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Practice: Exploring Significant Predictors

Open the file **VSSTeamData.jmp** in JMP. Make sure that the five outliers for **Yield** are hidden and excluded.

1. Select **Fit Model** on the Analyze menu to fit a model for **MFI**, and use all of the continuous predictors (**SA** through **Ambient Temp**) as model effects.

   Which of the predictors are significant (with *p*-values < 0.05)?

   M%, **Xf**, **SA**, and **pH** are significant. All four of these predictors have a *p*-value less than 0.05. **Ambient Temp** is close, with a *p*-value of 0.065.

2. The Effect Summary table reports p-values. It also reports the log worth statistic. The higher the log worth statistic, the lower the *p*-value. The blue line in the Effect Summary table is drawn at a log worth of 2.0. This is equivalent to a *p*-value of 0.01.

   Based on the log worth statistic in the Effect Summary table, which predictor is the most significant?

   M% is most the significant, with a LogWorth of 26.265, followed by **Xf**.

3. Select the **Prediction Profiler** from the top red triangle by selecting **Factor Profiling** and then **Profiler**. Drag the red vertical line for **M%** to the lowest value (**M%** = 0), and then drag it to the highest value (**M%** = 3.67). Do not change the values for the other predictors. As you drag the line, observe how the response, **MFI**, changes.

   How does the response, **MFI**, change as you change **M%** from its lowest value to its highest value (holding everything else constant)?

   It increases by approximately six units. The predicted value for **MFI** changes from 195.56 to 201.45.

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