

# Navigating the Resources

EXPLORING THE ONLINE SIMULATIONS, APPS, AND LESSONS FOR TEACHING WITH SYSTEMS

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## Teaching with Systems

CLE RESOURCES HAVE CHANGED OVER TIME

- PDF Documents
- Individual Lessons

- Books
- Curriculum

- Simulations
- Apps

## CLE Website

- Navigating the CLE Website
  - Searching for Lessons
  - Finding Simulations
  - Other Resources
- <http://www.clexchange.org/>

## Lessons: CLE

### MAKING THINKING VISIBLE

- Fundamental Lessons – combine examples to teach key concepts
- Website – Getting Started: Tools
  - BOTG <http://www.clexchange.org/gettingstarted/botg.asp>
  - Stocks and Flows <http://www.clexchange.org/gettingstarted/stockflow.asp>

## Lessons: Institute for Systems Biology (ISB)

- All modules work toward helping students internalize interdisciplinary STEM concepts and the skills of research and systems biology. Systems thinking, collaboration, inquiry-based experimentation and problem-solving are key components of these learning experiences.
- <https://see.systemsbiology.net/modules/>

## Simulations: CLE

- 23 Complex Systems Simulations
- 15 Personal Economics Simulations
- 6 Stand-alone simulations
- 1 Multi-Player simulation
- <http://www.clexchange.org/curriculum/simulations/>

## Simulations: Lessons

### Living Lands: Forest and Town

- Forest & town management for fires
- 50 year cycle
- Multi-player

• <http://www.clexchange.org/curriculum/simulations/livinglands.asp>

### Behind Closed Gates

- So what if one group has complete authority?
- Zimbardo Experiment
- English connections – *Lord of the Flies*, *Animal Farm* ([video](#))

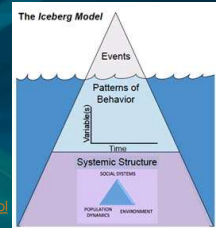
• [http://www.clexchange.org/curriculum/simulations/prison\\_simulation.asp](http://www.clexchange.org/curriculum/simulations/prison_simulation.asp)

## Simulations: CLE Units

### Population Dynamics

- Unit introduction, four simulations with lesson guides
- Population History for the United States
- Complex Systems
  - Cause and effect not closely related in time and space
  - Cause is within the system

• <http://www.clexchange.org/curriculum/complexsystems/populationdynamics/>



## Simulations: CLE Units

### Personal Finance: Dollars and Sense

- 15 lessons – *Stay in the Black* and *Our Interest in Interest*
- Introductory [video](#), lessons, and simulations
- Real-life implications (run a lemonade stand, save for a car, use compound interest)

• <http://www.clexchange.org/curriculum/dollarsandsense/>



## Simulations: Other locations

### Waters Foundation

- <http://www.watersfoundation.org/webad/resources/simulations.html>



### MIT Sloan Learning Edge

- <https://mitsloan.mit.edu/LearningEdge/simulations/Pages/Overview.aspx>



### Waters Foundation: ST Habits App

- Built from the *Habits of a System Thinker* cards
- <http://watersfoundation.org/systems-thinking/habits-of-a-systems-thinker/habits-app/>

### Learn BTN Apps

- Peak Oil
- Eroding Goals
- Population Collapse
- <http://learnwithbtn.com/>

## CLE Next Steps

- Continue the **Tools** (Getting Started – Tools) line of curriculum & introductory videos
- **Model Mysteries** book and lessons (<http://www.clexchange.org/curriculum/modelmysteries/>)

## More Resources

**CLE RESOURCE DOCUMENT:**  
<http://static.clexchange.org/http/CLE%20Resource%20List.pdf>

**2016 ST/DM PRESENTATION:**  
[http://static.clexchange.org/http/conference/CLE\\_2016/CO2016\\_CLEResources\\_STuniz.pdf](http://static.clexchange.org/http/conference/CLE_2016/CO2016_CLEResources_STuniz.pdf)



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**Questions/Comments?**

**SESSION SURVEY:** <https://goo.gl/Pv3ree>