LEARNSW

HOW TO MODEL A RIETVELD CHAIR IN SOLIDWORKS?

J.W.ZUYDERDUYN

HOW TO MODEL A RIETVELD CHAIR IN SOLIDWORKS?

"A step by step SolidWorks Tutorial"

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I often make updates and additions to this book because SolidWorks also keeps changing over the years. You can download the latest version of this book here:

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About the Author

My name is Jan-Willem Zuyderduyn and I am the founder and owner of LearnSolidWorks.com.

I've been working since 2000 with 3d CAD software and since 2004 with SolidWorks. In that time I've learnt a lot about all the possibilities with SolidWorks.

I am graduated in 2008 with a Bachelor Degree in Product Design & Engineering. I've worked for **Sinot Yacht Design** as yacht designer. I am currently working as an Industrial Designer for the **TSG Group** in Eindhoven, the design city of the Netherlands.

I am also working as freelance SolidWorks teacher of "Advanced Surface Modeling 3". I am specialized in concept design, 3d modeling and visualizations.

LinkedIn

In 2007 and 2008 I ended in the top 3 of the International SolidWorks Car Design Contest of the Benelux (2007) and Europe (2008). It took me 9 years to learn everything about SolidWorks what I know now.

In that time I have been asked many times how to model and render 3D models using SolidWorks. The last few years I've written multiple e-books and tutorials about SolidWorks. My goal is to help as many people as I can with learning SolidWorks. That's why I've created the website, LearnSolidWorks.com. (By the way, I am not related or affiliated with SolidWorks in any way)

I offer this free eBook because I sell SolidWorks training courses. And there's a good possibility you will get inspired to become a real SolidWorks Pro. So if you find value in the help I give you, you might want to check my premium SolidWorks training where I teach you everything you need to know into becoming a SolidWorks Pro fast.

Feel free to share this eBook with your colleagues and friends.

Have fun modeling!

Jan

P.S. Add me on Twitter, and stay up to date with my newest SolidWorks tips, tricks & tutorials: **http://twitter.com/LearnSW**

P.P.S. And Like the **LearnSolidWorks Fanpage** at Facebook ☺

How to Model a Rietveld Chair in SolidWorks?

Today I will show you how to model the famous Rietveld Chair in SolidWorks. Gerrit Thomas Rietveld was one of the most outstanding furniture designers of the Netherlands. One of his most famous designs is the **Red and Blue Chair**.

I thought it would be nice to write a SolidWorks tutorial about this chair.
In this tutorial you will learn how to use the following functions:

- 2D sketch
- Extruded Boss/Base
- Thin Extrude
- Multi-directed Extrude
- Mirror
- Chamfer

When the model is finished I will show you four different ways to add a color to your part.

Render of the final Rietveld Chair in PhotoView360

Open a new part with model units set to millimeters

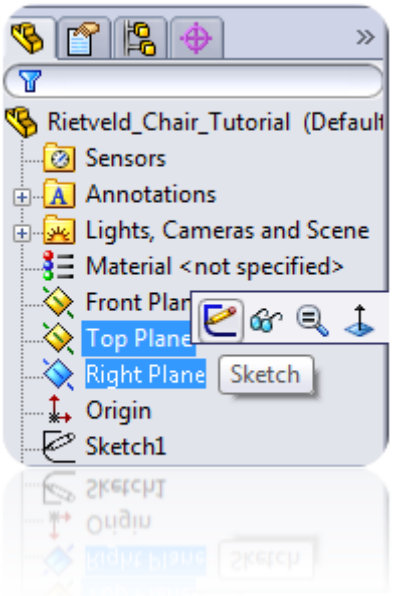
Go to: **File > New > Part**

Create a 2D sketch

Select the Right Plane in the feature tree (menu at the left side) and create a

sketch by clicking on the 2D Sketch icon

The display changes so the Right plane faces you.



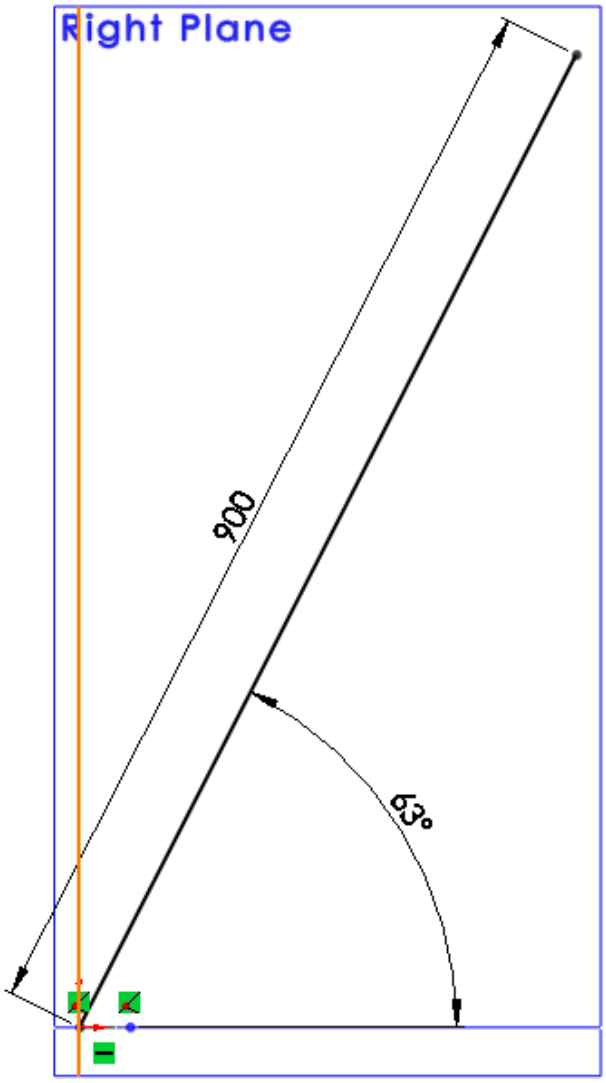
Create a straight line

Go to **Tools > Sketch Entities > Line** or click at the Line icon

Draw a diagonal line that starts at the origin.

Change the length of the line into 900 mm by clicking at the dimension button

Add a Smart Dimension of 63 degrees to the line by clicking on the diagonal line and clicking on the horizontal plane as shown in the picture.



Create an Extruded Boss/Base

Go to: **Insert > Boss/Base > Extrude** or click at the Extrude icon

Select the diagonal line

Change into 179 mm

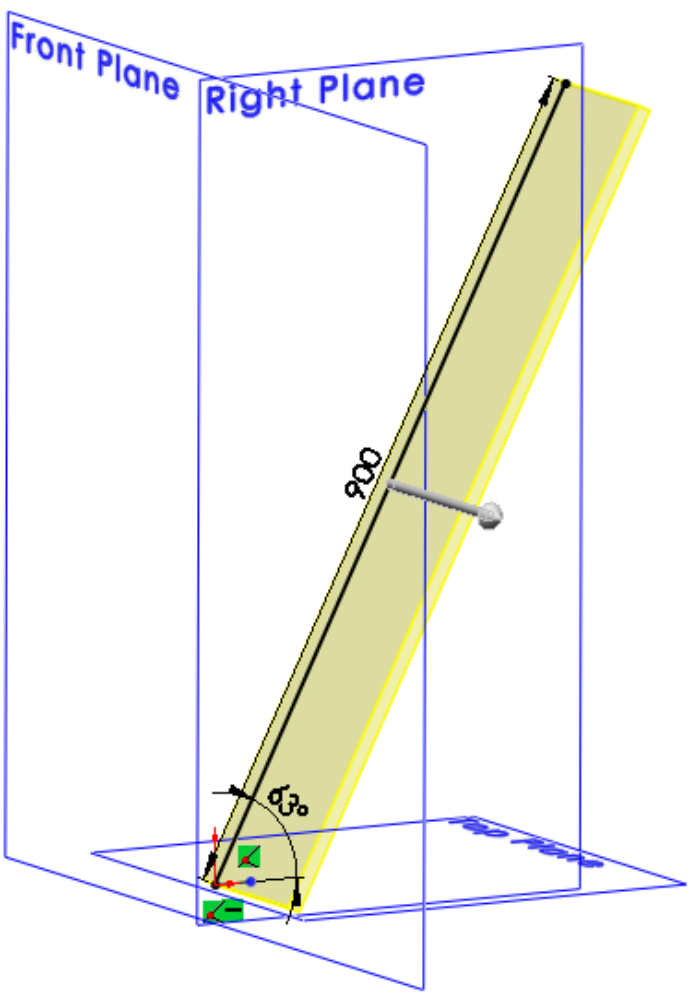
Enable the **Thin Feature** option

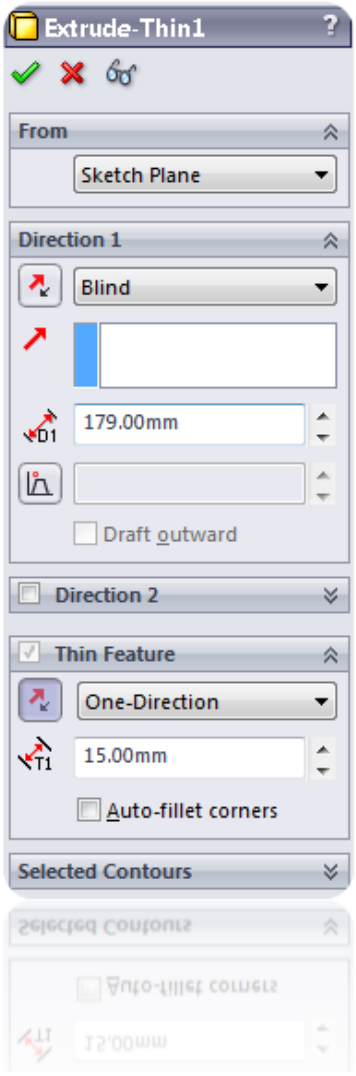
Change into 15 mm

Make sure that the extrusion is directed upward and forward as shown in the picture.

If the direction is wrong, change it with the ‘‘Reverse Direction’’ button.

Click OK





Create another 2D sketch

Select the Right Plane and create a sketch by clicking on the 2D Sketch icon

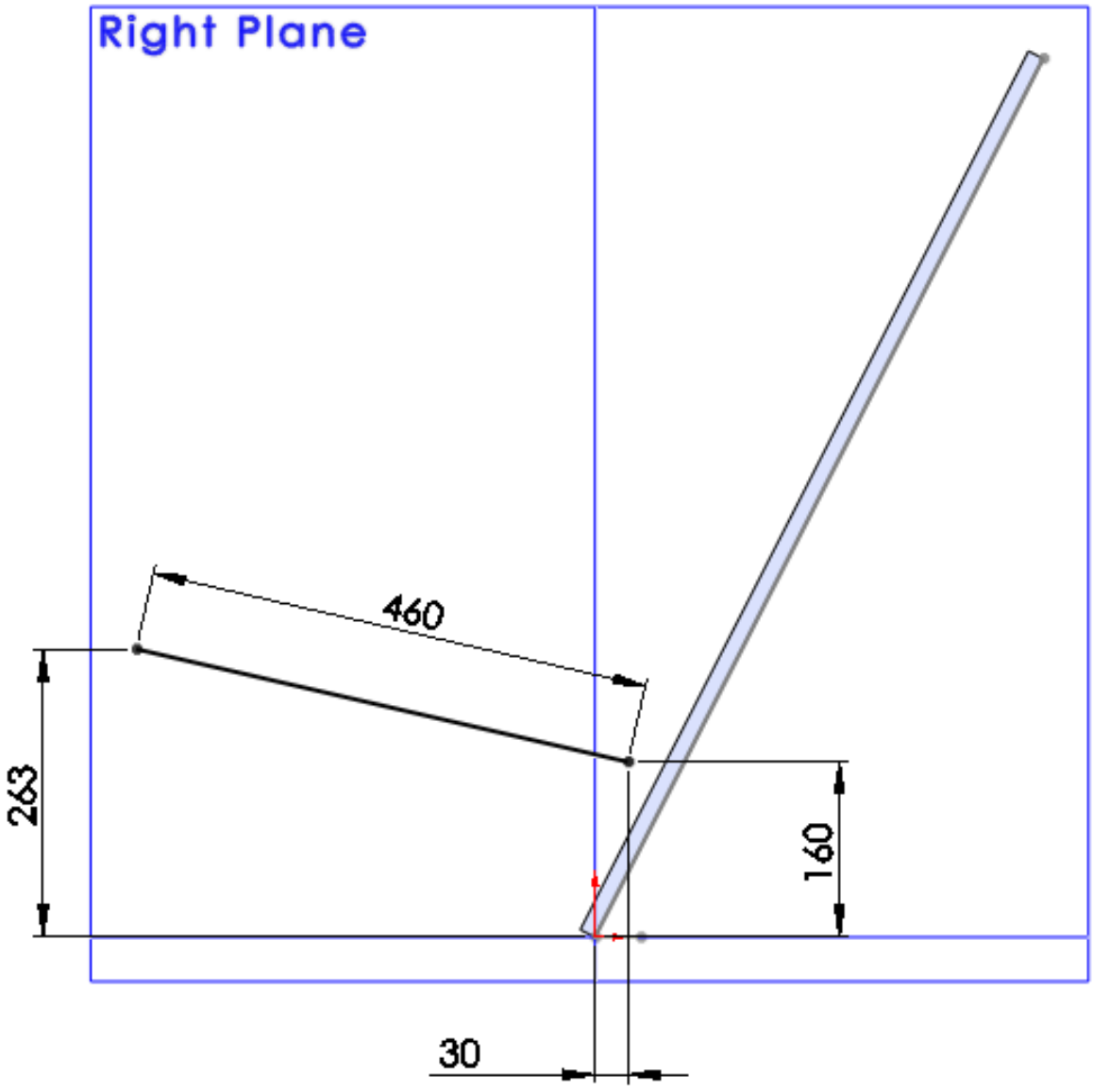
Create a diagonal Line

Go to **Tools > Sketch Entities > Line** or click at the Line icon

Create a diagonal line as shown in the picture.

Change the length and position of the line by clicking at the dimension button

Click at the Sketch button in the upper right corner close the 2D Sketch



Create another Extruded Boss/Base

Go to: **Insert > Boss/Base > Extrude** or click at the Extrude icon

Select the diagonal line

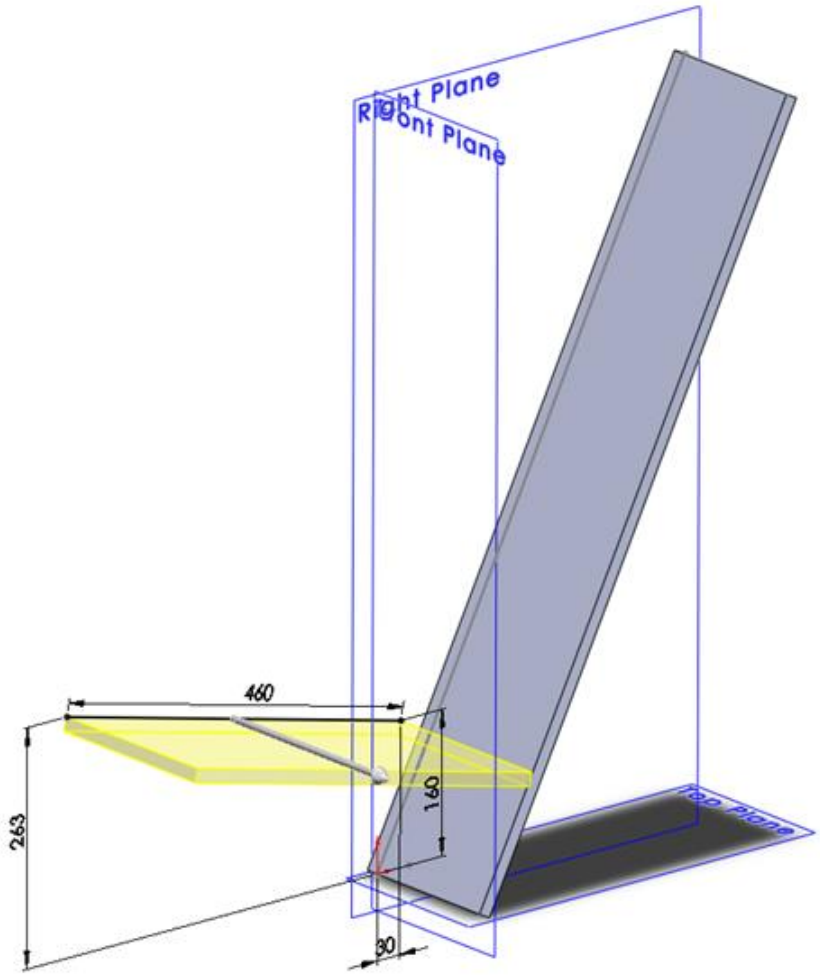
Change into 210 mm

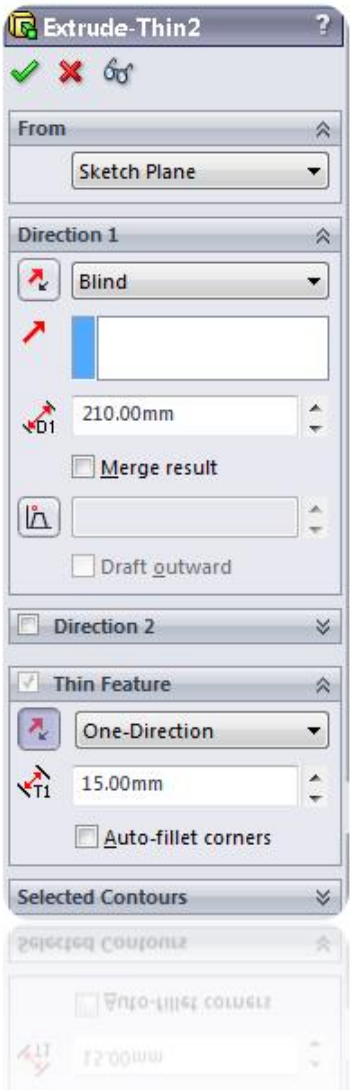
Enable the **Thin Feature** option

Change into 15 mm

Make sure that the extrusion is directed upward and forward as shown in the picture.

If the direction is wrong, change it with the ‘‘Reverse Direction’’ button.
Click OK





Create a Chamfer

Go to: **Insert > Features >Chamfer** or click at the Chamfer icon

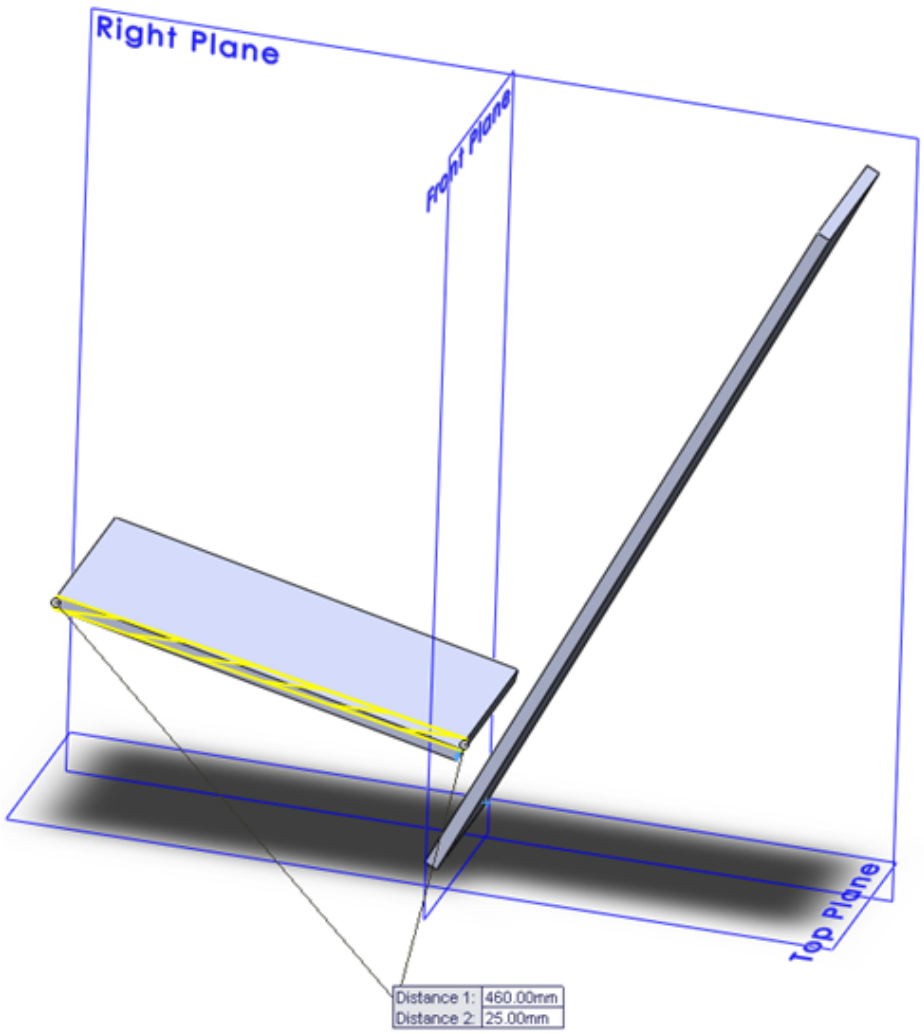
Select the light blue edge as shown in the picture

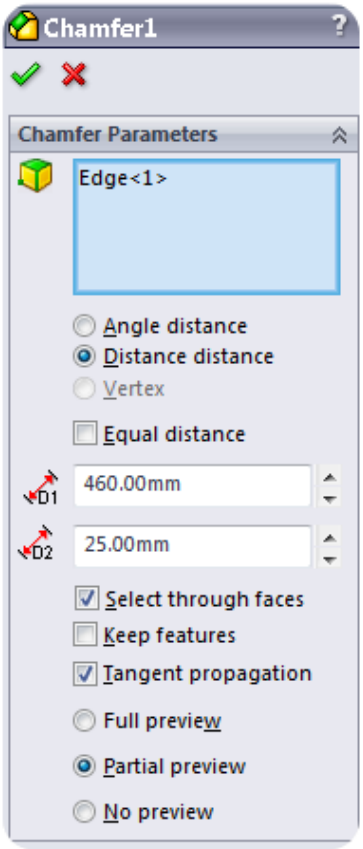
Select the **''Distance to distance''** option

Change D1 into 460 mm

Change D2 into 25 mm

Click OK





Create another 2D sketch

Select the Right Plane and create a sketch by clicking on the 2D Sketch icon

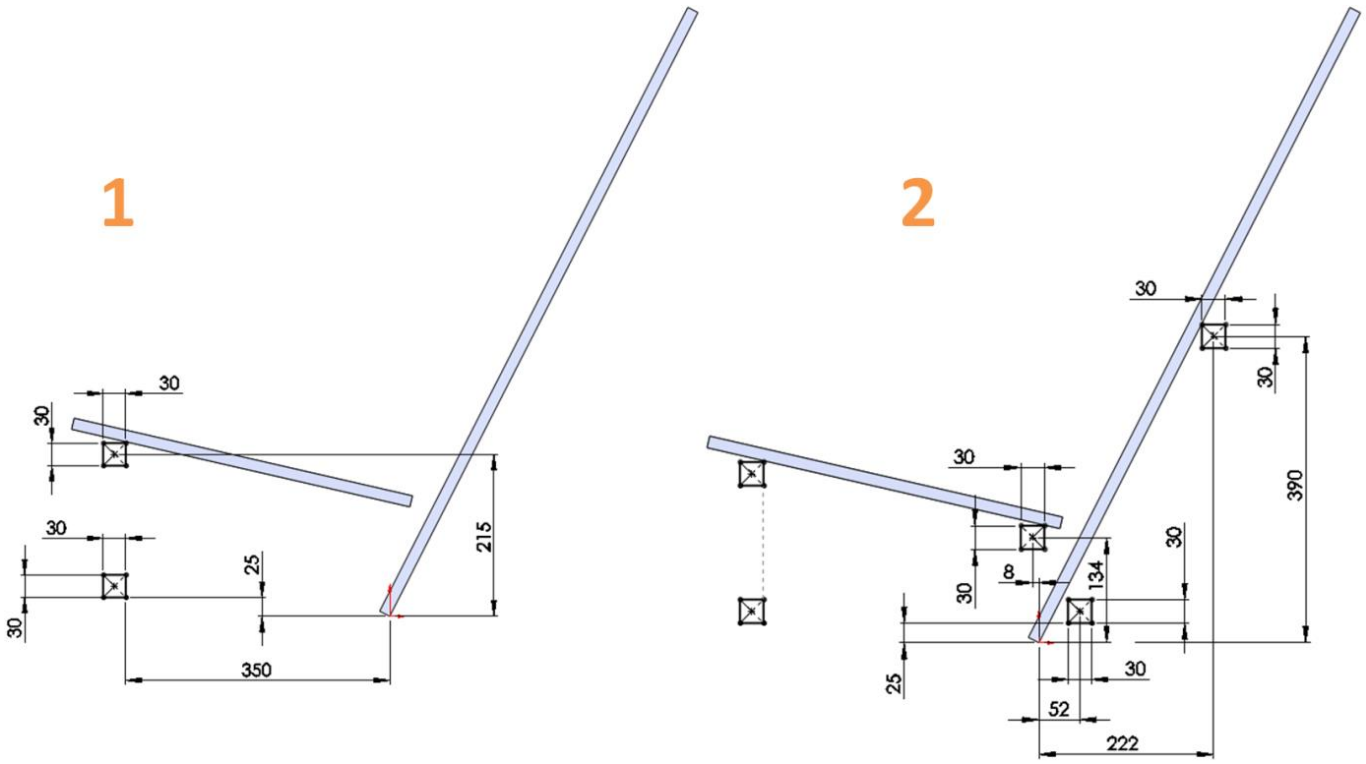
Create five fully defined squares

Go to **Tools > Sketch Entities > Center Rectangle** or click at the Center Rectangle icon

Create the five squares as shown in the picture.

Change the length and position of the squares by clicking at the dimension button

Click at the Sketch button in the upper right corner close the 2D Sketch



Create another Extruded Boss/Base

Go to: **Insert > Boss/Base > Extrude** or click at the Extrude icon

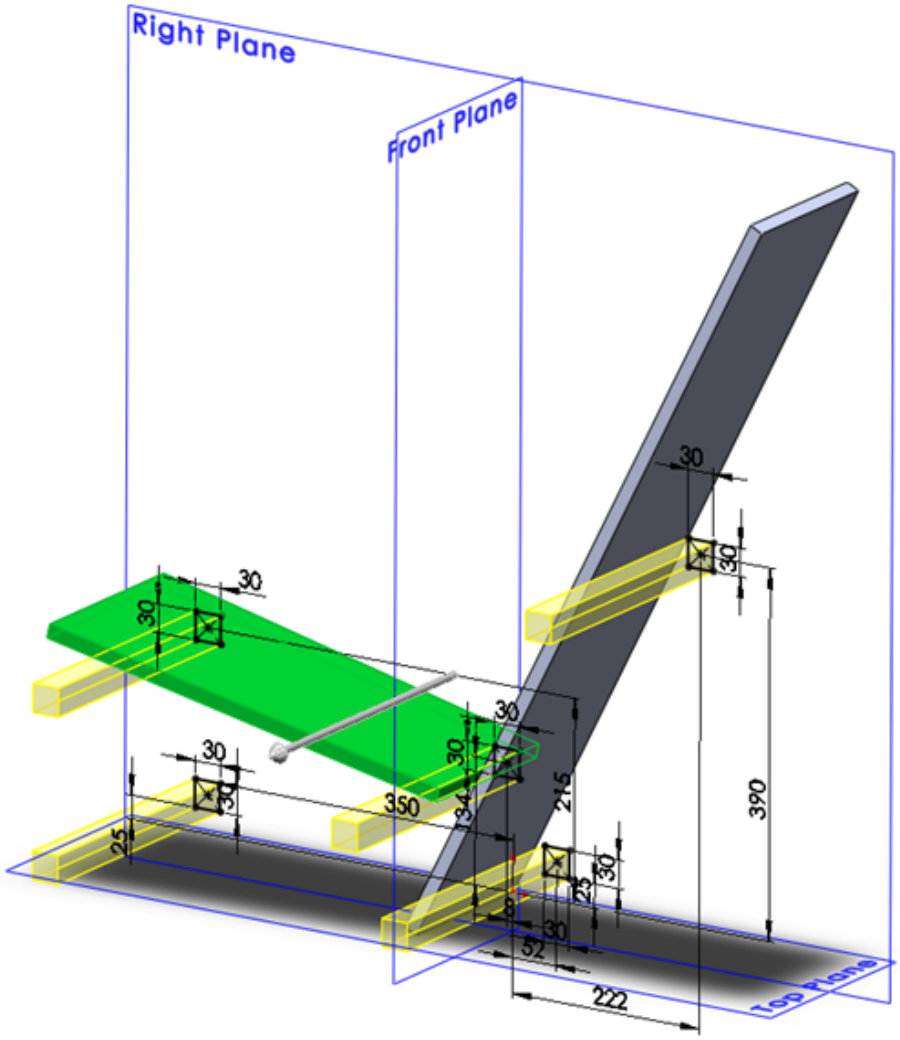
Select the diagonal line

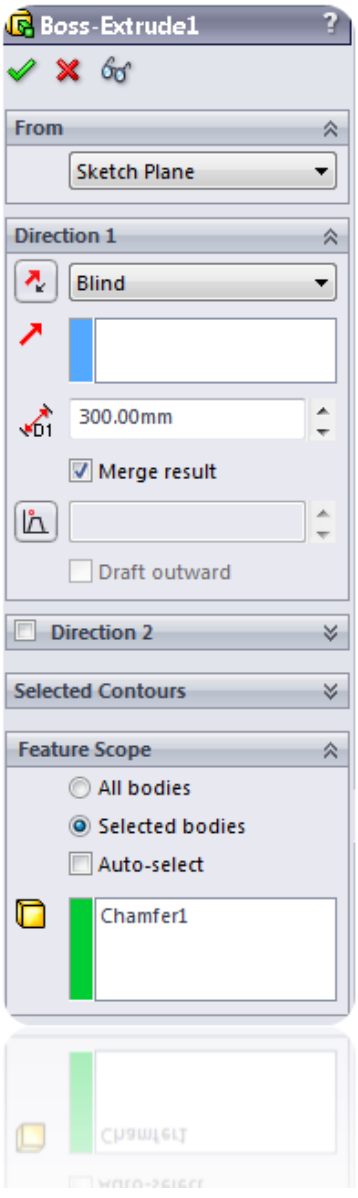
Change into 300 mm

Make sure that the extrusion is directed forward as shown in the picture.

If the direction is wrong, change it with the ''Reverse Direction'' button.

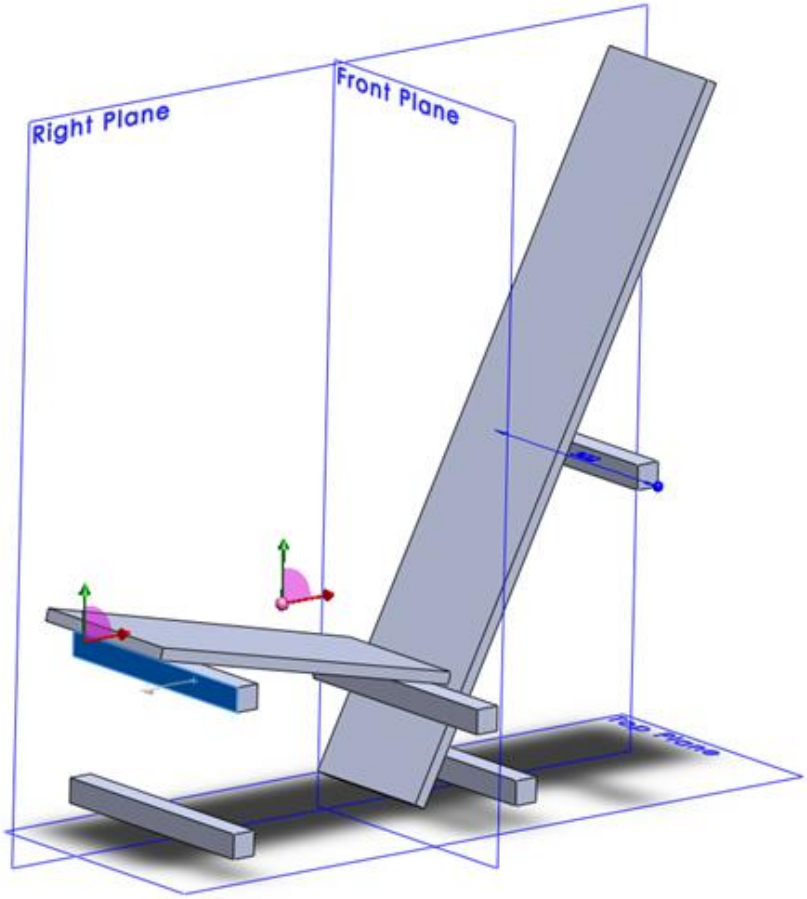
Click OK

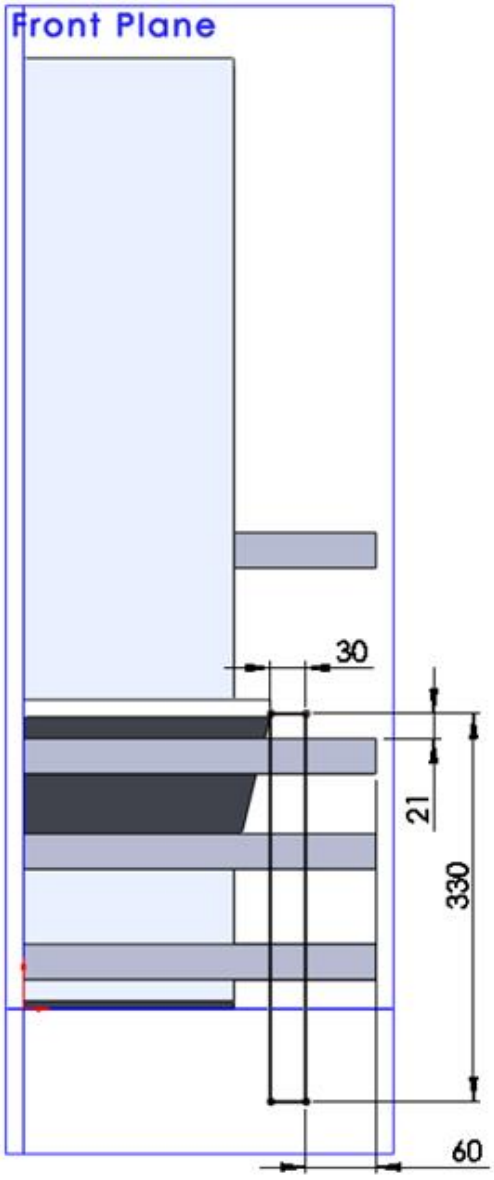




Create another 2D sketch

Select the blue surface and create a sketch by clicking on the 2D Sketch icon





Go to **Tools > Sketch Entities > Corner Rectangle** or click at the Corner Rectangle icon
Create the rectangle as shown in the picture.

Change the length and position of the rectangle by clicking at the dimension button

Create another Extruded Boss/Base

Go to: **Insert > Boss/Base > Extrude** or click at the Extrude icon

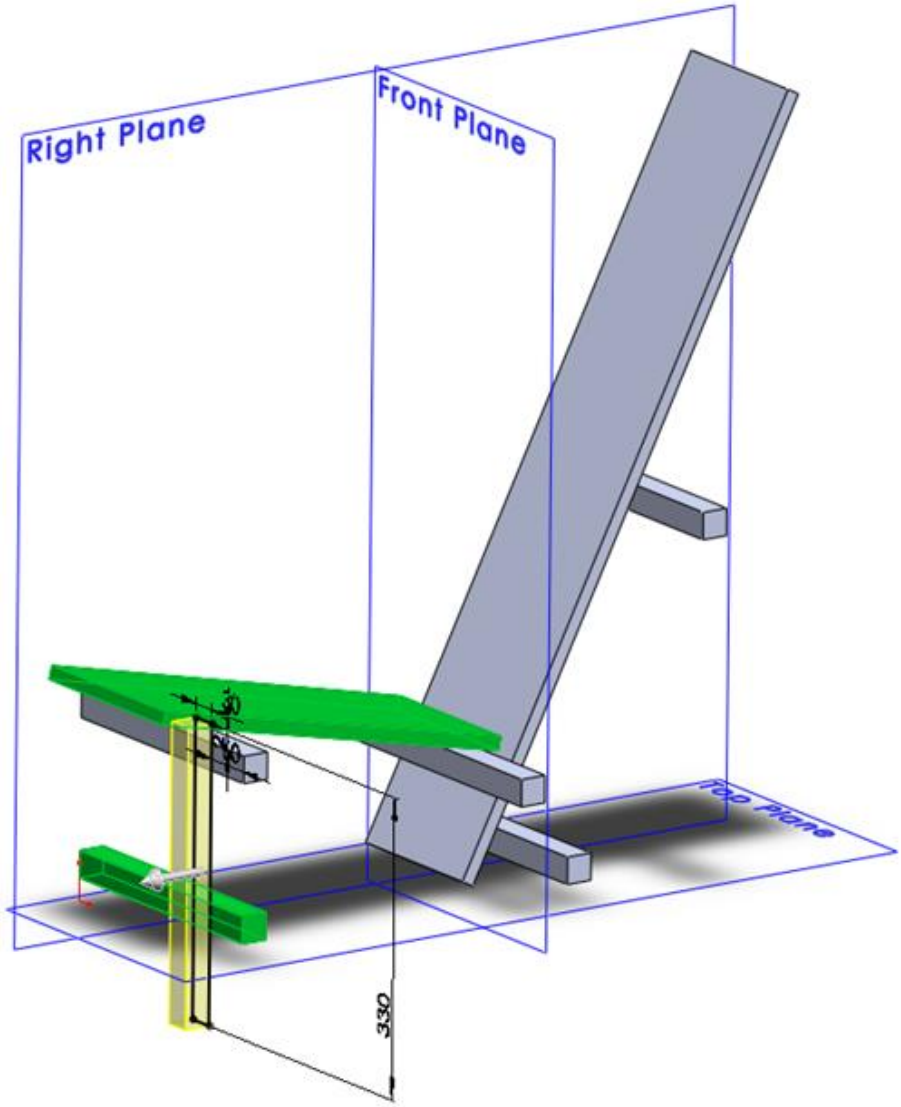
Select the rectangle

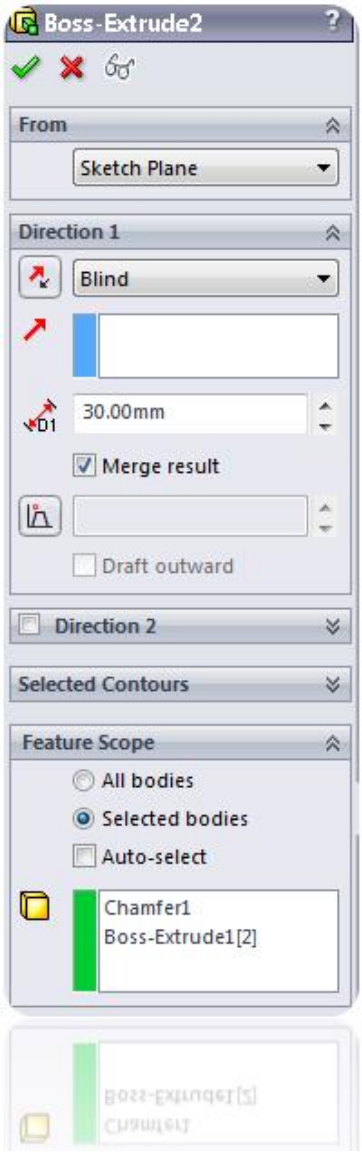
Change into 30 mm

Make sure that the extrusion is directed forward as shown in the picture.

If the direction is wrong, change it with the ''Reverse Direction'' button.

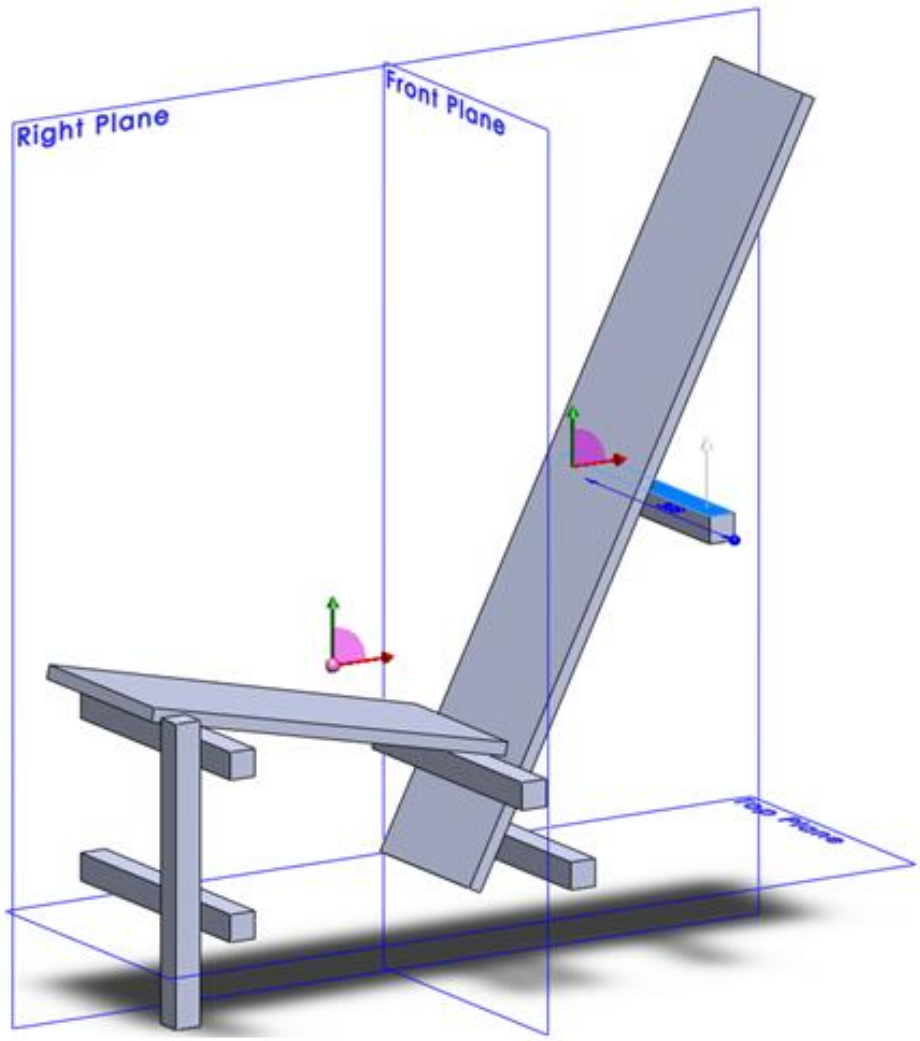
Click OK

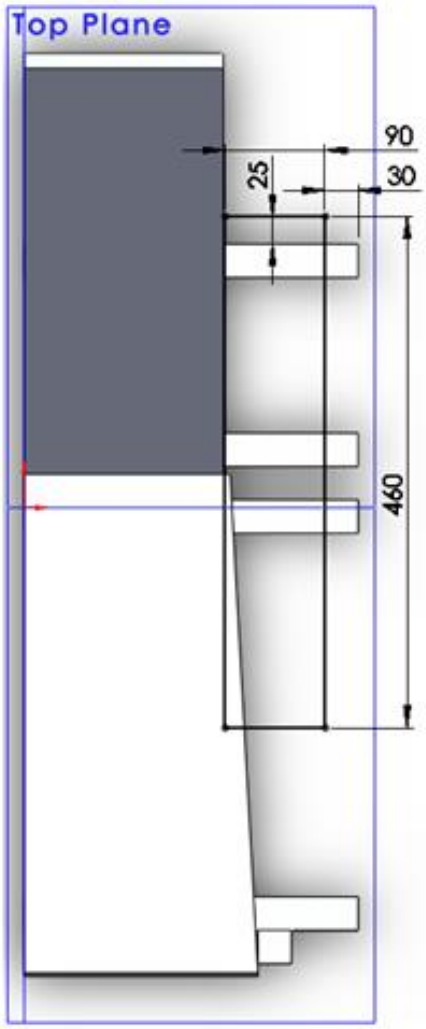




Create another 2D sketch

Select the blue surface and create a sketch by clicking on the 2D Sketch icon





Go to **Tools > Sketch Entities > Corner Rectangle** or click at the Corner Rectangle icon

Create the rectangle as shown in the picture.

Change the length and position of the rectangle by clicking at the dimension button

Create another Extruded Boss/Base

Go to: **Insert > Boss/Base > Extrude** or click at the Extrude icon

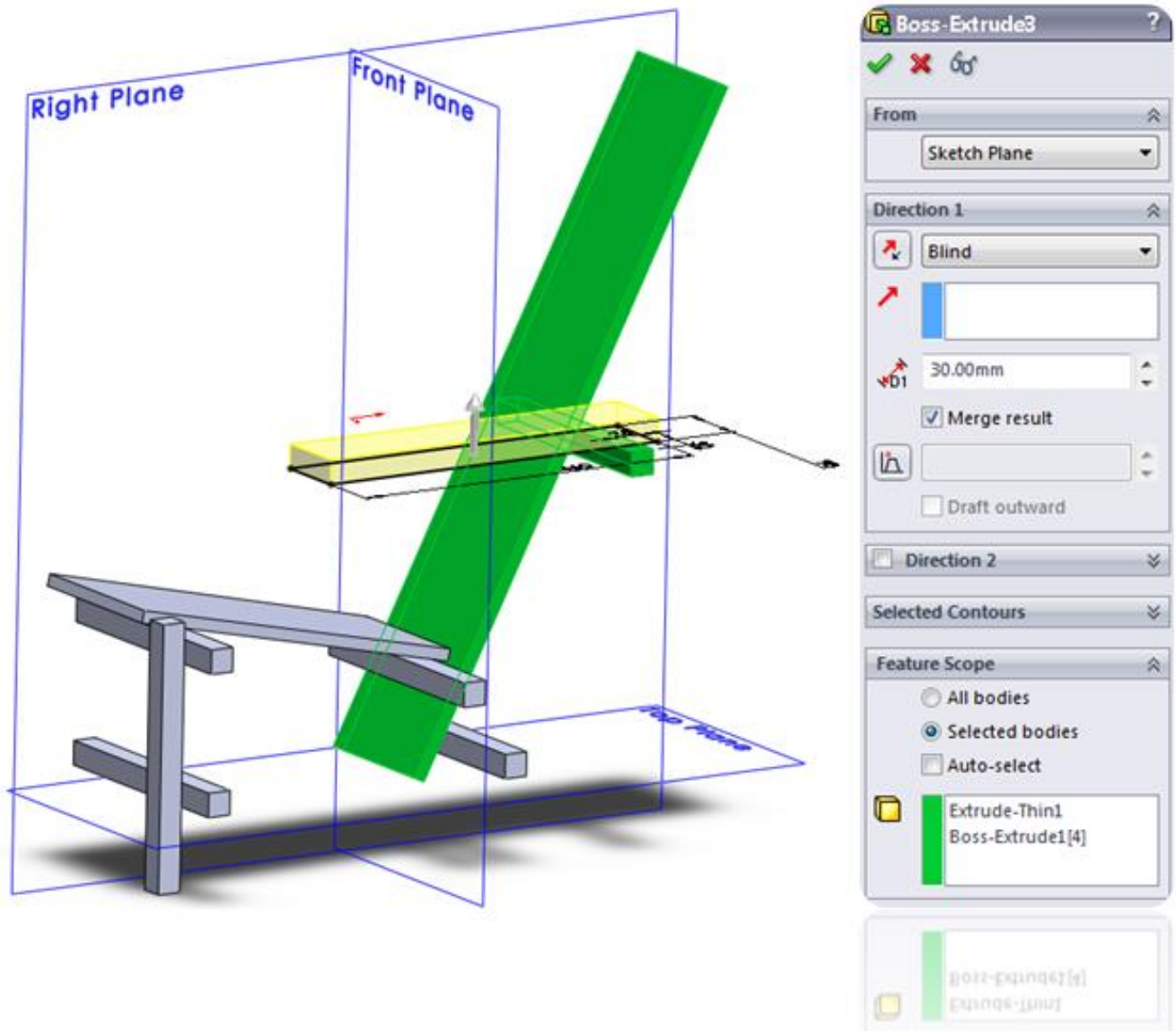
Select the rectangle

Change into 30 mm

Make sure that the extrusion is directed forward as shown in the picture.

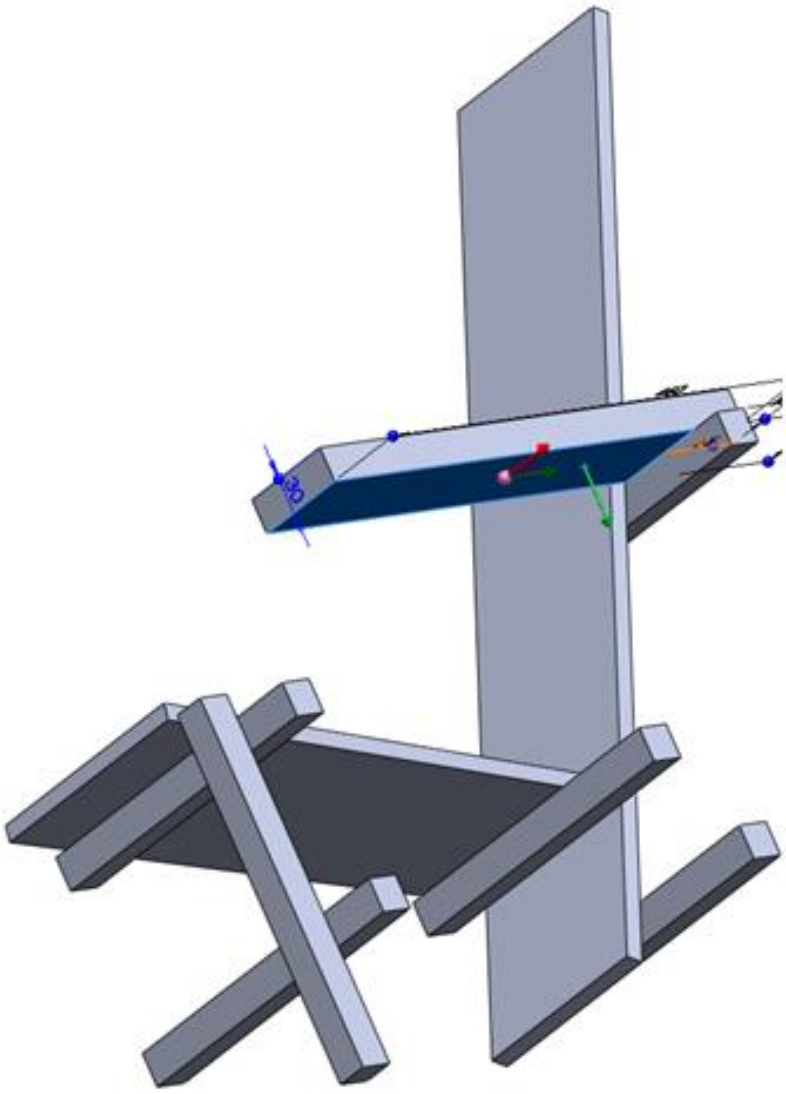
If the direction is wrong, change it with the ''Reverse Direction'' button.

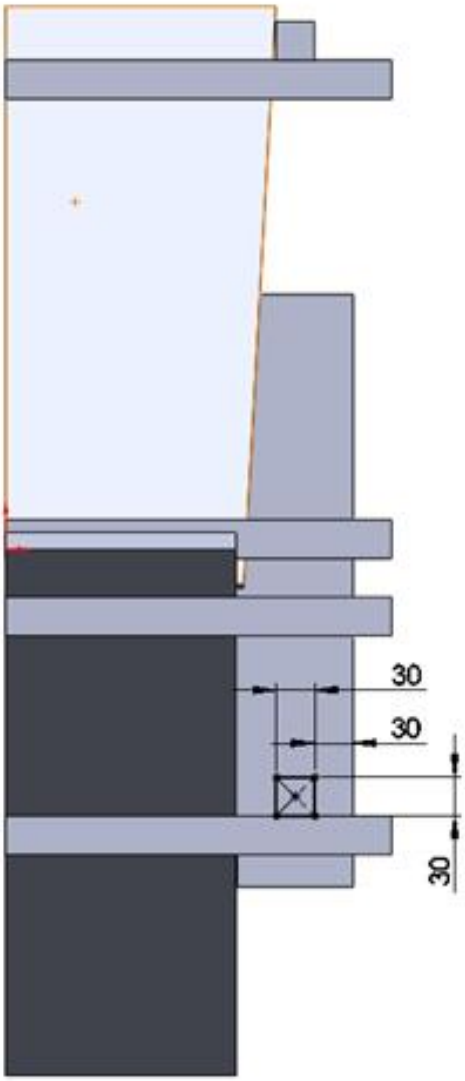
Click OK



Create another 2D sketch

Select the blue surface and create a sketch by clicking on the 2D Sketch icon





Go to **Tools > Sketch Entities > Corner Rectangle** or click at the Corner Rectangle icon

Create the rectangle as shown in the picture.

Change the length and position of the rectangle by clicking at the dimension button

Create another Extruded Boss/Base

Go to: **Insert > Boss/Base > Extrude** or click at the Extrude icon

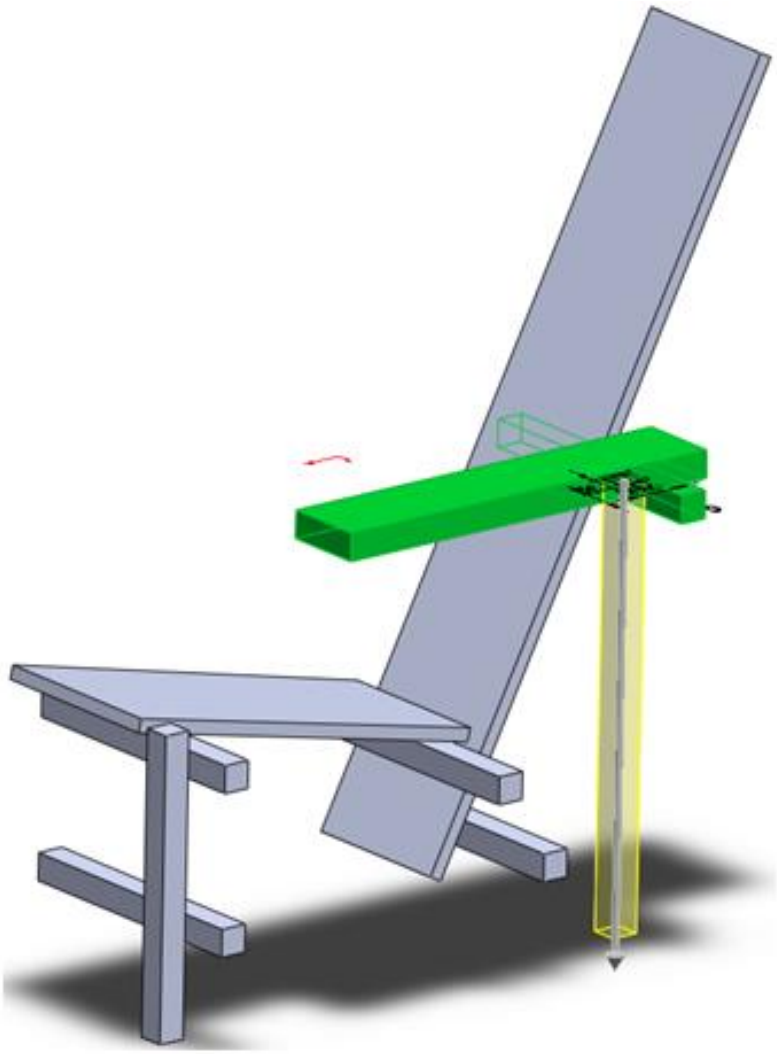
Select the rectangle

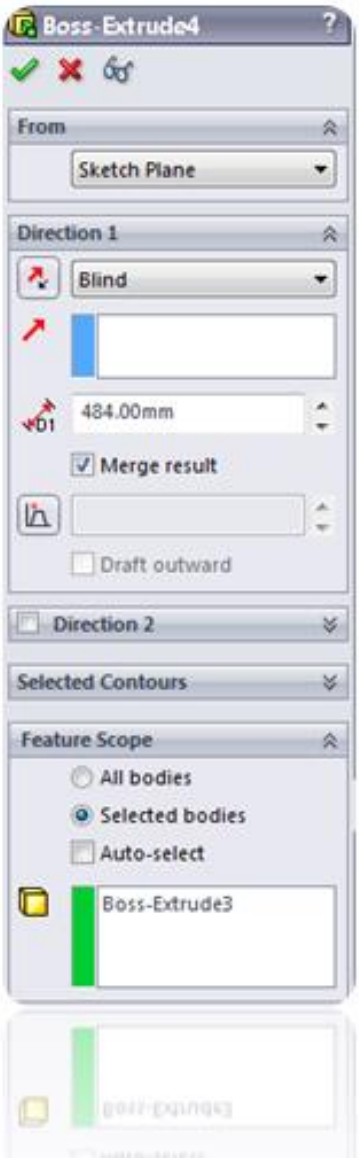
Change into 484 mm

Make sure that the extrusion is directed forward as shown in the picture.

If the direction is wrong, change it with the ''Reverse Direction'' button.

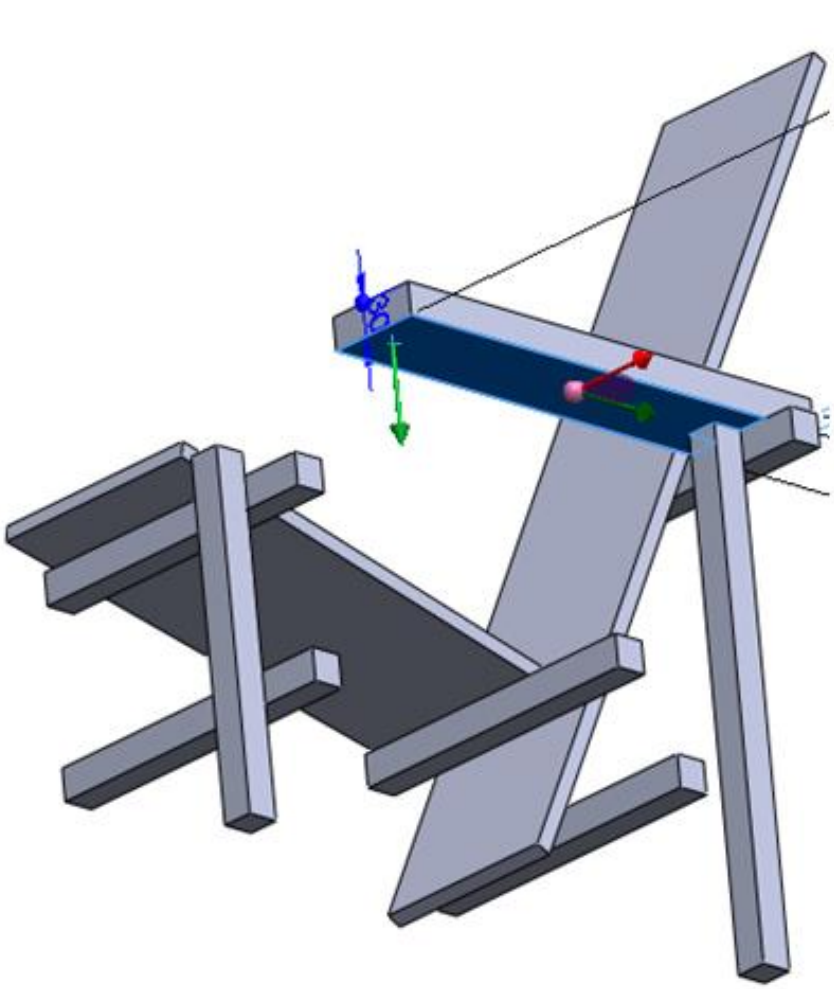
Click OK

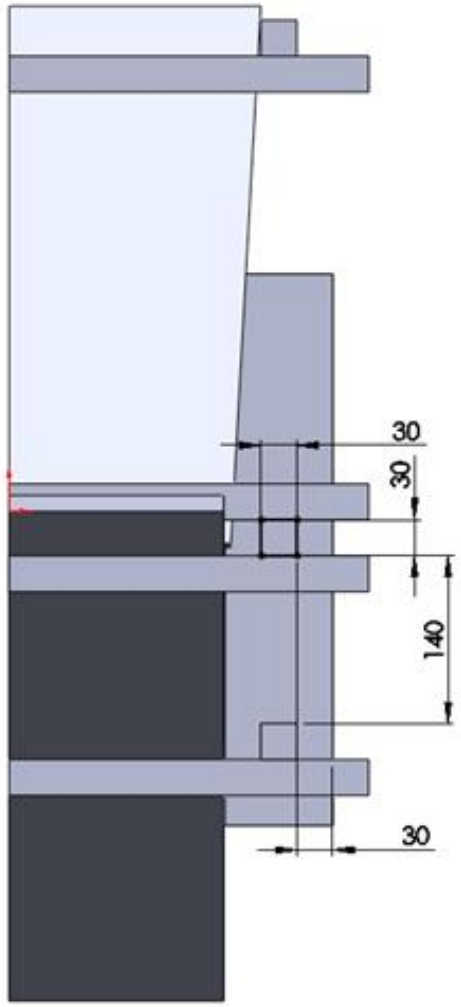




Create another 2D sketch

Select the blue surface and create a sketch by clicking on the 2D Sketch icon





Go to **Tools > Sketch Entities > Corner Rectangle** or click at the Corner Rectangle icon

Create the rectangle as shown in the picture.

Change the length and position of the rectangle by clicking at the dimension button

Create another Extruded Boss/Base

Go to: **Insert > Boss/Base > Extrude** or click at the Extrude icon

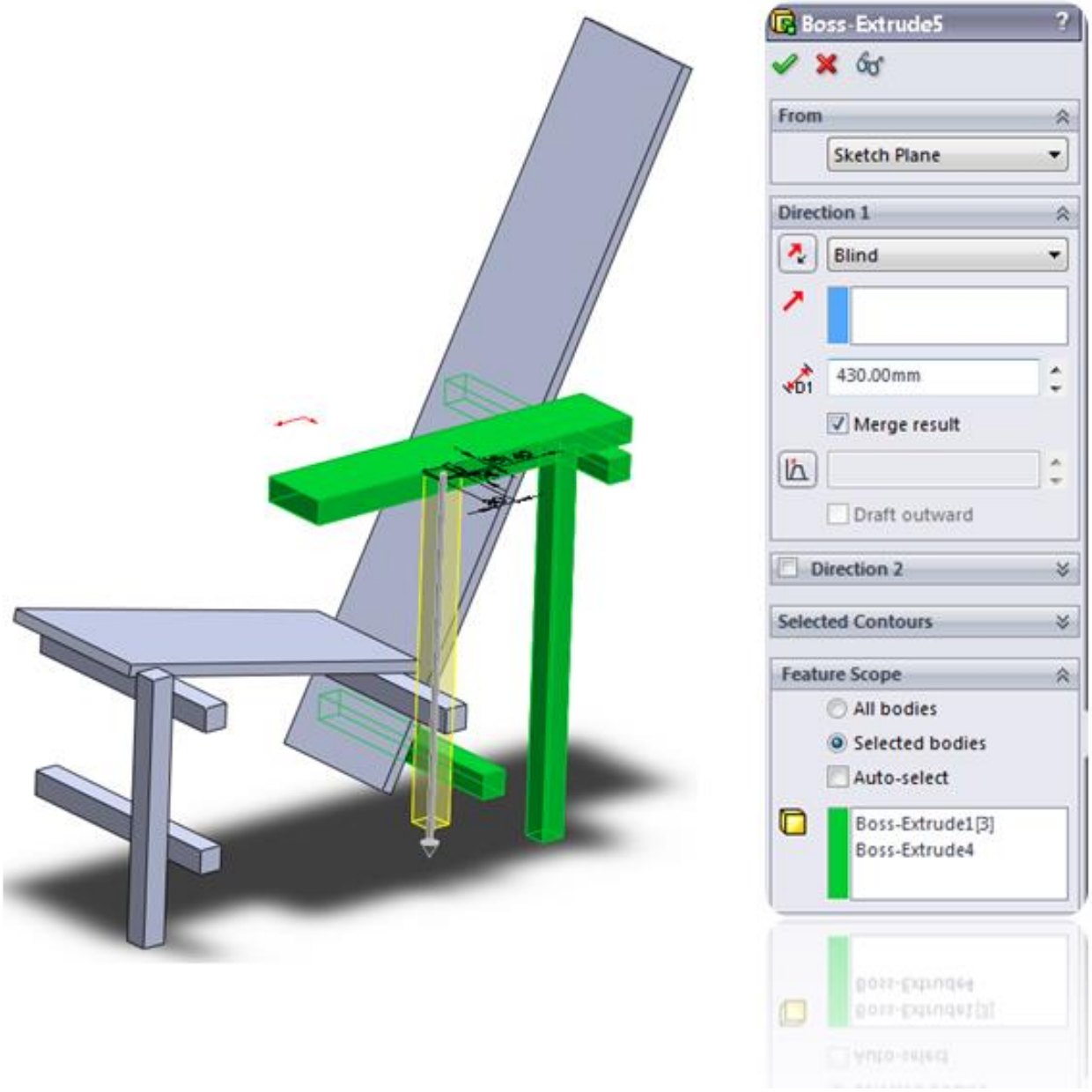
Select the rectangle

Change into 430 mm

Make sure that the extrusion is directed forward as shown in the picture.

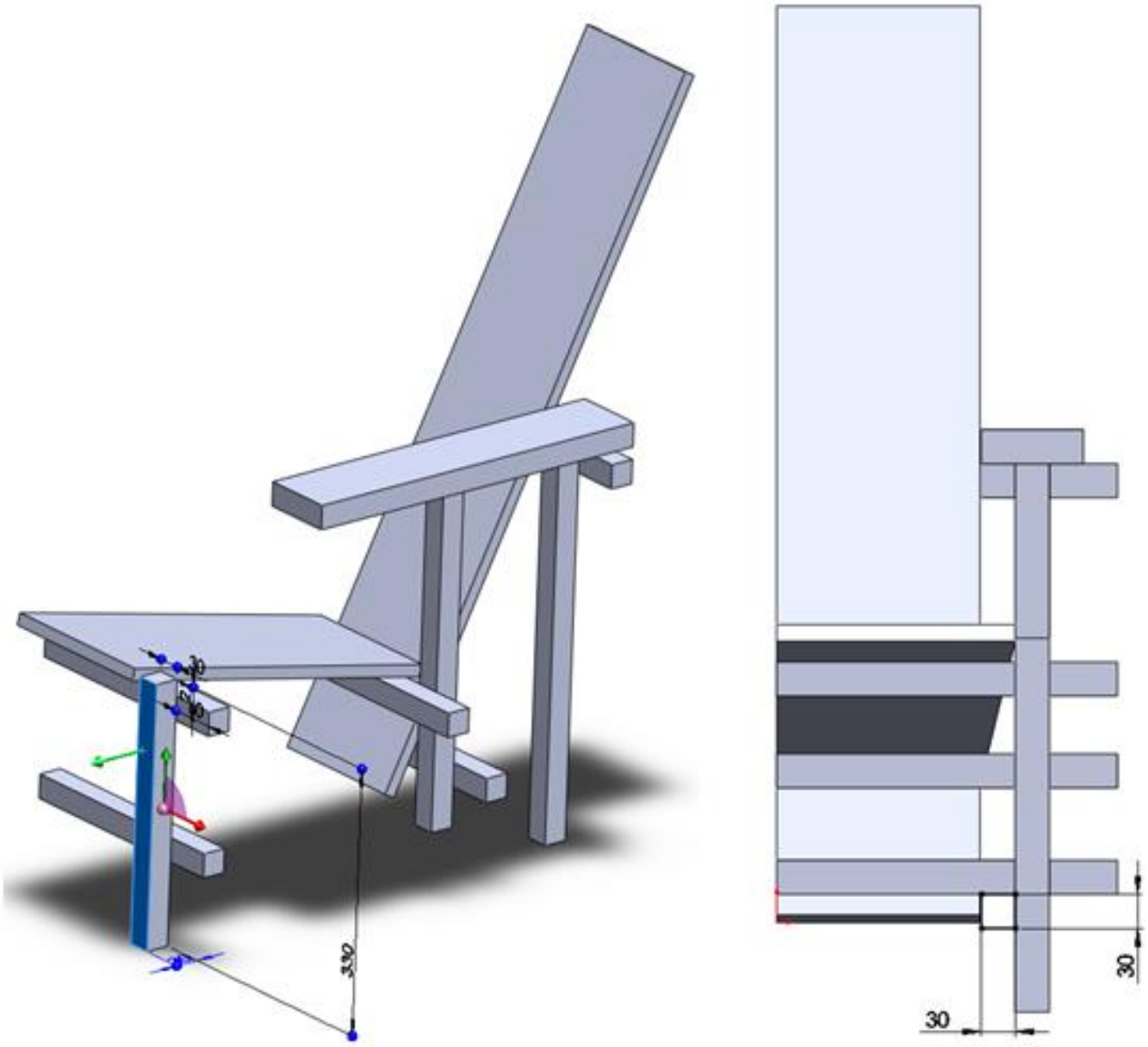
If the direction is wrong, change it with the ''Reverse Direction'' button.

Click OK



Create another 2D sketch

Select the blue surface and create a sketch by clicking on the 2D Sketch icon



Go to **Tools > Sketch Entities > Corner Rectangle** or click at the Corner Rectangle icon

Create the rectangle as shown in the picture.

Change the length and position of the rectangle by clicking at the dimension button

Create a multi-direction Extruded Boss/Base

Go to: **Insert > Boss/Base > Extrude** or click at the Extrude icon

Select the rectangle

Change into 655 mm

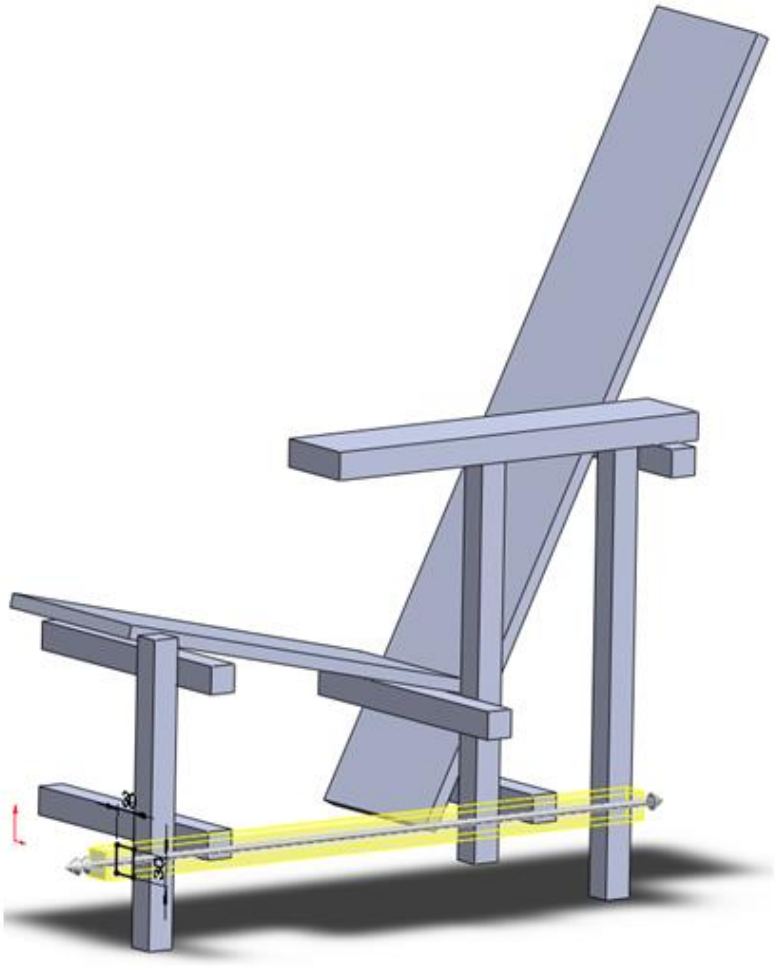
Enable the Direction 2 option

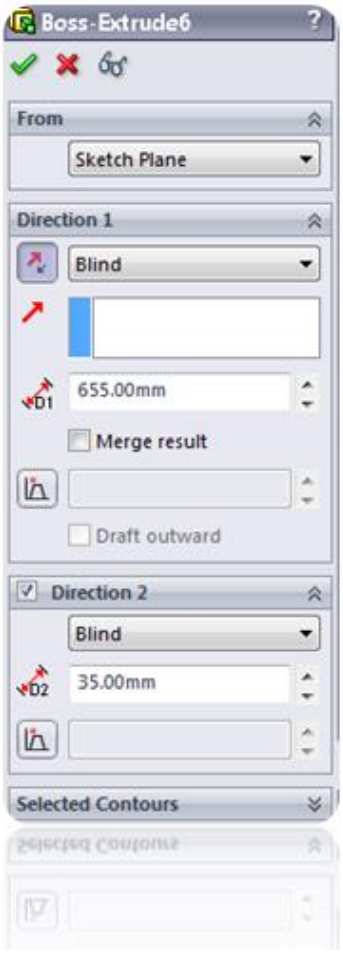
Change into 35 mm

Make sure that the extrusions are directed as shown in the picture.

If the direction is wrong, change it with the ''Reverse Direction'' button.

Click OK





Mirror and merge the chair

Go to: **Insert > Pattern/Mirror > Mirror**

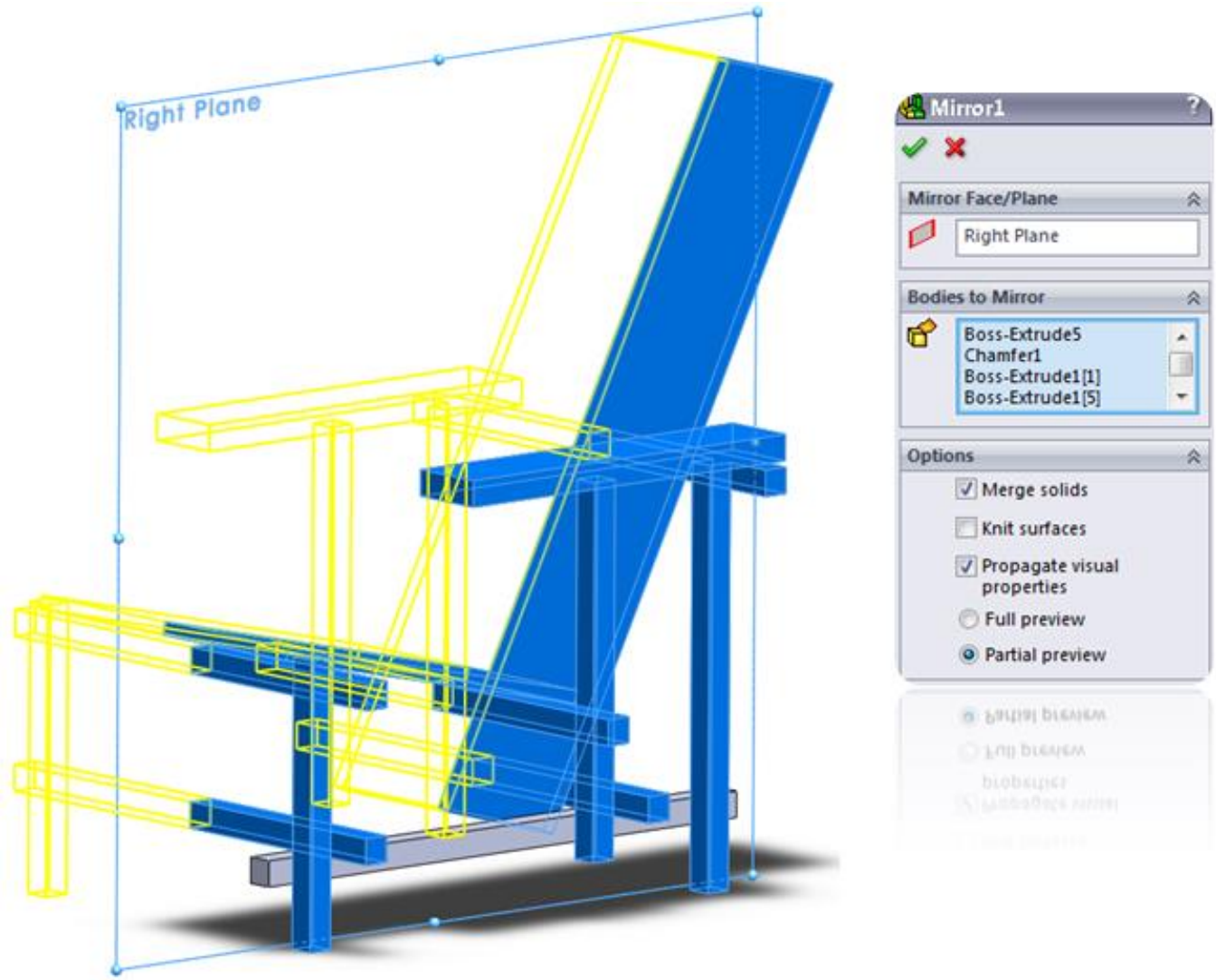
Mirror Face/Plane : Right Plane

Select the “Bodies to Mirror” option

Select the Merge solids’’ option

Bodies to Mirror : Select the blue bodies you want to mirror. Note: the ‘’Mirror and Merge’’ option is only available for ‘’half’’ parts as shown in the picture.

Click OK



Mirror the remaining body

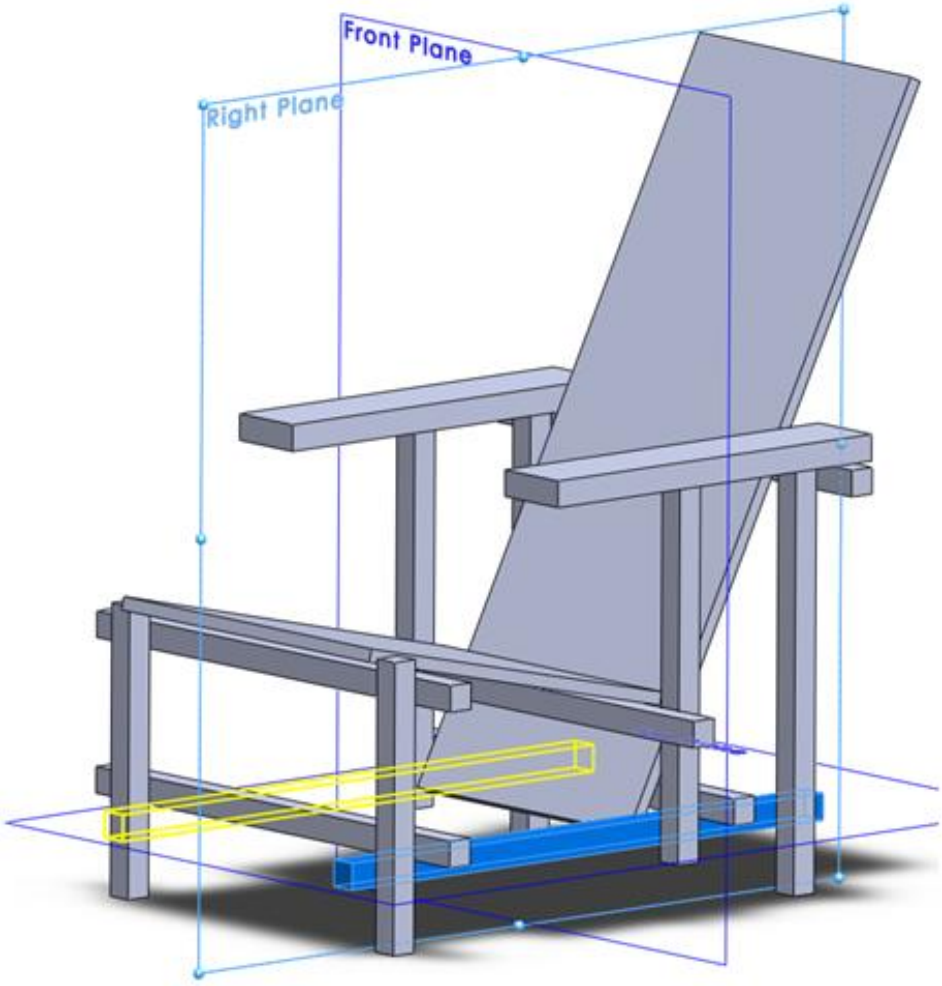
Go to: **Insert > Pattern/Mirror > Mirror**

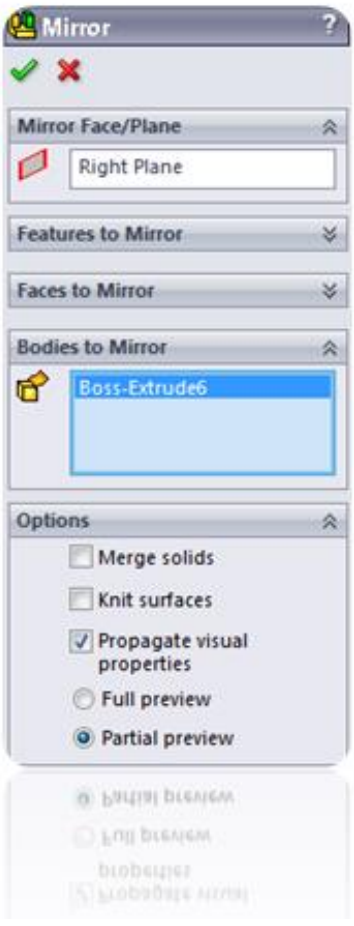
Mirror Face/Plane : Right Plane

Select the “Bodies to Mirror” option

Bodies to Mirror : Select the remaining body as shown in the picture. Uncheck the ‘’Merge Solids’’ option

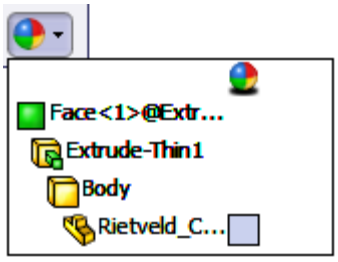
Click OK





Change the colors of the chair

Select a face of the chair and click at the Appearances button
A small menu bar pops up as shown in the picture



There are four ways to add colors to your part.

Surface color Provide one- or multiple specific surfaces with a color by clicking at the ''Face'' option
Feature color Provide one- or multiple specific features with a color by clicking at the ''Feature name'' option
Body color Provide one or multiple specific bodies with a color by clicking at the ''Body'' option
Part color Provide a complete part with a color by clicking at the ''Part Name'' option

The color of a single face is leading above the feature color, the features color is leading above the body color and so on.
We will try to use all the different ways to add a color to this chair.

Change the Part color

Select an arbitrary face of the chair

Click at the **Appearances** button

Click at the **Part** name

Change the color into dark grey or black

Click OK

Change a Body color

Select an arbitrary face of the back

Click at the **Appearances** button

Click at the **Body** option

Change the color into red

Click OK

Change a Feature color

Select the top and one side face of the seat (Extrude-Thin2 and Chamfer1 in the feature tree)

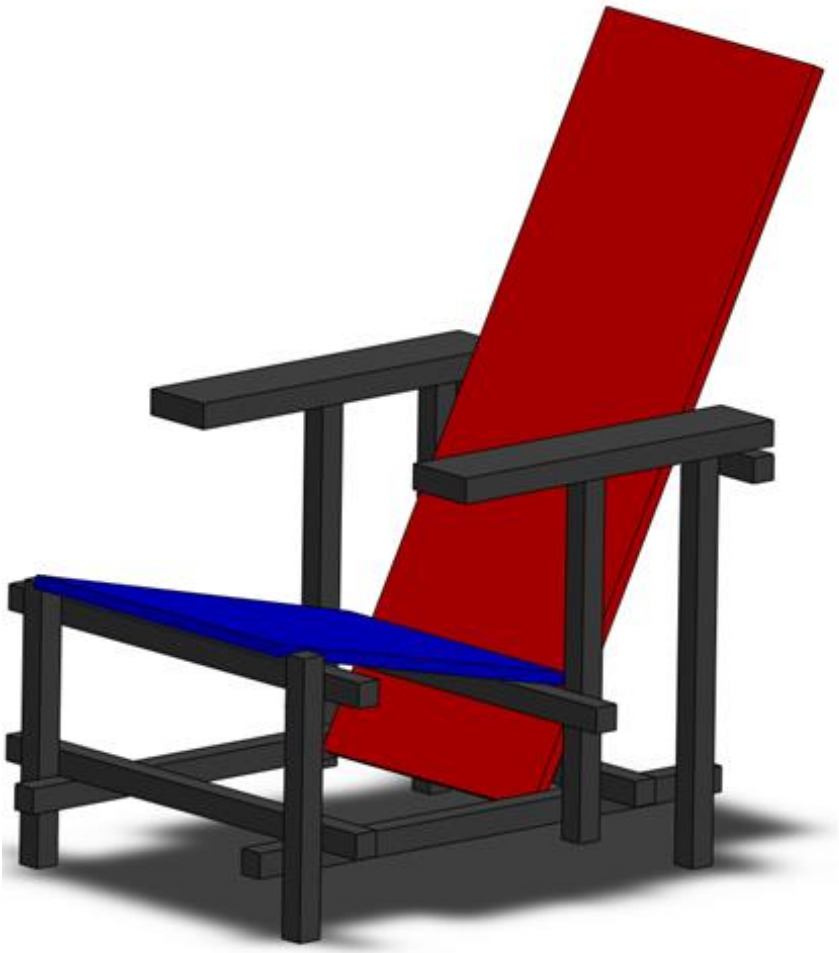
Click at the **Appearances** button

Click at the **Features** option

Change the color into blue

Click OK

(Because the seat is one single body you can also use the Body option)



Change a Face color

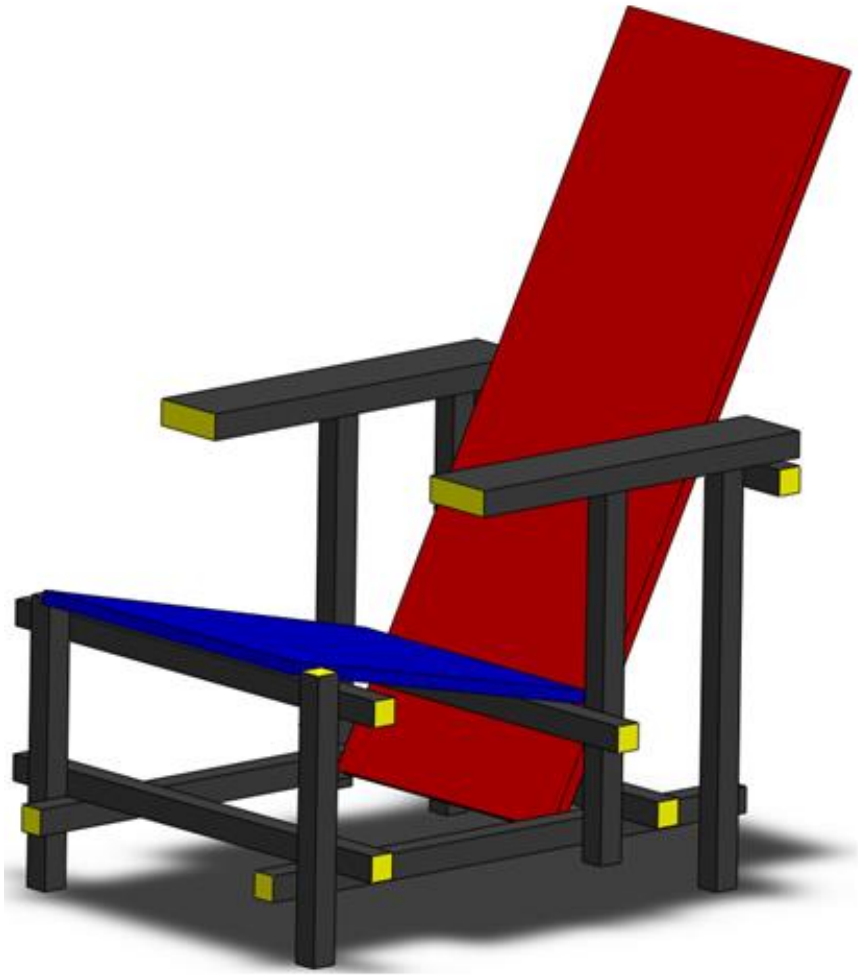
Select all the ends of the black beams as shown in the picture

Click at the **Appearances** button

Click at the **Face** option

Change the color into yellow

Click OK



Congratulations, you just finished your own Rietveld Chair!

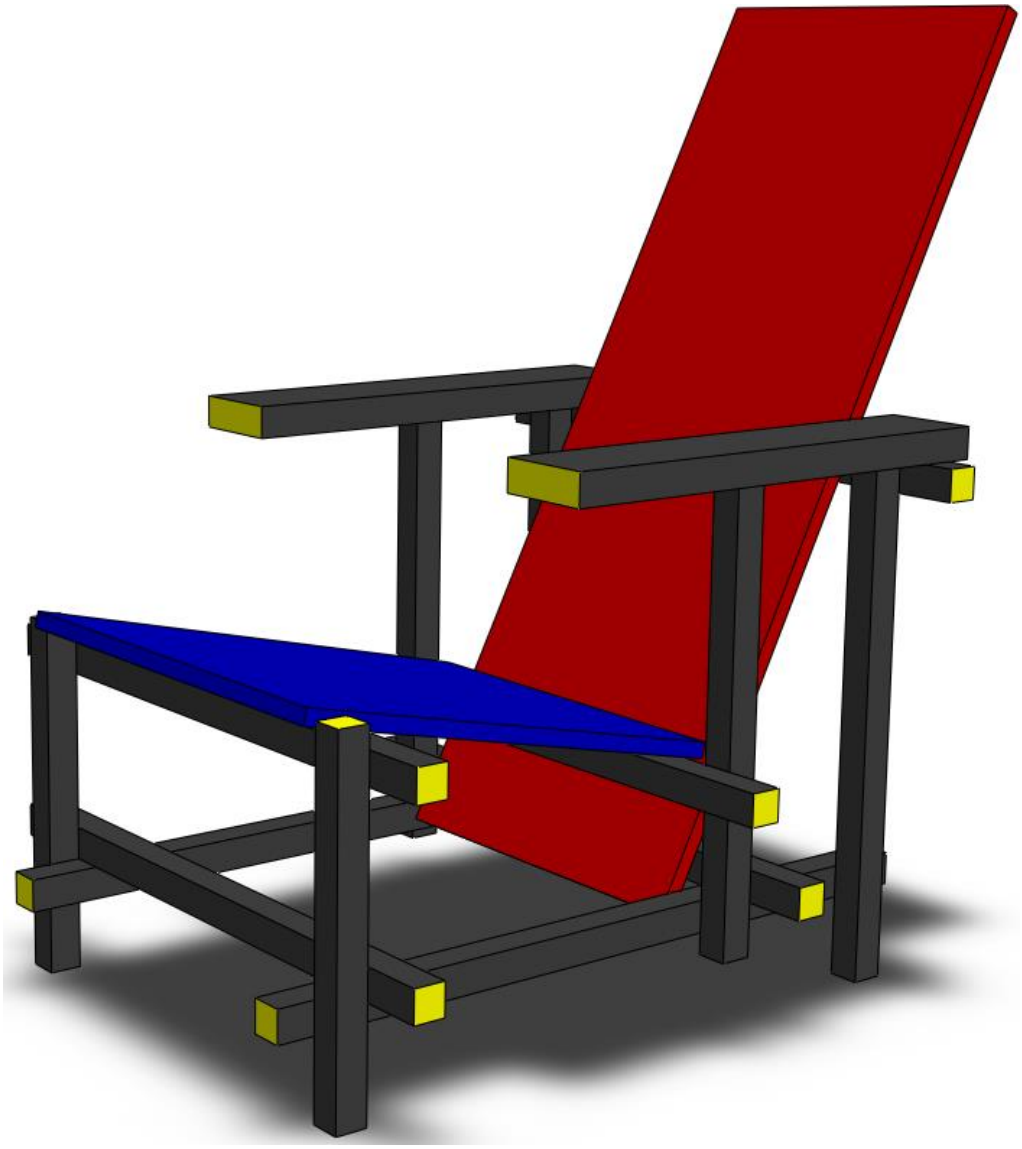
Well, that's all for now. I hope you learned something from this tutorial. Most people who are serious about improving their modeling skills take a look at my SolidWorks Chopper course.

In this course I will show you exactly how to model a complete chopper in SolidWorks to make you a SolidWorks Pro in the shortest possible time.

This step for step training course literally takes you by the hand and walks you step by step into becoming a SolidWorks Pro fast. If this sounds good to you, simply click this link to find out more.

Talk soon,

Jan



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