

Lesson 2: Romeo and Juliet: Parallel Universe

Overview

Students use a simple simulation to explore “what if” questions relating to characters. They can change how characters behave to consider whether a story might have emerged differently. Note that students do not need to read the play, *The Tragedy of Romeo and Juliet* in order to explore the simulation.

Learning goals:

- Represent and interpret data on a line graph.
- Create conditions that produce specific relationship dynamics.
- Describe a loop of feelings between two characters.
- Identify and describe other types of relationships that oscillate in a similar fashion.



Figure 1: Title Screen

Student Challenge

Create different scenarios for the relationship between Romeo and Juliet – one that they perceive as matching the original story dynamics and others that are variations.

Lesson 2 – Level B – Ages 8+

Time:

Two 45-minute sessions

Materials:

- One computer for every 2-3 students
- Simulation online at http://www.clexchange.org/curriculum/complexsystems/oscillation/Oscillation_RelationshipsB.asp
- Handouts (pages 4-11)

Curricular Connections:

- Language Arts: Analyze how particular elements of a story or drama interact.*
- Language Arts: Compare and contrast a written story, drama, or poem to its audio, filmed, staged, or multimedia version, analyzing the effects of techniques unique to each medium.*

* Common Core Standards

Key system dynamics concepts and insights:

- Social systems are complex and we can use models and simulation to explore social relationships.
- Social systems may demonstrate similar trends as are seen within other systems, such as mechanical or ecological systems.

Lesson Details

Preparation:

1. Create groups of two to three students each.
2. Copy included handouts for each student or student group.
3. Check computers to make sure you can access the simulation.

Session 1:

1. If the class has read the play, *The Tragedy of Romeo and Juliet*, then use the handout to draw graphs of Juliet's love for Romeo and Romeo's love for Juliet throughout the play (page 4).
2. Have students open the simulation, read the introduction, and view the parts of the simulation on the "Introduction" screen (Figures 1 and 2). Note that although the simulation uses the names of Romeo and Juliet, the simulation is not meant to reproduce behavior trends seen within the play. The simulation is a thought experiment that allows students to ask "What if" questions in relation to how the characters in this or other stories might behave. These questions could include, "What if Romeo were fickle, 'playing hard to get' after Juliet indicated interest?" and, "What if the two characters grew tired of one another over time?" Key aspects that students can adjust are:
 - a. Romeo's Response to Juliet – To what degree does Romeo "play hard to get" if pursued by Juliet? Does he respond wholeheartedly or does he hold back?
 - b. Juliet's Response to Romeo – To what degree does Juliet "play hard to get" if pursued by Romeo? Does she respond wholeheartedly or does she hold back?
 - c. Romeo and Juliet's fatigue – To what degree does the couple tire of the

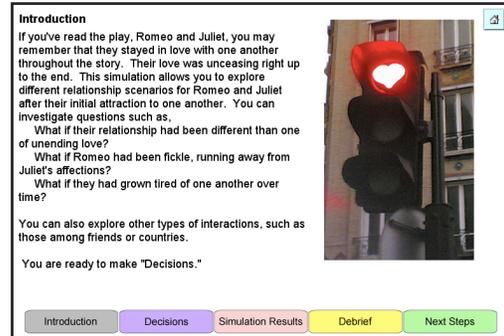


Figure 2: Introduction

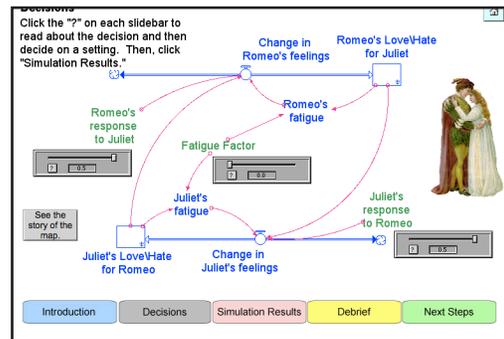


Figure 3: Make Decisions

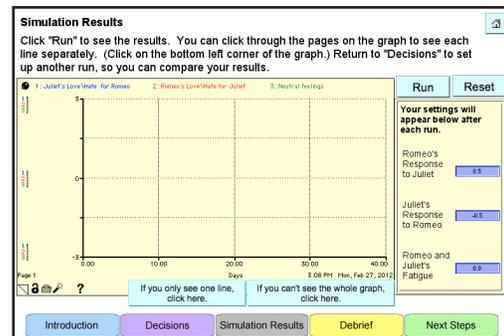


Figure 4: Simulation Results

Lesson Details

relationship?

- Have students make decisions, run, and then record data on the handouts (pages 5-9) as they explore different scenarios and compare the resulting trends (Figures 3 and 4). For the initial exploration runs (page 5), you may want to suggest that students change only one variable at a time.

Session 2:

- If needed, have students complete the simulation within their small groups.
- After students have completed the desired number of simulation runs, they can continue to the “Debrief” section (Figure 5).
- Debrief the simulation experience using ideas for bringing the lesson home, assessment, and the “Next Steps” section (Figure 6).

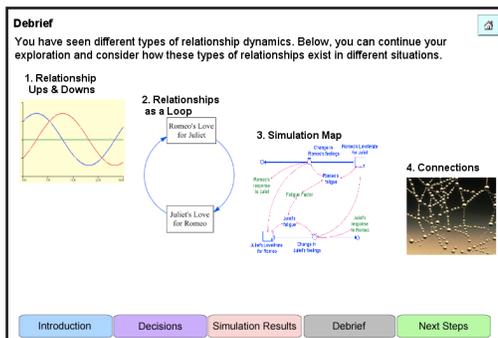


Figure 5: Debrief

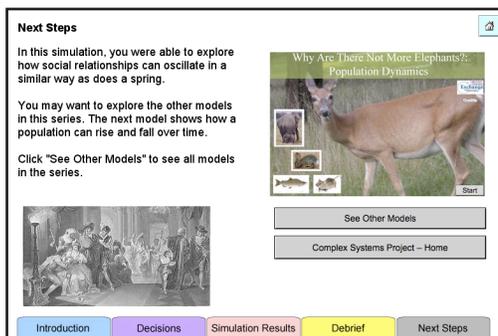


Figure 6: Next Steps

Bringing the Lesson Home:

- Have students explore the “Debrief” section of the simulation within their small group or as a class.
- Consider why the relationship oscillates, and under what conditions it does not oscillate.
- If students have read the play, *The Tragedy of Romeo and Juliet*, discuss comparisons between the dynamics within the book and those within the simulation.
- Make connections to other systems that oscillate in a similar way. Ideas include,
 - fashion fads, such as skirt length or tie widths,
 - Cold War dynamics (relationship between US and USSR),
 - and friendships.

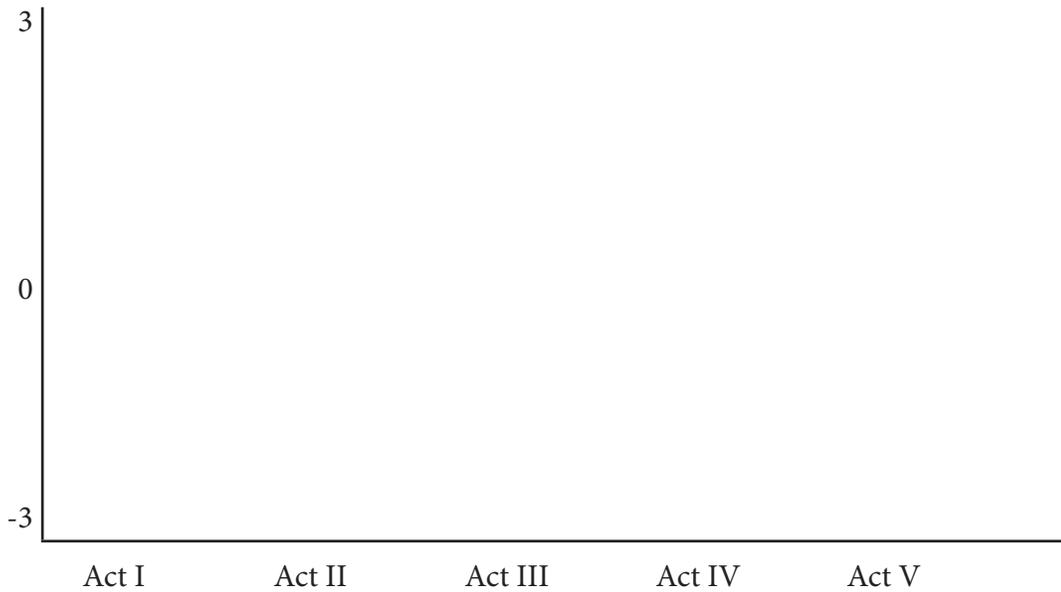
Assessment Ideas:

- Assessment 1: students tell the story of the relationship dynamics within the map (page 10).
- Assessment 2: students identify similar systems (page 11).

Note: Assessment Handouts can be formative or summative assessments.

Graphing *The Tragedy of Romeo and Juliet*:

After reading the play, *The Tragedy of Romeo and Juliet*, graph the levels of love for Romeo toward Juliet and for Juliet toward Romeo over time. Make sure to title your graph, label the y-axis, and create a key for each line on the graph. Note that the zero point on the graph represents “No Love.” Anything below zero would be the opposite of love, i.e., hate.



Explain what caused these trends to emerge within the story.

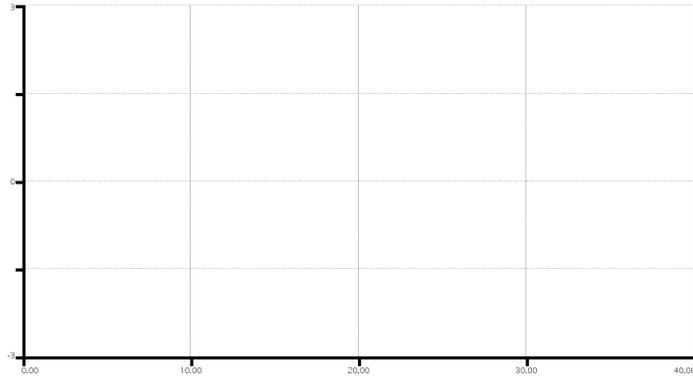
Exploring “What If?” Scenarios with Romeo and Juliet:

Use the handout and the simulation to create a variety of scenarios, and record your results. For each run, first draw your prediction as a line on the graph, then run and record the actual behaviors. Make sure to create a key to identify the lines on the graph.

Run # _____

Romeo’s Response to Juliet	
Juliet’s Response to Romeo	
Romeo and Juliet’s fatigue	

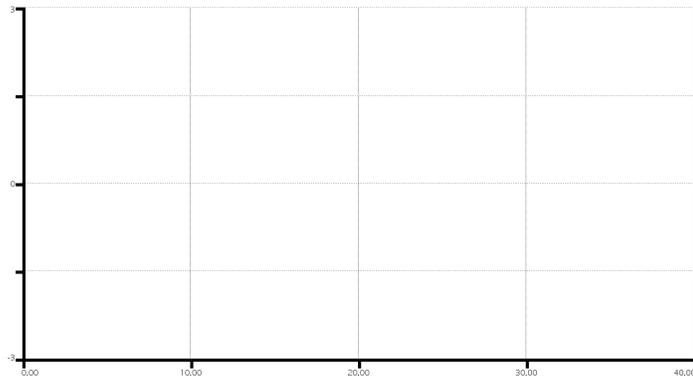
What happened?



Run # _____

Romeo’s Response to Juliet	
Juliet’s Response to Romeo	
Romeo and Juliet’s fatigue	

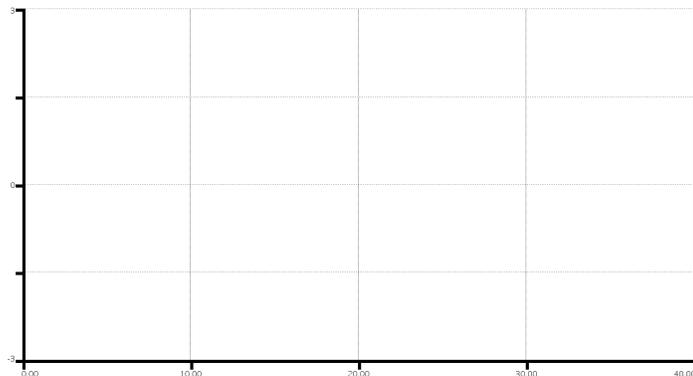
What happened?



Run # _____

Romeo’s Response to Juliet	
Juliet’s Response to Romeo	
Romeo and Juliet’s fatigue	

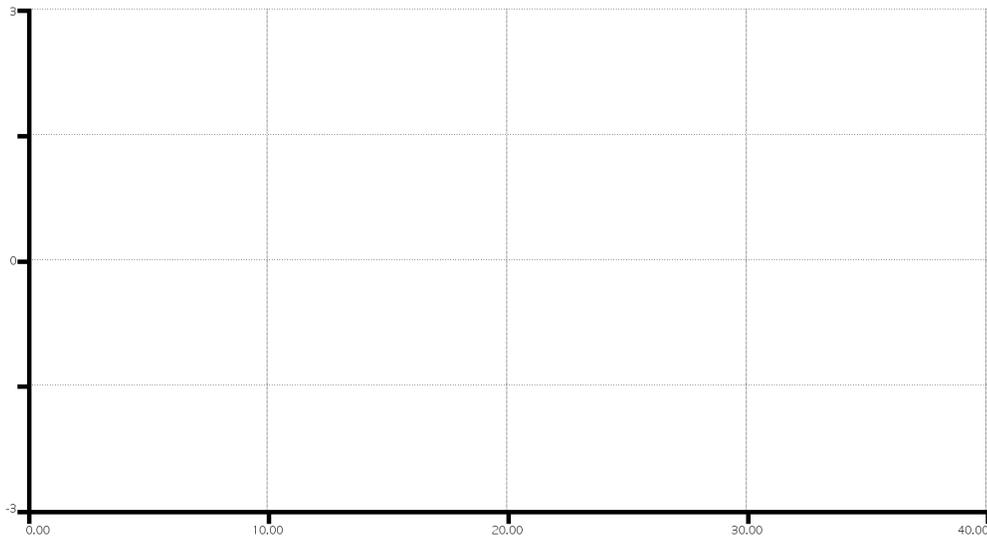
What happened?



Exploring “What If?” Scenarios with Romeo and Juliet (continued):

Create these specific scenarios and tell the accompanying new stories of Romeo and Juliet’s love.

Scenario 1: Romeo and Juliet’s love for one another grows over time. The graph should show their love for one another rising throughout the run. Create labels, a key, and a title for the graph.

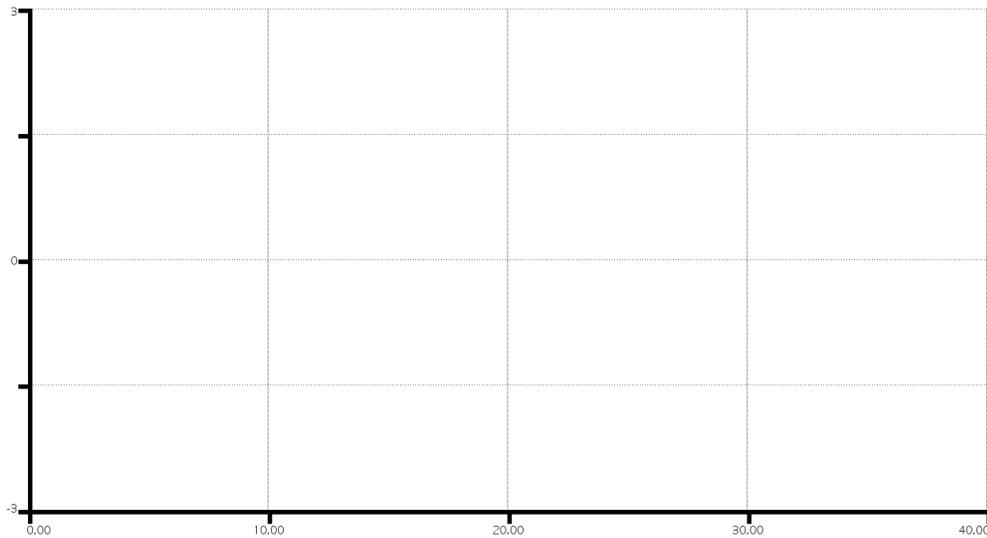


Tell the story of the graph over time.

What conditions did you set to achieve this?

Exploring “What If?” Scenarios with Romeo and Juliet (continued):

Scenario 2: Romeo and Juliet’s love oscillates (goes up and down) over time. Sometimes they love one another and sometimes they hate each other. The graph should show their love for one another rising and falling throughout the run. Create labels, a key, and a title for the graph.

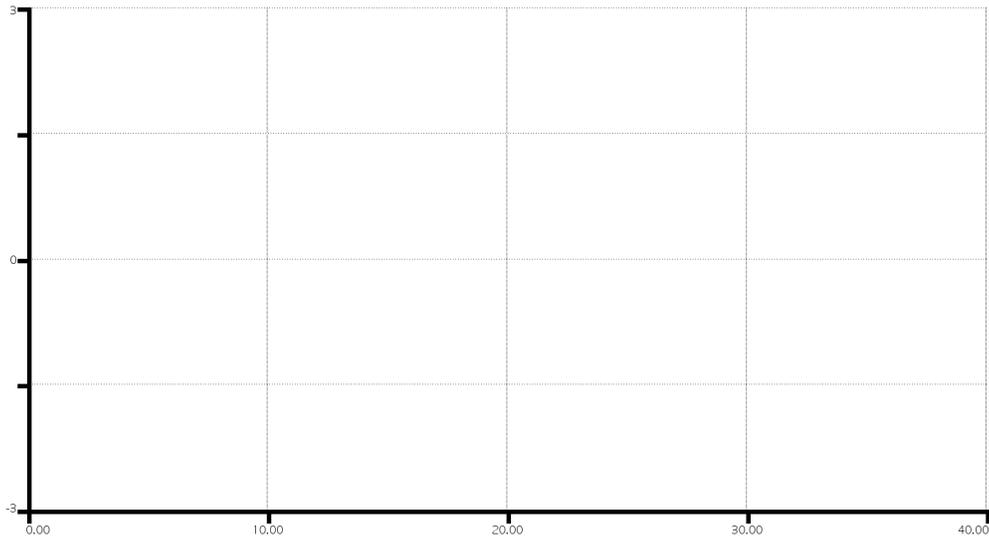


Tell the story of the graph over time.

What conditions did you set to achieve this?

Exploring “What If?” Scenarios with Romeo and Juliet (continued):

Scenario 3: Romeo and Juliet don't care about each other. The graph should show their love for one another falling throughout the run. Create labels, a key, and a title for the graph.

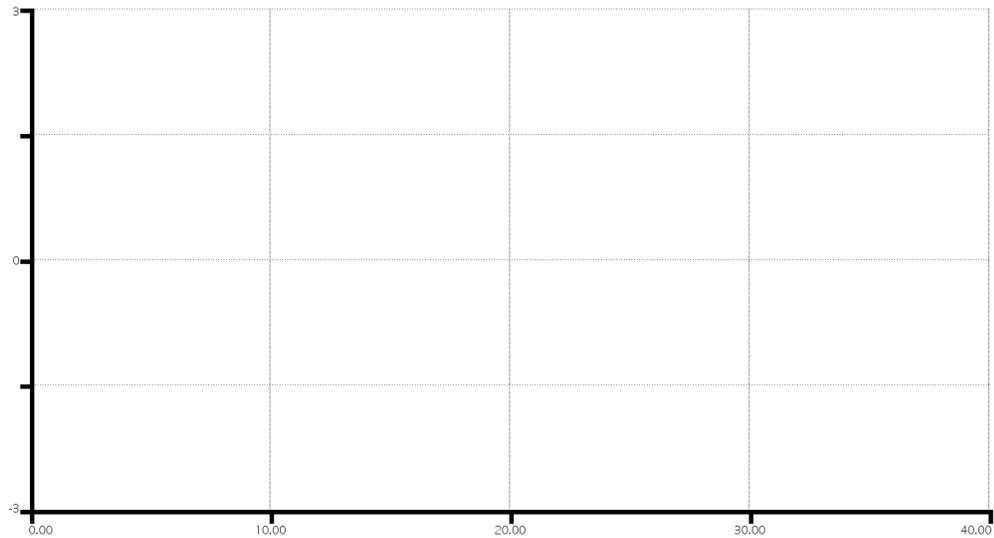


Tell the story of the graph over time.

What conditions did you set to achieve this?

Exploring “What If?” Scenarios with Romeo and Juliet (continued):

Scenario 4: Create your own scenario. Create labels, a key, and a title for the graph.



Tell the story of the graph over time.

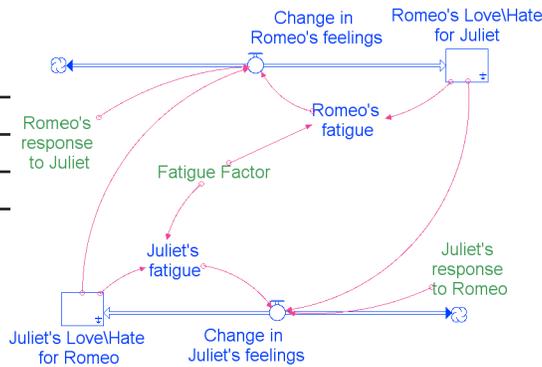
What conditions did you set to achieve this?

Lesson 2 - Handout

Assessment 1:

Look at the map below. Describe the parts and how they impacted Romeo and Juliet's love over time.

Romeo's Response



Romeo's Love/Hate

Juliet's Love/Hate

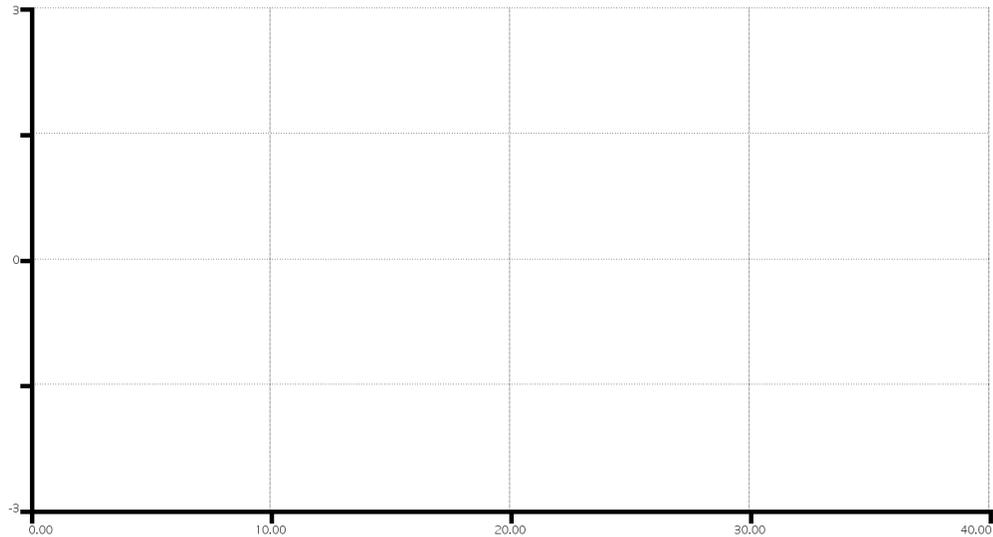
Fatigue Factor:

Juliet's Response:

Tell the story of the relationships within the map. Give examples from the simulation and from real life.

Assessment 2:

Draw, title, and label a graph for another situation that behaves in a similar way to Scenario 2, going up and down over time.



Tell the story of this situation over time.

Use the chart below to create a list of at least three other examples.

Example	Description

Acknowledgements:

Lesson 2 - Level B

Romeo and Juliet: Parallel Universe

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This model with accompanying lesson is one in a series that explore the characteristics of complex systems.

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