



Onshape

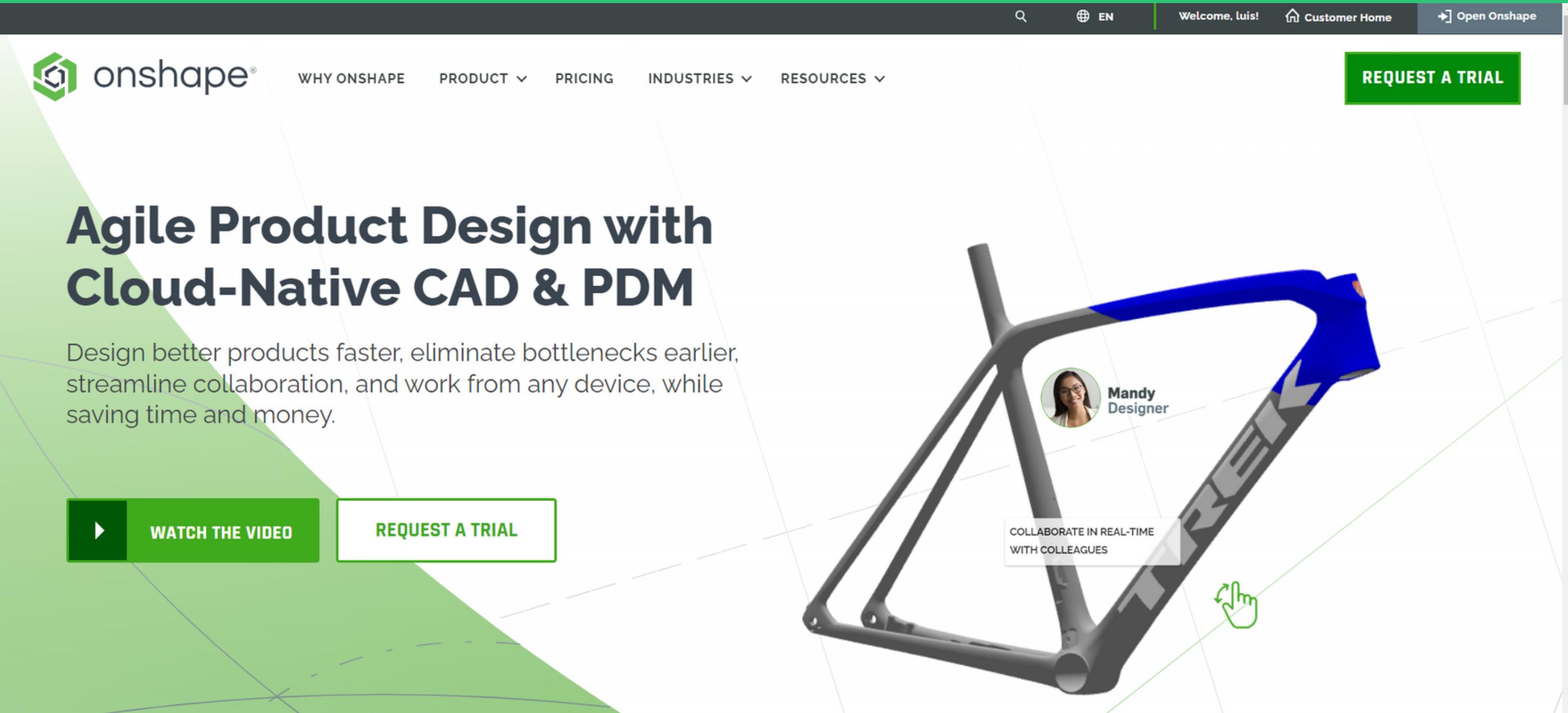
Introdução a modelagem 3D com onshape



Olá, sou Luis Felipe!

Estudante de engenharia elétrica com enfase em sistemas eletrônicos. Na UEREJBotz sou Diretor da área de eletrônica e vice capitão.

Onshape é um CAD software **online** de modelagem 3D



The screenshot shows the Onshape homepage. At the top, there's a navigation bar with a search icon, language switch (EN), user welcome message ("Welcome, luis!"), customer home link, and an "Open Onshape" button. Below the navigation is the main header with the Onshape logo and a "REQUEST A TRIAL" button. The main visual features a 3D model of a bicycle frame. A callout box on the frame shows a profile picture of a person named "Mandy Designer" and the text "COLLABORATE IN REAL-TIME WITH COLLEAGUES". To the left of the frame, there's a large green triangle containing the text "Agile Product Design with Cloud-Native CAD & PDM" and "Design better products faster, eliminate bottlenecks earlier, streamline collaboration, and work from any device, while saving time and money." Below this text are two buttons: "WATCH THE VIDEO" and "REQUEST A TRIAL".

onshape®

WHY ONSHAPE PRODUCT ▾ PRICING INDUSTRIES ▾ RESOURCES ▾

REQUEST A TRIAL

Request a trial of Onshape Professional

- Instant access to Onshape
- No downloads
- No credit card required
- Content and tutorials to get you started

Ready to buy? [Talk to sales →](#)

 Student or Educator? [Visit the EDU Plan →](#)

First name

Last name

Email Address

What do you plan to use Onshape for?

---Please Select---

What best describes you?

Privacy - Terms

1

Conta gratuita para estudante

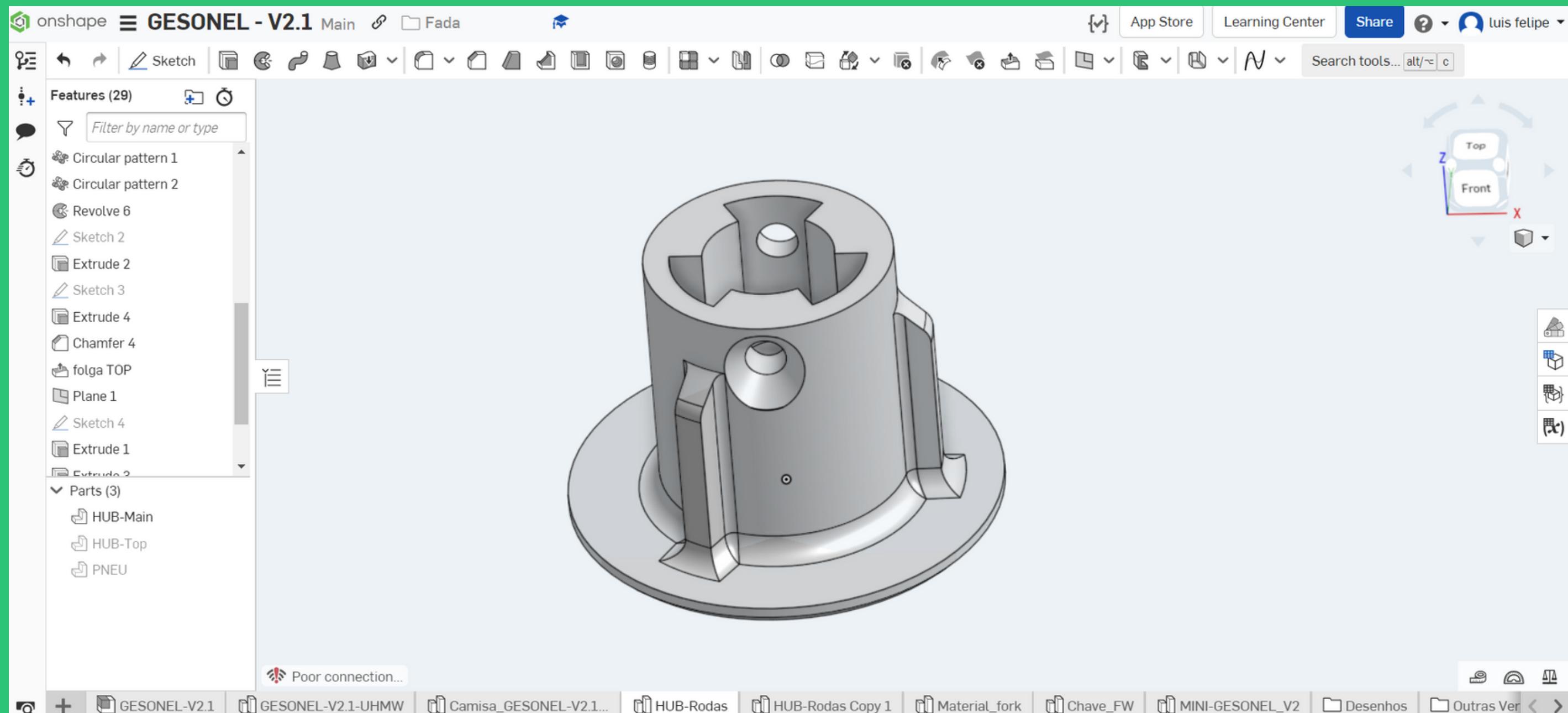
QUESTÃO

**o'que podemos fazer usando
um CAD de modelagem 3D?**

PRÓXIMO



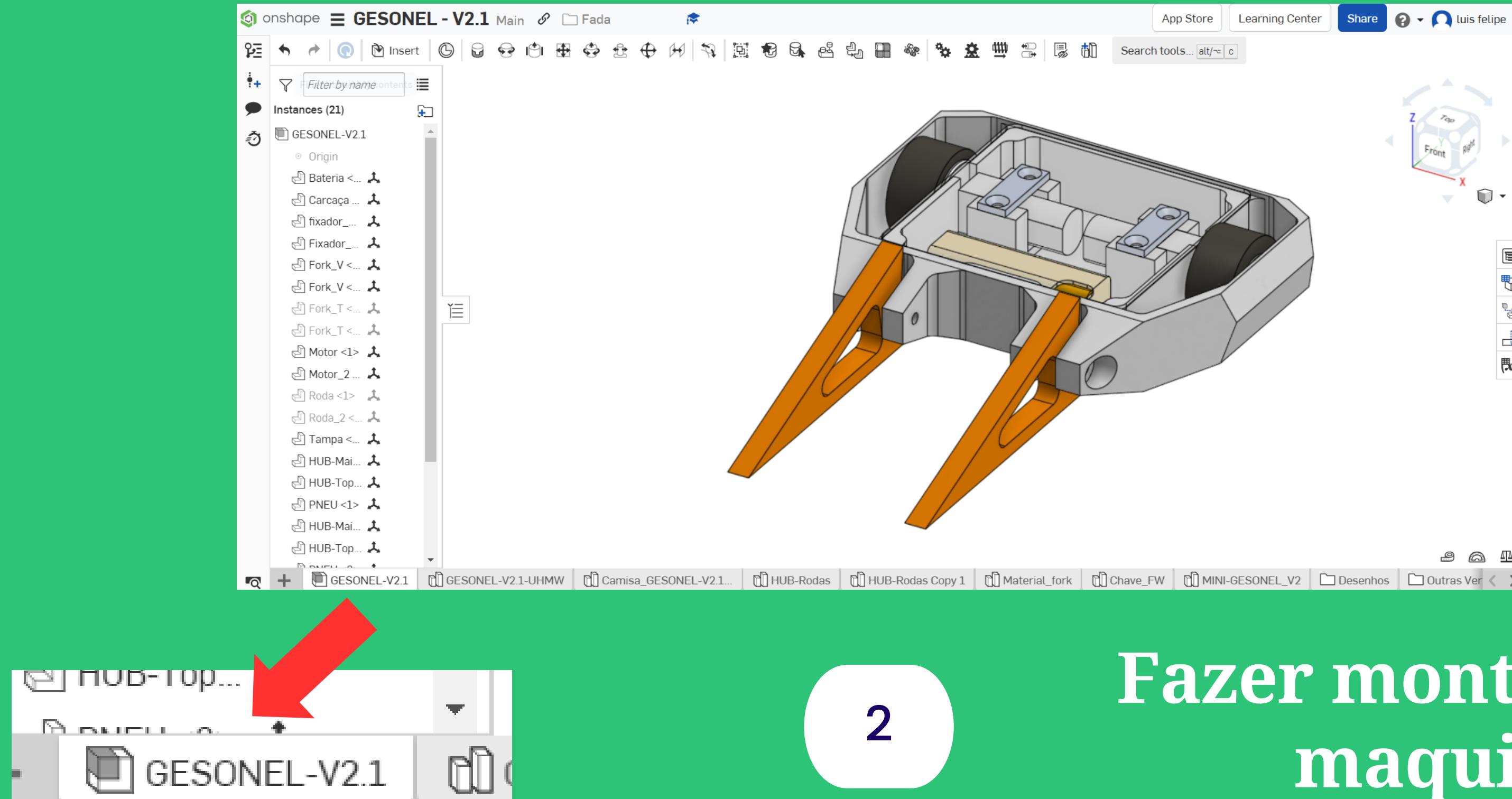
Muitas coisas...



1

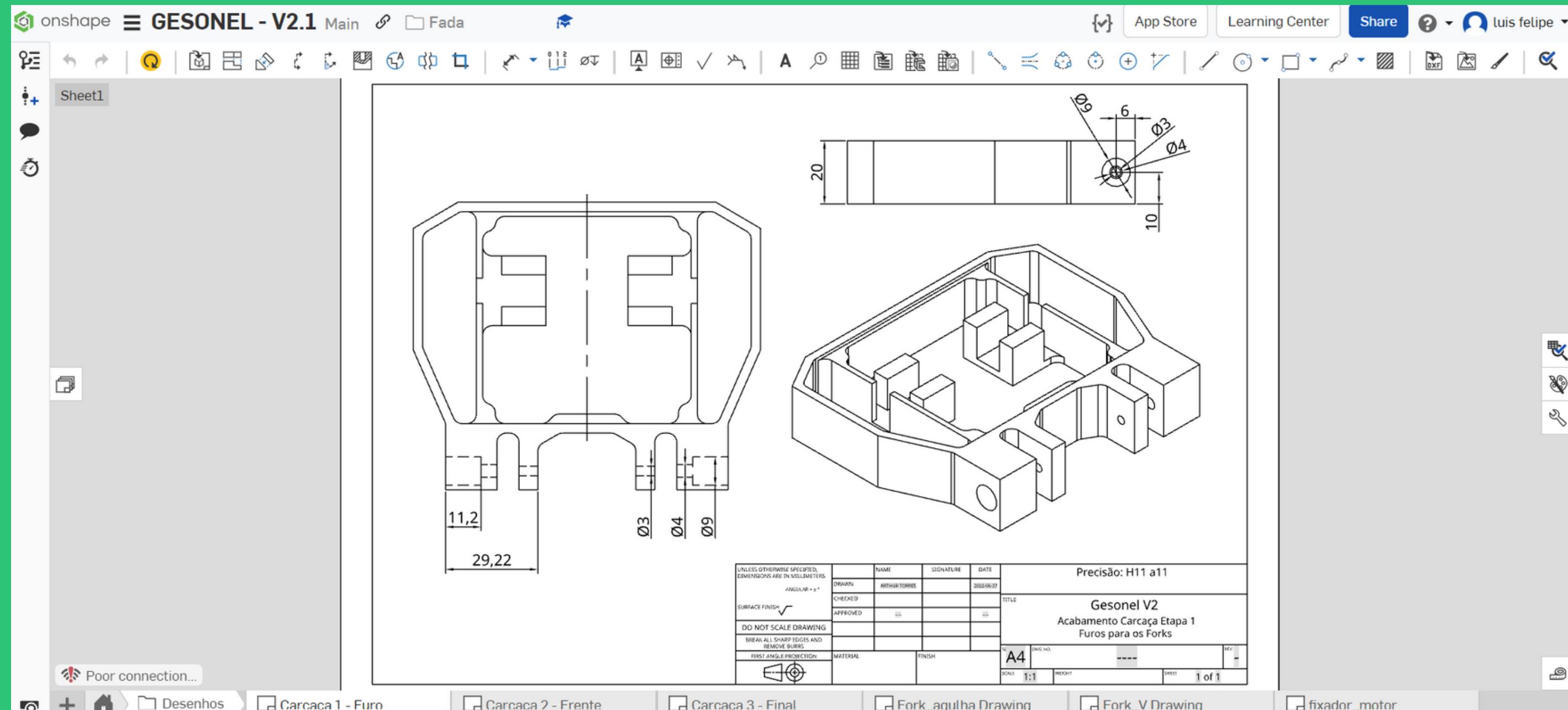
Criar objetos 3D

Muitas coisas...



Fazer montagens de
maquinas

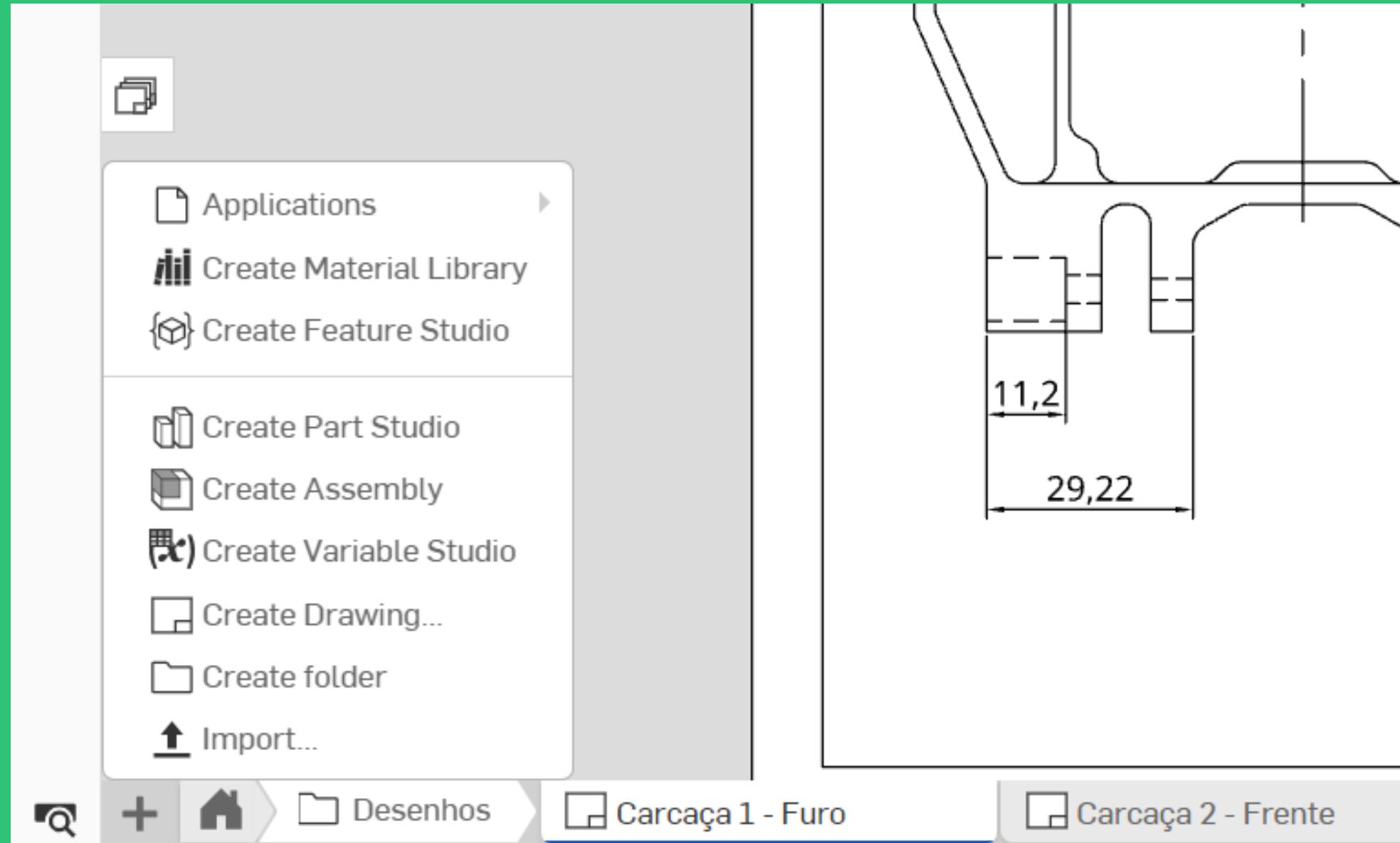
Muitas coisas...



3

Gerar desenhos
técnicos

Muitas coisas...





Vamos começar!

Criando um arquivo

The screenshot shows the Onshape interface. In the top left, the Onshape logo is visible. To its right is a search bar with the placeholder "Search in Owned by me". Below the search bar is a "Create" button with a dropdown arrow, which is currently expanded to show options: "Document...", "Folder...", "Import files...", "Import from...", and "Label...". A red arrow points from the text "coloque um nome" to the "Document..." option. In the center of the screen, there is a breadcrumb navigation path: "Owned by me > tutorial". Below this, a table header is partially visible with columns for "Name" and "Modifi". A blue callout box contains the text "No documents or folders in tutorial". In the bottom right corner, a modal window titled "New document" is open. It contains fields for "Document name" (set to "Tutorial_1"), "Owned by" (set to "Owned by me"), and "Document labels" (with a placeholder "Search labels"). At the bottom right of the modal, there are two buttons: "Create" (highlighted with a red circle) and "Cancel".

coloque um nome

New document

Document name

Tutorial_1

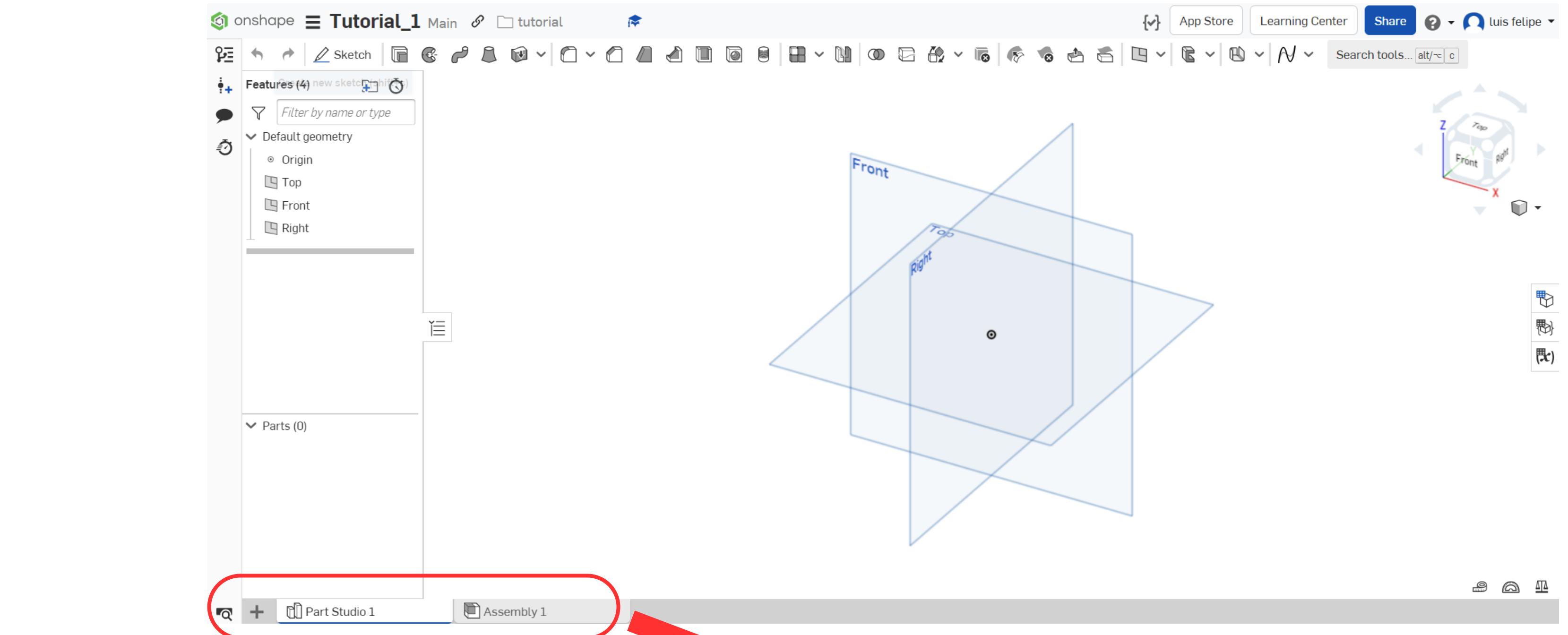
Owned by

Owned by me

Document labels

Search labels

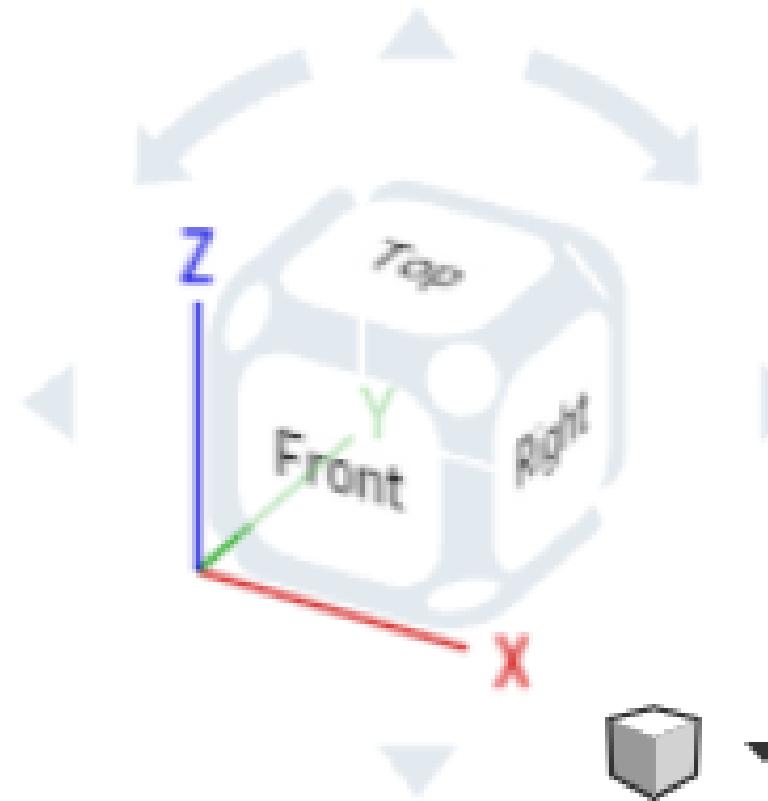
Create Cancel



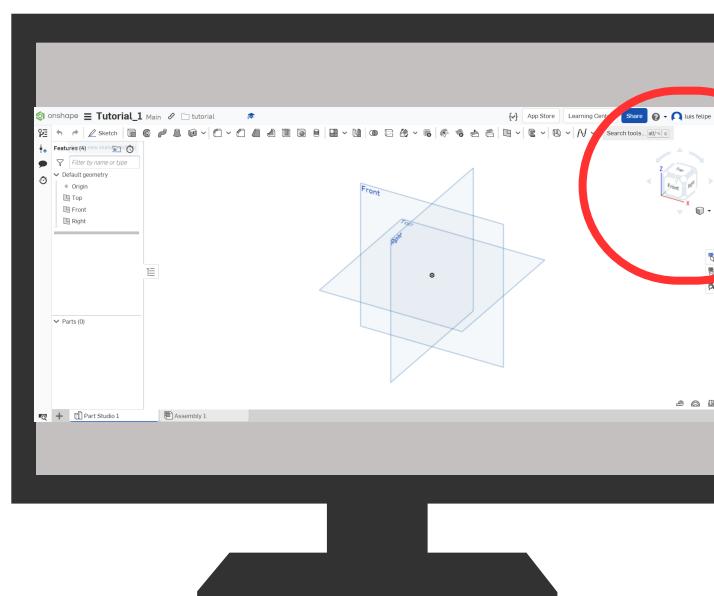
Pronto o primeiro arquivo ja foi criado!

Automaticamente um "part"
e um "Assembly" são criados

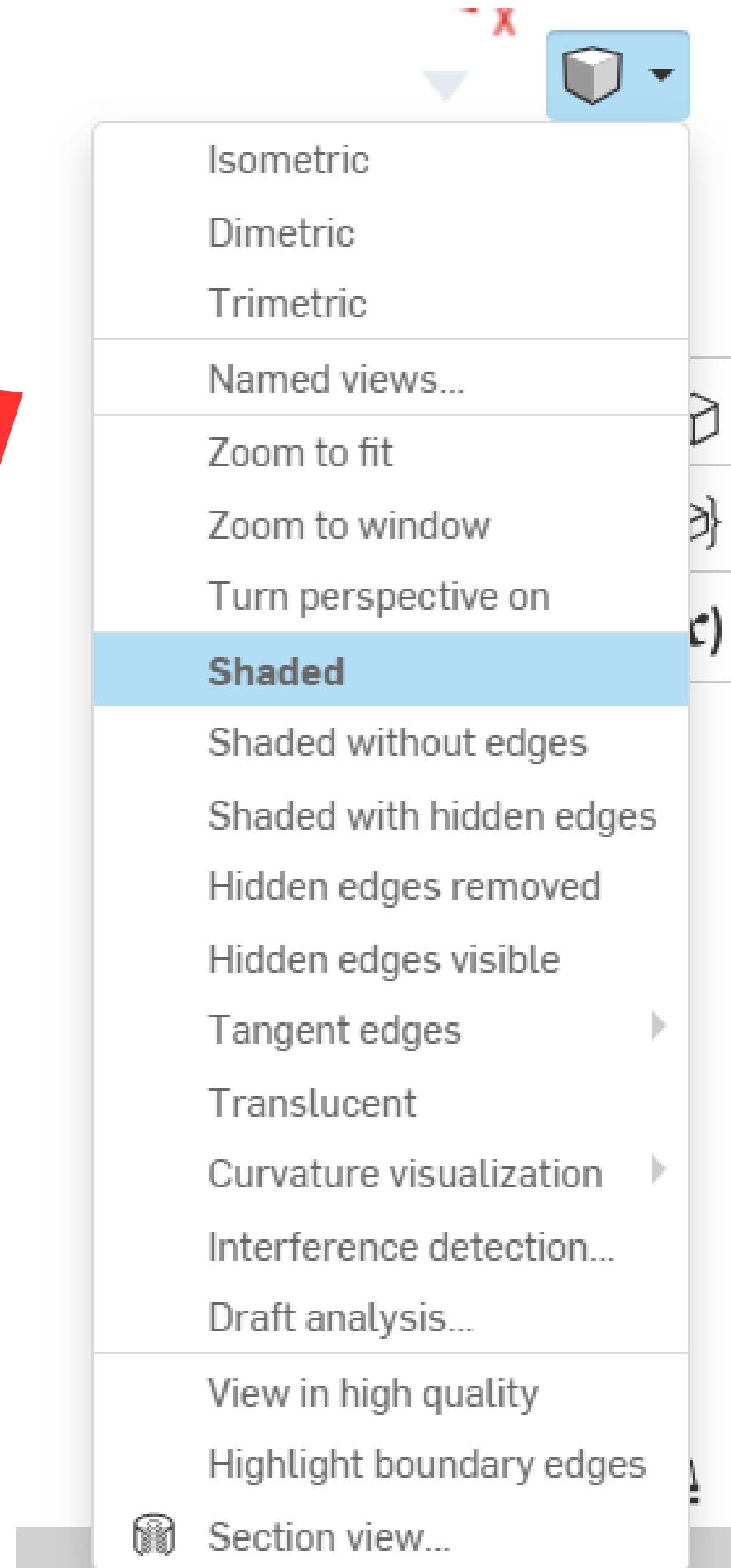
Vamos observar algumas coisas...



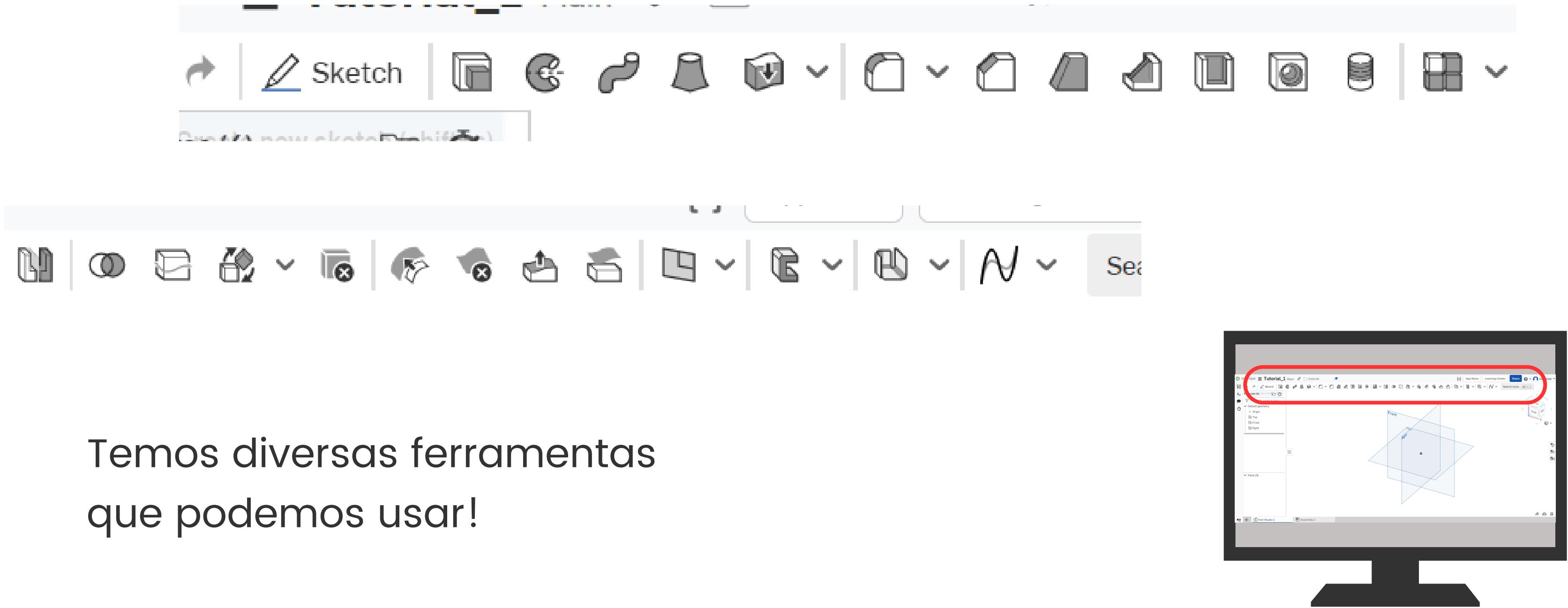
Aqui podemos mexer no angulo de visão de nosso objeto ou montagem



Podemos selecionar varias formas de visualização



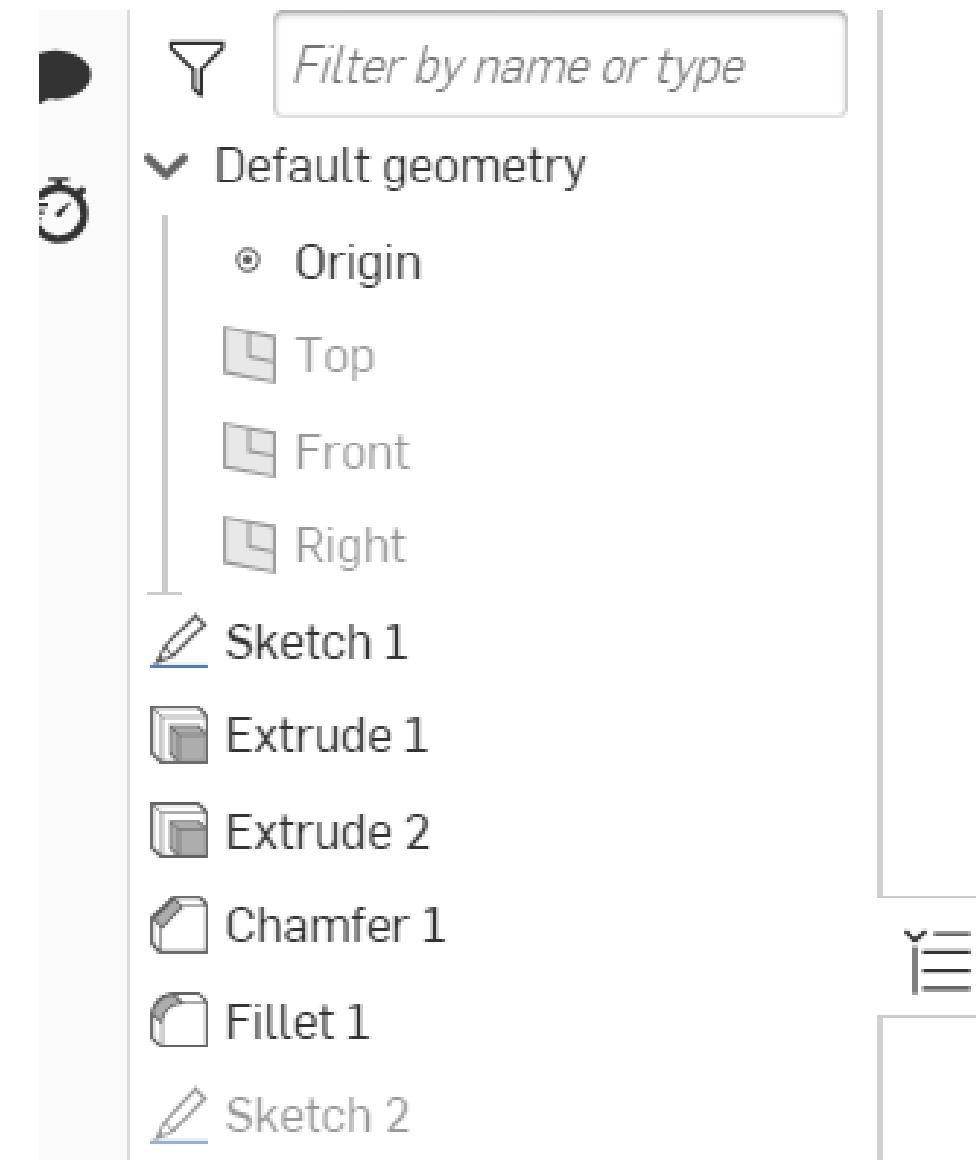
Vamos observar algumas coisas...



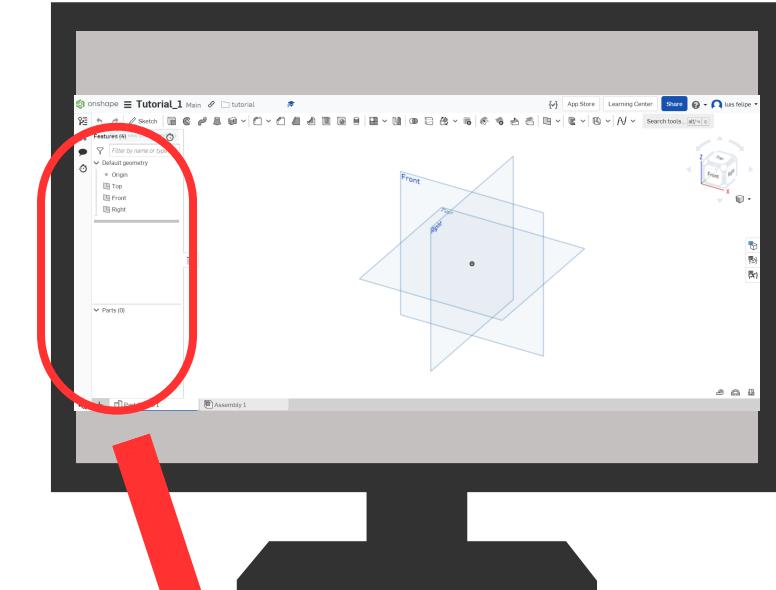
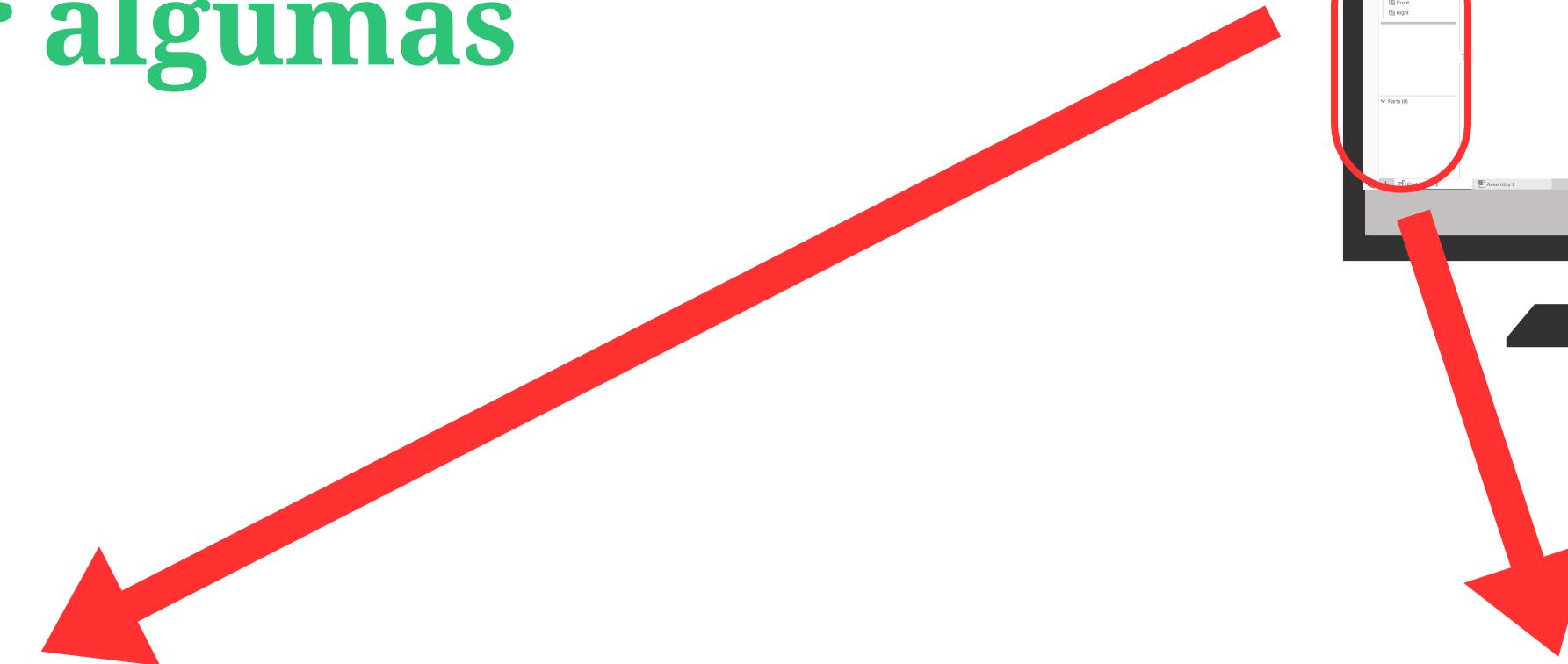
The image shows a screenshot of a CAD application window. At the top is a toolbar with various icons for sketching and modeling operations. Below it is another toolbar with icons for file management, search, and other functions. The main area displays a 3D model of a rectangular block with a smaller rectangular cutout on one of its faces. A red oval highlights the top-left corner of the main toolbar.

Temos diversas ferramentas que podemos usar!

Vamos observar algumas coisas...



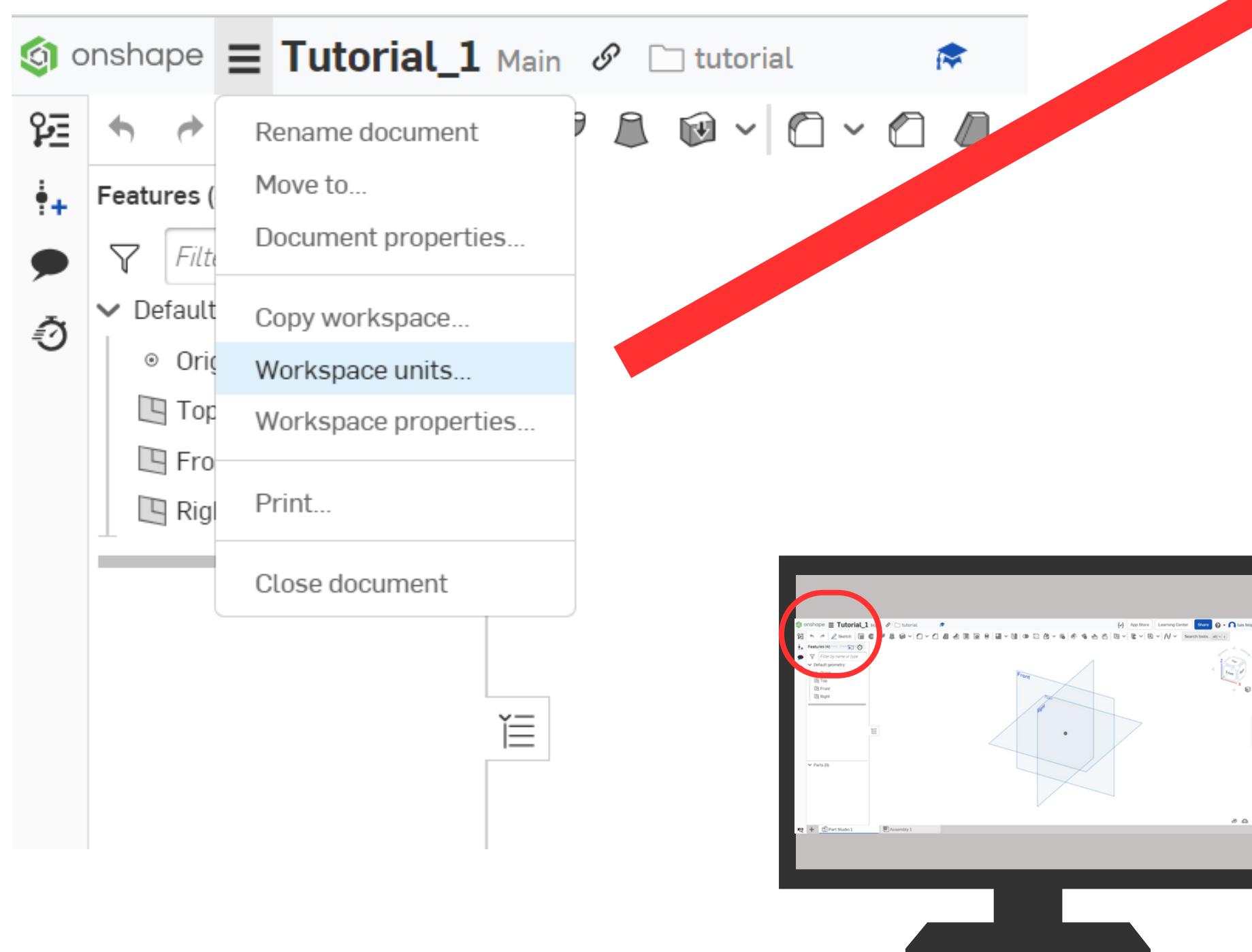
Histórico das ferramentas utilizadas



Peças criadas

- Parts (3)
 - Part 1
 - Part 2
 - Part 3

Ajustar as unidades é importante!

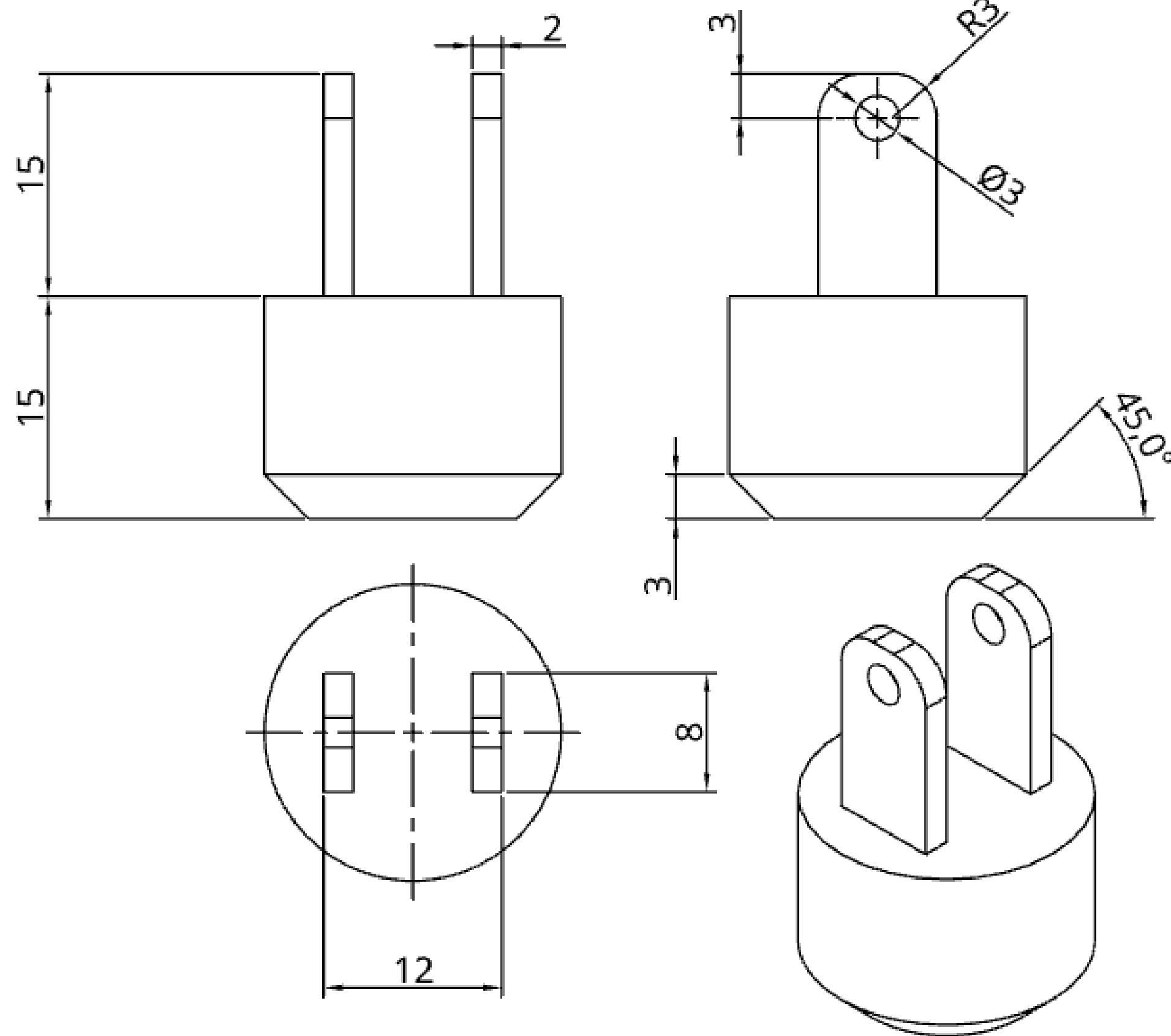
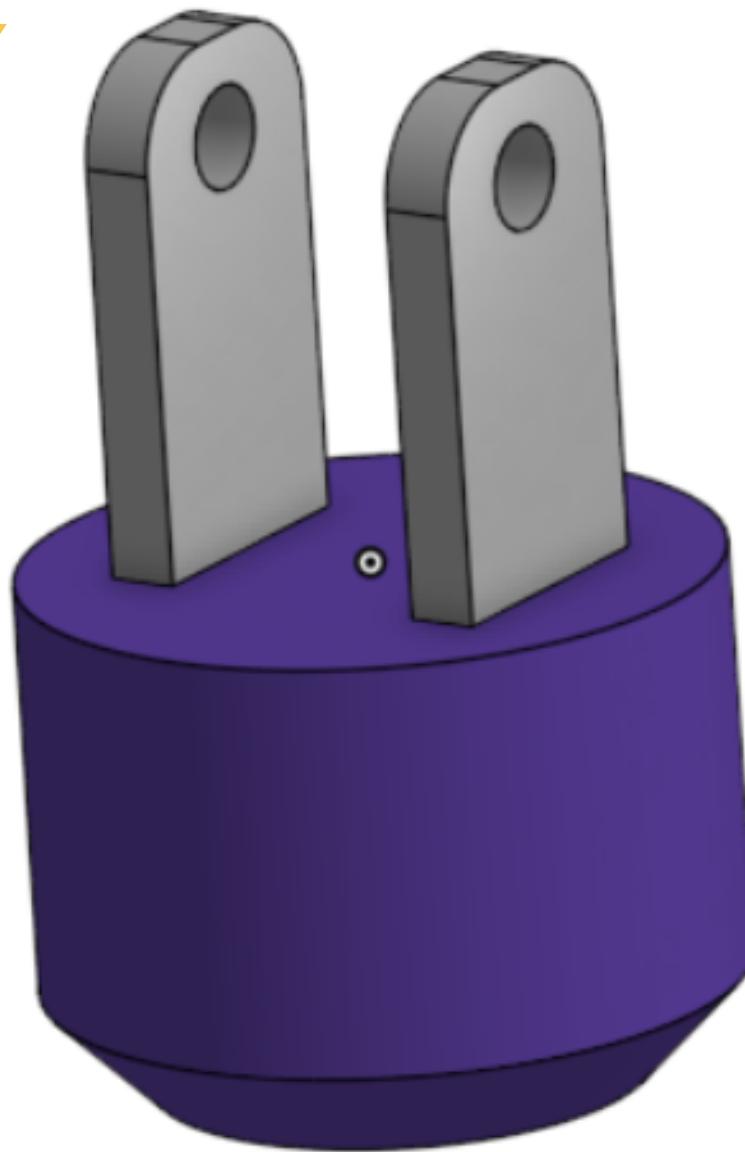


Workspace units	
Length	Display decimals
Length default unit Millimeter	0.123
Linear acceleration default unit Inch per second squared	0.123
Angle	Display decimals
Angle default unit Degree	0.123
Angular velocity default unit Degree per second	0.123
Mechanical	Display decimals
Mass default unit Gram	0.123
Force default unit Pound-force	0.123
Moment default unit Inch-pound	0.123
Pressure default unit	Display decimals

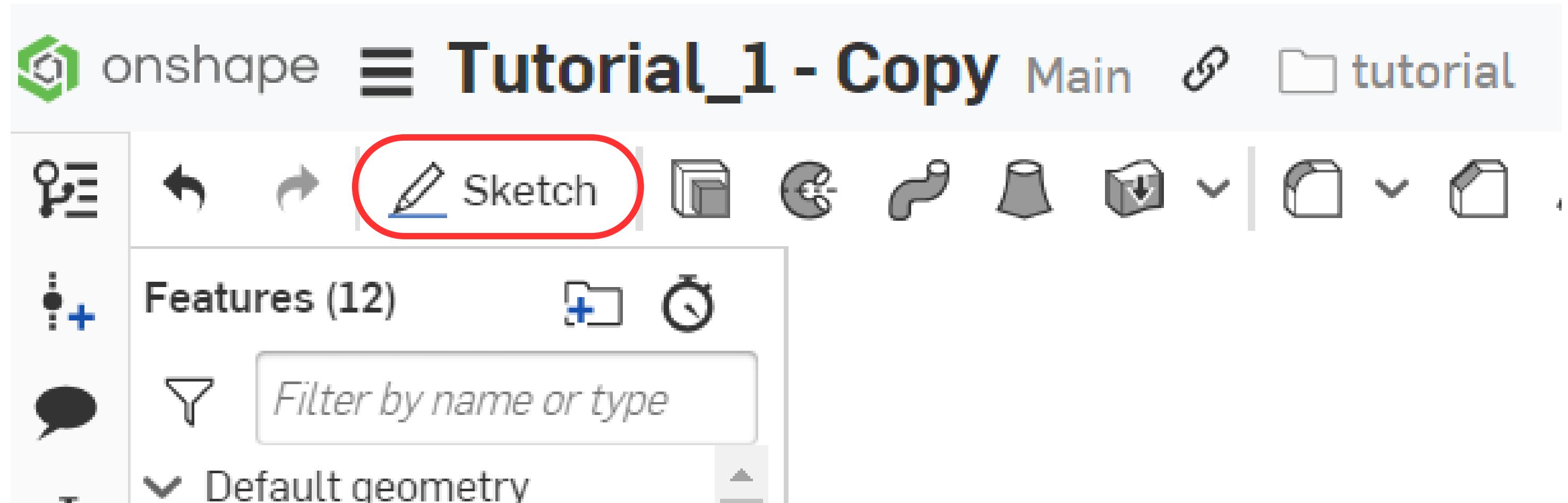
PARTE 1:

Vamos fazer uma peça!

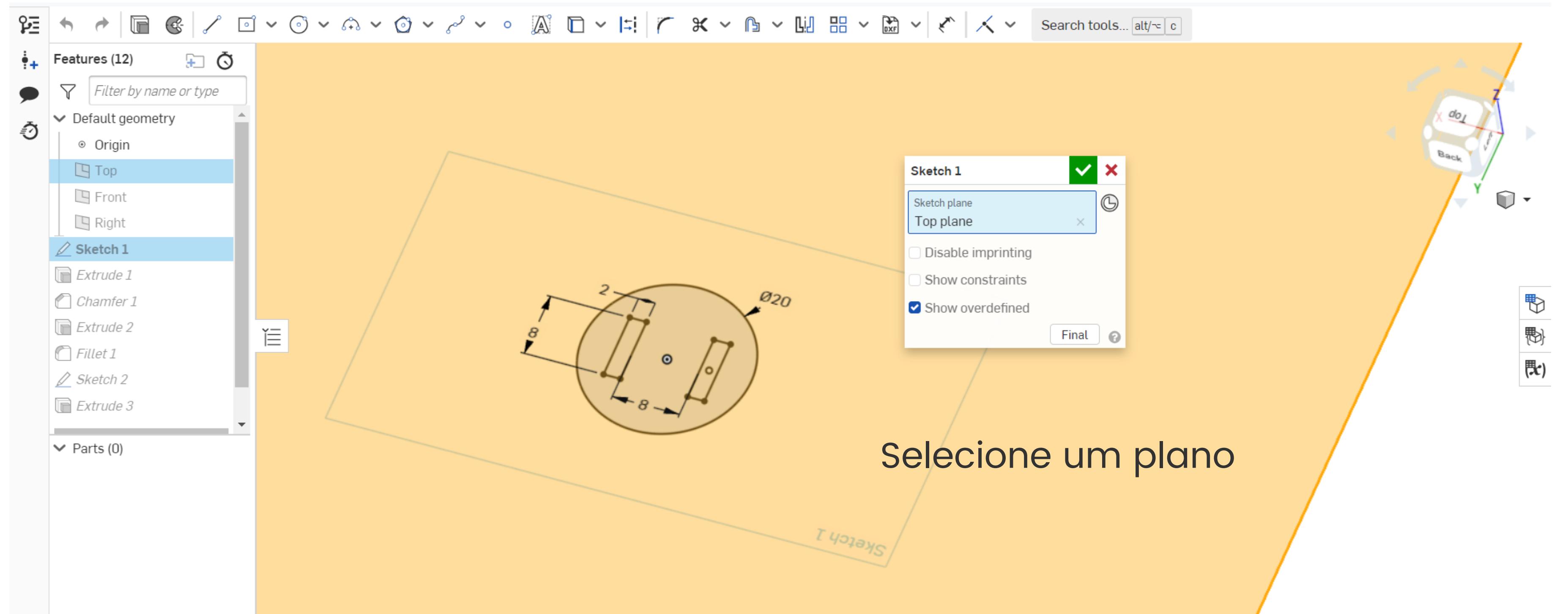
Nossa peça



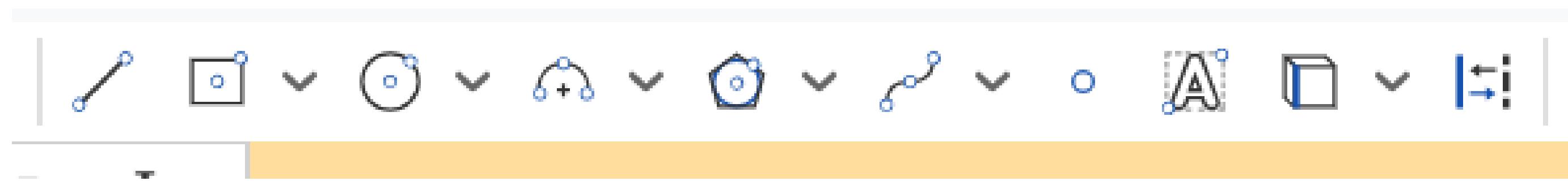
Criando um Sketch



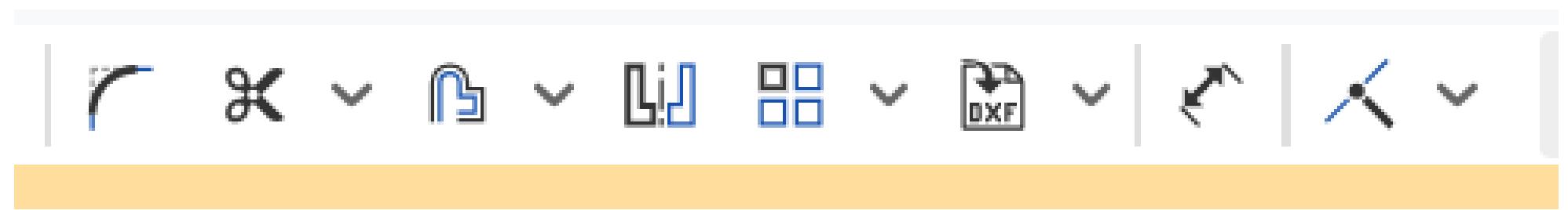
Criando um Sketch



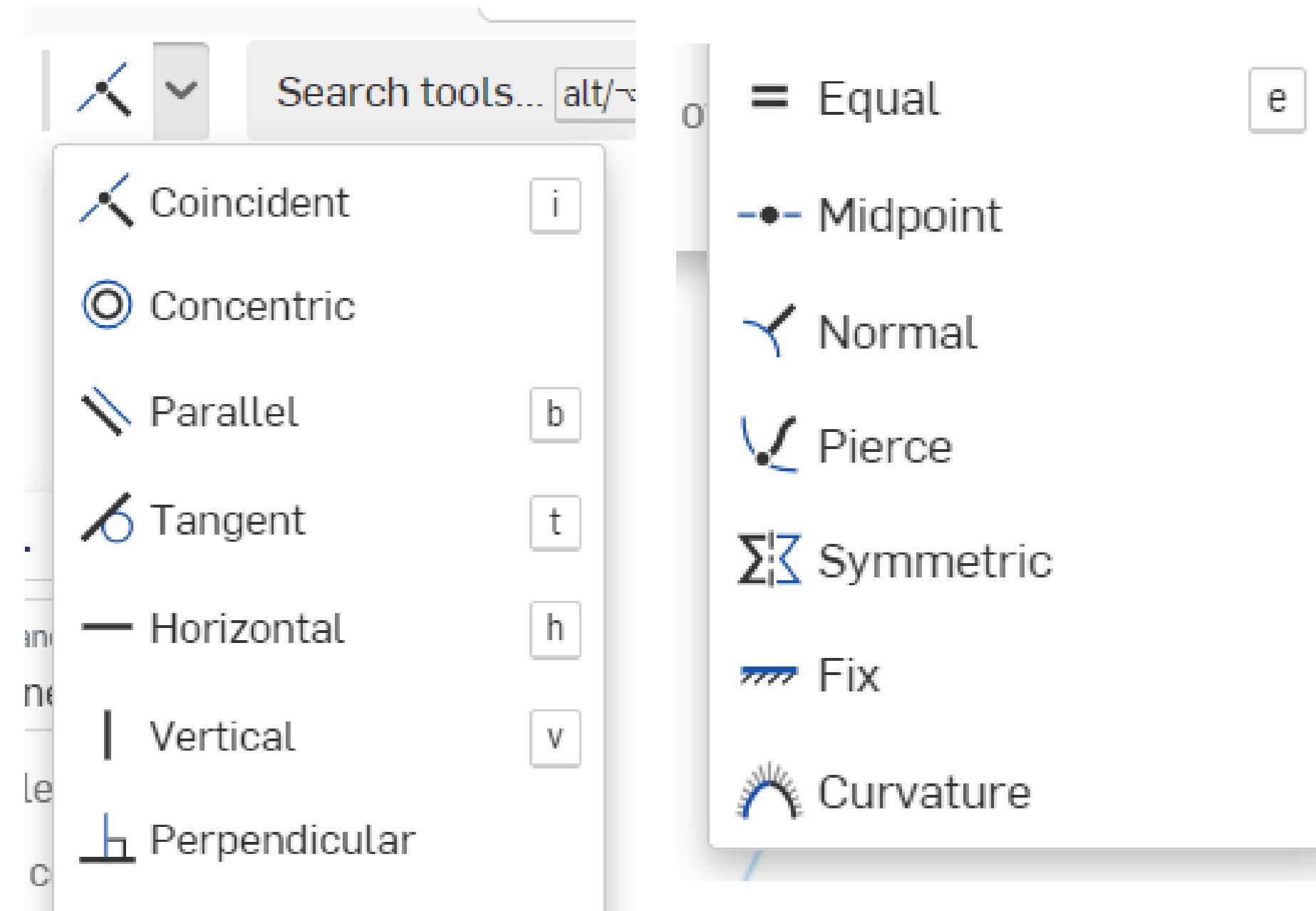
Criando um Sketch



Em um sketch podemos criar desenhos 2D usando formas simples, como circulos e retangulos. Além disso precisamos cotar os desenhos de modo que a geometria fique definida.

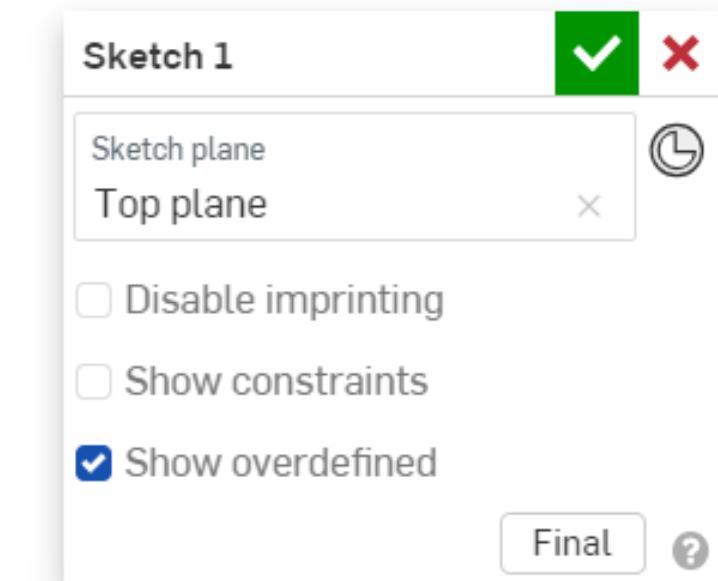
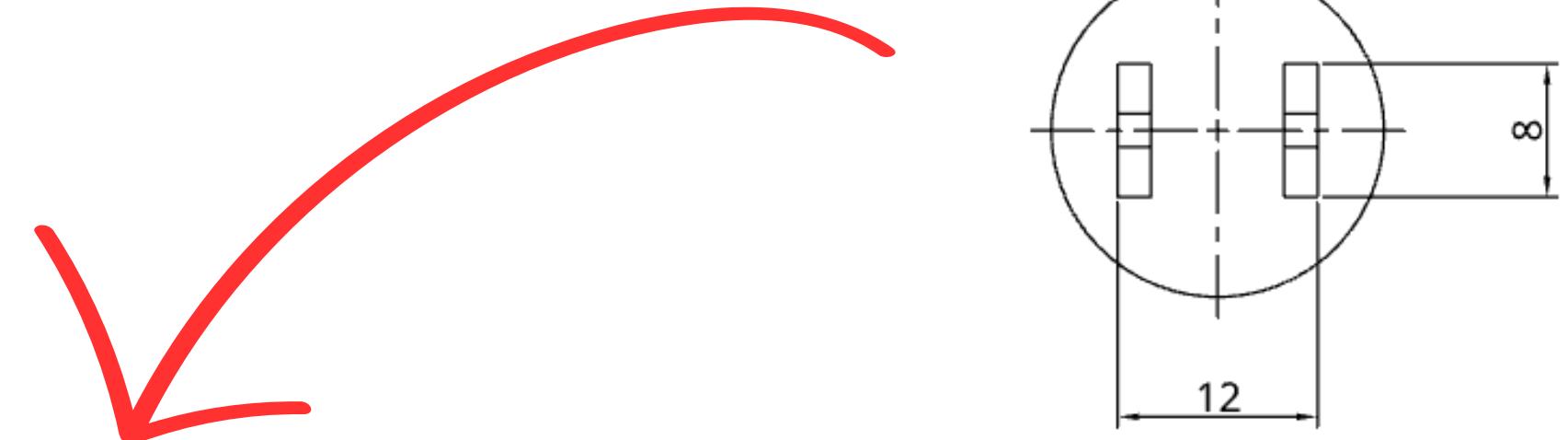
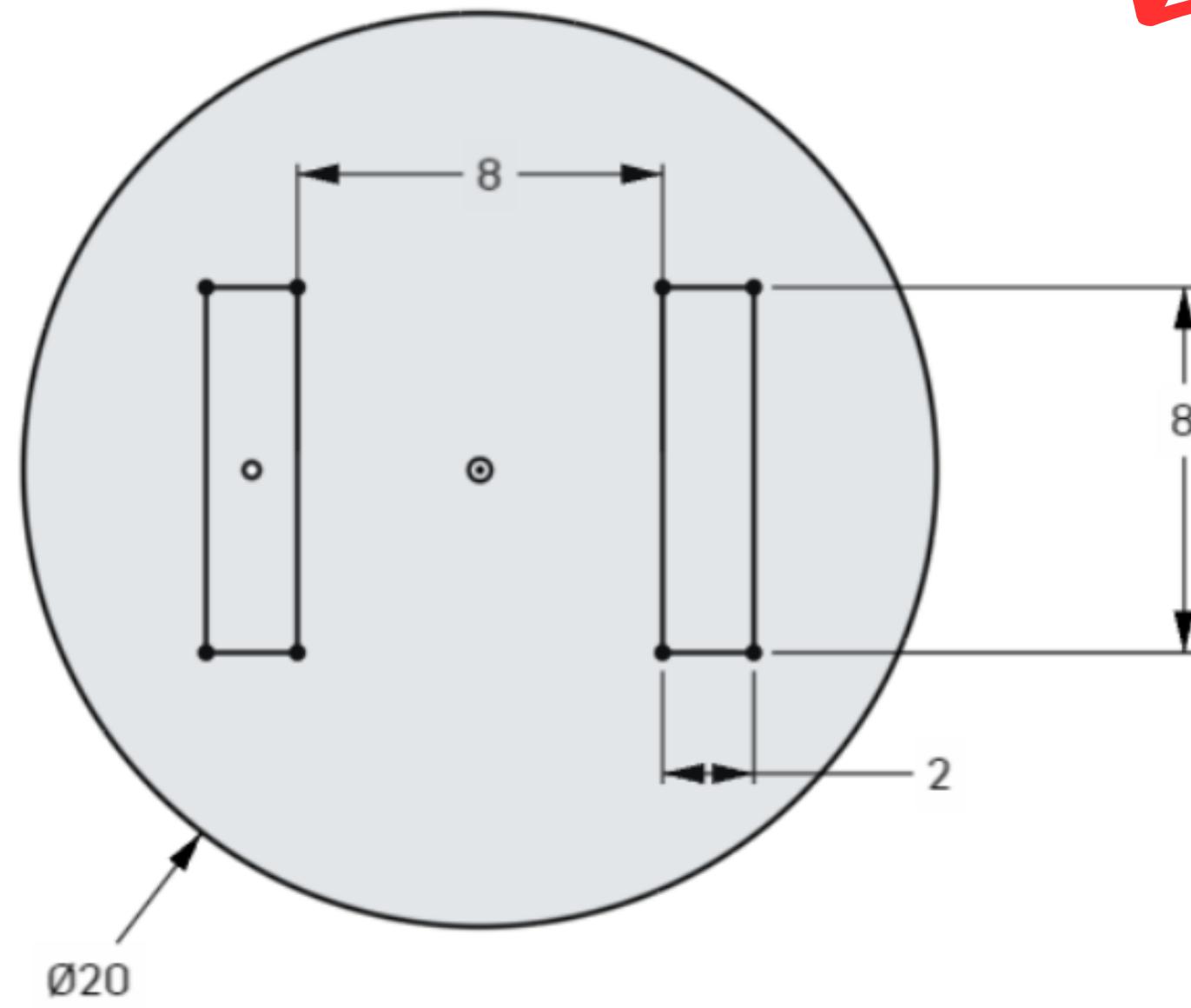


Criando um Sketch



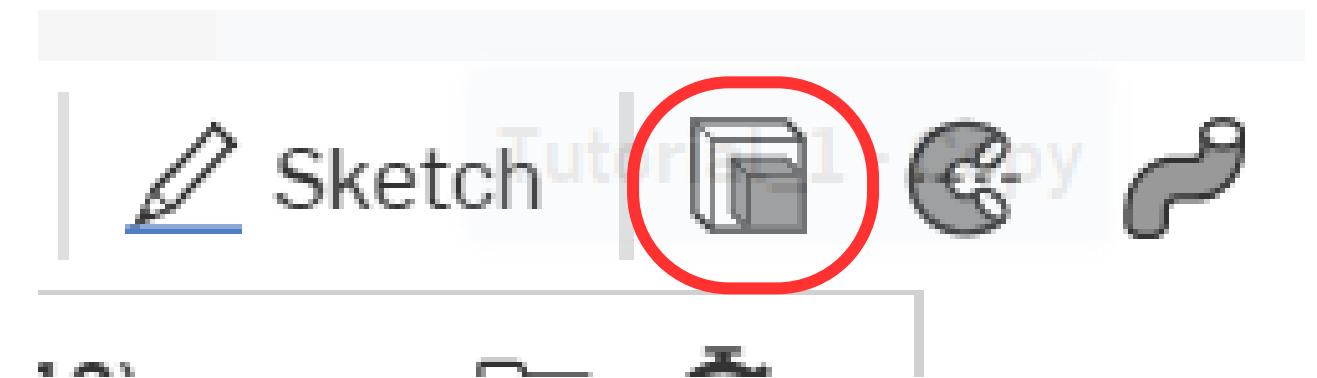
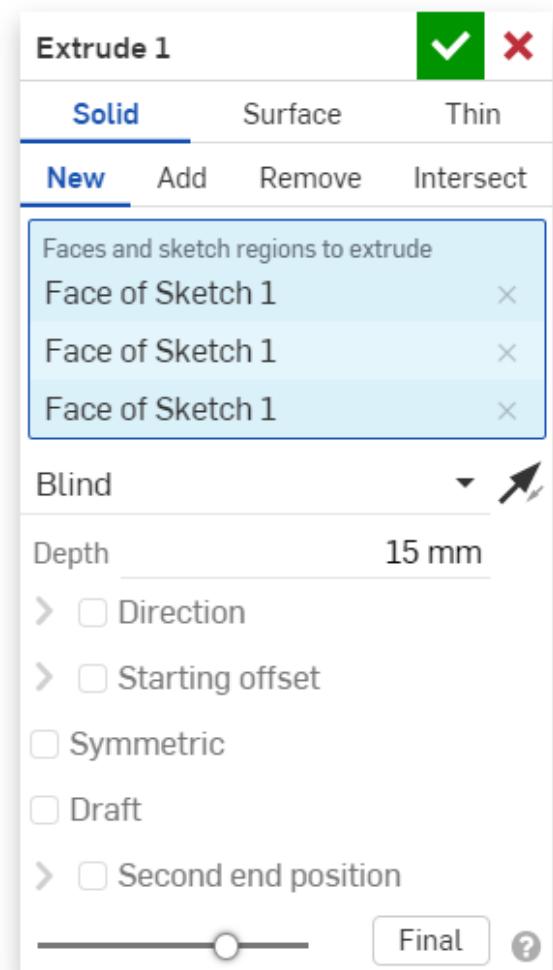
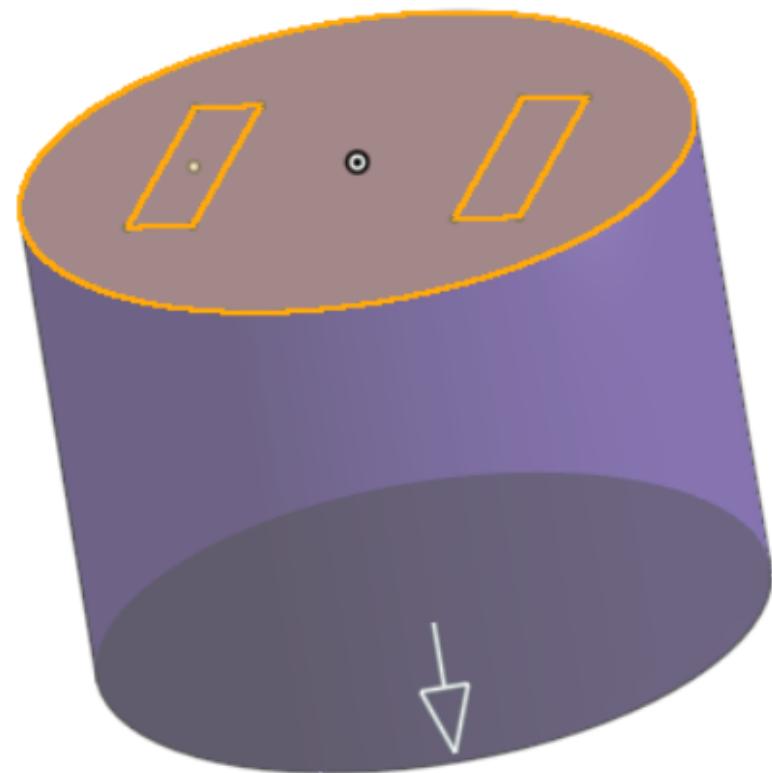
Constraints são limitações quando a propriedades geométricas

Criando um Sketch



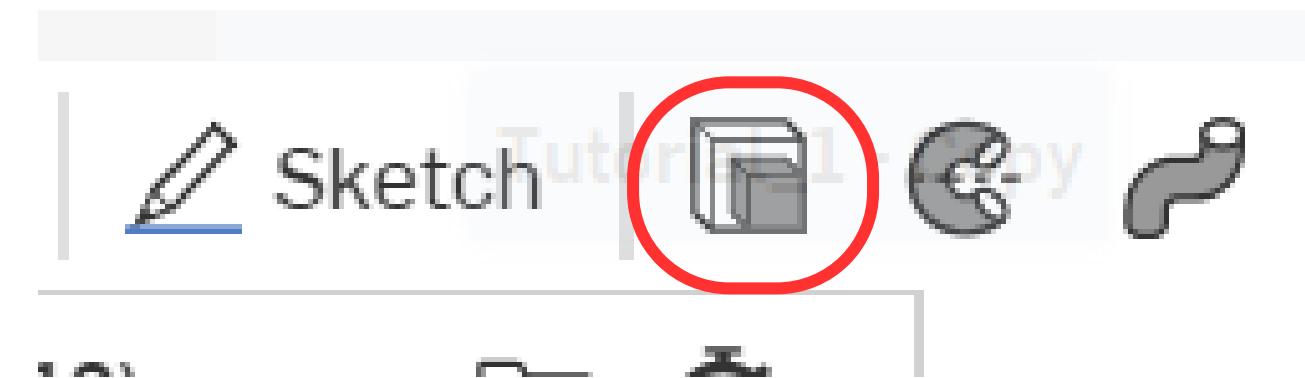
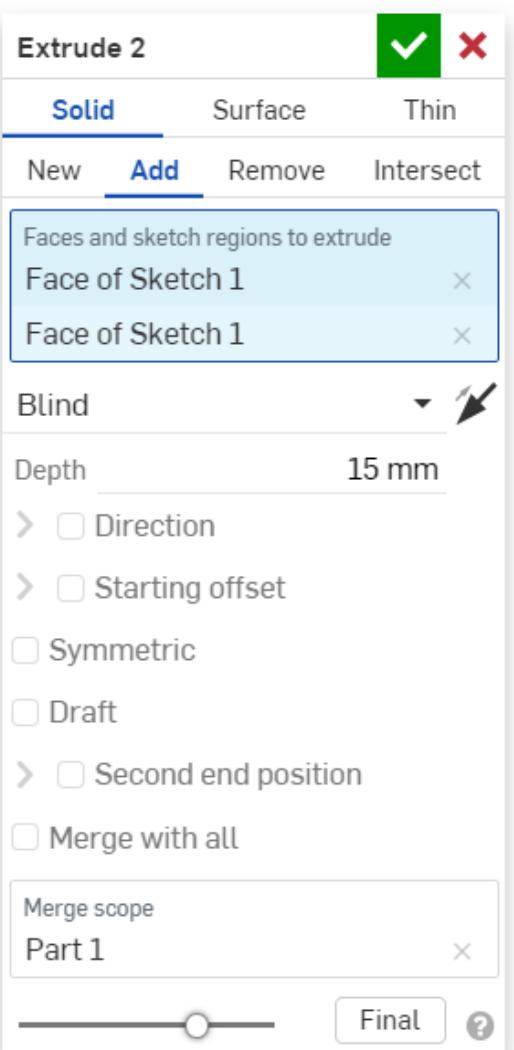
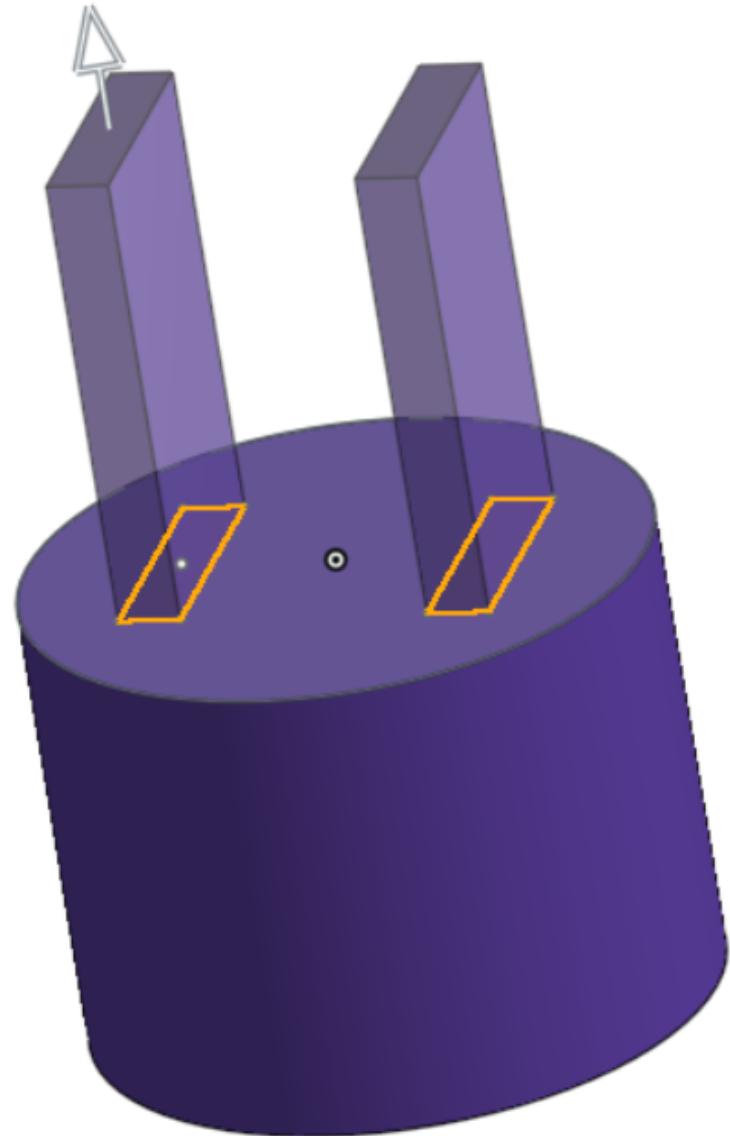
Usando o desenho
imaginamos como podemos
montar a peça

A ferramenta de Extrude



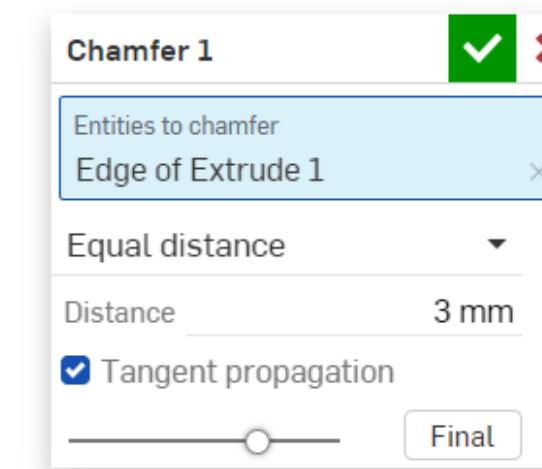
Esta ferramenta pode adicionar ou remover material a partir de uma figura plana. Em resumo ela da altura a uma figura 2D.

A ferramenta de Extrude

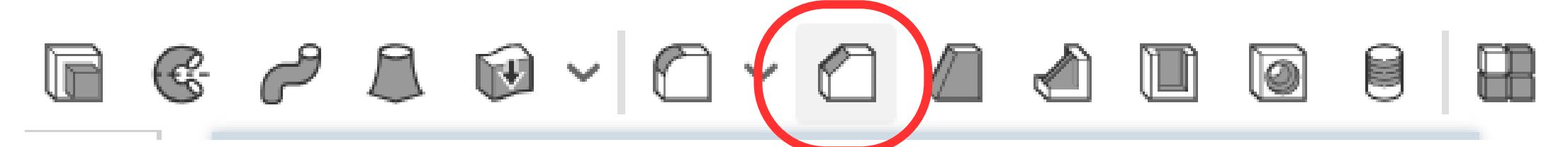


Esta ferramenta pode adicionar ou remover material a partir de uma figura plana. Em resumo ela da altura a uma figura 2D.

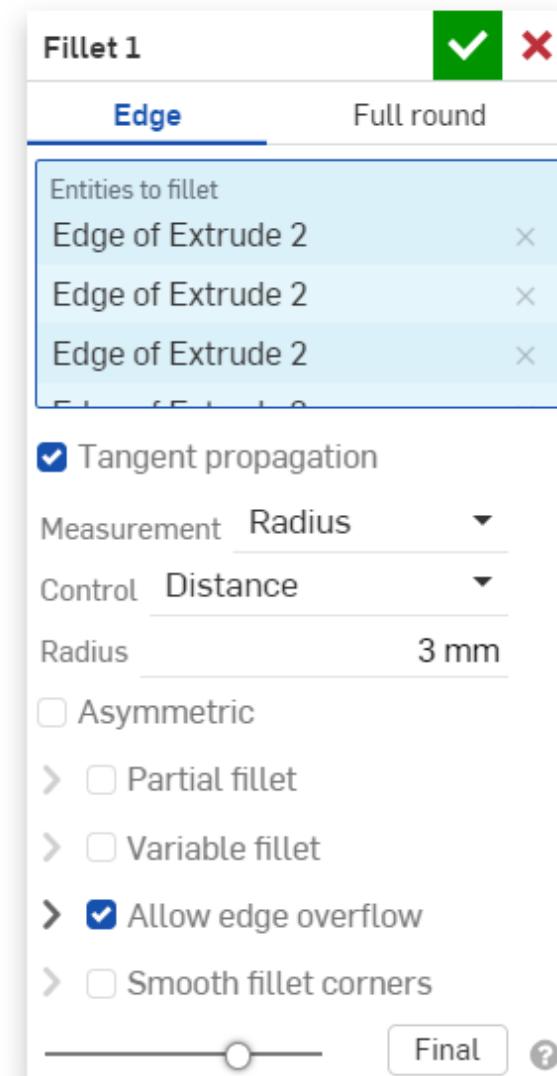
A ferramenta Chamfer



Esta ferramenta cria planos retos a partir de seguimentos de retas.



A ferramenta Fillet



Esta ferramenta permiter
arredondar bordas.



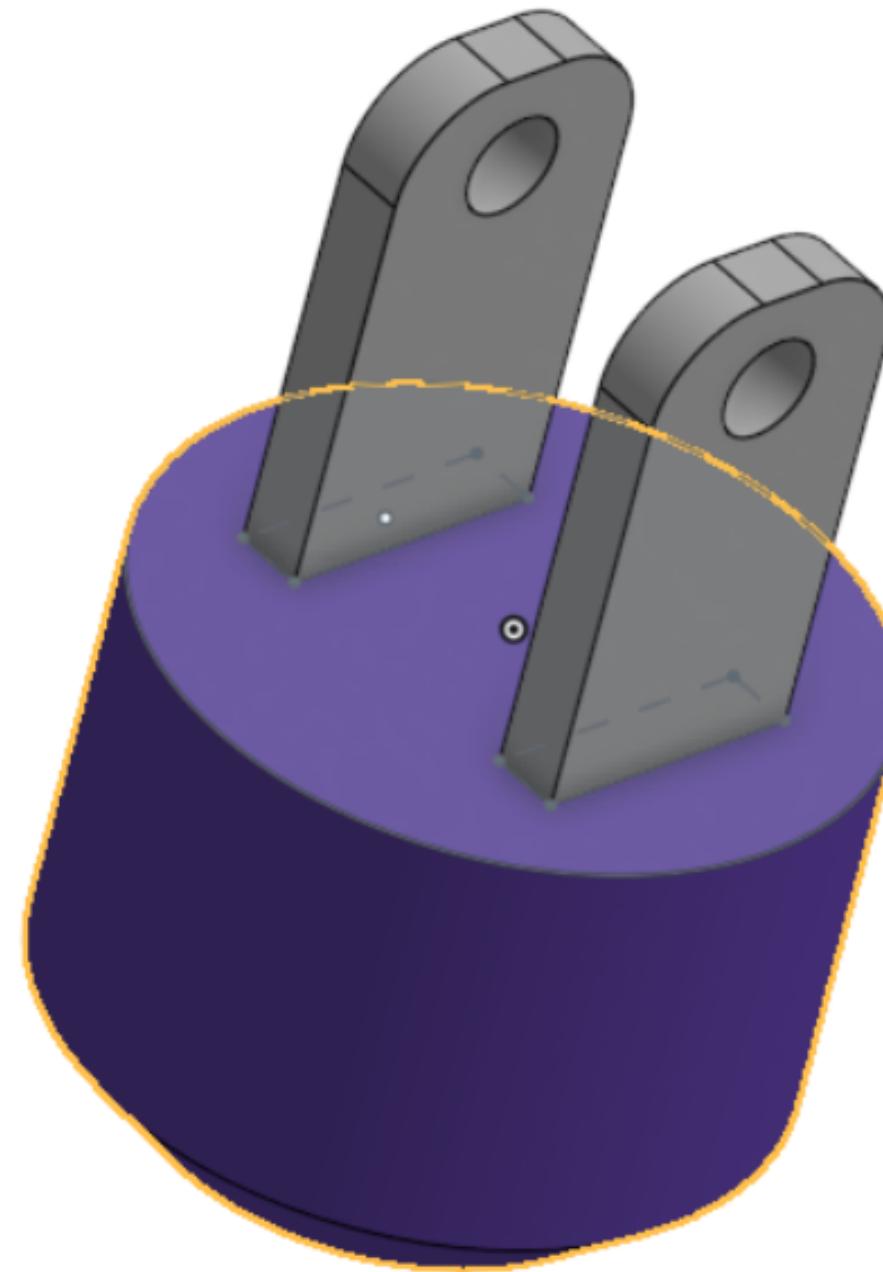
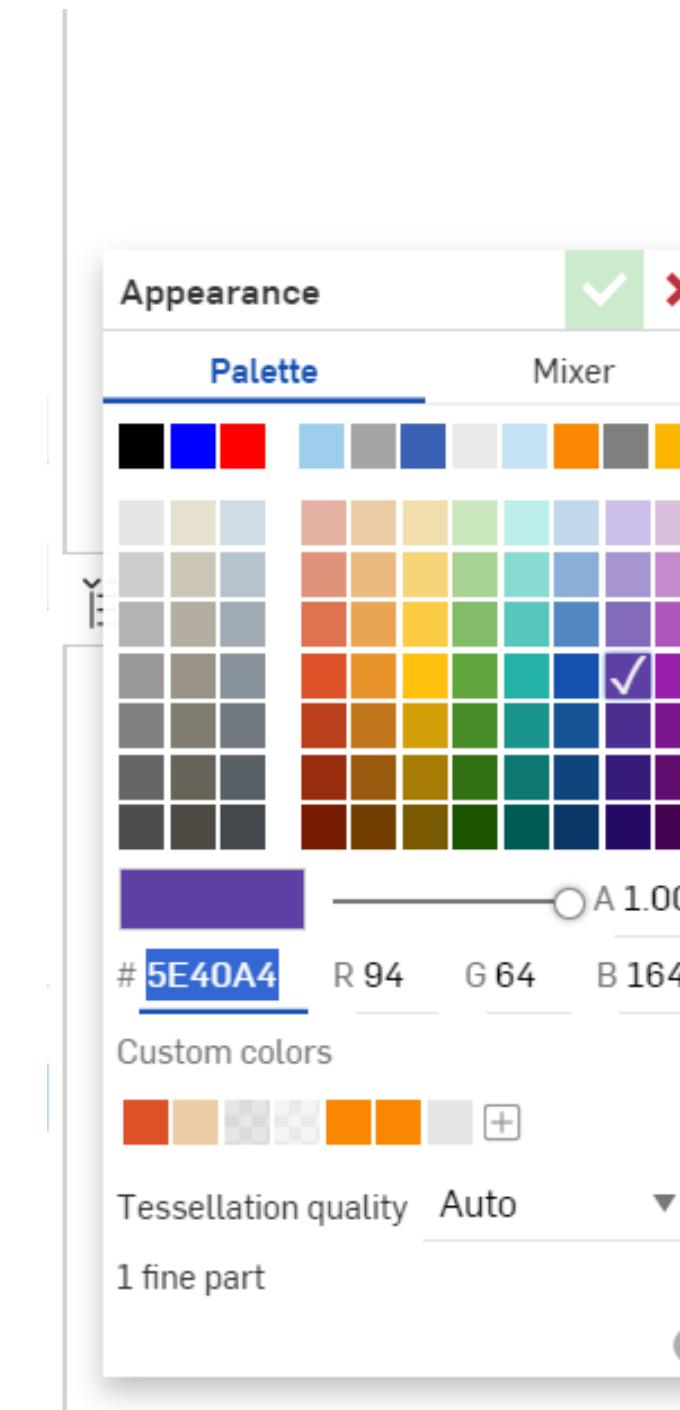
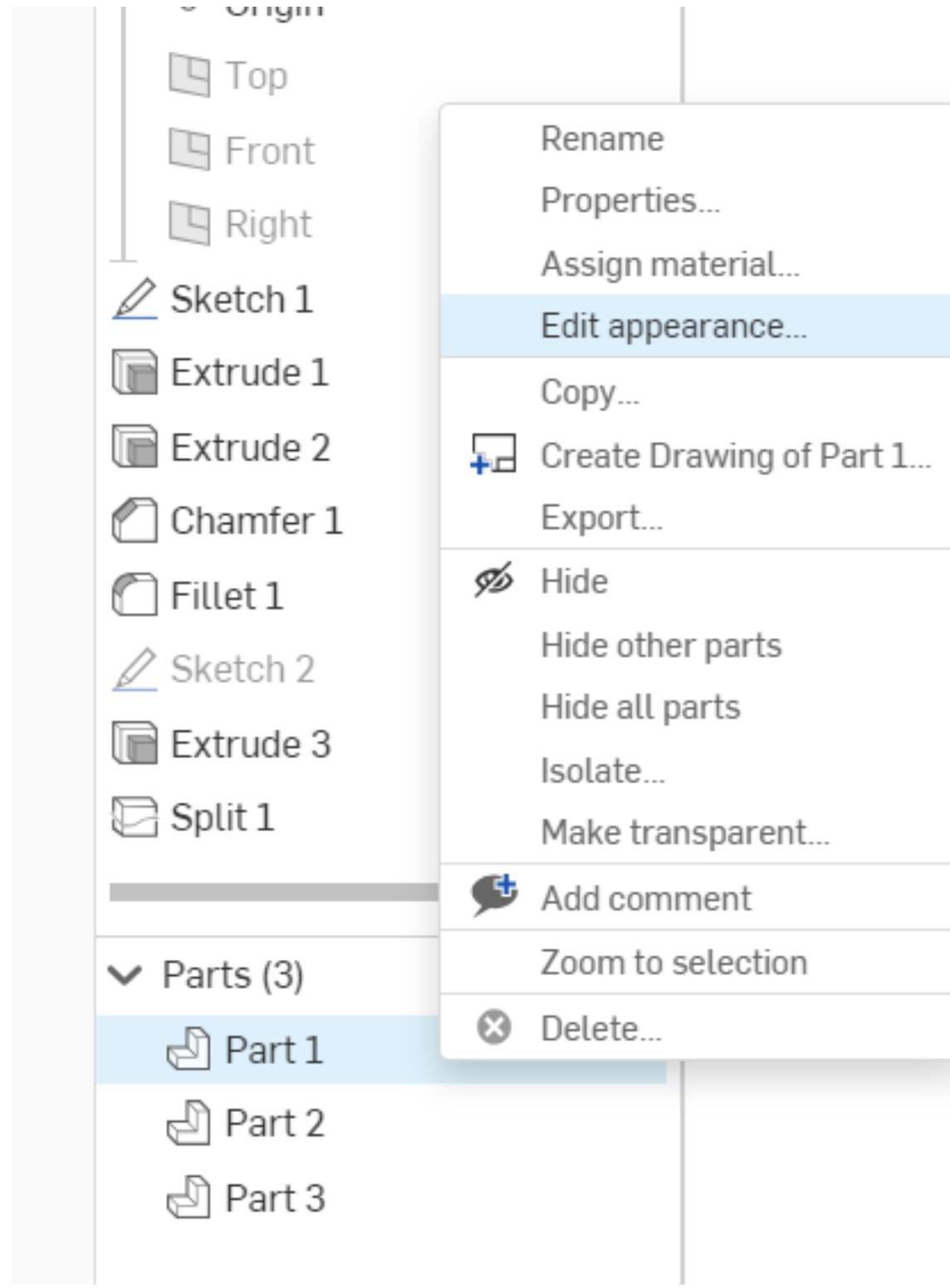
DESAFIO:

Agora é com você!
Termine a ultima parte ;)

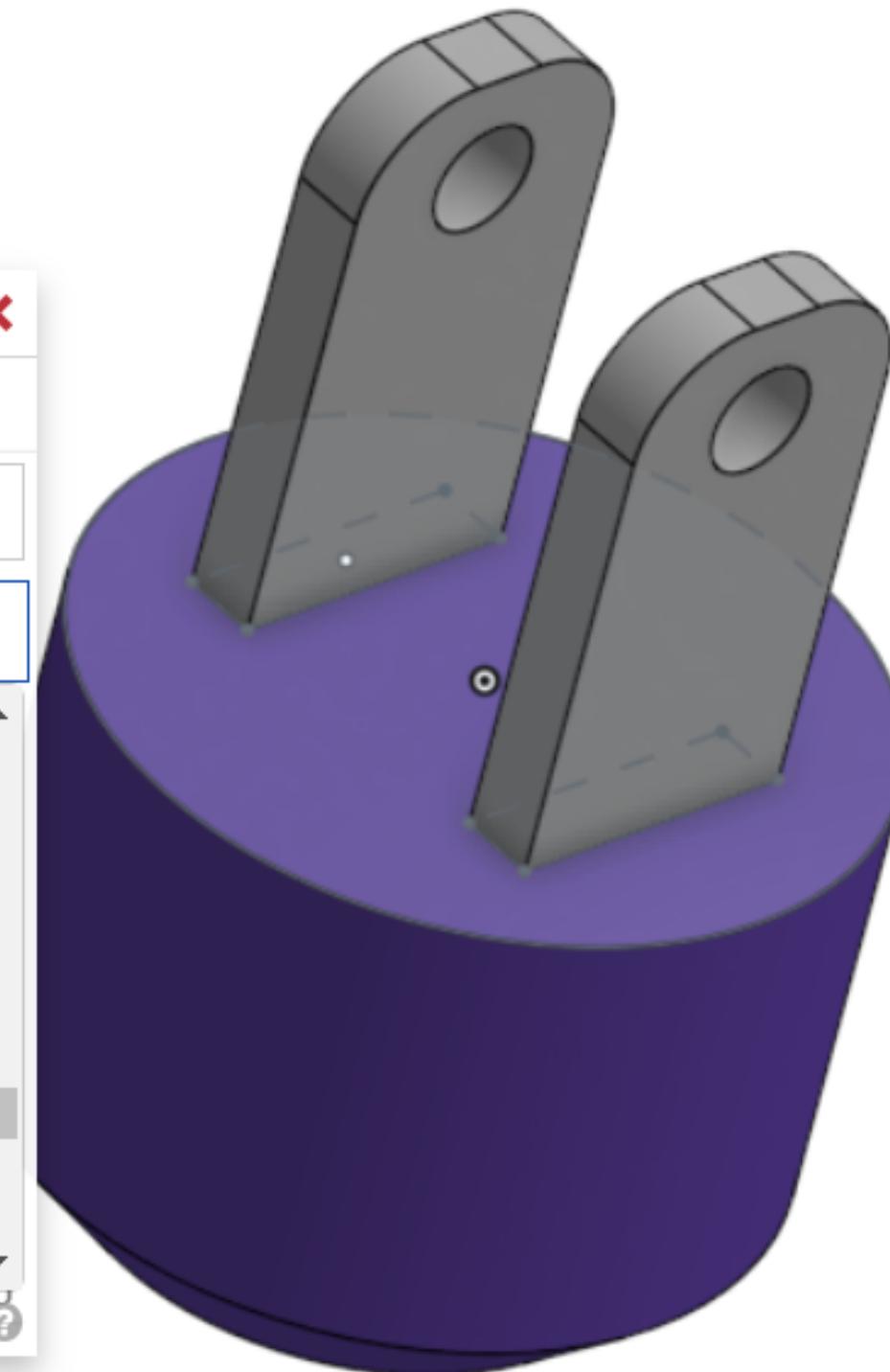
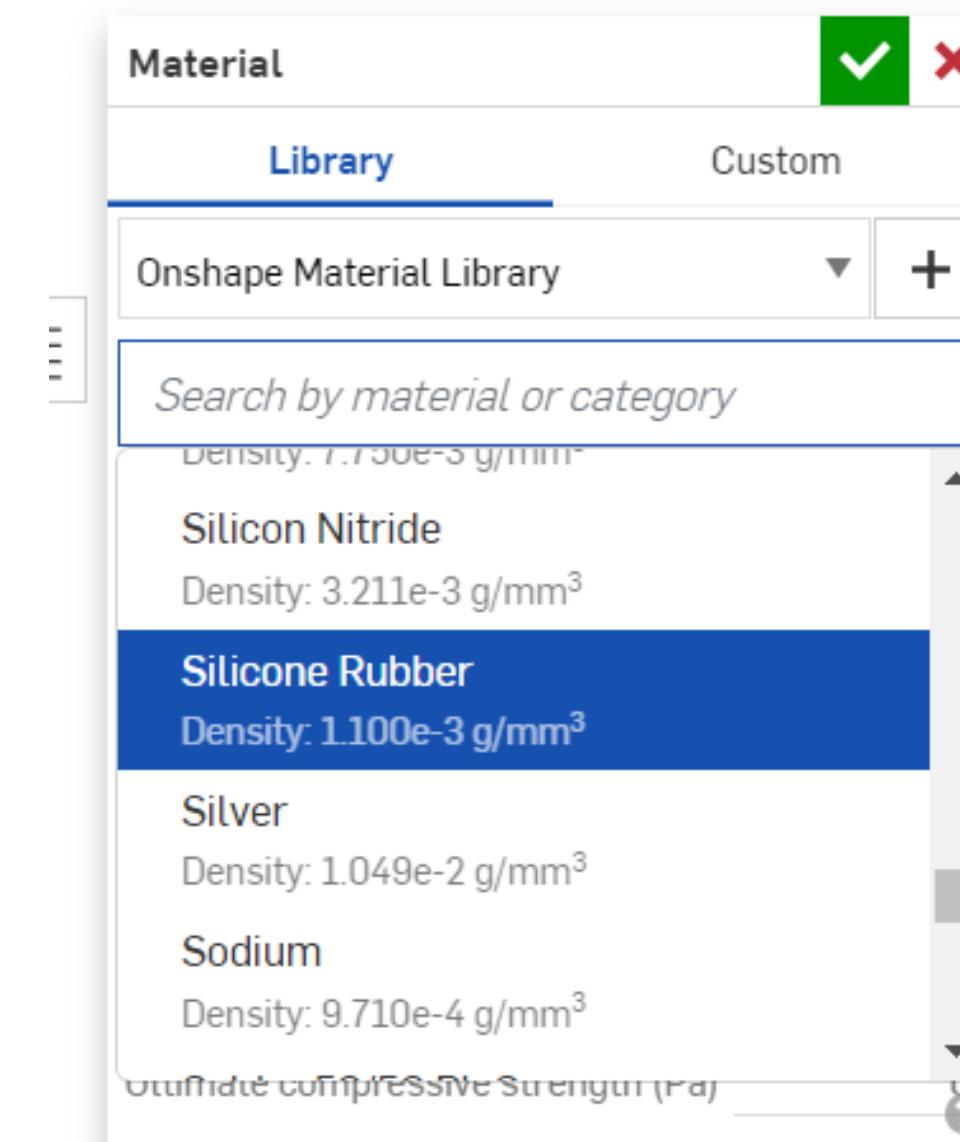
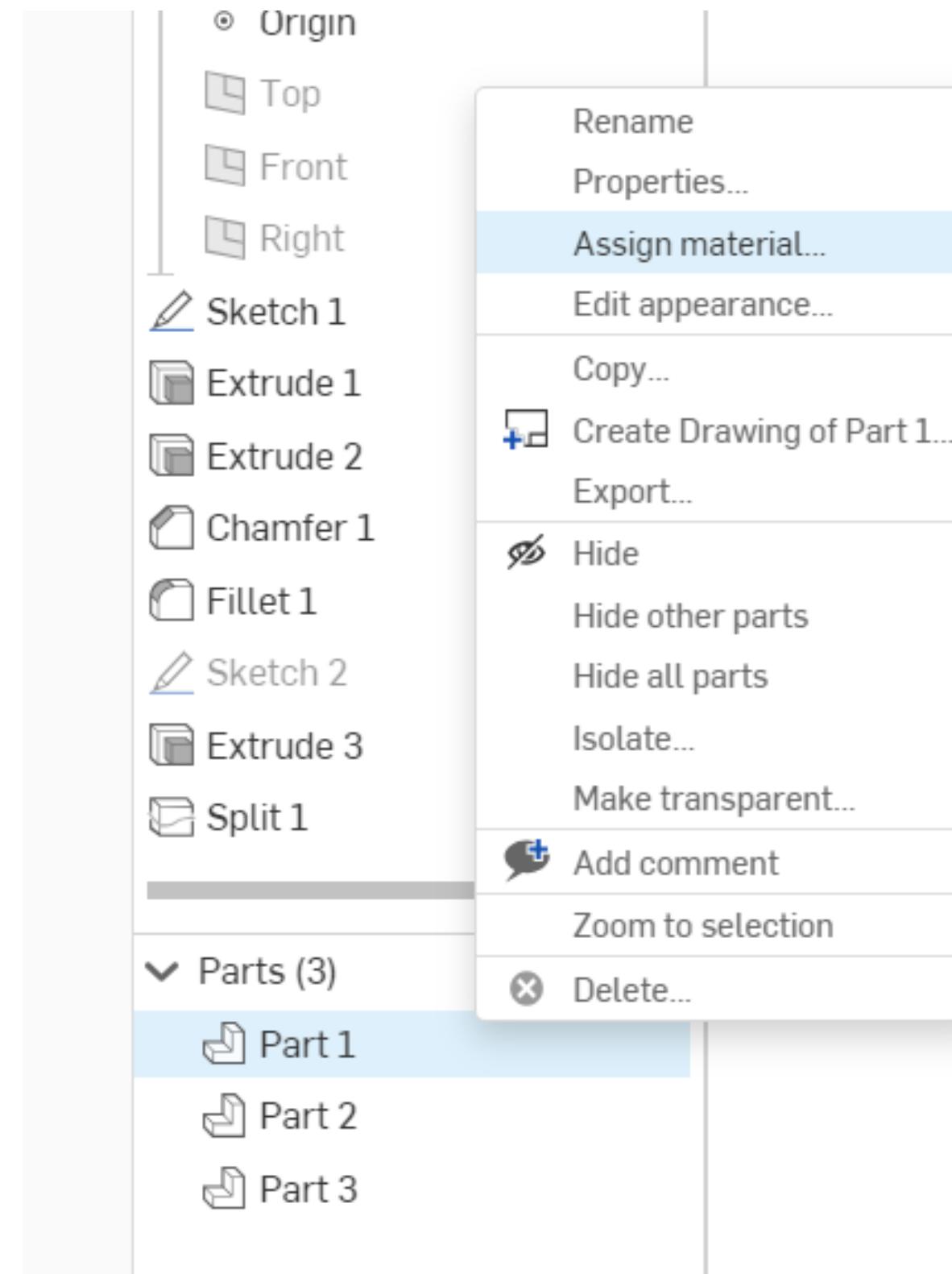
PARTE 2:

Editando propriedades
das peças

Alterando cor



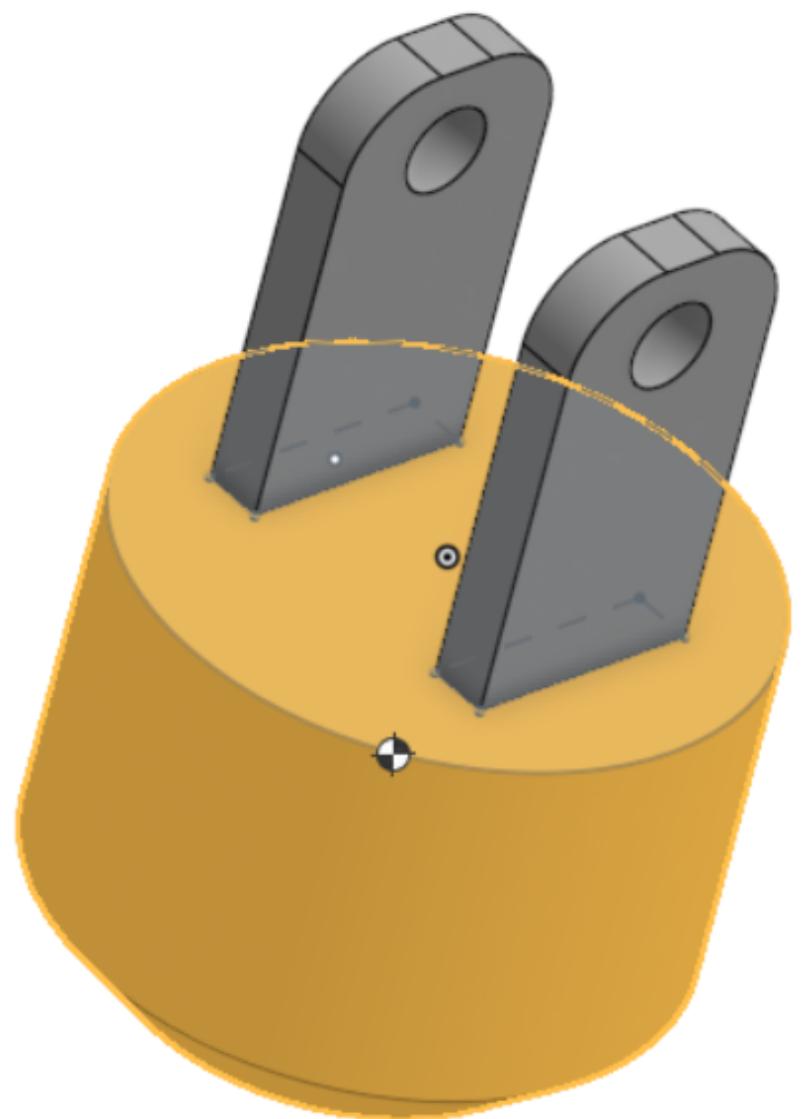
Alterando o material



PARTE 3:

Fazendo medições

Medindo massa



Mass properties

Parts to measure
Part 1

Mate connector for reference frame

Show calculation variance

Mass Override 4.904 g

Volume 4457.92 mm³

Surface area 1448.667 mm²

Center of mass Override

X ↘ 0 mm

Y ↗ 0 mm

Z ↑ -7.131 mm

Mass moments of inertia (g mm²) Override

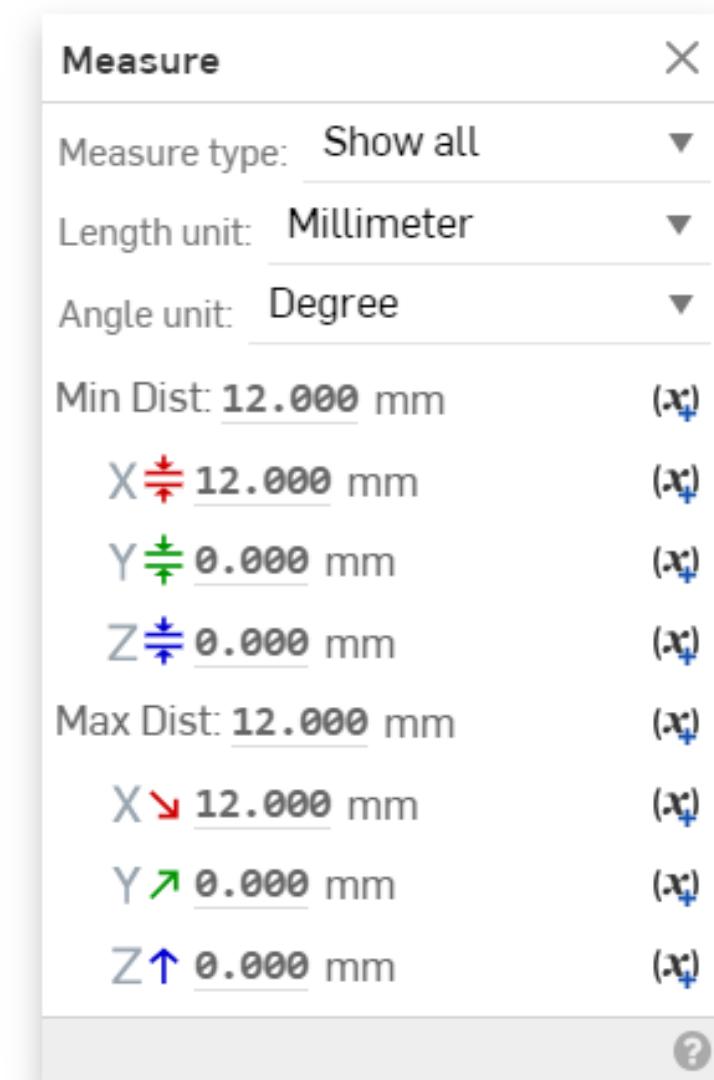
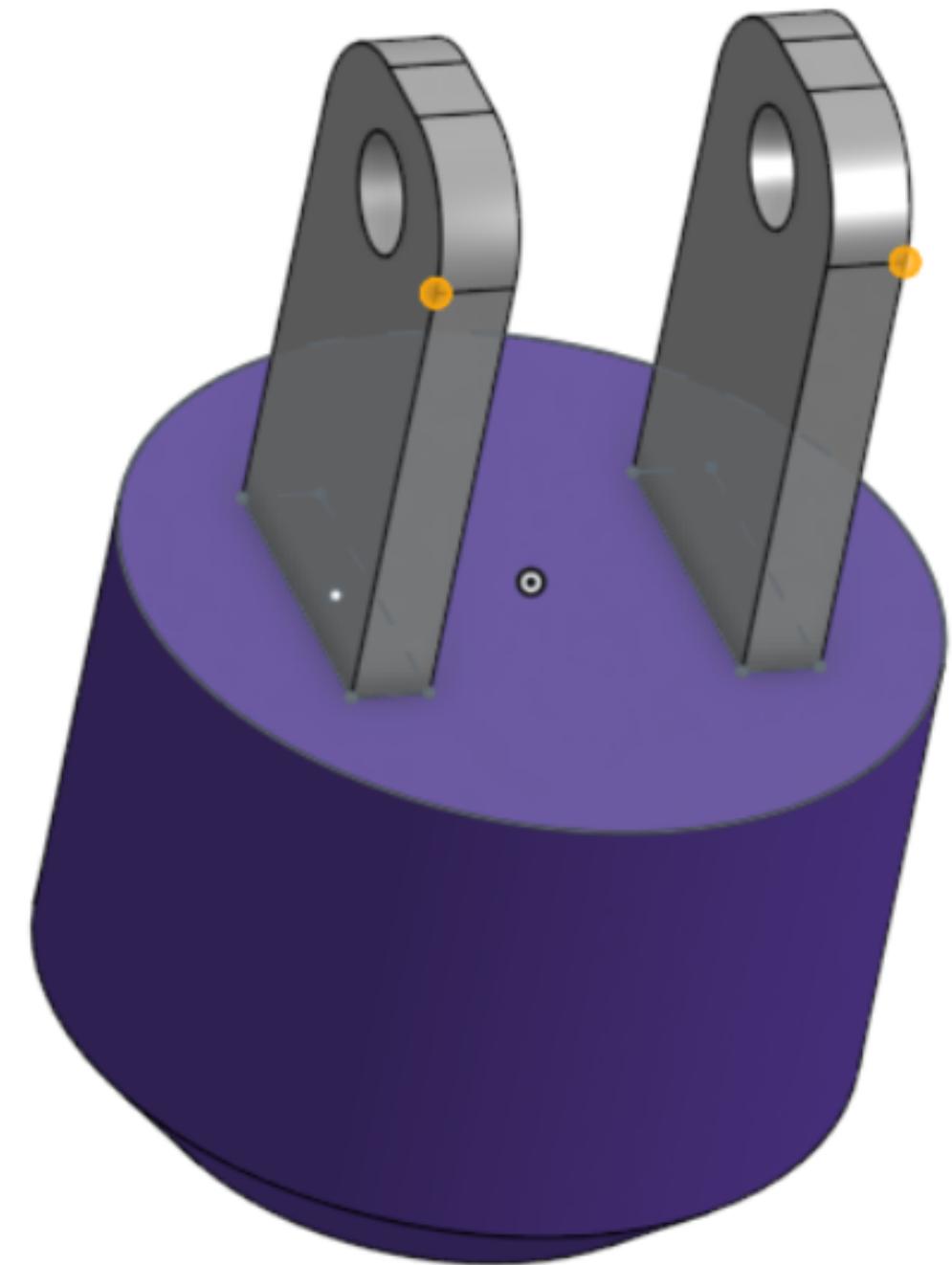
Lxx	202.703	Lxy	0	Lxz	0
Lyx	0	Lyy	202.703	Lyz	0
Lzx	0	Lzy	0	Lzz	236.095

Icons: checkmark, red X, camera, cube, 3D model, scale, ruler, protractor, balance scale.

Usando esta ferramenta é possível calcular o volume, posição do centro de massa e peso do objeto!



Medições de distâncias, raios e áreas



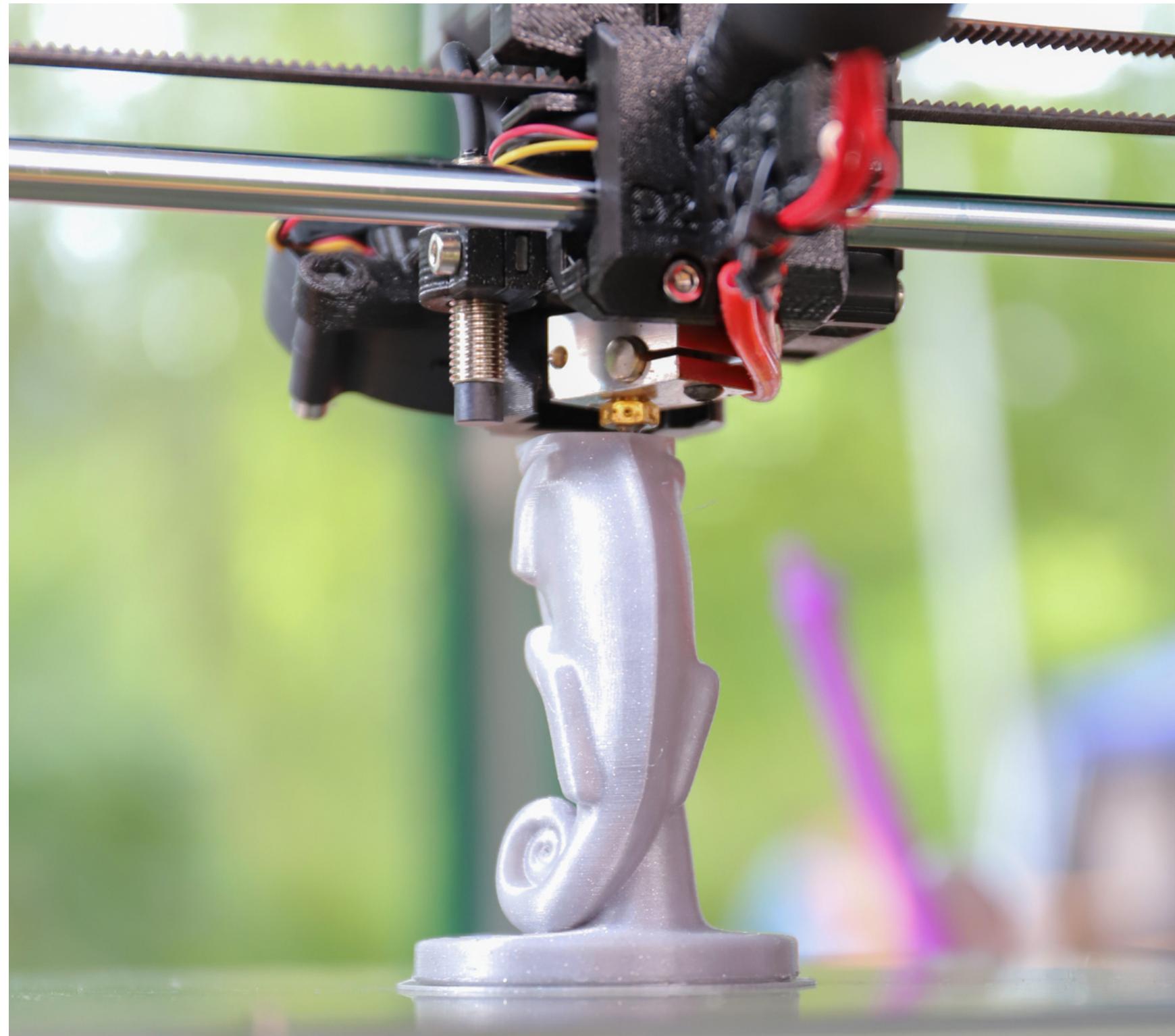
Usando este recurso podemos medir distâncias entre pontos, planos, retas, etc. Também é possível medir raios e áreas.



PARTE 4:

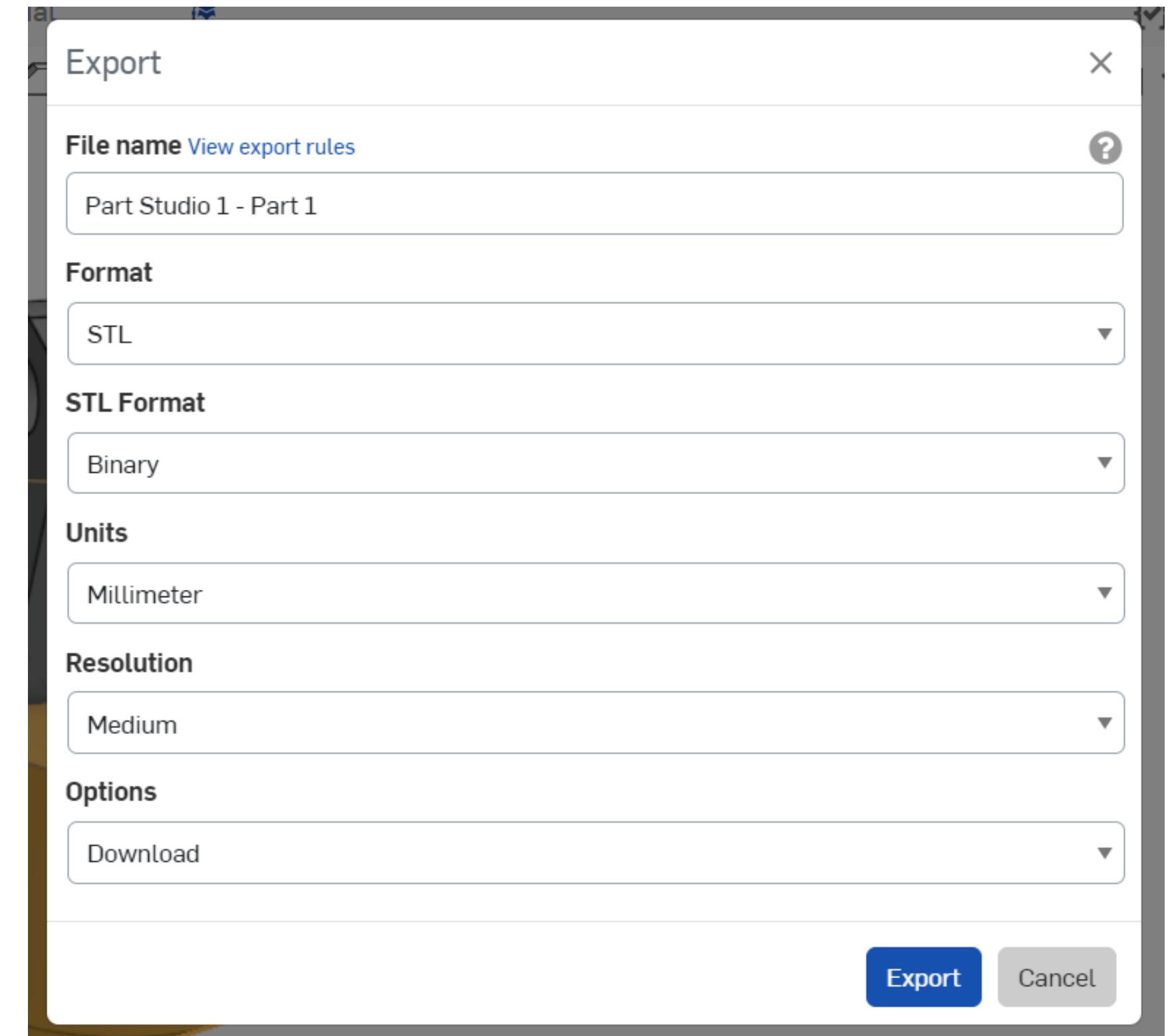
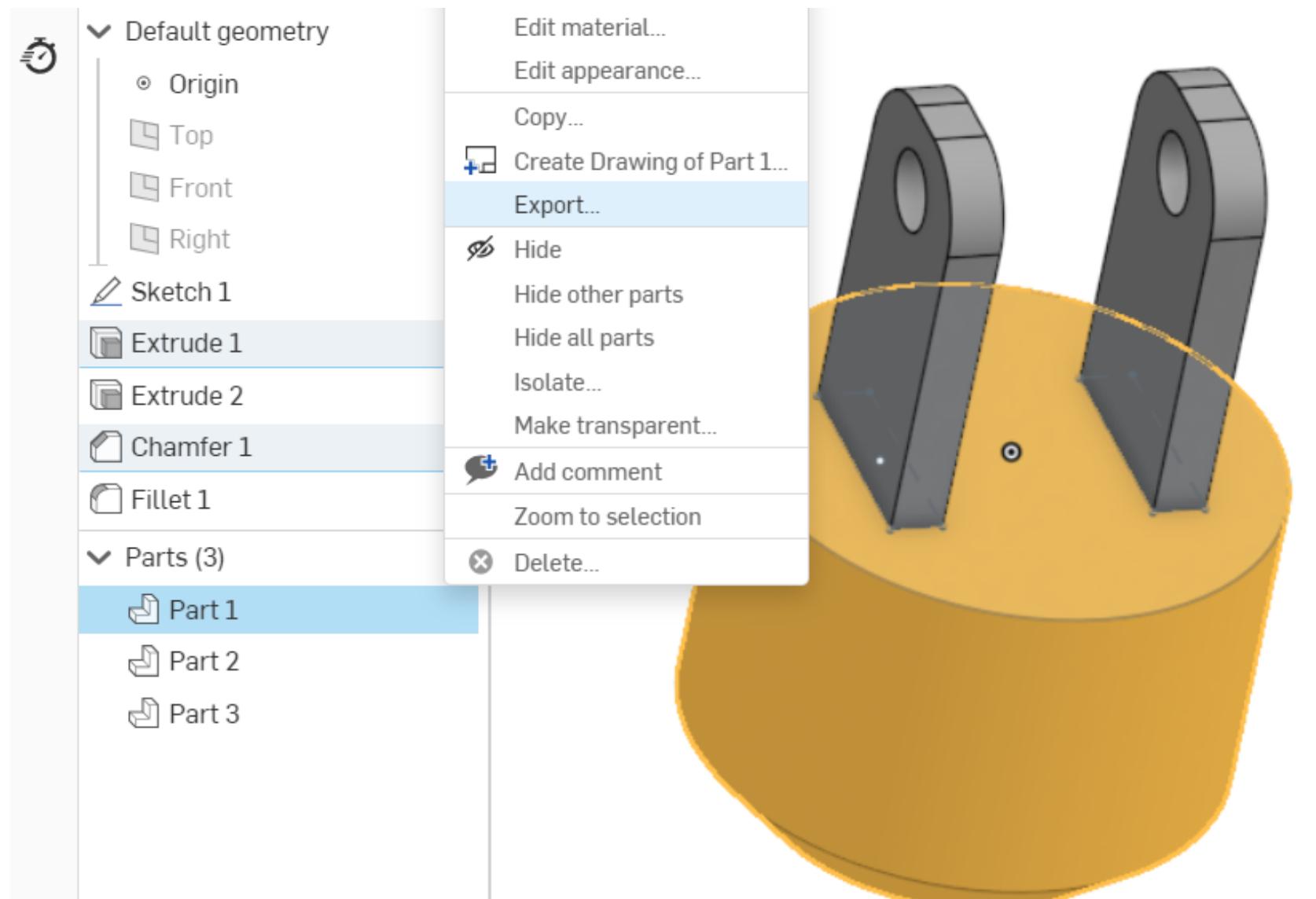
Exportando STL

Exportando STL



Para impressão 3D o formato STL é um dos mais utilizados. Ele descreve um modelo sólido 3D.

Exportando STL

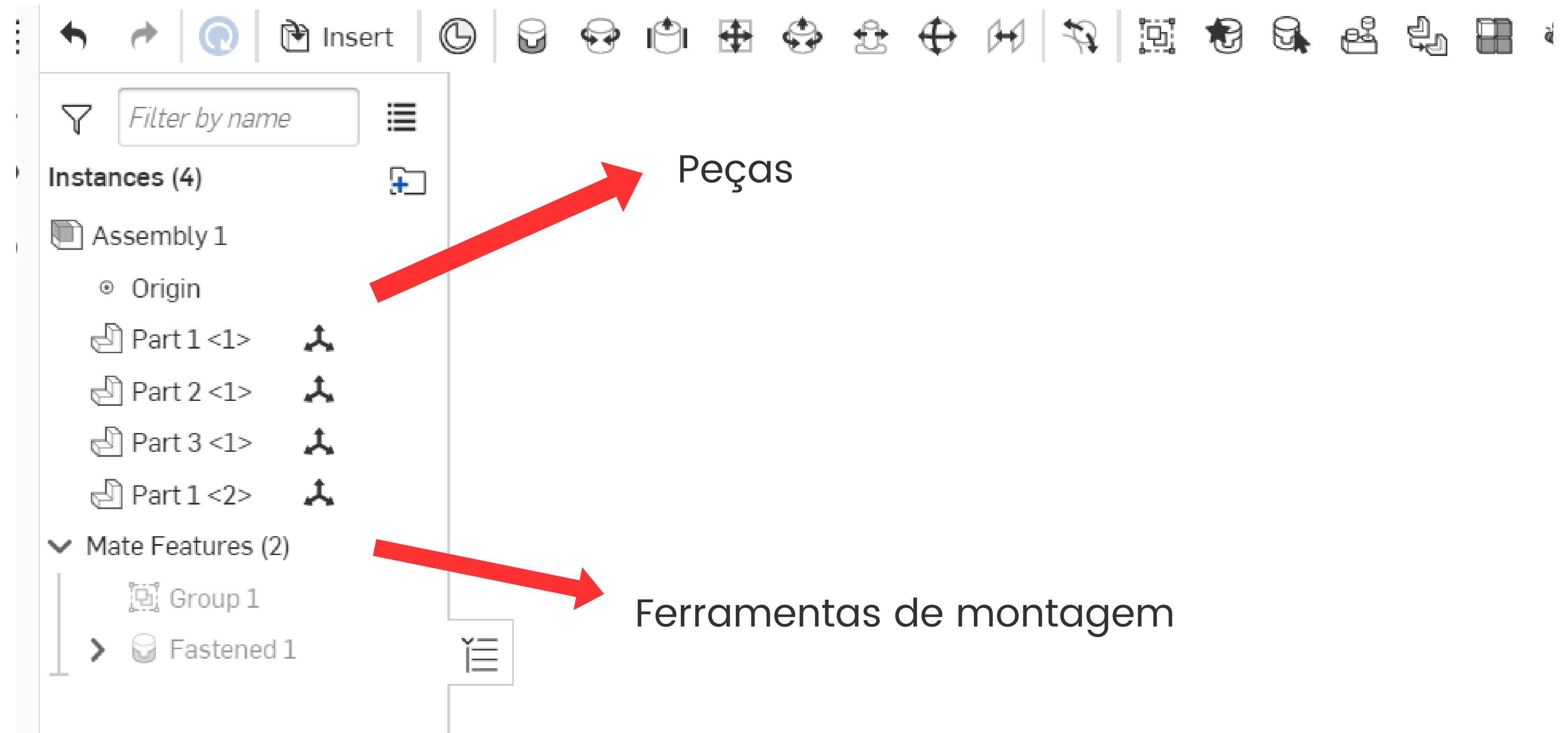


Clique com botão direito na peça que deseja exportar, depois clique em export.
Em seguida verifique o formato e a unidade. pronto o arquivo será baixado!

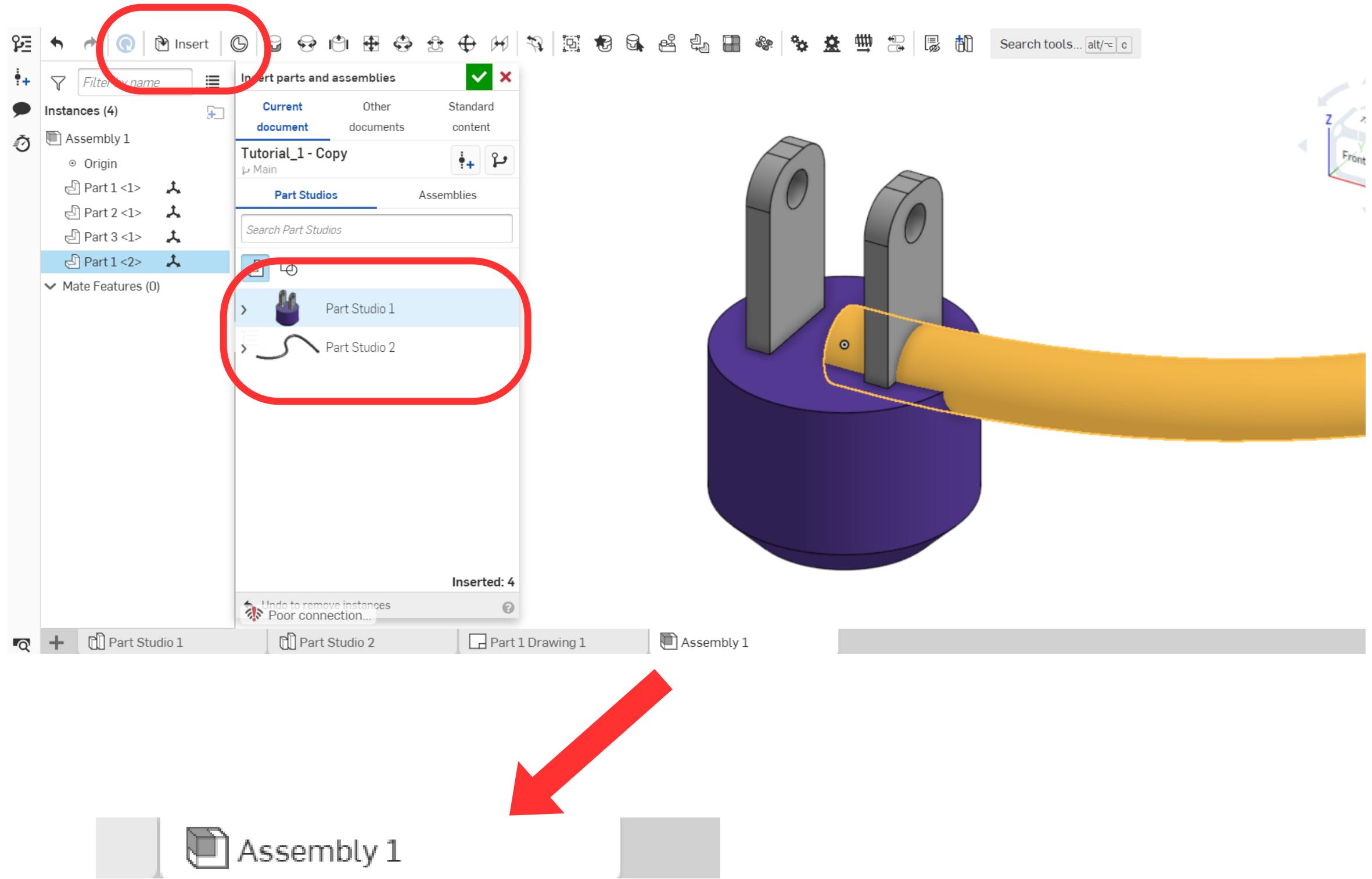
PARTE 4:

Fazendo uma montagem

Montagem

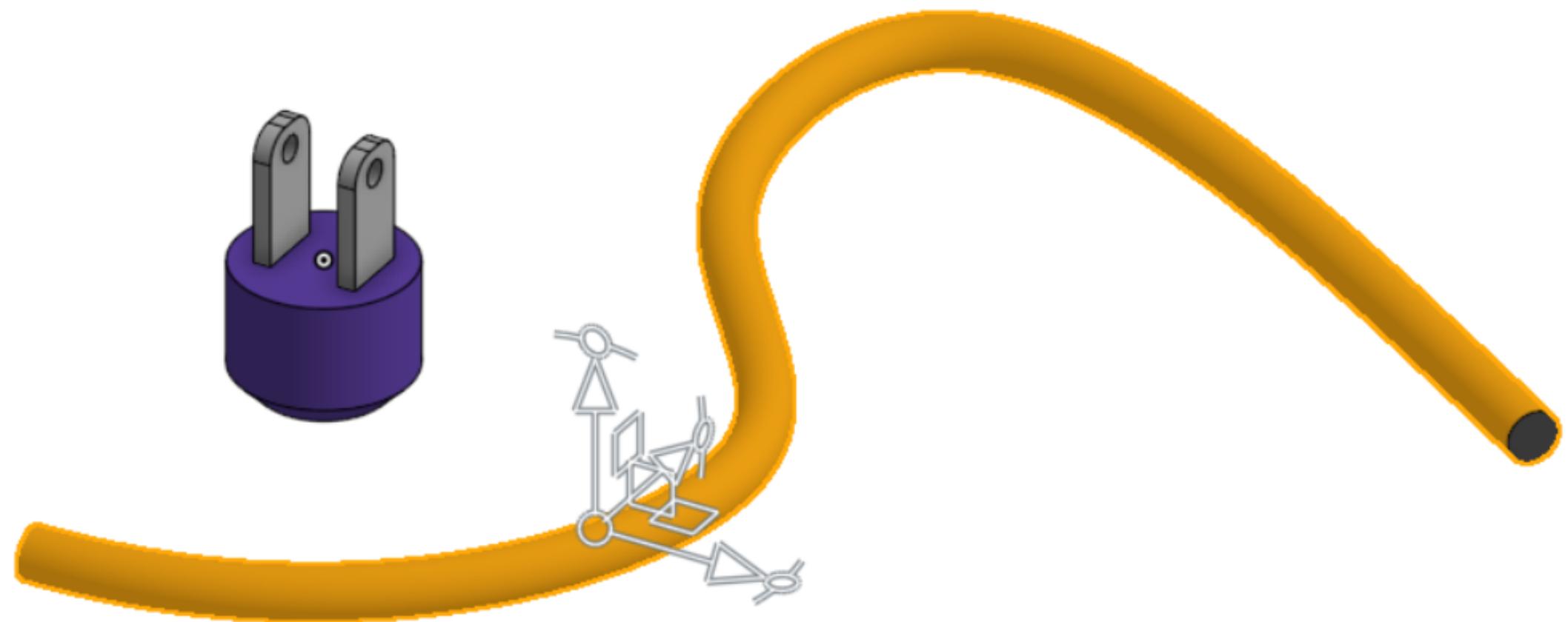


Inserindo peças



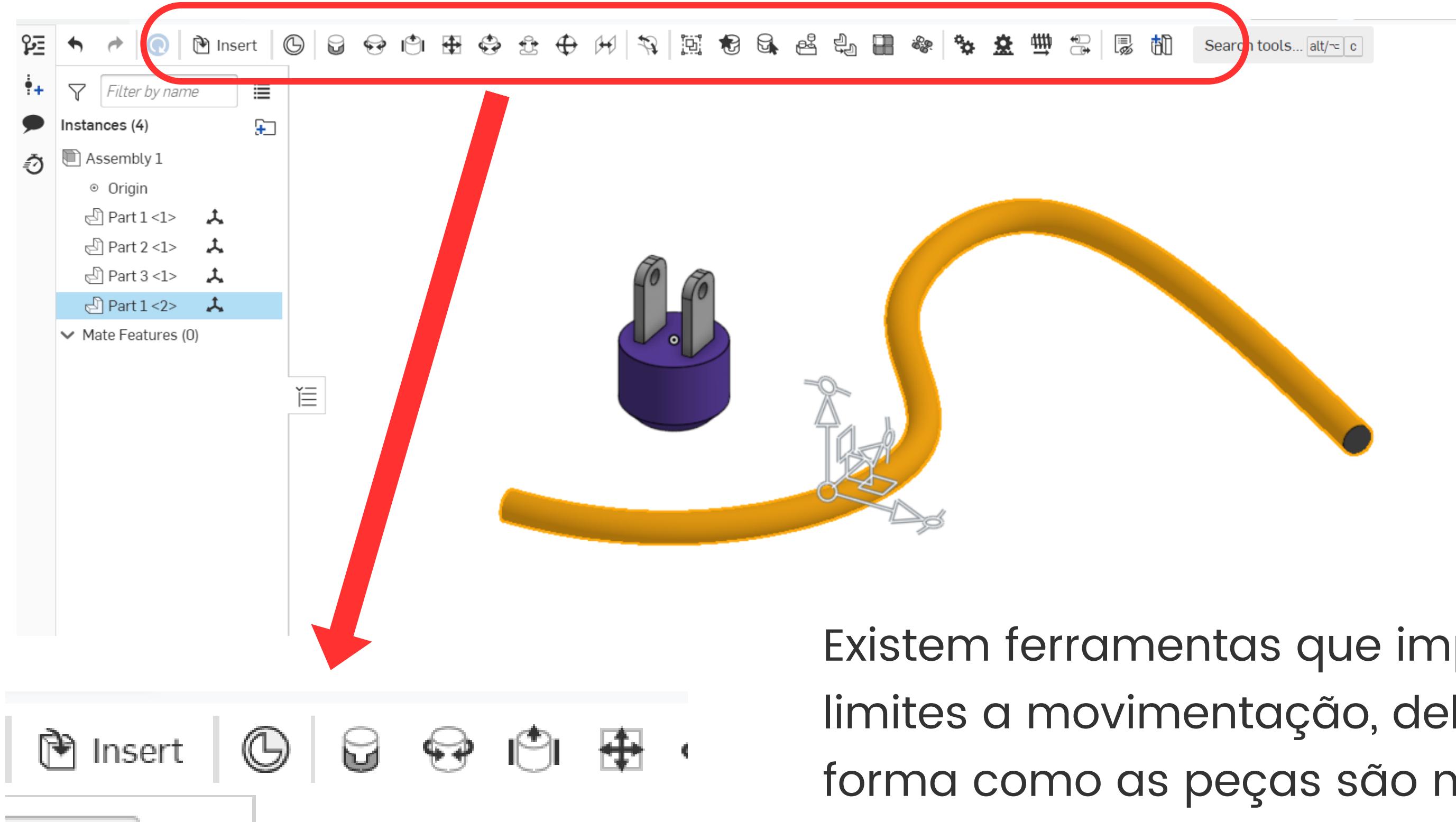
Primeiramente
adicone as peças
usando "insert".

Montando...



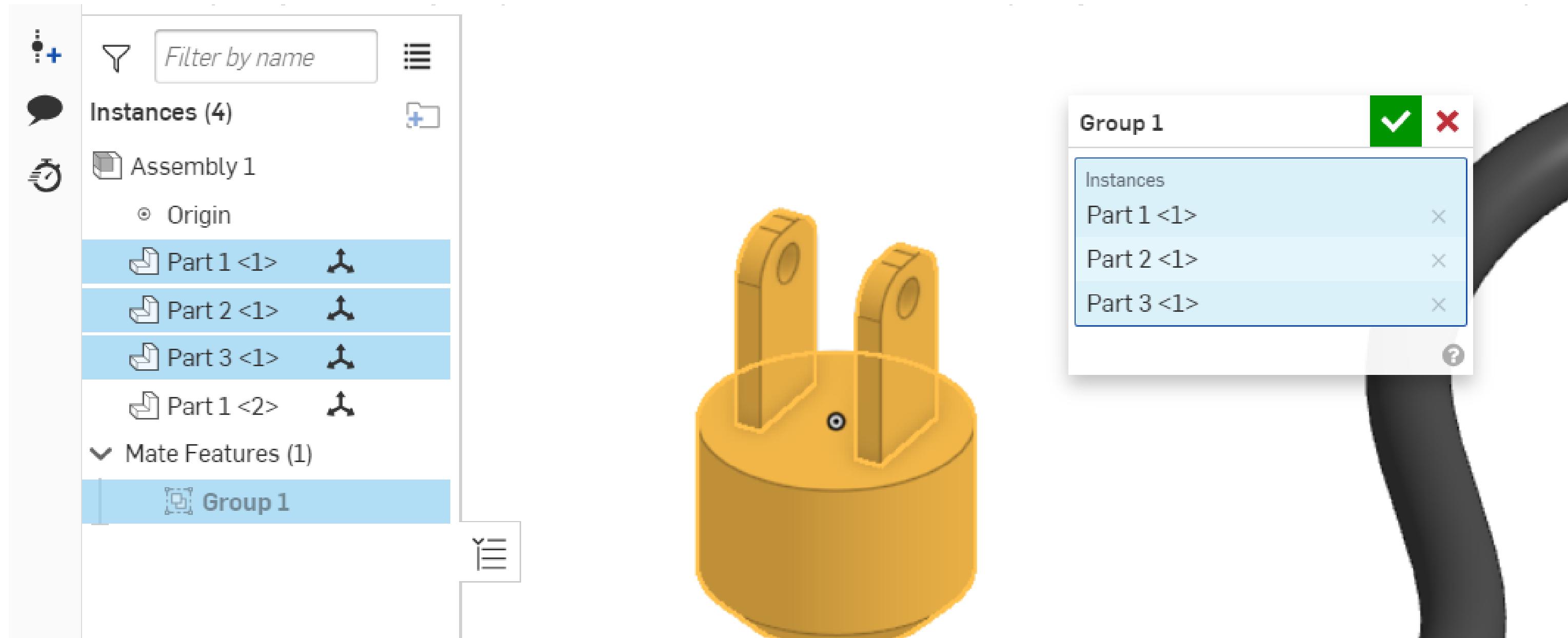
É possível movimentar
e giras as peças
livremente

Montando...



Existem ferramentas que impõem
limites a movimentação, delimitando a
forma como as peças são montadas.

Agrupando



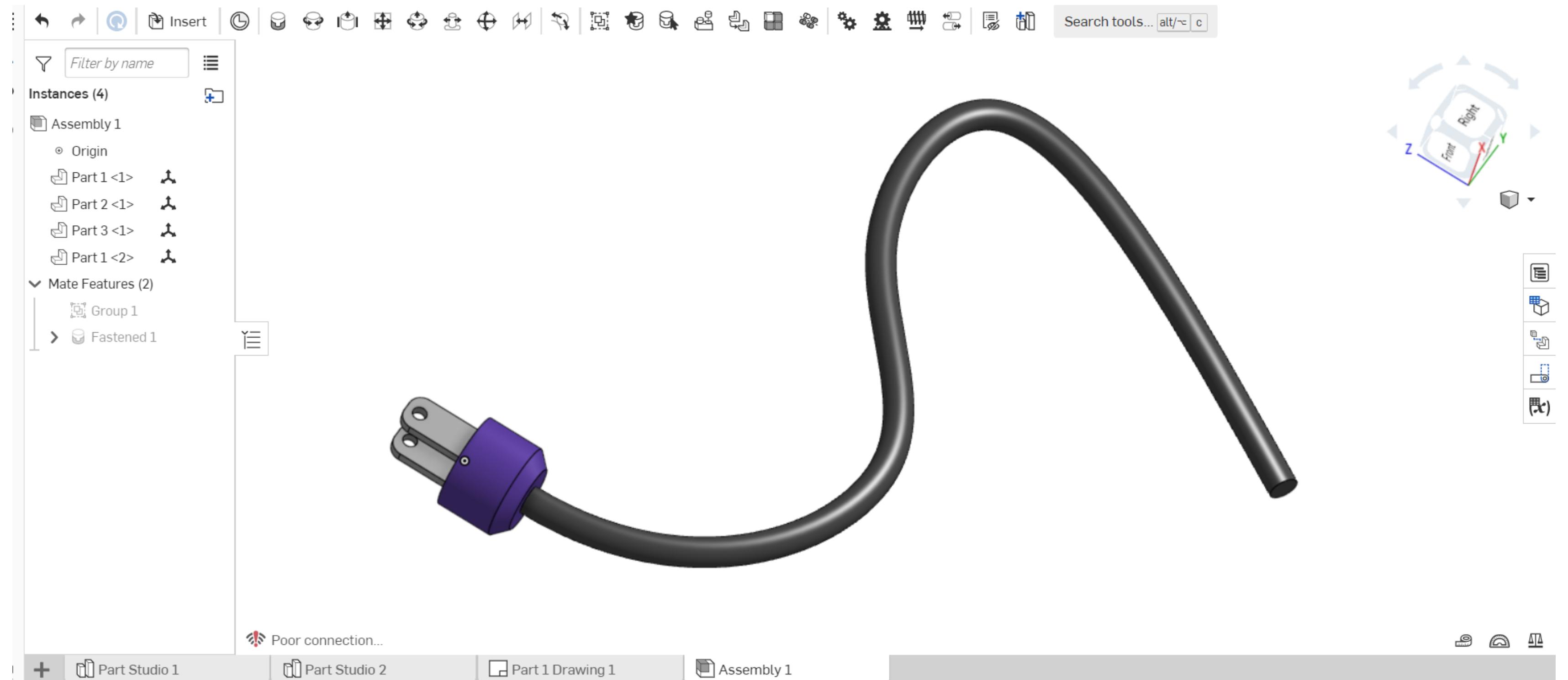
este recurso permite agrupar peças do jeito em que estão

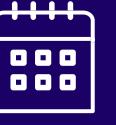
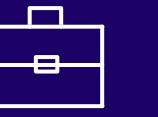
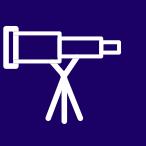
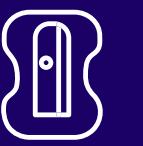
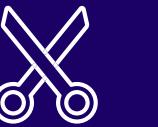
Fastened mates



Permite unir duas faces
através de mate connectors.

Ao final...





Fim

Ainda há muito mais para aprender,
mas por hoje terminamos!