Flow chart for simple linear regression

Draw a scatter plot of the data

Fit a model based on subject matter expertise and/or observation of the scatter plot

Assess the adequacy of the model in particular:
Is the functional form of the model correct?
Do the errors have constant variance?

YES — Do outliers and/or leverage points exist?

NO — Add new terms to the model and/or transform x and/or Y

NO — Is the sample size large?

YES — Based on Analysis of Variance or a t-test decide if there is a significant association between Y and x?

YES — Are the outliers and leverage points valid?

NO — Remove them and refit the model

YES — Consider modifications to the model

YES — Are the errors normally distributed?

NO — Use the bootstrap for inference

YES — Use the final model to form confidence intervals

NO — Stop!