

## Getting Started with Algodoo – Building your first rocket car



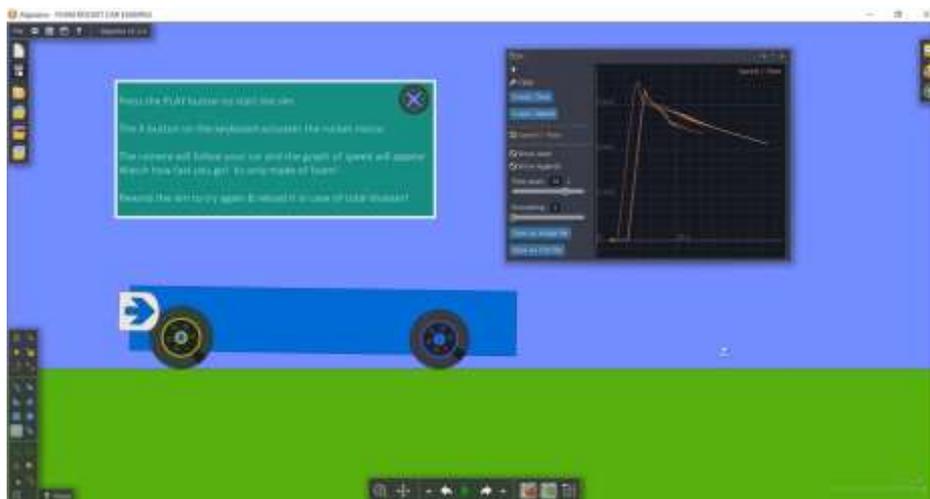
Algodoo is simple but powerful physics simulator. It is available on PC and MAC for free and can be bought as an app for Apple tablets. In Algodoo you can draw and connect all manner of objects with hinges, gears, axles, chains and springs. You can then power your creations with motors or even rockets!

Gravity and air resistance are modelled in the simulator and can be adjusted or turned off, meaning you can invent and test machines that might work in outer space!

**A simple model of a Race For The Line is available to download from here:**

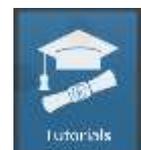
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The instructions are built into the sample scene....



After you have tried that, and maybe crashed a few times by making your little foam car go too fast, you are ready to have a go at making your own cars and other machines. But first....

**Do the in-built tutorials.** They will only take a few minutes but will teach you all the main functions of Algodoo and how to create your own inventions. Look for this icon to launch the Tutorials. They should take about 10 minutes to complete.

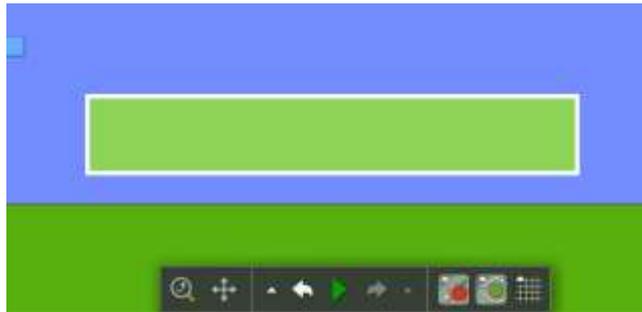


## Making your own rocket car

Click the NEW SCENE ICON  You should have a new world with a surface at the bottom.

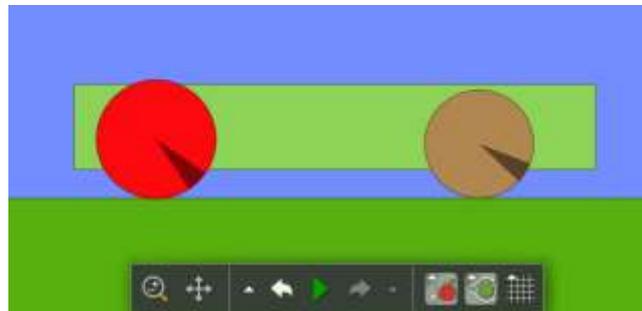
Draw a rectangle for the body/chassis of your Rocket Car using the RECTANGLE shape tool. Put the car body just above the ground. 

It should look something like this.

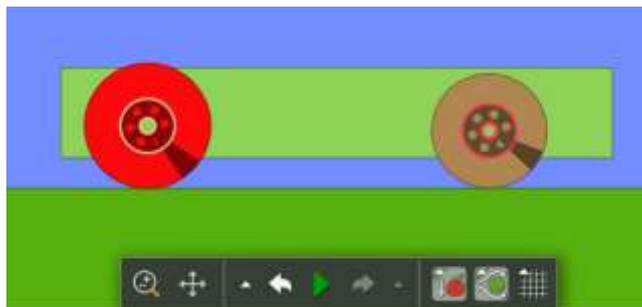


Now let's add some wheels!

Get some CIRCLES  from the toolbox and locate them with the centres overlapping your box.



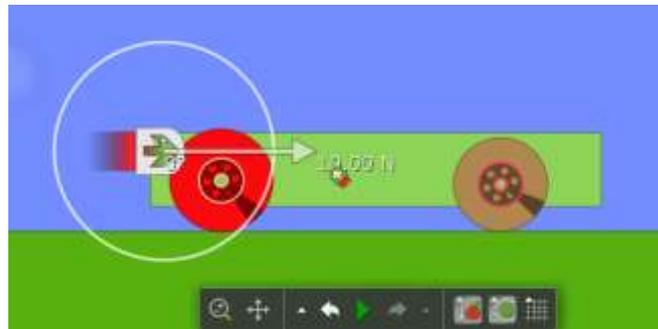
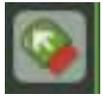
To make our car work our wheels need axles. Use the AXLE tool from the toolbox and tap to put an axle in the middle of each wheel. If the centre of each wheel is over the rocket car body, this should connect them together. 



Our car is now ready to be powered by a rocket!

### Let's add a rocket motor!

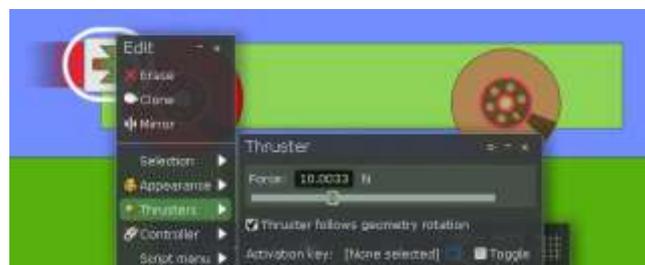
The THRUSTER icon is in the tool bar. Click it and then click a place on the car body where you want it fixed. You can then move the mouse or your finger to set the strength and direction of the thruster. When you are happy let go.



Now we are ready. *Just don't press play yet...* The rocket will activate immediately and the car will go out of sight!

### Let's give some manual control to our rocket...

Right click or long press/tap the rocket. Its menu should appear.



Use the *Activation Key* options and choose a letter (*avoid SPACE and RETURN as the program already uses those*)

Now press PLAY...



and then press your selected rocket control letter.

### Oh... where has it gone???

If your car disappears, just use the rewind icon to bring it back and then right click the car and then go to SELECTION and then click the *Follow* tick box. It will now stay in sight.

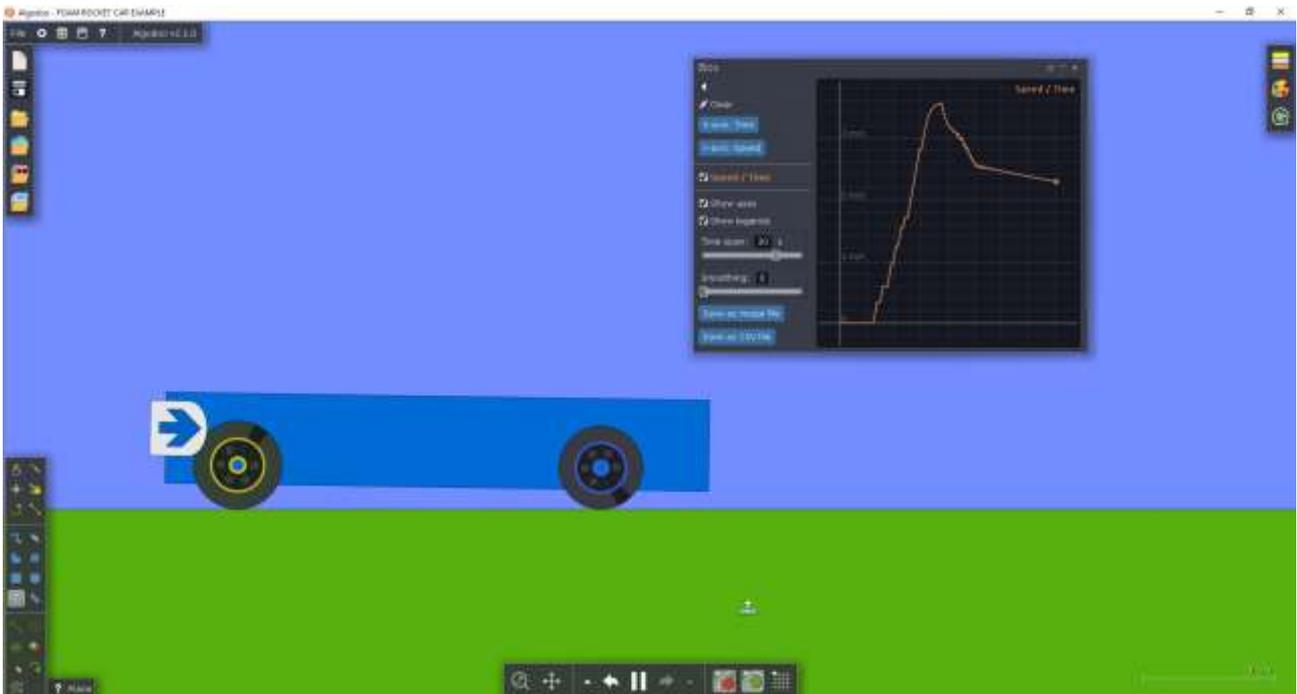


## Next Steps

If you right click an object and go to APPEARANCE, you can change its colour.

From the same selection menu, you can go to MATERIAL and transform the object into something else lighter or heavier, bouncier or with more friction. You can also manually set the density and other properties (*just don't set the density lower than air or might float away!!!*)

One of the most powerful functions is the **virtual data-logger**. If you right click the car you made and choose **SHOW PLOT**, you can decide which measures you want to record. How many m/s can it go before it becomes unstable?



When you are ready to explore more, you can also follow the LESSONS link in the menu for loads more ideas.