

Name _____

Introduction to Transportation

Short Answer Key

1. The wheel and axle combination reduces friction by allowing the wheel to rotate around the axle. This reduces resistance and enables smooth rolling, benefiting transportation by making it more efficient.
2. Gears in a bicycle provide mechanical advantage by allowing riders to select different gear ratios. Smaller gears make pedaling easier, while larger gears allow for faster pedaling.
3. Pulleys change the direction of force and provide mechanical advantages when lifting heavy loads. In the construction of skyscrapers, cranes equipped with pulley systems are used to lift and position heavy materials and equipment.
4. Inclined planes, such as ramps, reduce the force required to move heavy objects up or down. They make the loading and unloading of cargo onto vehicles more efficient by minimizing the effort needed to lift objects. An example is the use of ramps to load and unload goods onto trucks.
5. Levers, like pedals on a bicycle, help us apply force efficiently for movement by allowing us to push down on one end, creating rotational motion that drives the bicycle forward.

