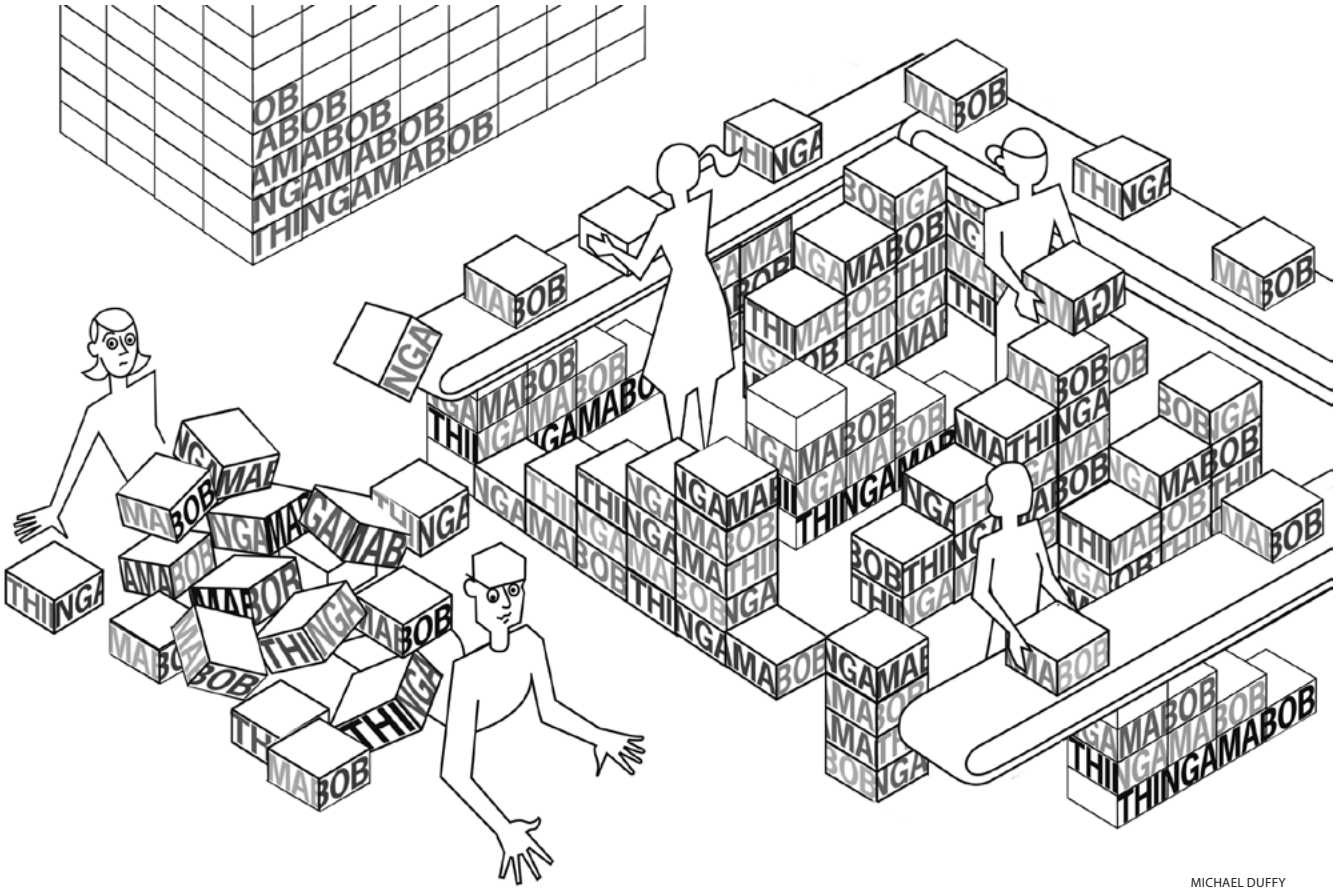

MICHAEL DUFFY

The Thingamabob Game

A simulation on capitalism vs. the climate

BY BILL BIGELOW

The premise of this activity—and a premise of this book—is that an economic system driven by the profit motive inevitably collides with the health of the planet in general, and with climate stability in particular. A challenge for educators is finding ways to help students *experience* this fact—and wrestle with its implications. The Thingamabob Game helps students grasp the essential relationship between climate and capitalism better than anything else in my curriculum. And coming to this realization is not merely academic. How we think about solving the climate crisis depends, in large part, on what we think is causing it. [See this game explained in context in "Teaching the Climate Crisis," p. 79.]

In the Thingamabob Game, small groups of students represent competing manufacturers of "thingamabobs"—goods that, as in the real world, require natural resources to produce and whose production creates greenhouse gases, especially carbon dioxide. In the game, as in the real world, the more we consume and produce, the more carbon dioxide

is released into the atmosphere, and the more we put at risk life on Earth. As of this book's 2014 publication, CO_2 in the atmosphere is increasing at the rate of more than two parts per million per year. (The *rate* of increase has risen throughout the years, in addition to overall CO_2 concentrations.) The Earth's ecology is immensely complicated, and no one can say the precise effect of, say, 450 ppm CO_2 in the atmosphere, or 550 ppm. But as the impact of climate change becomes more apparent, scientists paint a grim future. In this activity, competing groups of students/manufacturers are equipped with knowledge of the gathering calamity. They then determine if they can be environmentally responsible, given the rewards offered by—and punishments exacted from—a profit-based economy. The game can be fun, frenetic, and frustrating. But the activity helps students gain more clarity about strategies for responding to the climate crisis and saving the planet.

Materials Needed:

1. Copies of the Thingamabob Game Role Sheet; one for each student.

2. Five Thingamabob Production Round slips per group. I generally have seven groups, depending on class size. (Cut these up beforehand.) Even groups as small as two students work fine.

3. Several candy bars or other desirable food products. (See the Thingamabob Game Role Sheet for the exact number you could end up needing.)

Suggested Procedure:

1. Before beginning the game, put the chart on page 152 on the board or overhead.

2. Distribute copies of the Thingamabob Game Role Sheet to students. Read it aloud. You'll notice that for simplicity's sake, each "company" doesn't have to worry about developing markets for its goods. In this game, whatever the companies produce will be sold. Thus with each round, each company increases its capital and can produce even more thingamabobs, if the student "managers" of that company so choose. (See #10, below for caveats on the game's limitations.)

The math is simple: Each company starts out with $1,000. Thingamabobs sell for $2 a piece and cost $1 to produce. So a company makes a dollar for every thingamabob produced. (Companies may not borrow money in the game—although that would be a twist you could introduce—and cannot spend any more money than they have.) So for the first round, an individual group's maximum production is 1,000 thingamabobs, which would leave the group with a total of $2,000 after the round, if the group decided to produce as much as possible.

The carbon math is equally simple. For every thousand thingamabobs produced by *all the groups put together,* CO_2 in the atmosphere increases by two parts per million. So with each round, as in the real world, CO_2 rise is inexorable.

Note that the role sheet promises candy for all the winners. It's important that you have desirable candy awards ready, and that you show these to students to motivate them to try to win. However, every class I have ever done this with—maybe 30 or 40—has produced so many thingamabobs that it triggered climate disaster, so students aren't likely to earn the reward you select.

The concluding paragraph of the instructions warns students that at the end of the five rounds if the *total* number of thingamabobs produced (i.e., by all seven groups in all five rounds) produces carbon dioxide concentrations over the trigger figure, every company loses the game. Students don't know the precise trigger point of environmental destruction. *I set the figure at **450 parts per million—production of 35,000 thingamabobs***—and I write that on the board and cover it up. Students know only that the figure is somewhere between 420 and 460 ppm—between 20,000 and 40,000 thingamabobs. Emphasize the tension in the game—as in real life: *They will be rewarded based on how much profit they produce for their company; but the more thingamabobs they produce, the closer they bring the planet to climate catastrophe and environmental devastation.*

3. Divide the class into seven groups. It's fine if groups have only a couple of students in a group, or as many as five or six (if you're in one of the many school districts where class sizes are ballooning due to budget cuts.) Tell each group to come up with a thingamabob company name.

4. Distribute five Thingamabob Production Round slips to each group. Ask them to make their first production decisions. They should discuss these within each small group, complete the information on the slip, and hand them to you without revealing their numbers to their competitors.

5. Begin by writing all the company names on the board or overhead. Then post the first round production figures. Be sure to add up the number of thingamabobs produced in each round and to keep a running total of all the thingamabobs produced in the game, and for each round, the carbon dioxide ppm, beginning with the game's starting point of 380 ppm. Point out the "loser" companies whose profits don't match those of their competitors. Tell these companies that their stockholders are getting restless because their competitors are so much more successful, even though they began with the same amount of capital. If one company decides that it wants to carry the banner for the Earth and produce no or few thingamabobs, I may declare that company bankrupt and distribute those students to other groups so that they get the message that failing to compete has consequences. I always remind students how good that chocolate will taste for the students in the winning companies.

6. Continue round by round, indicating the most and least profitable companies. Also emphasize how the total carbon dioxide count is getting dangerously high. (Remember, *you* know that the trigger figure of climate no-return is 450 ppm; *they* know only that it is between 420 and 460.) Finish all five rounds, even if they exceed the 450 figure. One year my students went over the 460 number in the fourth round, and I told them that new "scientific evidence" found that the trigger point is higher, between 460 and 480 ppm. My students in that class still went over, topping out at somewhere around 500 ppm.

7. If by some miracle, at the end of round five, thingamabob production of all companies has not exceeded the 450 ppm trigger number, award the prizes to the groups as indicated on their role sheet.

8. Afterward, before discussing, ask students to write about the activity. Keep it simple, something like "Why did you destroy the Earth? You saw it coming, but you did it anyway." Perhaps ask students to comment on the observation by ex-financier James Goldsmith that "winning" in a game like this is like "winning at poker on the Titanic." You might also ask them to reflect on what, if anything, they could have done that would have led to a more positive outcome.

Or you might have students write about the game's main lessons. Propose some that they might react to:

- Human beings are inherently greedy and competitive. People will never be able to cooperate to solve the climate crisis. It's human nature.
- What's missing from this game is a government. To keep corporations' greed in check, we need a strong government that enacts and enforces regulations on carbon dioxide emissions.
- The cause of the climate crisis is the capitalist system itself. So long as we have an economic system driven by profit, corporations will be rewarded for endangering the planet. If we want to deal with the roots of the climate crisis we need to create an economic system that does not reward greed.

9. Begin the discussion by getting students to talk about what they wrote. Some further discussion questions include:

- Describe what went on in your group. What pressures did you feel?
- What prevented you from being more ecologically oriented?
- How does the game resemble real life? What was unrealistic about the game?
- Is the game "rigged"? Could the rules be changed in ways that would not lead to climate ruin?
- Invent a new set of rules for the "game" that would not lead to environmental destruction. What different behaviors could be rewarded?

10. Now for the fine print. Simulations are metaphors. They're useful in illuminating aspects of reality, but they can obscure or miss other import-

ant aspects. The Thingamabob Game effectively highlights how the capitalist market has no built-in alarm system to protect the Earth. As social critic David Korten writes, "There are no price signals indicating that the poor are going hungry because they have been forced off their lands; nor is there any price signal to tell polluters that too much CO_2 is being released into the air, or that toxins should not be dumped into soils or waters." But the simulation may imply that we all suffer equally as the Earth deteriorates. Nothing in the activity suggests that the consequences of climate change reverberate unevenly through the global landscape, affecting the Third World, the poor, and people of color more harshly than those with more privilege. And the game's cataclysmic end may distort the way things are likely to play out in real life, as pockets of the world become unlivable but global elites exist relatively comfortably in gated communities, shielded from the worst aspects of the climate crisis.

As mentioned earlier, to underscore the pressure on corporations to maintain high production, even at great ecological peril, vagaries of the market do not factor into the Thingamabob Game. Obviously, in real life everything that is produced is not necessarily purchased. This is one of the central contradictions of market economies: They tend toward overproduction and boom-and-bust cycles. And the production of every "thingamabob" will not be equally unfriendly to the climate. Some production—for example, solar panels—may soften humans' effect. You can discuss these and other limitations with students. Still, the game's essential caution—that a profit-oriented economic system is incompatible with climate stability and environmental responsibility, more broadly—is one that is hard to deny.

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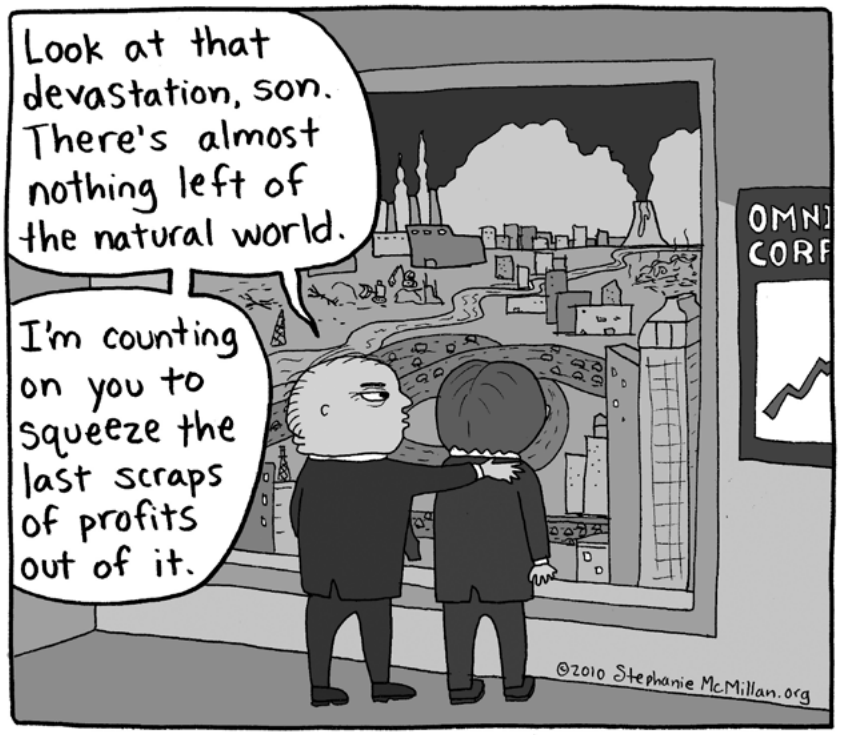


Handout

The Thingamabob Game Role Sheet

You are managers of a company that produces thingamabobs. You are in competition with other thingamabob companies. 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. 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 that runs our cars and heats 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 (CO_2) traps the sun's warmth within the atmosphere—which is why it's called a "greenhouse gas." The main threat is that as CO_2 and other greenhouse gases build up in the atmosphere, Earth's temperatures rise. And as temperatures have begun to warm, the Earth faces dire situations: 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 jeopardizes every coastal area in the world.

Since the 1700s, CO_2 alone has increased in the atmosphere from about 275 parts per million (ppm) to around 400 ppm. Most of this increase has taken place since 1950. And today, it's rising by 2.1 ppm every year. In this period, according to NASA, global average temperatures have risen 0.8° Celsius (1.4° Fahrenheit). No one can predict for certain the impact of, say, 450 ppm CO_2 or 550 ppm CO_2. Continuing on this course could have catastrophic consequences.

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 CO_2 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 begins 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 CO_2 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 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	**Two 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**

If 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 CO_2 concentrations over the trigger number—somewhere between 420 and 460 ppm (that is, between 20,000 and 40,000 thingamabobs)—the Earth's environment will be damaged beyond repair, and no one will receive any candy.

	Round 1		Round 2		Round 3		Round 4		Round 5	
Company Name	Avail. Capital	Things Produced	Avail. Capital	Things Produced	Avail. Capital	Things Produced	Avail. Capital	Things Produced	Avail. Capital	Things Produced
1.	**$1,000**									
2.	**$1,000**									
3.	**$1,000**									
4.	**$1,000**									
5.	**$1,000**									
6.	**$1,000**									
7.	**$1,000**									
Running total "things"										
CO_2 ppm										
Game begins 380 ppm–2 ppm per 1,000 things										

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

Round # _____

Company name: _____Available capital ($): _____

Number of thingamabobs produced this round: _____

Total available capital after production: _____

Thingamabob Production

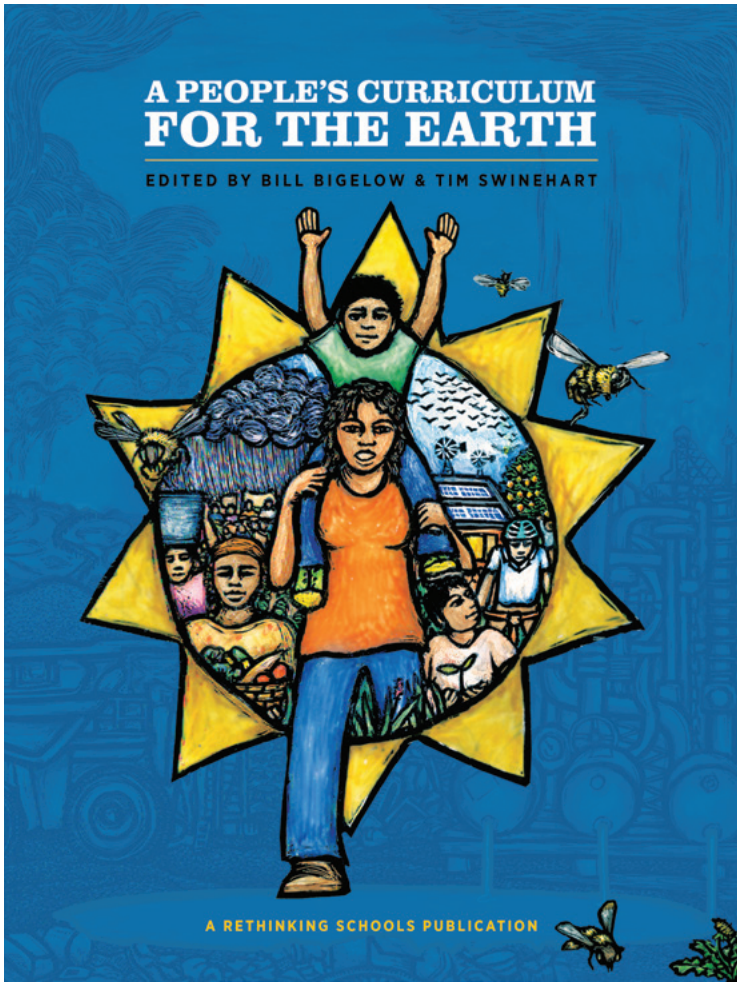
Round # _____

Company name: _____Available capital ($): _____

Number of thingamabobs produced this round: _____

Total available capital after production: _____

This lesson comes from the Rethinking Schools book, ***A People's Curriculum for the Earth: Teaching Climate Change and the Environmental Crisis***. The book includes more than 80 additional environmental justice lessons and student-friendly readings, for elementary through college. Go to www.rethinkingschools.org/earth to see the table of contents and to read the book's introduction.



"To really confront the climate crisis, we need to think differently, build differently, and teach differently. *A People's Curriculum for the Earth* is an educator's toolkit for our times."

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