**Materials**:

 Textbook: Calculus of a Single Variable 9th Edition by Larson, Edwards

 Notes: Notebook or 3 ring binder with loose-leaf paper, handouts,

 Graphing calculator, pencils, highlighters, etc.

**Essential Question:** How is calculus (more specifically derivatives) used in everyday life?

**Rationale:** Through this lap students will begin to apply different applications of derivatives including related rates and implicit differentiation.

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| **Letter Day and Date** | **Section and Objectives** | **Note Pages and Assignment** |
|  | Differentiate equations that are implicitly defined.Section 2-5 1998 AB #6 Part a, b, and c2000 AP #5 Parts a, b, and c | Notes pg 1-6Homework packet #1-10 |
|  | Solve related rate problems that are in context | Notes pg 7-13Homework packet #11-25Extra Related Rates Questions |
|  | Small group discussions talking about related rate problems from last days homework assignment2002 AB # 5 Parts a, b, and c2002 (form b) AB #6 Parts a, b, and c | Notes pg 14-16Study for quiz #1 |
|  | Quiz 1 |  |
|  | Use the first and second derivative of a function to analytically determine intervals of increasing/decreasing, concave up/down, coordinates of relative extrema, and coordinates of points of inflection.  | Notes pg 17-21Homework packet # 26-34 |
|  | Understand the graphical and numerical connections between the graphs of $F\left(x\right), F^{'}(x)$ and $F^{''}(x)$Graphing Derivatives Matching Game | Notes pg 22 - 25Homework packet # 35-52 |
|  | Calculator active questions and 2000 AB #3 Parts a,b, and c2001 AB #4 Parts a, b, and c2003 AB #4 Parts a, b, and c | Notes pg 26-30Test #4 Extra Practice Problems |
|  | Quiz # 2 | Study for Unit # 4 test |
|  | Test #4 Lap 4 – Applications of the Derivative NonCalculator | Extra Practice Problems are due – 25 points |
|  | Test #4 Lap 4 – Applications of the Derivative Calculator | Lap 4 Homework Packet is dues – 50 points |

**Independent activities:**

Due Date: December 4th

Driving Rate Of Change

You must have a partner for this project

You may want to use a combination of computer and hand written graph paper for this project.

This will take you awhile. I suggest not leaving it till the very end.

Worth a test grade.

Make it neat. You will be counted off if the paper appears sloppy.

Be careful to answer all parts of the problem.