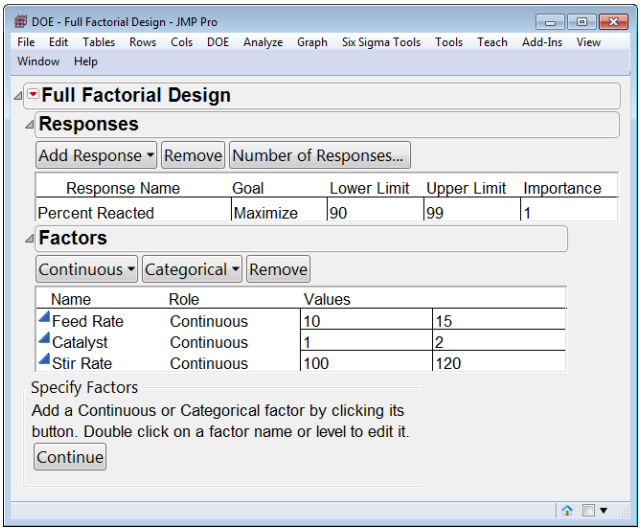
DOE Full Factorial Design

This page provides information on designing a full factorial experiment using the JMP® DOE Full Factorial Design platform. Note that full factorial experiments, along with a wide variety of other designs, can be generated from the Custom Design platform. For analysis of full factorial experiments, see the page **DOE Full Factorial Analysis**.

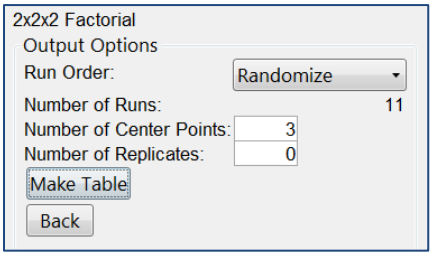
Create the Design (Using DOE > Classical > Full Factorial Design)

1. Specify the **Response(s):**
   - Double-click on **Y**, under **Response Name**, to name the response.
   - If needed, change the response **Goal** and **Upper** and **Lower Limits**.
   - Click **Add Response** to add additional responses.
2. Specify the **Factors**:
   - Click **Continuous** or **Categorical**, then the number of levels to add a factor. Click **Remove** to remove a factor.
   - Double-click to change the factor name.
   - Tab to change the values for the factor.
   - Repeat for all factors.

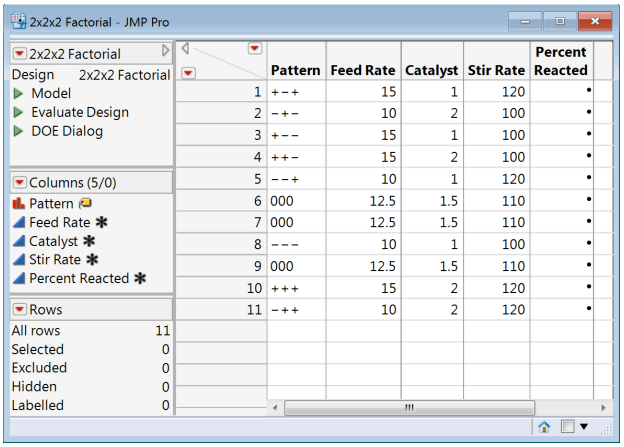


3. Click **Continue**.
4. Specify the **Run Order** (default is Randomize), the **Number of Center Points** and the **Number of Replicates** (the number of additional sets of runs for each design point).

   Here, we have specified an unreplicated fully randomized 2^3 full factorial design with 3 center points, totaling 11 runs.



5. Select **Make Table** to generate the design (or **Back** to make changes). In the design table:
   - The **Pattern** column provides a key to the factor levels for each trial.
   - The factor settings are indicated in the columns for each factor.
   - The response for each trial will be recorded in the last column (here, **Percent Reacted**).
   - The **Model** script has been saved to the data table (top left).



Notes: The design specification window stays open – use this window to change or regenerate the design. Full factorial designs can also be generated from the Custom Design platform. For more details on creating full factorial experiments, search for "full factorial" in the JMP Help or in the book ***Design of Experiments Guide*** (under **Help > Books**).