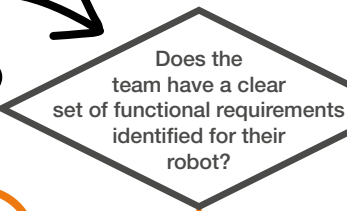


# PROTOTYPING IDEAS

## 3



Go back to "Developing ideas" flowchart

Before students make the prototypes for the mechanisms, they should look back on their Robot Priorities list, and remind themselves where they should spend more time on each idea

### \* MANIPULATORS

One group of two or three students should not prototype manipulators, but instead they should prototype the drivetrain they decided on last session

Remember, the students shouldn't be perfecting the drivetrain, these are just rough prototypes

If they struggle with the design, make sure they watch the playlists on the FTC UK & Ireland YouTube Channel on drivetrains

If they have time in two sessions, they should put the drivetrain to test and see if they can run it

This group will keep working on the prototype for the drivetrain until the next Milestone, which is when the whole team will decide on final manipulator designs

Split groups into two or three per mechanism and make them sketch their ideas first before making anything

This is where ideas start coming to real life, but remember, not everything needs to come to life, just things students want to make work

The prototypes being made now are only proof of concept, students should be making their mechanisms out of cardboard, "Cardboard Aided Design," and keeping them simple

Pair up similar prototype groups with each other, so all launcher manipulators subgroups are together, all intake manipulators are together, and all manipulation manipulators are together

In these subgroups, the students should show their prototypes and talk about how this mechanism will work on the robot

These pairing up sessions will be helpful to cut down on some unnecessary designs, as well as improving each other's designs

Information on manipulators can be found in the Mentor Handbook and should be referred to if students get stuck on the design of a manipulator

The purpose of this session is for students to **learn how something works**, so their prototypes do not have to be overdeveloped as long as they show what their idea does

This pairing up exercise will occur at the end of every session for prototyping



After the subgroup discussions and narrowing of ideas, redistribute the students into their individual manipulator groups

In this stage of iteration, the cardboard prototypes have to be made out of metal. The students should improve their designs from the manipulator meetings

Take two sessions to make these prototypes and **test** how well they work

This wraps up the first initial prototyping sessions for the students

These tests should be specific. Students should be able to say at the end of these sessions, "we shot 100 times and scored 75% of the times"

