Calculus AB Schedule -- Chapter 6 Differential Equations and Mathematical Modeling

Date	Lesson	HW Assignment
10-Feb	8.2 L'Hôpital's Rule	**HW2**--p.450 #1,2,4,5,7,13,15
11-Feb	8.2 L'Hôpital's Rule	**HW3**--AP Practice Problems, Video on General and Particular Solutions
12-Feb	6.1 Slope Fields	**HW4**--p.327 #1,8,12,13,18, p.349 Quick Quiz #4a, p.374 #50
15-Feb	**NO SCHOOL**--President's Day	**NO Additional Homework**
16-Feb	6.1 Slope Fields	**HW5**--p.328 30,31,34 Video on Matching Slope Fields
17-Feb	6.1 Slope Fields	**HW6**--p.328 #35,37,39, p.349 Quick Quiz #1 (make sure you write legitimate reasons)
18-Feb	6.4 Exponential Growth & Decay	**HW7**--p.357 #1,3,4,5,7
19-Feb	6.4 Exponential Growth & Decay	**HW8**--p.357 #2,6,8,9,10
22-Feb	6.4 Exponential Growth & Decay	**HW9**--Handout p.382 #68a,66,47,49a,74
23-Feb	**NO SCHOOL**--Teacher Institute Day	**NO Additional Homework**
24-Feb	6.4 Exponential Growth & Decay **Quick M/C Quiz for Unit 6**	**HW10**--Handout p.382 #69a,65,48,73
25-Feb	Chapter 6 Review	**HW11**--p.373 #25,27,32,37,39-42,56,63
26-Feb	Chapter 6 Review	**Study for Test**
1-Mar	**NO SCHOOL**--Pulaski Day	**NO Additional Homework**
2-Mar	**Chapter 6 Test**	**NO Additional Homework**
3-Mar	Chapter 6 AP Lab Activity	**HW1**--Video on Area Between Curves *AP Activity due 3/10*

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Unit 6: Differential Equations & Mathematical Modeling

FUN-7
Solving differential equations allows us to determine functions and develop models.

LEARNING OBJECTIVE	ESSENTIAL KNOWLEDGE
FUN-7.A Interpret verbal statements of problems as differential equations involving a derivative expression.	**FUN-7.A.1** Differential equations relate a function of an independent variable and the function's derivatives.
FUN-7.B Verify solutions to differential equations.	**FUN-7.B.1** Derivatives can be used to verify that a function is a solution to a given differential equation.
	FUN-7.B.2 There may be infinitely many general solutions to a differential equation.
FUN-7.C Estimate solutions to differential equations.	**FUN-7.C.1** A slope field is a graphical representation of a differential equation on a finite set of points in the plane.
	FUN-7.C.2 Slope fields provide information about the behavior of solutions to first-order differential equations.
FUN-7.C Estimate solutions to differential equations.	**FUN-7.C.3** Solutions to differential equations are functions or families of functions.
FUN-7.D Determine general solutions to differential equations.	**FUN-7.D.1** Some differential equations can be solved by separation of variables.
	FUN-7.D.2 Antidifferentiation can be used to find general solutions to differential equations.
FUN-7.E Determine particular solutions to differential equations.	**FUN-7.E.1** A general solution may describe infinitely many solutions to a differential equation. There is only one particular solution passing through a given point.
	FUN-7.E.2 The function F defined by $F(x) = y_0 + \int_a^x f(t)dt$ is a particular solution to the differential equation $\frac{dy}{dx} = f(x)$, satisfying $F(a) = y_0$.
	FUN-7.E.3 Solutions to differential equations may be subject to domain restrictions.
FUN-7.F Interpret the meaning of a differential equation and its variables in context.	**FUN-7.F.1** Specific applications of finding general and particular solutions to differential equations include motion along a line and exponential growth and decay.
	FUN-7.F.2 The model for exponential growth and decay that arises from the statement "The rate of change of a quantity is proportional to the size of the quantity" is $\frac{dy}{dt} = ky$.
FUN-7.G Determine general and particular solutions for problems involving differential equations in context.	**FUN-7.G.1** The exponential growth and decay model, $\frac{dy}{dt} = ky$, with initial condition $y = y_0$ when $t = 0$, has solutions of the form $y = y_0 e^{kt}$.