



Y6 We Are Engineers: Chesswood Festival of Speed (Goblin Cars) — Knowledge Organiser



Key Knowledge

Learn this information

Know how to use each tool safely and correctly:

General:

- Use a hand tool for the job it was manufactured to perform.
- Inspect tools for cracks, chips and wear. Discard damaged tools promptly.
- Be sure handles are fixed firmly onto tools working end.
- Make sure you know what you are doing before you start.
- Position your body securely while working with the tool.
- Wear eye protection.
- Always tie back long hair and tuck it out of the way.
- Make sure any loose clothing (tie) is tucked away or rolled back/taken off.
- **Concentrate!** No matter how trivial the task seems.

Hammer:

- Strike the hammer with the face parallel to the surface being struck. Glancing, off centre blows can throw dangerous splinters into the air or catch fingers.
- Do not use a hammer to strike another hammer.
- Never use a striking tool with a loose or damaged handle.

Screwdrivers:

- For fitting the Goblin floor panels you will need to drill the holes first.
- The blade tip should fit the slot in the screw without hanging over the edge.
- Do not strike a screwdriver handle with a hammer - it may break/ slide off.
- Never use the handle as a striking tool.
- **Concentrate!** - If the blade slips, you could get hurt.

Electrical Equipment:

- Make sure you use the correct size drill bit to drive in a screw. If you use the incorrect size the bit may slip off.
- Make sure all wires are out of the way of not only your working area but also anyone who will be moving around that area.
- Make sure all electrical tools are turned off after use and put on a bench that is out of the way and safe.
- Do not touch the drill bit immediately after operation - it may be extremely hot.

Moving parts

The Goblin does include moving parts. The car should never be worked on with the batteries connected. No one should be wearing baggy clothing that may get stuck in moving parts (e.g. tie) and long hair should always be tied back.

Electrics

The batteries are heavy and should be moved with great care. *Electricity is dangerous - touching both terminals of the batteries with anything metal will result in a burn.*

Team work

By working together in groups or pairs, risk of injury is greatly reduced.

Getting in and out of the Goblin

Always make sure the Goblin is turned off before getting out. The driver should exit from the left hand side (the side without the wires running along the chassis). The next driver should get in from the same side.

When exiting or entering the car the driver should hold on the brake to stop the Goblin from moving.

When the driver is in the Goblin they are in control and no one else should be turning the car on or off.

Testing the car

The car should be tested in a big enough space to allow easy manoeuvring with plenty of run off.

Please note; the Goblin should never be lifted from the back axle and the button pressed to test if it is working.

Key Vocabulary

Understand these key words

Word	Definition	Word	Definition
Vehicle	A machine used for transporting people or goods.	Chassis	The base frame of a car, carriage, or other wheeled vehicle.
Motor	A machine powered by electricity or internal combustion, that supplies motive power for a vehicle.	Steering	The mechanism in a vehicle which makes it possible to steer it in different directions.
Battery clamp	A brace, band, or clasp for holding the battery securely.	Assembly	The action of fitting together the component parts of a machine.
Axle	A steel rod that connects the front and rear wheels to the car. Responsible for turning the wheels when the driver accelerates.	Front	The side or part of an object that presents itself to view or that is normally seen or used first.
Roll bar	A metal bar that strengthens the vehicles frame and protects the occupants if the vehicle overturns.	Rear	The back part of something.
Tool	Often a hand-held device used to carry out a particular function.	Mount	Place or fix (an object) on a support.
Bodywork	The metal outer shell of a vehicle.	Wiring	A system of wires providing electric circuits for a device.
Drive pulley	A pulley that is attached to a power source, that when in use puts force on a belt (or cable or chain).	Logo	A symbol or other small design adopted by an organization to identify its products/vehicle.
Regulations	A rule or directive made and maintained by an authority.	Merchandise	Goods to be bought and sold.
Components	A part or element of a larger whole, especially a part of a machine or vehicle.	Portfolio	A collection of works or documents that are representative of a person's/groups skills and accomplishments.



Y6 We Are Engineers: Chesswood Festival of Speed (Goblin Cars) — Knowledge Organiser



A complete goblin



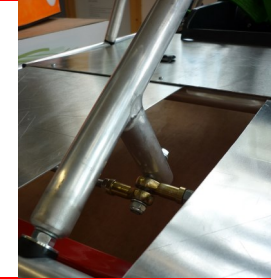
A complete goblin front



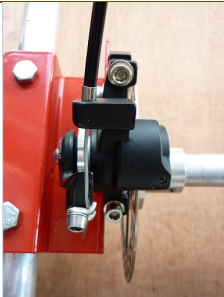
A complete goblin side view



Steering



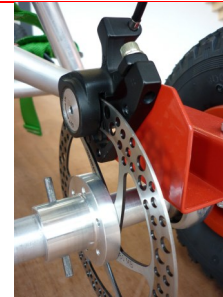
Top view of brake



Brake calliper



Brake calliper and disc



Steering wheel



Front left wheel



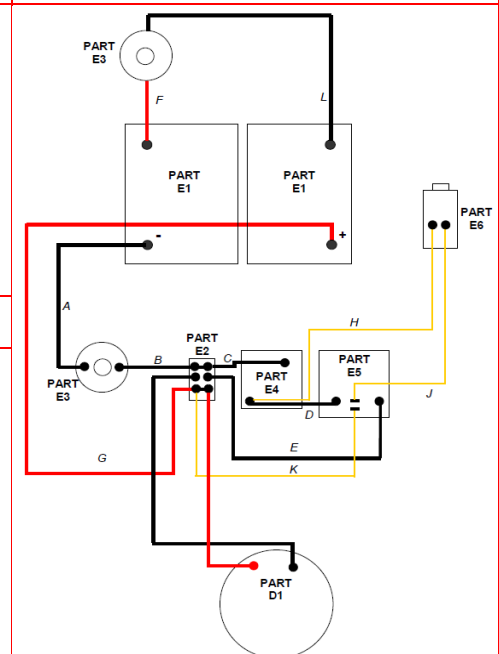
Wheel bearing



Wheel bearing and drive belt



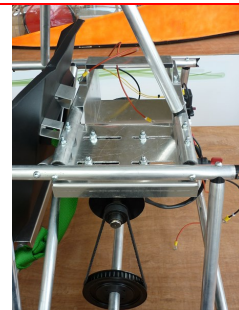
Goblin wiring diagram



Rear view of drive belt



Side view of drive belt



Rear electrical components

