Always Start with a Plan

It is very important to have at least a preliminary modeling plan or strategy in mind before beginning. This plan should include the design intent of the model. Since the plan will undoubtedly change as the project matures, it is not necessary to have this plan fully developed before beginning. It will be very easy to change the wrong plan into the right plan but be very difficult to change no plan into the right plan.

Create Features Individually

Do not create one feature that should be multiple features. This will allow any combination of features to be suppressed or deleted. Do not sketch multiple closed sections in sketcher. Each closed section should be a separate feature. For example: When creating a shaft with flanges and grooves, create the base shaft as one feature and each flange and groove as separate features. If the model is created as one feature, there is an "all or nothing" scenario.

Create Features in a Logical Sequence

A model feature can made of a number of features. For example: a boss may require six features to model correctly. All these features should be in numerical order in the model tree and grouped. They can then be suppressed or resumed efficiently.

Carefully Create Parent/Child Relationships

Create only the Parent/Child relationships that are necessary for the model's design intent. Whenever creating a feature, always clearly identify the references used to constrain that feature. Whenever picking a reference, do so in a 3-D view. This practice will make it easier to identify exactly what is picked. Read the message window to validate picks, it lists what has been picked. A set of related features should be able to be suppressed and resumed without having to also suppress or resume unrelated features.

Use Insert Mode

Use Insert Mode before modifying or when adding features. Especially when working on a model with complex geometry or a large feature-count. By inserting close to the desired parent geometry, regenerating features that have no real bearing on the modification is avoided and the model regeneration time is reduced. When adding features, it will keep features in a logical order and keep parent/child relationships in check. After the modification or addition is done, resume the rest of the features.

Use Layers

Use default layers to automatically put various feature types on specified layers. To verify that these default layers are set for the part being worked on, either use the Layer menu in the Model Tree or verify the layer setup in Config.pro file. The Layer menu will display the default layer options that have been activated. If any of the default layers listed is not activated, do so by editing the table. Create additional layers with logical names that describe the features assigned to it. They can assist in suppressing and resuming features.

Guidelines for Good Sketcher Use

1. Use sketched centerlines and construction circles to achieve the desired dimensioning scheme.
2. Do not allow any weak dimensions to remain in a completed sketch. Either convert the weak ones to strong or add strong dimensions to complete a sketch.
3. As a rule of thumb, keep the number of dimensions in a section to a maximum of eight. If more than eight are needed to fully dimension a feature, create datum features first then reference the datum features when in the Sketcher. This technique will result in a robust model and minimize future difficulties with the Sketcher.
4. Choose references sparingly. More references mean more feature to feature relationships that can make the model more difficult to work with as it progresses or changes. Choose only enough references to make the model follow the design intent.
5. Choose references that won't disappear. References like edges that disappear when rounded or drafted, are not the best choice. Datums and planner surfaces are better. References from the base features are more stable than those of later features.
6. When redefining a sketch, use Replace (Under Edit) rather than deleting a sketched entity whenever possible. Replace will give the new entity the same entity id number as the old entity. This will result in rerouting all the children of the old entity to the new entity. Note that even if you have not referenced a sketched entity someone else (working in Pro/ASSEMBLY, Pro/PIPING Pro/MANUFACTURE, etc.) might have a reference to that entity.

Checklist for Good Pro/Engineer Models

1. Does it use the standard configuration file?
2. Have the six standard views been created in the correct orientation?
3. Has an appropriate pictorial view for the drawing been created and named for easy identification?
4. Were layers created as needed and correctly shown or blanked for the drawing?
5. Are descriptive names for features assigned in the Model Tree where possible?
6. Have similar features been compacted by using patterns and groups?
7. Are Geometry Checks needed (is menu grayed-out)?
8. Have the standard parameters been created and their values been entered?
9. Have the standard relations been created?
10. Does it use the proper units systems (inch/lb/sec)?
11. Has the correct density or material been assigned?
12. Has the correct file name been assigned?
13. Has the correct file location for storage, backup and retrieval been validated?
14. Are assemblies using library fasteners whenever possible?
15. Have suppressed features been deleted (before submitting to Intralink)?

Guidelines for a Good Part Model

The goal is to create and name features so that any other user can readily modify them at any time. Good modeling practices are far more important early in the modeling process than at the end as repair work.

Accomplish this by:

1. Following the standards in Pro/Engineer guidelines
2. Using the standard Start Parts when beginning a new part
3. Consciously setting up your parent/child relationships
4. Creating a simple base feature
5. Creating simple sketches
6. Not sketching rounds or fillets when avoidable

7. Using default or created datums for sketcher view orientations
8. Not adding material with one feature only to be removed with another
9. Aligning sketches to surfaces rather than edges whenever possible
10. Realigning any sketched entities created with the "use edge" menu from the edge to a surface
11. Adding and commenting ("what" and "why") relations in both the feature (Sketcher) and the model
12. Dimensioning the part model as needed in the drawing
13. Creating drafts, rounds, and chamfers as late in the part model as practical
14. Carefully considering the options when the above guidelines don't make sense

Guidelines for Good Drawing Creation

1. Use the standard drawing set-up file.
2. The model should regenerate without errors or geometry checks prior to beginning the drawing.
3. No erased views should be kept in drawings.
4. Relate draft entities to objects or views, check for unattached text (missing leaders).
5. Make sure views do not overlap one another.
6. Use only a named view, created from datum planes in the model, as the first view in the drawing.
7. Use only projected, detail, or auxiliary views whenever possible (avoid multiple general views).
8. Check for line width and text size uniformity (as in standard drawing set-up file).
9. Use shown dimensions as opposed to created dimensions whenever possible.
10. Delete all unused models from drawing.