

Gears Diagram: Mechanical Advantage in Different Gears of a Bicycle

Low gear (good for going uphill)

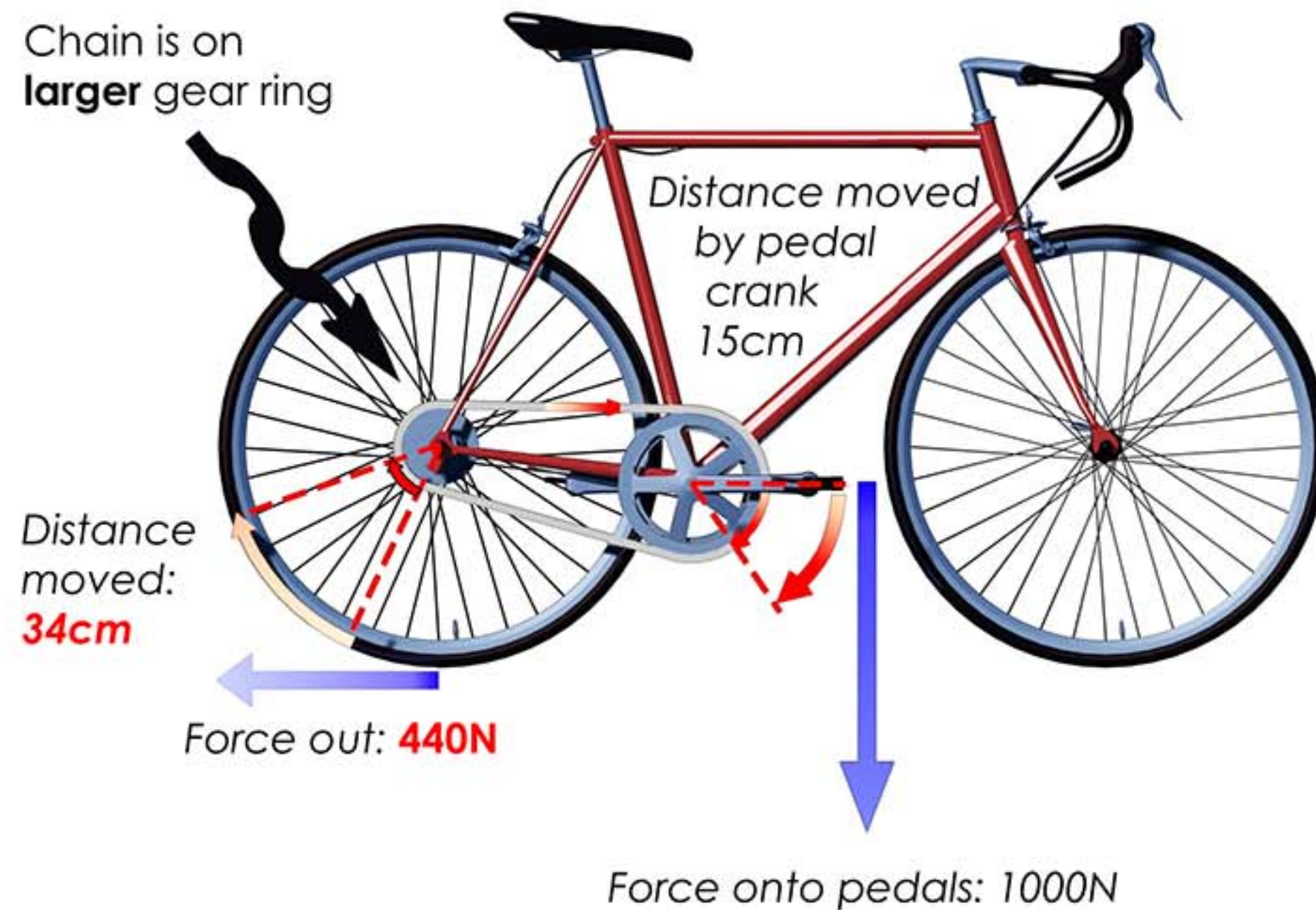
Requires the rider to pedal at a faster rate but with less force

Smaller ratio of front gear to back gear
(less difference between ring sizes)

Same force on pedal, gives bigger force out than a high gear

Smaller distance moved by wheels - less distance travelled

Larger mechanical advantage



High gear (good for going downhill or riding at high speeds)

Requires the rider to pedal at a slower rate but with more force
Provides a higher speed for a given rate of pedalling

Larger ratio of front gear to back gear
(more difference between ring sizes)

Same force on pedal, gives smaller force out than low gear

Bigger distance moved by wheels - more distance travelled

Smaller mechanical advantage

