

Connection to Characteristics of Complex Systems Project

Lesson Title:

Lessons in Mathematics: A Dynamic Approach, in particular the following sections:

Section 5: Oscillatory Behavior

Section 6: Convergent and Logistic Behavior

Section 7: Differential Equations

Overview:

The Oscillations curriculum features two fundamental behavior modes (logistic growth and oscillation) to illustrate the idea that a system's dynamic behavior is a consequence of its structure. For the enthusiastic learner, these sections of Diana Fisher's system dynamics based mathematics curriculum provide in-depth coverage of each of these behavior modes and thus complement the Oscillations curriculum.

Related Characteristic(s) of Complex Systems:

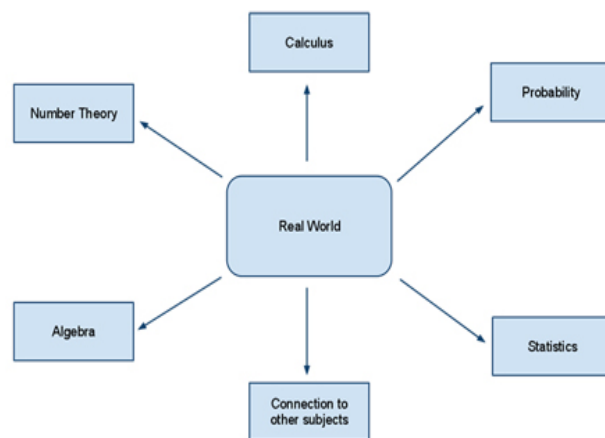
The cause of the problem is within the system.

Ideas and Examples for Connecting to the Characteristic:

Mathematics is a tool for understanding system structure, but making connections between elements of equations and their real-world meanings can be difficult for students. *Lessons in Mathematics* is valuable in this regard.

This resource can also help an educator become more comfortable with the STELLA software environment. Models are presented in step-by-step fashion to facilitate representing system elements in the stock-flow language of system dynamics.

Teachers willing to engage with these sections will likely be able to effectively use the Oscillations curriculum to the fullest extent.



Resource(s)

Oscillations curriculum is available from the Creative Learning Exchange

<http://clexchange.org/curriculum/complexsystems/oscillation/>

Lessons in Mathematics, Diana Fisher, available here:

http://www.iseesystems.com/store/college_university/MathBook.aspx

Diana Fisher's website

<http://www.ccmodelingsystems.com/>

TEX^sNYED Talk featuring Dan Meyer

<http://www.youtube.com/watch?v=BlvKWEvKSi8>

Dan Meyer on real-world math

<http://www.youtube.com/watch?v=jRMVjHjYB6w>

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