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1. **(Knowledge and Conceptual Understanding):** From a given real life data set of population (such as graphs, tables or charts), create the corresponding model of first order differential equation (such as modeling fish harvesting, logistic population growth or heat transfer etc.). Students will be able to extract relevant information to construct the differential equation modeling the given problem. Students will be able to solve the constructed differential equation.
2. (**Thinking and Other Skills):**After finding the solution of the differential equation (from above), students will be able to explain/analyze how accurate the model is compare to the actual real life situation (error analysis).
3. (**Attitudes, Values and Habits of Mind):**When modeling real life application problems (mentioned above), students will be able to predict the future (for example estimate the population of certain country in 1940 etc.). This will show students the power and importance of differential equation (or in general mathematics) in everyday life.