Reference:

Zwietering MH, Jongenburger I, Rombouts FM, van 't Riet K. 1990. Modeling of the bacterial growth curve. Appl Environ Microbiol. 1990 Jun;56(6):1875-81. [PMID: 16348228](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC184525/)

Big Picture:

1. What is the objective of the paper?
2. What are the main conclusions of the paper?
3. Why is modeling growth important?

Vocabulary terms (define and, when applicable, give an example from the paper)

1. Parameter
2. Linear regression
3. Model fitting
4. 95% confidence interval

Questions:

1. The authors state that the models only describe numbers of organisms and do not include consumption of a substrate (e.g. nutrients/food). What assumption does that make?
2. In the growth curve in Figure 1, the Y axis is the log of the relative population size, ln(N/N0). Why is the log value used? What would the graph look like if the Y axis was simply relative population size (N/N0)?
3. The authors use three “biological parameters” to rewrite the growth models. Define each of the parameters.
4. What does the residual sum of squares (RSS) measure?
5. How does increasing the number of parameters in a model usually affect the RSS value?