

Name _____

Cracking the Code of Mechanical Advantage: How Force Gets a Boost!

Open-Ended Response Answer Key

1. Answers may vary. Example response: I would design a pulley system that people can attach to heavy objects. By pulling a rope, they could lift the object with less force, making it easier to move or transport.
2. Answers may vary. Example response: Increasing the distance over which you apply force might be more advantageous when pushing a car that's stuck in mud. By pushing it along a longer path, you reduce the force needed to overcome the resistance of the mud.
3. Understanding mechanical advantage can benefit people by helping them make everyday tasks more efficient. For example, using a lever to open a tight jar lid or employing a pulley system to lift heavy items during a move can save time and energy.
4. One famous example is the construction of the Great Pyramid of Giza. Workers likely used inclined planes (ramps) to move massive stone blocks into position. They could have also used levers and pulleys to lift and position the stones accurately. Understanding these simple machines made building the pyramid possible.

