Family Table of Skeleton

Skeleton models can maintain their own family tables. This means that assemblies can maintain different skeleton instances across a family table. So we can create a Family Table of the assembly to represent the design optional deviations, or a family of similar assemblies.

Exercise 1

In this exercise you will learn how to use the family table of a skeleton model to create multiple configuration of a product.

Set the working directory to VERNIER_CALIPER folder and open VERNIER150.ASM

The assembly will appear as shown below.



Creating Family Table Instance of Skeleton Model

Now we will create a family table instance of the skeleton model

So open the VERNIER_SKEL150.PRT in a new window.

Pick 🔲 on Tools tab and Family Table dialog box will appear.



Pick 🛅 to add a row in the family table

	Family Table :VERNIER_SKEL150	- 🗆 X
<u>F</u> ile <u>E</u> dit <u>I</u> nsert <u>T</u> ools		
Look In: VERNIER_SKEL150	- E % E i I 📰 🖽 🚧 树	
This model currently has no far Select to add dimensional of	mily table design variations. or feature parameter columns to the table.	*
Select to define instance m substituting different values in	nodel rows as design variations of the current model, the cells for those parameters in each instance.	
4		<u>v</u>
4		F
Pm, Open		
Open		

Enter **VERNIER_SKEL200** as the name of the new instance as shown below.

		Family Table :VERNIER_SKEL150	- 🗆 X
<u>F</u> ile <u>E</u>	dit <u>I</u> nsert <u>T</u> ools		
Look In:	VERNIER_SKEL150	💽 🕞 🦾 🗊 📅 🖬 🚮 🚧 🖣	r 🔽 🔳
Ту	Instance Name	Common Na	
	VERNIER_SKEL150		
	VERNIER_SKEL200		
6) <u>p</u> en		
		<u>O</u> K	Cancel

Pick the icon to add new table columns and Family Items dialog box will appear. Pick on the part so that dimensions appear on screen.

Pick the following (highlighted in red) dimensions on screen.



After adding the dimension, dialog box will appear as shown below.

Items		Filter
d37		Dimension
d40		Parameter
030		Feature
		Component
		Merge part
		Reference mode
		Group
k] (■) (≡	+×	<u>M</u> - <u>M</u> -
Dimension	O Component	O Group
Feature	O Parameter	O Pattern table
O Merge part	O Reference model	O Other

Pick to apply and exit the dialog box.

Enter the following dimension values in the dialog box. (The order of dimensions may be different for your case. Make sure that you enter the dimensions in correct columns)

ook In:	VERNIER_SKEL150	T t		1 i 📅 🛄	M 66 V	
Ту	Instance Name	Common Na	d37	d40	d38	
	VERNIER_SKEL150		55.000000	40.000000	210.000000	
	VERNIER_SKEL200		60	45	260	
<u> </u>)pen					

➡ Creating Family Table Instances of Parts

Now we will create family table instances of the individual parts.

So open the VERNIER_BASE150.PRT in a new window.

Pick on Tools tab and Family Table dialog box will appear.

Pick 📅 to add a row in the family table

Enter VERNIER_BASE200 as the name of the new instance as shown below.

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Pick the icon to access Family Items dialog box.

Select the **Reference model** option in the dialog box as shown below.

	Dimension
	Parameter
	Feature
	Component
	Merge part
	Reference mode
	Group
O Dimension O Component	O Group
O Feature O Parameter	O Pattern table
Merge part Reference mod	el 🔿 Other

Now the system will present the list of parts referenced by the current part. Check the **VERNIER_SKEL150.PRT** and pick **Done**

As VERNIER_BASE150 references the publish geometry feature in the skeleton so system is displaying the skeleton in this menu.

The Family Items dialog box will appear as shown below.

Items	Filter
EXT_REF0, PART	Dimension
	Parameter
	Feature
	Component
	Merge part
	Merge part
	Merge part Reference mode Group
Add item	Merge part Reference mode Group
Add item	Merge part Merge part Reference mode Group E E Component O Group
Add item	Merge part Reference mode Group F- Component O Group Parameter O Group Pattern table

Enter the **VERNIER_SKEL200** as the name of reference part for the new instance as shown below.

		Family Table :VERNIER_BASE150	- 🗆 X
<u>F</u> ile <u>E</u>	dit <u>I</u> nsert <u>T</u> ools		
Look In:	VERNIER_BASE150	- • * • • • •	📑 👽 🏤 🐨 🚺
Ту	Instance Name	Common Na EXT_REF0 PART	
	VERNIER_BASE150	VERNIER_SKEL150	
	VERNIER_BASE200	VERNIER_SKEL200	
0	lgen		<u>Q</u> K <u>C</u> ancel

Now this new instance (i.e. VERNIER_BASE200) will be referring the VERNIER_SKEL200 (family table instance of VERNIER_SKEL150).

Pick to apply and exit the dialog box.

Now open the VERNIER_SLIDE150.PRT in a new window.

Pick on Tools tab and Family Table dialog box will appear.

Pick 📅 to add a row in the family table

Enter VERNIER_SLIDE200 as the name of the new instance as shown below.

		Family Table :VERNIER_SLIDE150	- 🗆 X
<u>File</u>	<u>E</u> dit <u>I</u> nsert <u>T</u> ools		
Look In:	VERNIER_SLIDE150	- 🔁 🌾 🚡 🗊 📅 🖬 🖬 🕬 🏰	
Ту	Instance Name	Common Na	
	VERNIER_SLIDE150		
	VERNIER_SLIDE200		
	S		
k			
B	0 <u>p</u> en		
		<u>O</u> K	Cancel

Pick the icon to access Family Items dialog box.

Select the Reference model option in the dialog box and check the VERNIER_SKEL150.PRT



As VERNIER_SLIDE150 references the publish geometry feature in the skeleton so system is displaying the skeleton in this menu.

Then pick Done

The Family Items dialog box will appear as shown below.

Items		Filter
EXT_REFO, PART		Dimension
		Parameter
		Feature
		Component
		The second second
		merge part
		Reference mode
		Reference mode
	+ ×	
Add item	+ X	
Add item	Component Parameter	Group Group Group Group O Group O Group O Pattern table

Enter the **VERNIER_SKEL200** as the name of external referenced part for the new instance as shown below.

		Family Table :VERNIER_SLIDE150	- 🗆 X
<u>File</u>	dit <u>I</u> nsert <u>T</u> ools		
Look In:	VERNIER_SLIDE150	- 🖬 🖌 🖻 🛍 🎵 🖽 🖬 🖊 🖂 -	· 🗷 🔳
Ту	Instance Name	Common Na EXT_REF0 PART	
	VERNIER_SLIDE150	VERNIER_SKEL150	
	VERNIER_SLIDE200	VERNIER_SKEL200	
60	lgen		
		<u></u>	K <u>C</u> ancel

Now this new instance (i.e. VERNIER_SLIDE200) will be referring the VERNIER_SKEL200 (family table instance of VERNIER_SKEL150).

Pick to apply and exit the dialog box.

Now open the VERNIER_STRIP150.PRT in a new window.

Pick on Tools tab and Family Table dialog box will appear.

Pick 📅 to add a row in the family table

Enter VERNIER_STRIP200 as the name of the new instance as shown below.

		Family Table :VERNIER_STRIP150	-		x
<u>F</u> ile <u>E</u>	dit <u>I</u> nsert <u>T</u> ools				
<u>L</u> ook In:	VERNIER_STRIP150	- 🕞 🌾 🛅 🇊 🐨 🖬 🔂 🚭 🏜		Ⅲ	
Ту	Instance Name	Common Na			
	VERNIER_STRIP150				
	VERNIER_STRIP200				
				_	
~ 0					
0	<u>pen</u>				
		OK	Car	ncel	1
					3

Pick to access Family Items dialog box.

Select the Reference model option in the dialog box and check the VERNIER_SKEL150.PRT



As VERNIER_STRIP150 references the publish geometry feature in the skeleton so system is displaying the skeleton in this menu.

Then pick Done

Pick to apply and exit the dialog box.

Enter the **VERNIER_SKEL200** as the name of external referenced part for the new instance as shown below.

ook In:	VERNIER_STRIP150	• •	▶ 🖻 🔒 🎵 🏪	📑 🎽 6.	e 📲 🖬 💼
Ту	Instance Name	Common Na	EXT_REF0 PART		
	VERNIER_STRIP150		VERNIER_SKEL150		
	VERNIER_STRIP200		VERNIER_SKEL200		
<u>6</u> 0) <u>p</u> en				

Now this new instance (i.e. VERNIER_STRIP200) will be referring the VERNIER_SKEL200 (family table instance of VERNIER_SKEL150).

Pick to apply and exit the dialog box.

➡ Creating Family Table Instance of Assembly

Now we will create a family table instance of the assembly.

Switch to the VERNIER150.ASM window.

Pick on Tools tab and Family Table dialog box will appear.

Pick 📅 to add a row in the family table

Enter VERNIER200 as the name of the new instance as shown below.

<u>×</u>

Pick the icon to access Family Items dialog box.

Select the **Component** option in the dialog box as shown below.

items	Filter
	Dimension
	Parameter
	Feature
	Component
	Merge part
	Reference mode
	Group
Add item	
O Dimension O Componer	Group
Feature Parameter	O Pattern table
O Merge part O Reference	model 🔘 Other

Pick the all the components (including skeleton) in the assembly one by one.

The Family Items dialog box will appear as shown below.

		Filter
M62, VERNIER_	SKEL150	Dimension
M63, VERNIER_	BASE150	Parameter
M64, VERNIER_	SLIDE150	Eesture
M67, VERNIER_	STRIP150	
		Component
		Horno part
		merge part
		Reference mode
		Reference mode
2 107-107-		Reference mode Group
k = =	+ ×	Reference mode Group
&][=][=	+×	Reference mode Group
k 🔳		Reference mode Group
Add item	• Component	Reference mode Group Group Group Group
Add item	Component Parameter	

Enter the name of the newly created instances for all parts in corresponding columns as shown below.

te	ance Name	Com	M62	M63	M64	M67	
-		Comm	VERNIER_SKEL150	VERNIER_BASE150	VERNIER_SLIDE150	VERNIER_STRIP150	
NI	IER150		Y	Y	Y	Y	
NI	IER200		VERNIER_SKEL200	VERNIER_BASE200	VERNIER_SLIDE200	VERNIER_STRIP200	
NI	IER200		VERNIER_SKEL200	VERNIER_BASE200	VERNIER_SLIDE200	VERNIER_STRIP200	

Pick on VERNIER200 cell and select

🔁 O<u>p</u>en

The assembly will appear as shown below.

Top-Down Design - A Practical Approach



In the same way we can have as many assembly configurations as we want. This is a great way to create the multiple configuration of an assembly driven by a skeleton.