Forces – Science (Physics)

Subject Specific Vocabulary

Gravity	A pulling force exerted by the Earth (or anything else which has mass).
Weight	The measure of the force of gravity on an object
Mass	A measure of how much matter (or 'stuff') is inside an object.
Friction	A force that acts between two surfaces or objects that are moving or trying to move, across each other.
Air resistance	A type of friction caused by air pushing against any moving object.
Water Resistance	A type of friction caused by water pushing against any moving object.
Streamlined	When an object is shaped to minimise the effects of air or water resistance.
Pulleys	Pulleys can be used to make a small force lift a lighter load. The more wheels in a pulley, the less force is needed to lift a weight.
Gears/Cogs	Gears or cogs can be used to change the speed, force or direction of a motion. When two gears are connected, they always turn in the opposite direction to each other.
Levers	Levers can be used to make a small force lift a lighter load. A lever always rests on a pivot.

Associated Diagram

Friction and air resistance on the bike.

Sticky Knowledge

Name and explain an animal which is streamlined:

Shark— Pointed nose to cut through the water, and a smooth, low, curved back to allow the water to flow over and around it. It does not create much water resistance so it can move through the water quickly.

Name 3 different things a force can make an object do:

Change direction, start to move, stop moving, move faster, move more slowly, change its shape.

What is the difference between weight and mass?

There is a basic difference, because mass is the actual amount of material contained in a body and is measured in kg, gm, etc. Whereas weight is the force exerted by the gravity on that object mg. Note that mass is independent of everything but weight is different on the earth, moon, etc.

Name a famous scientist that helped to develop the theory of gravitation:

Galileo Galilei and Isaac Newton

Why do unsupported objects fall towards Earth?

explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object

Would a parachute with a smaller or larger surface area fall the slowest? Explain your answer.

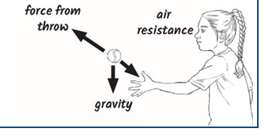
Larger— bigger surface area so more air resistance.

Write whether the following objects use levers, gears or pulleys:

Seesaw - lever

Roller blind - pulley

Clock - gears

Bike - gears

Which forces would take place when the girl throws the ball? Explain your answer.