Mechanisms Matching Exercise

Student Name(s):_____

Teacher/Class:_____ **Date:**_____

Instructions:
Match terms from the word bank to the correct definition by writing terms on the correct line. Each term is only used once.

Word Bank:

Accumulator	Friction Grabbers	Object Manipulator
Chassis	Gear Ratio	Plows
DC Motors	Gear Train	Rotating Joint
Degree of Freedom	Idler Gears	Scoop
Driven Gear	Lifting Mechanism	Stalls
Driving Gear	Linkages	Turning Scrub
Drivetrain	Motor Loading	Wheelbase
Elevator		

From DC Motors (grades 4-8):

_____ convert electrical energy into mechanical energy through the use of electro-magnetic fields, and rotating wire coils.

_____ happens when there is any opposing force (such as friction or a heavy mass) acting as a load and requiring the motor to output torque to overcome it.

If you keep increasing the load on a motor it eventually stops spinning or _____.

From Gear Ratio (grades 2-8):

_____ expresses the relationship between a Driving Gear and a Driven Gear in a system.

A _____ is the gear connected to the input power source, such as a motor.

A _____ is the gear connected to the output, such as a wheel or mechanism in a system.

A simple _____ is a connected set of rotating gears that transmits power from an input to an output.

All gears in between the Driving Gear and the Driven Gear that only transmit power are known as _____.

From Drivetrains (grades 4-8):

The robotic subsystem that provides the ability to move is often known as a _____

A _____ is the structure of a mobile robot that holds wheels, motors, and/or any other hardware used to make up a Drivetrain.

_____ is the friction that resists turning.

The _____ is distance between Drivetrain wheels.
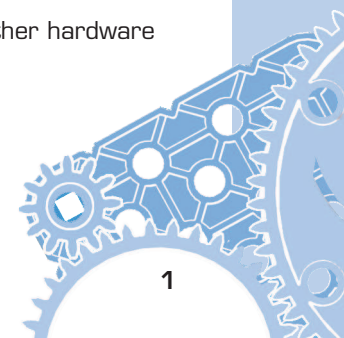
From Object Manipulation (grades 4-8):

An _____ is a mechanism that allows a robot to interact with objects in its environment.

_____ move objects without actually picking them up and they are by far the easiest manipulator type to design and build.

A _____ applies force underneath an object such that the object can be elevated and carried.

_____ apply a force to an object in at least two places, allowing the object to be pinched or grabbed.

Any specialized Object Manipulator designed to collect and hold multiple objects at one time is known as an _____.

From Lifting Mechanisms (grades 4-8):

A _____ refers to something's ability to move in a single independent direction of motion.

A _____ is any mechanism designed to move to perform tasks and/or lift objects.

The most frequently used lifting mechanism in mobile and competition robotics is a _____ .

An _____ uses linear (straight line) motion to lift straight up.

_____ convert an input motion into a different type of output motion.