## Lesson 11 – Activity Sheet

## Getting Started

Iterative design and prototyping will enable you to build and perfect your vehicle, however if you are going to market and sell the vehicle you will need a way to mass produce this design to keep down production costs. We cannot hand make every model!

Mass-production will be key to the commercial success of your vehicle. So we will need to:

* Perfect the design
* Trial the model
* Produce a mass production model

## 

## Success Criteria

* Create prototypes of your design using an iterative design cycle
* Trial your body shell for the racing Bit:Bot have the best chance of winning your race
* Test and refine your designs using time trials
* Produce a mass-production model of your design

## Pro-tip

## You will need to consider weight, friction, aerodynamics, branding and style

## Make sure someone in your team is in charge of each of these activities

## Make one change each cycle so you can identify which change made what improvement

## Make sure you are accurate with your measurements

## Test Time

* Time an empty Bit:Bot in a straight line and record as a baseline
* Complete an iterative development cycle and complete the test table like below to record your findings following each run
* Identify the best design to protype
* Does your mass production net match your design – what compromises needed making
* Share your mass-production instructions with a test group and take feedback and adjust

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Run** | **Design Version** | **Change Made** | **Time** | **Expectations** | **Difference from base line** | **Negative Notes** | **Suggested change for next cycle** |
| 1 | Base Line | None | 35 Sec | Getting a base line, no shell so expect to be quick but no way of protecting occupants | N/A | No body so no way of keeping occupants safe | Design 1 – basic body shell |
| 2 | V 1 | Initial bodyshell design | 60 Sec | Should be a little slower due to the added weight | +25 seconds | Design covered wheels and caused them to catch and slow vehicle | Develop cut-outs/wheel arches to remove this friction point |

## Stretch Tasks

* Try different materials and designs, don’t just take your first idea
* Critique and Revise everybody’s opinion matters!
* What compromises will you need to make to ensure a functional, safe, good-looking and aerodynamic vehicle
* How could you improve your instructions? Build video? Photographs?

## Final Thoughts

* During today’s lesson we employed an iterative design methodology to produce our final design, we tested out design, identified improvements until we were able to produce the best version
* We then discussed the need for mass production and created a mass production net for our design