



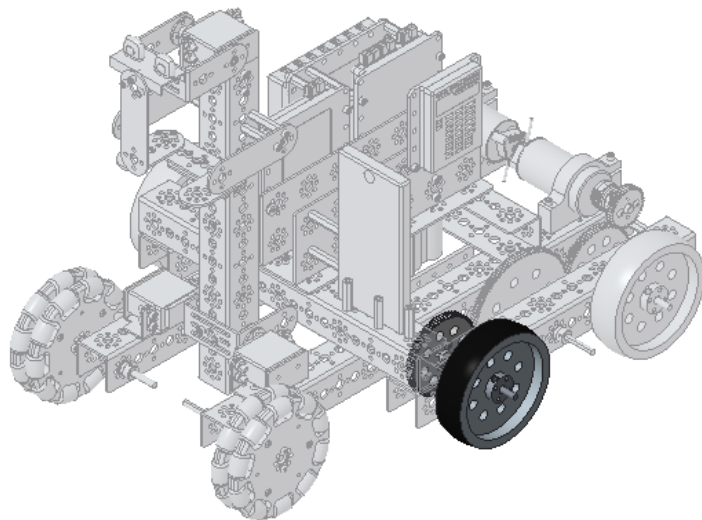
Creating an assembly drawing and bill of materials with Creo


The third phase of the product development process prepares for robot construction where a plan for assembly is created and all needed parts are sourced or fabricated.

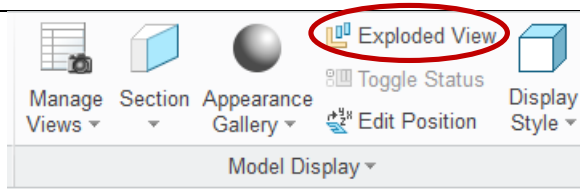
After you have a complete robot system modeled in 3D, the next step is to document its assembly part-by-part to make sure you have an accurate record. Creo can present the system model as an exploded view and to generate a bill of materials (BOM).

Task A: Display your model in exploded view

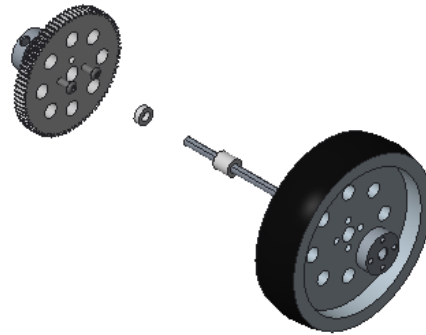
We will create a custom exploded view of a wheel assembly in order to keep the tutorial simple. The methods described here will work just as well for more complex model also.





1. From the Model tab, click **Exploded View**  .

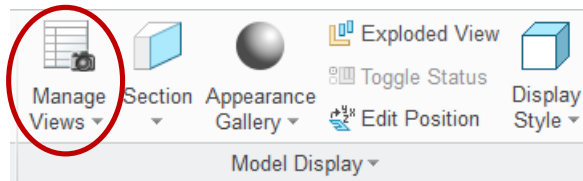


The default explode state is rarely what you need to document your design. We will learn how to create our own custom explode states.



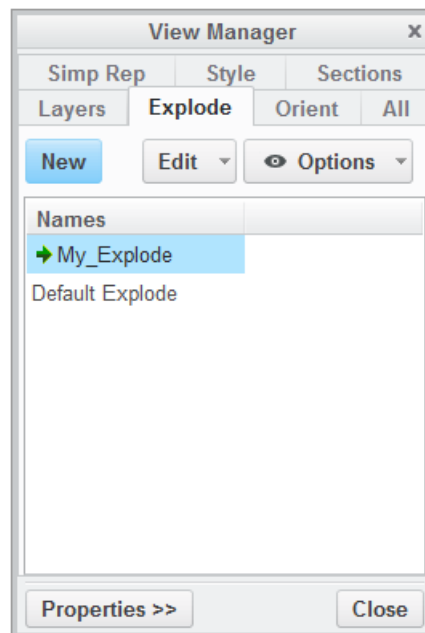
2. Click **Exploded View**  again to restore the normal view.


3. Click **Manage Views**  to create a new exploded view.



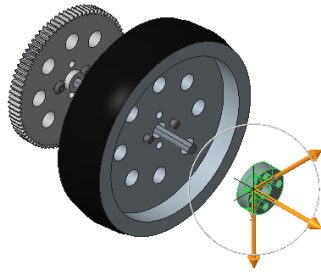
4. From the View Manager window, select the Explode tab.
5. Click **New** to create a new exploded state.
6. Name the new view

My_Explode
7. Press **Enter**.
8. Click **Close**.

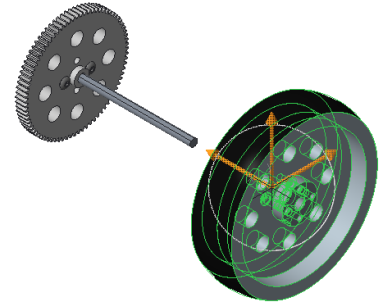


9. To place parts, select **Edit Position**  from the Model toolbar.

Click a part to select it.

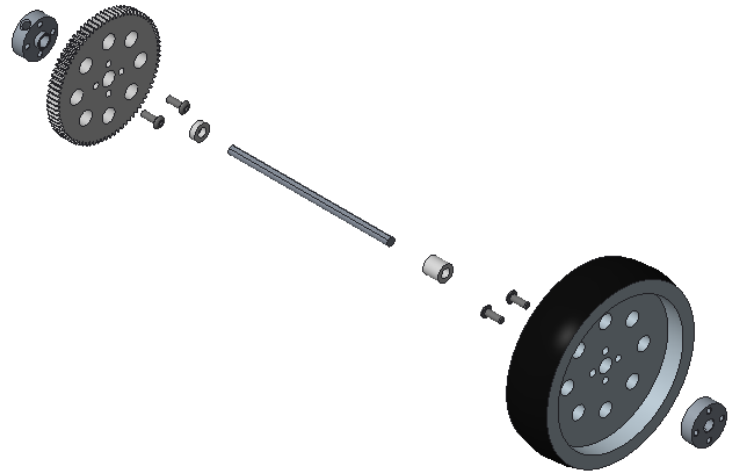


Pressing Ctrl and click to select multiple parts and move them as a group.





Selected parts and groups of parts can move along the three axes.

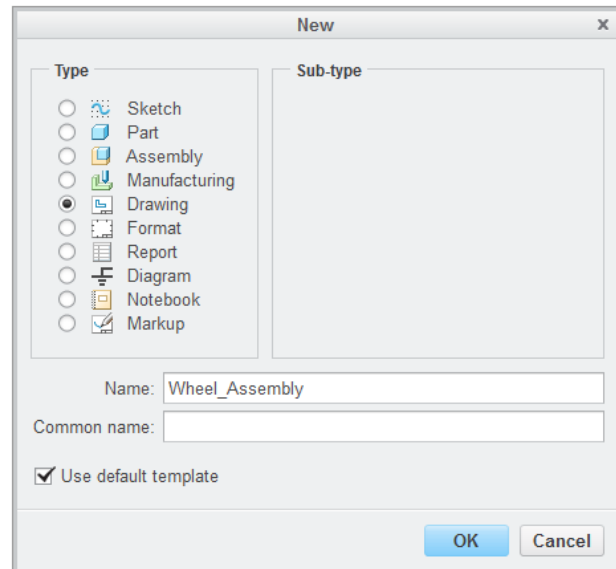
10. Position the assembly parts so that they are each clearly visible and maintain their position relative to the other parts.
11. Once your custom explode view is completed, click ✓.
12. In the View Manager window, right-click on My_Explode and select **Save**. (The plus (+) sign behind the view means it has unsaved changes.)



Task B: Create a drawing based on the exploded view of your model

1. From the File menu, select **New** .
2. Choose **Drawing**  for type.
3. Name the drawing

Wheel_Assembly
4. Click **OK**.

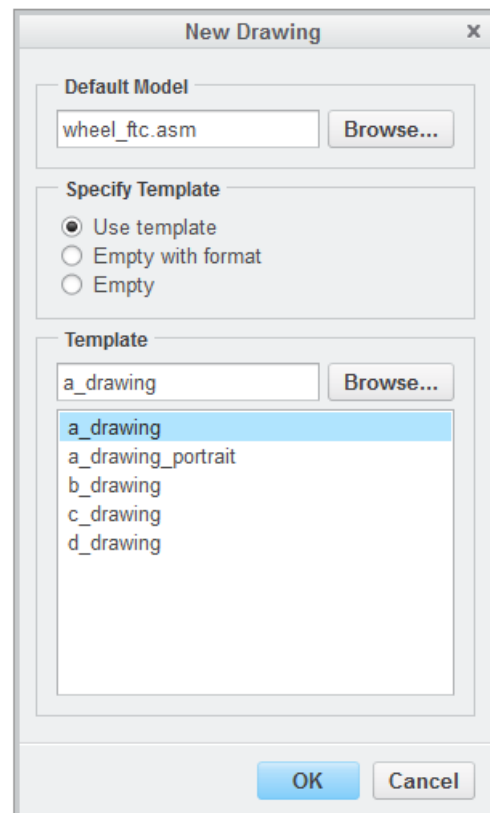


5. Select the size you would like for your drawing sheet.

Size a is 8.5 X 11in. The sizes get larger as you go down the alphabet.

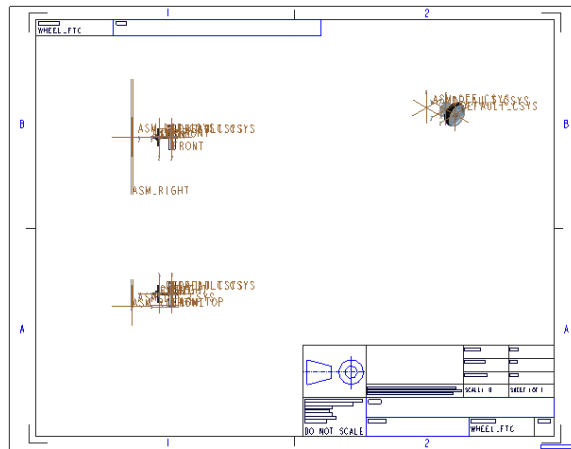
In the example, we use size a.



6. Click **OK**.

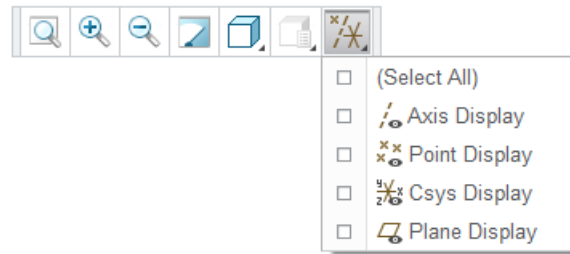



The drawing includes four views: top, front, and isometric. A drawing tree appears on the left of the screen.

In the example, we delete all but the isometric view.

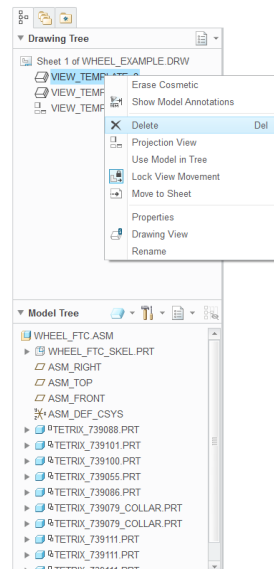


7. To make the drawing more clear, turn off Datum Display Filters .
8. Use Repaint  to apply graphical changes to the drawing.



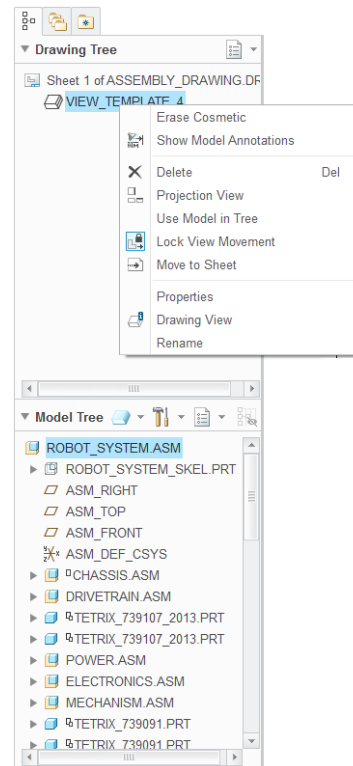
9. In the drawing tree, right-click the VIEW_TEMPLATE representing the front view drawing.
10. Select **Delete** .
11. Click **Yes** in the Confirmation window.

Only the isometric view remains in the drawing.



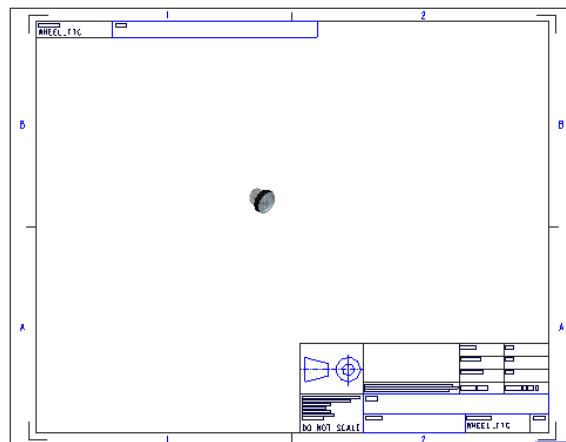
12. In the drawing tree, right-click on the remaining VIEW_TEMPLATE which represents the isometric view.

13. Click to disable **Lock View Movement** .



14. Click to select the isometric view of the model and move it to the center of the drawing.

15. Right-click on the model image again. Select **Properties**.

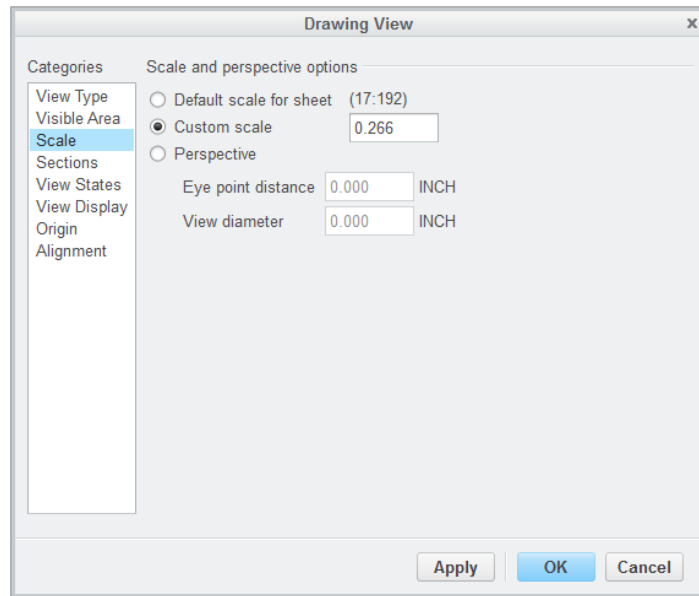


16. Select **Scale**.

17. Select **Custom scale**.

18. Set the value to 3-times
the current value.

19. Click **Apply**.

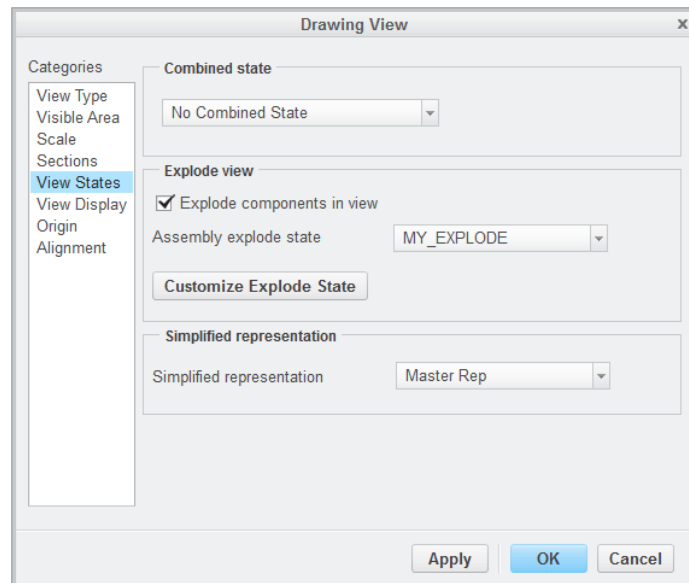


20. Select **View States**.

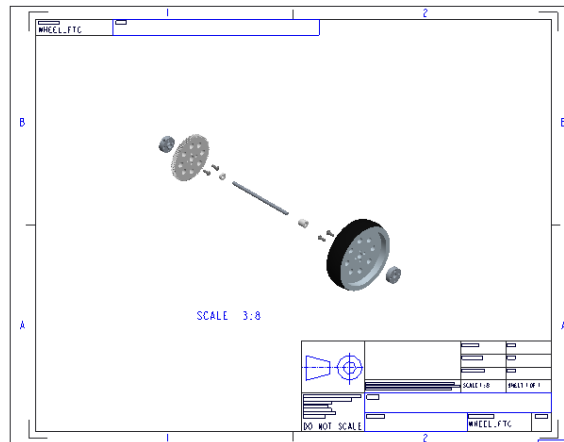
21. Check **Explode
components in view**.

22. Change the **Default
setting to MY_EXPLODE**.



23. Click **OK**.



The assembly drawing includes your custom exploded view.

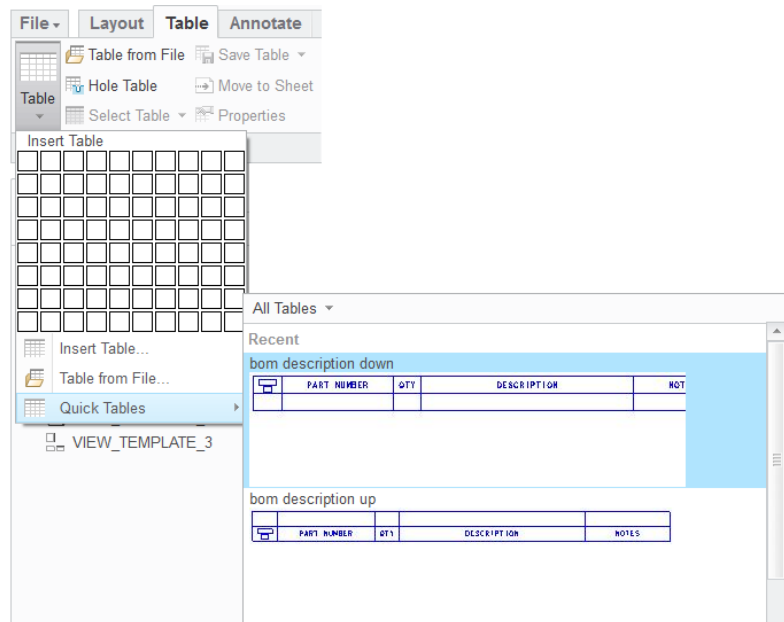


Task D: Create a bill of materials (BOM)

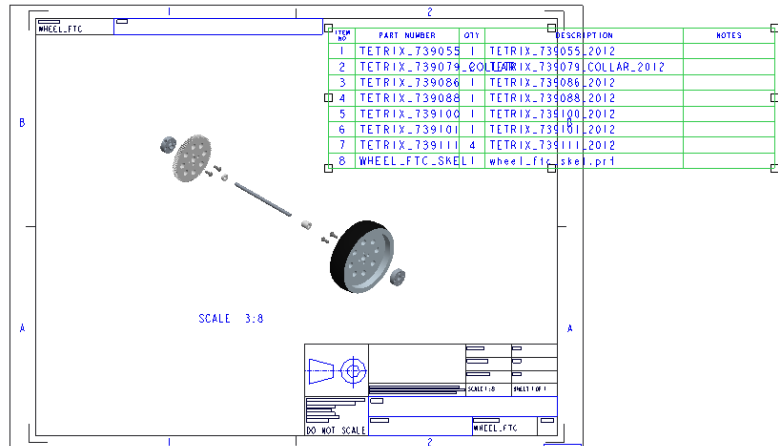
1. From the Table tab, expand Table  and select **Quick Tables** .
2. Select a bill of materials table template.

The example uses *bom description down*.

3. Click on the drawing to place the table.

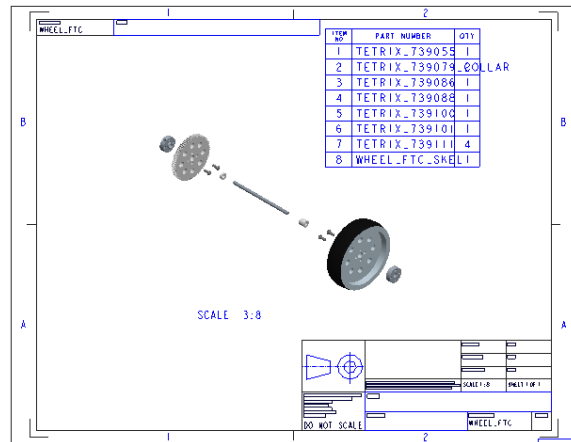


In the example, the table is placed in the top-right corner. It extends beyond the drawing. We will remove the Description and Notes columns in the next step.

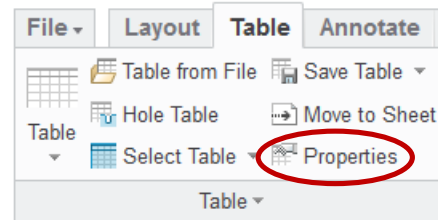


4. Drag-select the Description and Notes columns on the BOM table. They will appear green when selected.
5. Press **Delete**, and click **Yes** to remove them.

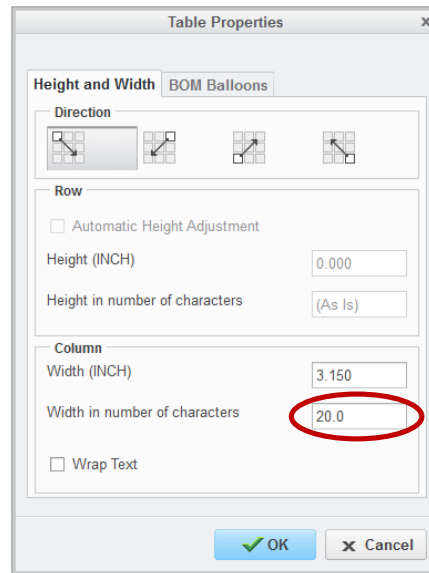
The Part Number column is too narrow. We can fix that by increasing the width of the column.



6. Drag-select the Part Number column.
7. From the Table toolbar, click **Properties**.

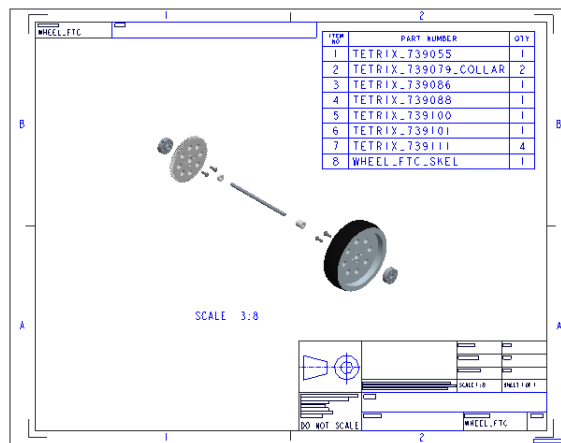



- From the Table Properties window, change the Column Width in number of characters to **20**.



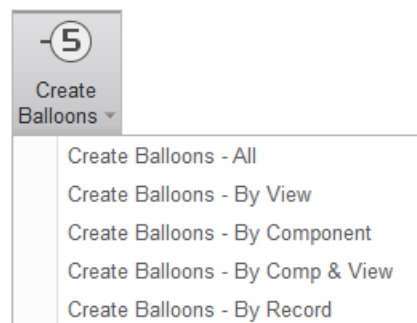
The assembly drawing includes a bill of materials listing each part and its quantity in the model.

You can annotate your assembly drawing to clarify where each part is found in the model.



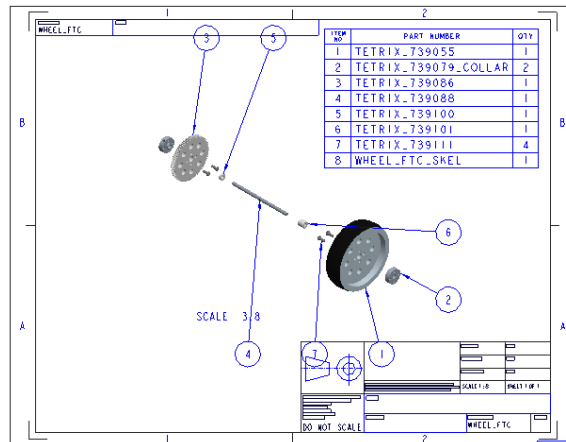
- From the Table toolbar, select **Create Balloons** .

- Create Balloons – All.**

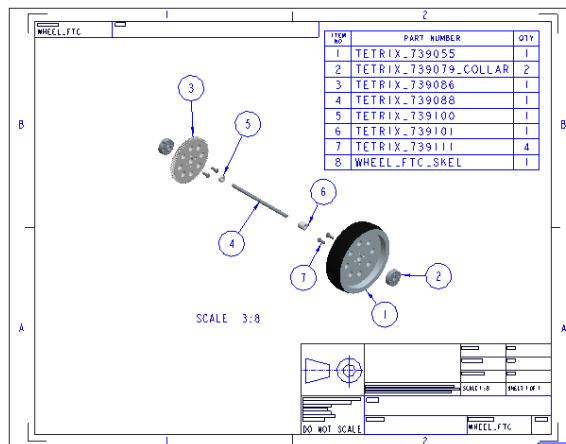


Numbered balloons connected to each of the parts listed in the bill of materials appear in the drawing.

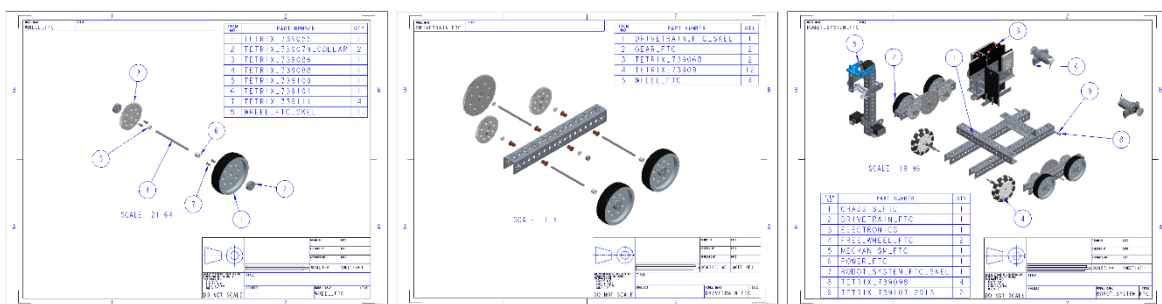
You can edit the positions of balloons by clicking on them.



Your assembly drawing is now annotated with balloons and a bill of materials. You can add notes to your drawing using the **Note** tool.



The assembly drawing provides a visual record of all of the parts in your wheel assembly. You can make several different assembly drawings to document each subassembly as well as your entire system design.



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