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## Critter Rates

Beth Hall

*The College at Brockport*

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Lesson Plan

Name: Beth Hall
Grade Level(s)/Subject Taught: Math 7, Math 8, Pre-Algebra, Algebra A
Objectives:  To have students collect rate data and convert to unit rates and equivalent rates. Students should be able to determine which rate is the fastest, slowest. Students will practice writing conclusions and interpret their data using complete sentences and proper business English. Present the data collection phase using modeling technology to create interest and individual creativity.
Class Structure: 40 Minutes
Number of Days: 1

1. Mathematical Concept (Key Idea) that modeling will be used to teach:

Number and Numeration: Understand and apply ratios, proportions, and percents through a wide variety of hands on explorations
Operations: Apply concepts of ratio and proportion to solve problems

and/or

1.b Science Concept (Key Idea) that modeling will be used to teach

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Materials:

Computer lab so students or student pairs each have their own computer. Alternative: LCD Projector and lab top. Computers loaded with Agent Sheets Agent Sheet Project "Critter Rates" Critter Rates Worksheet
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Description/Vision on way(s) you might teach the planned lesson.

Prompts:

1. How will you assess the prior knowledge of the student?
2. How will you begin the lesson?
3. What are the teacher and students doing every 5-10 minutes? (Teacher Actions, and Student Actions)
4. How will you assess the learning for the lesson?

Include Teacher Role (1/2 page) and Student Role (1/2 page)

Using \_\_\_ Agent Sheets \_\_\_ I plan on having my students....  
(software/modeling package(s))

\*\*\*\*\*  
 \*\*\*\*\* Unable to get the program working beyond the first background \*\*\*\*\*  
 \*\*\*\*\* Need to add more rules, but debug was by\*\*\*\*\*

\*\*\*\*\* unsuccessful lesson submittal time \*\*\*\*\*  
\*\*\*\*\*

Prior Knowledge:

- 1) Students understand what a rate is.
- 2) Students are able to calculate a unit rate.
- 3) Students are able to calculate equivalent rates.

Launch: Throw some weird rates at the kids like glasses of chocolate milk per episodes of Survivor.  
Review the concepts of rate, unit rate, and equivalent rate. Review how to use unit rates and proportions to calculate equivalent rates.

Have students pair up and pick a limerick or tongue twister from provided choices.

Review the objectives, the steps the students must accomplish and the grading of the rubric.

- 1) Collect data
- 2) Record Data
- 3) Convert Data into unit rates and equivalent rates

Teacher circulates during lesson.

Teacher collects the worksheet and grades according to the rubric.

Name \_\_\_\_\_ Per \_\_\_\_\_ Date \_\_\_\_\_

Rates: CritterRates (Agent Sheets)

Procedure:

- 1) Open Agent Sheets
- 2) Open Project: **CritterRates**
- 3) If the worksheet is not open, Open Worksheet: **Level1**
- 4) Modify the Critter to your liking. Do not spend more than 5 minutes on creating your critter.
  - a) Highlight the gallery
  - b) Highlight the critter.
  - c) Select Edit Depiction
  - d) Select DONE when you are happy with the critter or when 5 minutes has elapsed.

Sketch your critter here.

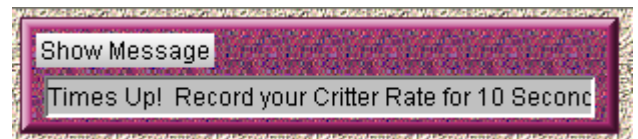
Does he/she have a name?  
If so, list it

\_\_\_\_\_



5) Run the Project.

When you run this project, your critter will flash on and off for a set number of seconds. You will need to count the number of times he/she appears before you get the message



6) You will then record your data next to the appropriate background button.

Find the rate of critters per second. Be sure to label your data.

Background 1



Background 2



Background 3



Background 4



7) Use the rates you collected in step 6 to calculate unit rates. Recall a unit rate as a denominator of 1.

Background 1



Background 2



Background 3



Background 4





## Lesson Rubric

	3	2	1	0
Data Collection	4 of 4 rates collected accurate	3 of 4 rates collected accurate	3 of 4 rates collected within +/- 1 of actual	< 3 rates collected within +/- 1 of actual
Unit rates	All 4 computed correctly	3 computed correctly	2 computed correctly	<2 computed correctle
Equivalent Rates	Complete, Accurate, work show	Complete, 1 inaccurate, work shown	Complete , 2 inaccurate and work shown	Incomplete or no work shown.
Interpretation	Correct and complete sentences used	Correct and incomplete sentences used	Incorrect and complete sentences used	Incorrect and incomplete sentences used

Total Score \_\_\_\_\_