs. But here's the problem: Burning carbon-based fuel releases carbon dioxide gas. Carbon dioxide (CO₂) traps the sun's warmth within the atmosphere — which is why it's called a "greenhouse gas." There are other greenhouse gases, too, like methane and nitrous oxide, but carbon dioxide stays in the atmosphere a long time and has been rapidly increasing. The main threat is that as CO₂ and other greenhouse gases build up in the atmosphere, Earth's temperatures rise. And as temperatures have begun to warm, lots of dire things are happening: glaciers are disappearing; permafrost in Alaska and Siberia has started to melt; corral reefs in the Indian Ocean and South Pacific are dying; species are going extinct at an increasingly rapid rate; weather patterns are changing, leading to more intense storm activity. And the seas are rising, which is jeopardizing every coastal area in the world. If all the ice in Greenland melted, seas would rise 23 feet.

Since the 1700s, CO₂ alone has increased in the atmosphere from about 275 parts per million (ppm) to about 380 ppm. Most of this increase has taken place since 1950. And today, it's rising by 1.5 ppm every year. In this period, human-generated greenhouse gases have increased the global average surface temperature by 0.6 degrees Centigrade. No one can predict for certain the impact of, say, 450 ppm CO₂ or 550 ppm CO₂. The Intergovernmental Panel on Climate Change estimates that 550 ppm could increase global temperatures by 1.5° to 4.5°, which could have catastrophic consequences. Others think it would be much worse.

Naturally, the production of thingamabobs is not the only cause of rising greenhouse gases. How we heat our homes, how we get to work, even how our food is raised plays a role. But production of thingamabobs definitely increases the concentration of CO₂ in the atmosphere. Some of this is from the mining and shipping of raw materials to make the thingamabobs; some is from thingamabob production itself, which requires a

great deal of energy; some is from the shipping of thingamabobs from China, where most of your factories are located.

Rules of the Game

Each company will begin the game with \$1,000 in capital. Each thingamabob costs \$1 to produce. You will make \$2 off of every thingamabob you produce and sell. (So, for example, if you produce 100 thingamabobs in round one, you will spend \$100, but you'll get \$200 back, and end up with a total of \$1,100.) Of course, with every thingamabob produced, the earth comes one step closer to ecological disaster. **In the game, production of each 1,000 thingamabobs adds an estimated 2 ppm carbon dioxide to the atmosphere.** The world in the Thingamabob Game, begins at 380 CO₂ ppm.

To simulate the real-life consequences, here's how scoring will work. There will be five "production" rounds. At the end of the fifth round, you will be rewarded based not on how nice you are to each other, or to the earth, but on how much profit you've made for the company:

Rewards:

Top two groups:	Candy for every group member
Group 3	2 candy bars to split between group members
Group 4	One candy bar to split between group members
Group 5	Nothing
Group 6	Nothing
Group 7	Nothing

Should all groups tie, each group will receive one candy bar to share.

Here's the catch: If the total production of thingamabobs for all groups produces CO₂ concentrations over the trigger number — somewhere between 420 and 480 ppm (that is, between 20,000 and 40,000 thingamabobs) — the earth's environment is damaged beyond repair, and no one will receive any candy.

Thingamabob Production

Round # _____

Company name:

Available capital (\$):

Number of thingamabobs produced this round:

Total available capital after production:

Thingamabob Production

Round # _____

Company name:

Available capital (\$):

Number of thingamabobs produced this round:

Total available capital after production:

Thingamabob Production

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Company name:

Available capital (\$):

Number of thingamabobs produced this round:

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