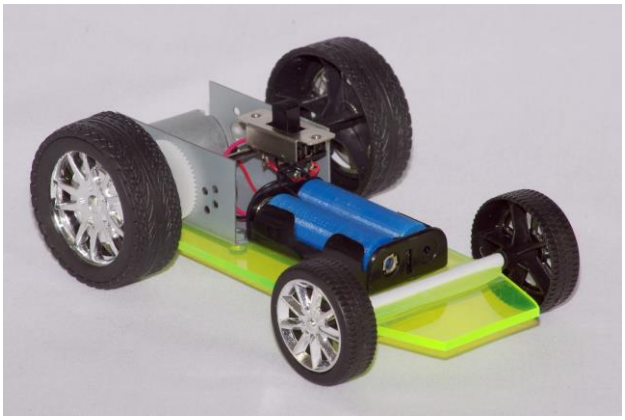
OVERVIEW

LO-RIDER (Code: LORIDER)

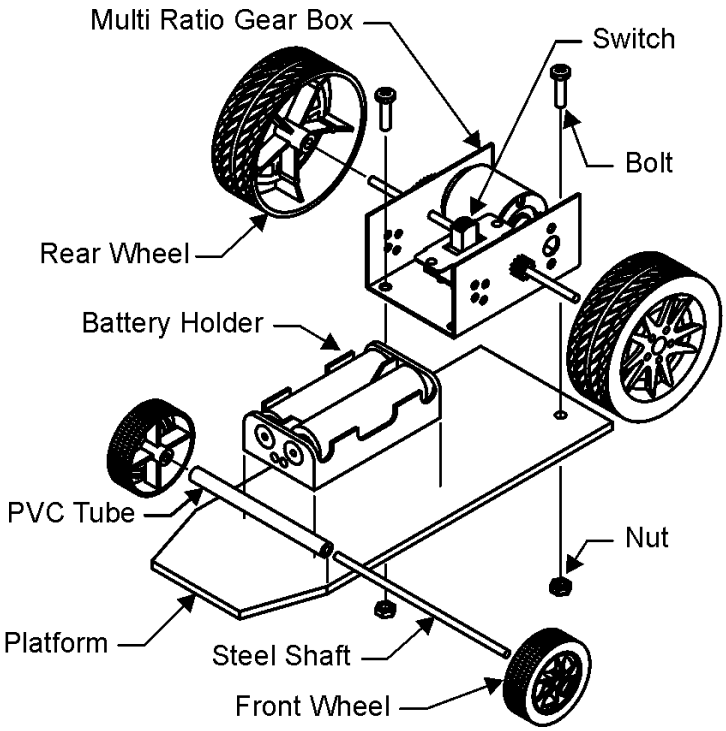
DESCRIPTION

The *LO-RIDER* is a basic four wheeled vehicle, with both front and rear wheels on fixed axles. This vehicle:

- ☐ Is capable of forward and reverse motion. The direction of travel is controlled by a two-way switch.
- ☐ Has a choice of two gearbox ratios which are selected at the construction stage.



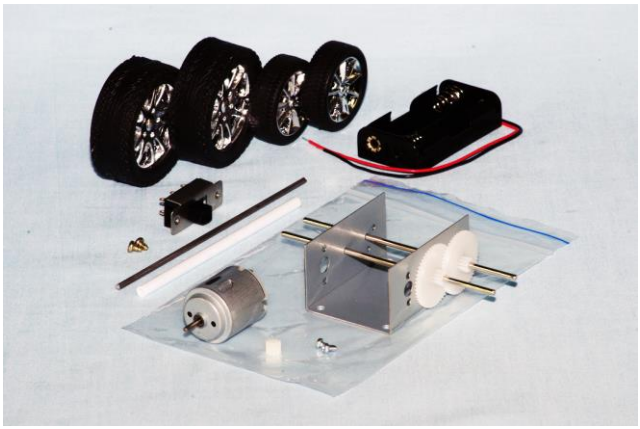
LEVEL:	Introductory
HOURS TO CONSTRUCT:	2 - 4 hours
SKILL DEVELOPMENT:	• Planning and Design • Manufacturing • Soldering • Mechanical • Electrical



OVERVIEW – LO-RIDER

WHAT'S IN THE KIT?

- ☐ All the mechanical and electronic components required to make the *LO-RIDER* work including the motor, gearbox, wheels and axles, battery holder and switch.
- ☐ A detailed teaching unit with a complete parts list, design suggestions, and general construction guidelines.



WHAT ELSE IS NEEDED?

The following items are required and are available from Scorpio Technology, but need to be ordered separately:

- ☐ 2 x Battery – AA (BATTAA)
- ☐ Multi strand hook-up wire (WIREHU10)
- ☐ Double-sided adhesive tape (TAPEDS)
- ☐ We recommend the following spares when buying class sets of kits to replace parts damaged or lost by students:
  - Steel rod and Plastic guide tube (SRGTW – 5 of each in a pack)
  - Wheels - large (W52C2 – pack of 40)
  - Wheels – small (W38C - pack of 40)

The following material is to be supplied by the student / teacher:

- ☐ Material for the platform (PVC or acrylic sheet, plywood, etc.)

TOOLS REQUIRED

The following tools are required:

REQUIRED TOOLS	ORDERING CODE
Assorted hand tools – depending on the choice of materials to be used	-
Hammer	-
Ruler and pen	-
Craft knife	CRKNF
Soldering Iron and Soldering iron stand: – a good quality soldering iron, with a fine tip **or**	SOLDIRN SOLDIRNSTD
Soldering station	SOLDSTN
Solder: – 0.71mm 60/40 solder is recommended	SOLD250/SOLD500
Wire strippers	WIRESTR
Side cutters	SIDECUT or SIDECUTM
Mini Bolt Cutters	BOLTCUTM
Drill Bit – 2.3mm	DB2.3
Drill Bit – 3.5mm	DB3.5

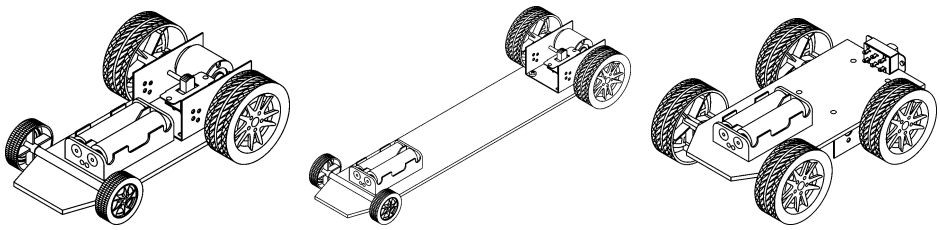
OVERVIEW – LO-RIDER

ABOUT THE PROJECT

The major features of this project are the planning, design, construction and assembly stages of a simple vehicle.

DESIGN PHASE

- ☐ Create your own unique *LO-RIDER* design based on our drawings which focus on component relationships, rather than dimensions. This provides scope for students to individualise their *LO-RIDER* design and increase their engagement in the project.



During the **Design phase**, students will need to:

- ☐ Evaluate the suitability of various materials, such as PVC, acrylic, plywood or balsa wood
- ☐ Determine the location of all components
- ☐ Decide which of the two gear ratios to use
- ☐ Evaluate available technologies that can be used, for example:
  - 3D printer
  - laser cutter
  - vacuum former
- ☐ Take into account weight distribution and ease of operation
- ☐ Consider the practical aspects of construction and assembly. For example, clearance for the wheels

MAKING / CONSTRUCTION

Once the Design process has been completed, the students will be able to start **building their design**. They will:

- ☐ Make the *LO-RIDER* platform they have designed
- ☐ Mount the motor, gearbox, battery holder, switch and guide tubes on to the platform
- ☐ Wire up the battery holder, motor and switch
- ☐ Mount the wheels onto the axles
- ☐ Test and adjust the *LO-RIDER*
- ☐ Troubleshoot any problems!

DOES THE TEACHING UNIT INCLUDE ANY THEORY?

The Teaching unit has a THEORY section that covers

- ☐ Gears and Gear Ratios

For more information and ideas, go to our website:
https://www.scorpiotechnology.com.au/kits-in-action