Dimensions needed for intro project:

These are some of the dimensions you should keep in mind when designing your payload intro project rover.

Size Constraints:

The entire rover must fit within a tube with a **6 inch** inner diameter, and an overall length of **24 inches**. You should minimize the length that your rover takes up, as the parachutes and other equipment must take up space within the rocket as well.

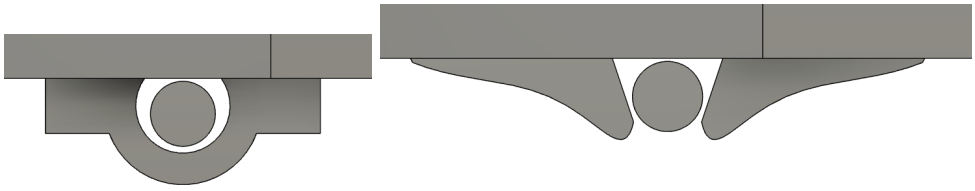
Wheel + Tire:

Depending on the tire you chose, the diameter of the wheel and tire assembly will vary. The wheel diameters will be either 43mm, 37mm, or 50mm depending on the style of your tire. You may either verify this using a part number, measure it yourself with calipers, or assume the highest wheel diameter of 50mm (2 inches), and design your rover to support all tires.

Axle:

We will be purchasing 10 inch long axles and cutting them down to the desired length for each rover. You may make your axle as long or short as you wish, provided it meets the above size constraints and provides enough room for wheels to spin properly. The axle is in an X shape to index with the wheel holes, however particular care should be taken to avoid locking your axle and preventing movement.

Your axle holder should accommodate a circular hole to allow the axle to spin freely. While the axle is 0.2 inches in length, we can approximate this to a **0.25 inch diameter rod**, to allow for clearances and inconsistencies in printing. One design for an axle holder is a circular bracket which can be part of the rover body. This allows the axle to be slid into place, and then the wheel assemblies can be pushed onto the axle, locking the axle in place and still providing free movement. Another design option is to make ramps leading up to the axle. This allows the axle to be easily slid into place with the wheels attached from below the rover, then the wheels can be removed by lifting the rover. **We encourage you to be creative with your axle mount design and experiment with new ideas.**



Design 1: Axle bracket

Design 2: Axle slot