

Engineering with Legos : Catapults & Trebuchets

Name: _____



Race Cars 101: Building a Race Car

To build a race car that will not only go fast but also stay together, we need to learn how to construct a car properly! This worksheet will go over the basic steps in engineering a race car.

Car Chassis

The chassis of a car is its main structural foundation. It is kind of like the "skeleton" of the car. It keeps everything together and needs to be strong in order for the car to work properly. Can you imagine if all your bones in your body were weak and you tried to run in a race?

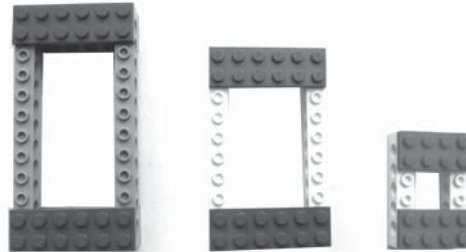
Pass out this weeks worksheets

- Pass out worksheet and read through it with the students.

Chassis: What is a chassis? A chassis of a car is its main structural skeleton that holds everything together. If this part is not strong then the car would just break. It's kind of like your bones that hold everything together. What do you think would happen if we didn't have any bones?

Chassis has to be rigid and when engineering LEGO cars they are usually rectangular in shape.

Here are some examples of what a basic car chassis made from LEGO blocks look like. Can you build all 3 examples?



Next, try putting wheels on each of the chassis and make them roll! The easiest way is by using the appropriate length axle that fits through the chassis. You might need to use some bushings so the tire rubber doesn't hit the chassis and stop the wheel from spinning.

Make sure the wheels spin freely. Sometimes the wheels are pushed to tightly and you need to loosen them slightly!



Have you completed all the challenges? You'll soon be on your way to building one fast race car! Can you engineer a unique chassis unlike the ones in the examples above?

Challenge 1 - Individual build

Build 3 different sized chassis and put wheels on them. Chassis must pass instructors inspection. They must be rigid and the wheels need to spin freely

Challenge 2 - Individual build

Build a custom Chassis. The car must pass the drop challenge. Drop the car from about 5' in the air. If it doesn't break then it passes.

Challenge 3 - Individual build

-Start trying to build the rubber band powered car. (next weeks lesson)