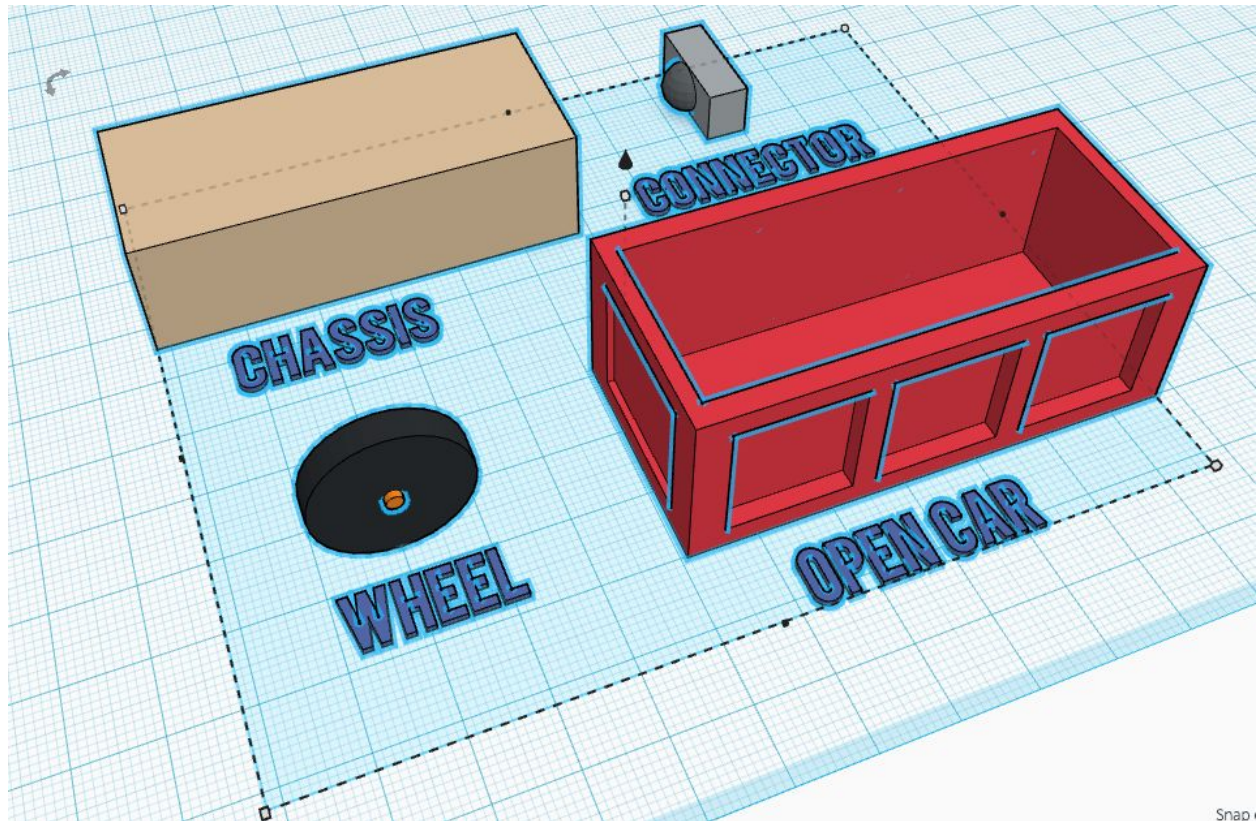


Hello kids,

See the image below. Remember this from Lesson 1?



This is what we have to do now for the last part of this assignment:

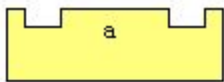
To make working (riding) train wagons, we need to print the parts separate from each other and put them together after printing. Since you have been able to 3D design complete parts, you are already familiar with the sizes and measurements and such.

How do we make the wheels moving?

We make the wheels moving, by attaching them with a nail, or clip-on wheels. That is up to you to decide. A clip-on system is more difficult to design than just leaving a hole in the wheels for a nail, but more difficult designs add into a higher grade.

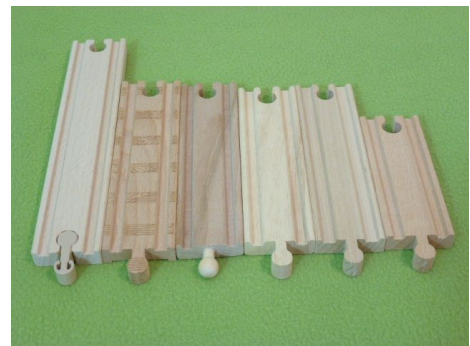
What are the measurements of the cars?

Well, that is also up to you. I will give you the measurements of the track, so you know how to build your wheels and chassis.:



Track grooves are 3 mm deep, 5 mm wide and have 20 mm between them.

The tracks themselves are 40 mm wide and 12 mm high.



After printing, how do we put the parts together?

Non movable part will be glued, for the movable parts you have to come up with a solution yourself. Think about, screws, nails, wire, paperclips, skewers or just design it in Tinkercad itself!

How do the cars connect?

That's also up to you. You can use magnets (easy) or use hooks and such. Be innovative!

You only have black and white as print material. I want colors!

That's possible. I have special paint in all colors to paint them after printing.

When is it due?

Since this is the last project of the year, we will be presenting our trains on the day of our final. You will get a grade then also.

How will you grade?

See the rubric attached to the assignment.

Can we test if our cars will ride?

Yes. I will make sure there is a track in the classroom, so you can test it.

Does it really have to be 3D printed?

Yes.

Do you have some ideas for cars?

See the link in the google classroom assignment.

Can we work together?

Yes, maximum of two. Fill in your names in the sheet that is attached to the assignment.

How many cars do we have to make?

The more the better. But let's say, make a locomotive and two cars as a minimum.

GOOD LUCK!

Mr. Pieter

TIPS:

Personalize! Create a caboose. Add stores, commodities, dry goods, or other supplies to the freight cars. Or add people, animals, aliens, or passengers of any sort.