

Table of Contents

Teacher Materials

0.	Overview	
0.1	Preface	0- 1
1.	System Dynamics Curriculum	
1.0	Introduction to System Dynamics Curriculum	1- 1
1.1	Descriptions for Patterns of Growth/Decay	1-13
1.2	Writing and Modeling: Using a Notebook to Learn About System Dynamics	1-15
2.	The Population Tutorial	
2.0	Introduction to the Population Tutorial	2- 1
2.1	BOTGs and Reference Graphs	2- 7
2.2	A Study of Population Growth	2- 9
2.3	A Study of Population Growth II	2-21
3.	Learning Generic Structures	
3.0	Introduction to Generic Processes	3- 1
3.1	Overview of STELLA Components and Operations.....	3- 7
3.2	Generic Processes I: Models Producing Linear Behavior	3-11
3.3	Generic Processes II: Exponential Growth Models	3-15
3.4	Generic Processes III: Exponential Decay Models	3-25
3.5	Generic Processes IV: Convergent Models	3-35
3.6	Modeling Dynamic Systems: Review of Generic Structures .	3-41
4.	Drug Assimilation Exercises	
4.0	Introduction to Drug Assimilation Exercises	4- 1
4.1	The Drug Assimilation Model	4- 3
5.	Easter Island Population	
5.0	Introduction to Easter Island	5- 1
5.1	Transfer of Loop Dominance/Carrying Capacity	5- 3
5.2	Explaining a Feedback Loop	5- 9
5.3	Easter Island Population Model	5-15

6.	News Articles	
6.0	Introduction to News Articles	6- 1
6.1	Newsweek Article to use for Class Demo	6- 3
6.2	Class Demonstration - Closing the Loop	6- 5
6.3	News Articles: Search for Dynamic Systems	6- 11
6.4	Specifying Units for STELLA’s Unit Checker.....	6- 13
7.	Epidemics and Transferability of Structure	
7.0	Introduction to Epidemics	7- 1
7.1	NERD Simulation Record Sheet	7- 11
7.2	Questions for the NERD Simulation.....	7- 13
7.3	The Epidemic Model	7- 17
7.4	Building Transferable Skills: Models Involving “Infection,” “Market Penetration,” and “Conversion”	7- 25
8.	Urban Dynamics	
8.0	Introduction to Urban Dynamics	8- 1
8.1	Design and Use of a Dimensionless Multiplier	8- 7
8.2	Urban Dynamics Model	8-15
9.	Supply and Demand	
9.0	Introduction to Supply and Demand	9- 1
9.1	Material and Information Delays	9- 7
9.2	Supply and Demand Model.....	9-25
10.	Pollution Model	
10.0	Introduction to the Pollution Model	10- 1
10.1	Introduction to Oscillations	10- 7
10.2	Pollution Model	10-21
11.	Original Modeling Projects	
11.0	Introduction to Modeling Projects	11- 1
11.1	Steps In Modeling Process.....	11- 9
11.2	Starting a Model in Equilibrium	11-11
11.3	Project Timeline Guide	11-17
11.4	Modeling Dynamic Systems: Original Model Scoring Guide... ..	11-21
11.5	Silver Paper Outline	11-23
11.6	Modeling Dynamic Systems: Silver Paper Scoring Guide	11-29
11.7	Storytelling Feature of STELLA	11-33

12.	Appendix	
12.1	Characteristics of a Good System Dynamics Model	12- 1
12.2	The System Dynamics Process	12- 3
12.3	Introduction to Generic Structures	12- 9
	Beginning Structures.....	12-11
	Generic Model Structures	12-15
12.4	Rubric for Understanding	12-19
12.5	Example Problem for System Dynamics Process	12-25
12.6	Special Considerations	12-35
12.7	Systems Thinking and System Dynamics Modeling Resources .	12-37

