

Global Turbulence: Rough Waters towards Sustainability

Lesson plan for grades 9-12

Length of lesson: 1 Class Period (90 minutes) with multiple repeat sessions later

Authored by: William Oakley

SOURCES AND RESOURCES:

- *Fate of the World* Website
<http://www.fateoftheworld.net/>
- *Fate of the World* Wiki: Your source for more information about game aspects:
http://fateoftheworld.wikia.com/wiki/Fate_of_the_World_Wiki

POTENTIAL CONCEPTS TEKS ADDRESSED THROUGH THIS LESSON:

§112.34.b: 1, 3, c: 12F

§112.35.b: 3, c: 12D

§112.36.b: 5ABC, 6ABC

§112.38.b: 1, c: 3D, 5I

PERFORMANCE OBJECTIVES (in order of increasing difficulty to permit tailoring to various age groups):

Students will be able to:

- Explain why it is important to build a sustainable society in order to survive through long time periods
- Identify major problems preventing societies from operating sustainably
- Argue for/against controversial policies that a central governing agency needs in order to keep human systems from collapsing.

MATERIALS (per group of four): (Numbers may be adjusted based on class size and budget)

- *Fate of the World* Video Game- This can be done by several methods. For the teachers on a tight budget, only one copy is needed. If the teacher has the budget, there is a “60 seat” edition that will allow it to be installed on 60 computers, so an entire school can share the game between classes. See the Fate of the World Website URL above for purchasing info.
- [Attached Worksheet](#)

CONCEPTS:

Non-renewable refers to something that cannot be replaced nor replenished (such as fossil fuels).

Renewable Energy refers to something that can be replaced over time, such as crops, tidal energy, wind energy, solar energy, etc.

To be **sustainable** means to be able to supply our needs today without harming future generation’s needs.

The video game can be incredibly detailed depending how in-depth you go. The teacher should examine all the aspects presented in the tutorial and decide which one should be applied.

BACKGROUND:

Fate of the World is a computer game (for Windows or Mac) that answers a giant “What If” question: “What if the state of the world got so bad that the nations of the world held a climate summit and decided enough is enough? What if a central organization was formed that has the power to order the other regions of the world around with overall policies?”

As the President of the GEO (Global Environment Organization), your job is to guide humanity through its darkest period yet. Can you guide the Earth to keep the overall temperature below 3 degrees Celsius below pre-industrial levels? Or will Mother Nature’s wrath be seen in the end?

It should be noted, this game is hard. It is designed to simulate several variables (everything that can go wrong in a general sense, including black swans). Playing on easy mode (a checkbox) to start out is essential.

PREPARATION:

The teacher needs to have the necessary game on the computer(s). The Teacher also needs to play the very first mission, the Rise of Africa. This is the in-game tutorial and it is essential that the teacher knows the basics of the game before introducing it to the class. It also helps to go to the Fate of the World Wiki, as there are lots of helpful links to information.

ENGAGE: (10 minutes)

The purpose of the Engage is to get the students to think about how we could solve the Earth’s current problems, especially environmental and natural resources issues.

Ask:

- What are some of the major problems the 21st century faces?
- Which resources do we need the most in order to survive?
Could we survive without our major supply of energy?
- What problems would arise if we were to force everyone to start focusing on a greener tomorrow instead of the current direction society is advancing?
- Could the world as it is now solve these problems, or would more drastic measures take place?

EXPLORE: (60 minutes)

Fate of the World is a very complex game. Depending on what you want students to experience, you will have different “play-throughs”. As such, it is impossible to list everything here in the Explore, and instead a more general “tips” section will be provided and a suggested outline for one class period. This document assumes that there are groups with computers.

Have the groups boot up the game and have them play the very first campaign, “The Rise of Africa”. Let them watch the intro-movie as it will set the stage for the birth of the GEO, and then let them complete the mission at their own pace. If you want them to investigate specific areas or use the in-game encyclopedia, be sure to direct them to those areas so the in-game tutorial can explain things to the group.

While the group is playing the tutorial have students write down on the worksheet (see Materials) their experiences.

“Oil Fix It” is the second campaign and is the best one for getting familiar with the game without worrying about everything collapsing at once. There’s no oil crisis like in later games, and you only need to survive to 2080. It’s advised to play this once in order for the teams to get a better feel for the game.

“Fuel Crisis” reflects today’s energy/climate problem: we’re reliant on oil and greenhouse gasses (GHGs) are de-stabilizing the planet’s climate. This is where most teachers should target to end up as a topic, because it should do a very good job of illustrating the problems and black swans that the planet faces as a result of climate change. Groups should expect to meet defeat here unless they are already familiar with the game.

The rest of the campaigns are more intricate but take much longer to complete and for the purposes of a single class should be avoided. However, if this lesson is expanded to include more than one day, it’s best to play the campaigns in consecutive order.

General tips/Interesting things to note:

- The Black “Political Cards” present controversial policy decisions and events. If the situation in a region became too unstable, would it be easier to just wipe out part of the population to reduce the overall stress on the collective human system? Would it be easier to use covert sterilization? What about a regime change? ***These topics and cards should be carefully evaluated by the teacher using discretion.***
- These controversial cards should be used sparingly, as too many will cause the GEO to be disbanded due to “unethical” policies. Distraction lowers the amount of “political pressure” that is applied the GEO, so if students want to exercise these options they should play this card quickly.
- The *Space Program* should not be used in shorter campaigns. The *Manned Mission to Mars* was not fully programmed so it provides no real benefits, and the *SETI Array* is only useful once you have 1st generation nanobots, which usually doesn’t occur in the games time sequence until around the year 2120.
- Each continent has its own specifications. Check out the Wiki to find out more, but it’s best to put the GEO HQ in Europe or North America as they are the most stable of all the regions.

- China has the largest emissions problem, and may require some “cutback” if the emissions can’t be controlled by “normal” methods.
- India is a disaster area compared to the other regions of the world, and should be invested in immediately to prevent it from going to war/famine/worse. A lot of funding will be needed to get it up to acceptable standards.
- Africa is extremely unstable and also requires a lot of funds and energy investment.
- Use the *Tobin Tax* early in the game’s timeline. You need as much money as possible. Also, money does NOT carry over when you advance time, so spend everything that you can in a given time period.
- Ban *Clathrate Exploitation* as soon as possible. This resource extraction method is a very unstable way of getting fuel and if a deposit ruptures, the temperature of the earth automatically rises by at least .2 degrees Celsius, which is very bad!
- The *Economic Collapse*? It happens due to shortage of resources. You can mitigate it by making sure that shortages are handled as soon as possible.

EXPLAIN: (10 minutes)

After the allotted time has expired, gather the students’ attention and have the groups present what happened on their scenarios. They should first state whether they made it or not to a given game end-goal, achieved any of the bonus objectives, and how they got to where the game ended. Some probing questions include:

- What regions gave you the most trouble? Why?
- Were you banned from any regions? Why?
- What black swans were encountered in the game, if any?
- What measures did you take to prevent the Earth from overheating? Were some not effective?
- How did the outlook of the region effect what acts were favorable and which acts weren’t favorable?
- Was it better to have a *Green* region or a *Consumerist* region?
- Was it easier to switch to a different non-renewable resource?

ELABORATE: (10 minutes)

Depending on the remaining time, you can let students play around in the other campaigns, or you can turn their attention back to the real world and have the groups come up with policies and actions that need to be carried out in real life if humanity were to prevent the events depicted in *Fate of the World* from happening.

EVALUATE: Have students complete and turn in Worksheets