



# EBJ Knowledge Organiser Design Technology Year 4

Autumn 1

Mechanical systems  
Slingshot cars

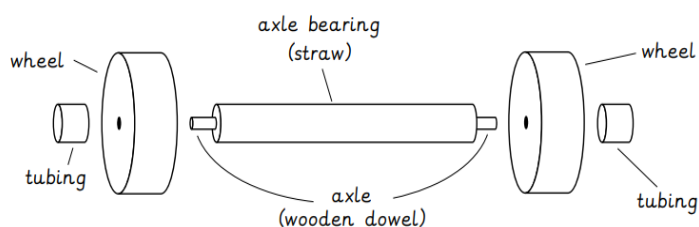


## Mechanisms

The parts of a machine that move are called a mechanism. When a machine has more than one mechanism, it is called a mechanical system.

**Wheel mechanisms:** the axle spins freely inside the bearing, while the wheels are secured to the axle so they spin with it, allowing the car to roll.

**Exploded diagrams** are used to show how different parts of an object fit together.

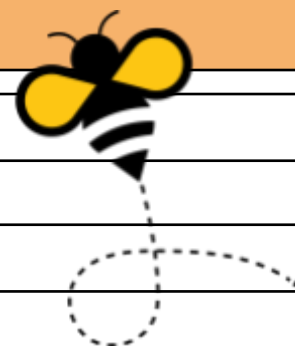


## How are cars designed to avoid air resistance?

Cars are designed to avoid air resistance by using streamlined shapes, smooth surfaces, and specific aerodynamic features like diffusers and spoilers. Key design strategies include making the body as smooth as possible, tucking in external components, and using specialised parts to manage airflow around and under the vehicle to reduce drag.



## Key vocabulary



Aesthetic	How an object or product looks
Air resistance	The level of drag on an object as it is forced through the air.
Chassis	The body of a car.
Design	To make, draw or write plans for something.
Design criteria	A set of rules to help designers focus their ideas and test the success of them.
Function	The purpose of an object ( for example c chair needs to hold a person whilst they are sitting down); or how the product works (for example a torch needs to provide light in a dark space)
Graphics	Images which are designed to explain or advertise something
Kinetic energy	The energy that causes an object to move.
Mechanism	The parts of an object that move together as part of a machine.
Net	A flat 2D shape, that can become a 3D shape once assembled
Structure	Something that has been made and put together and can usually stand on its own (e.g. a building, a bridge or a chair)