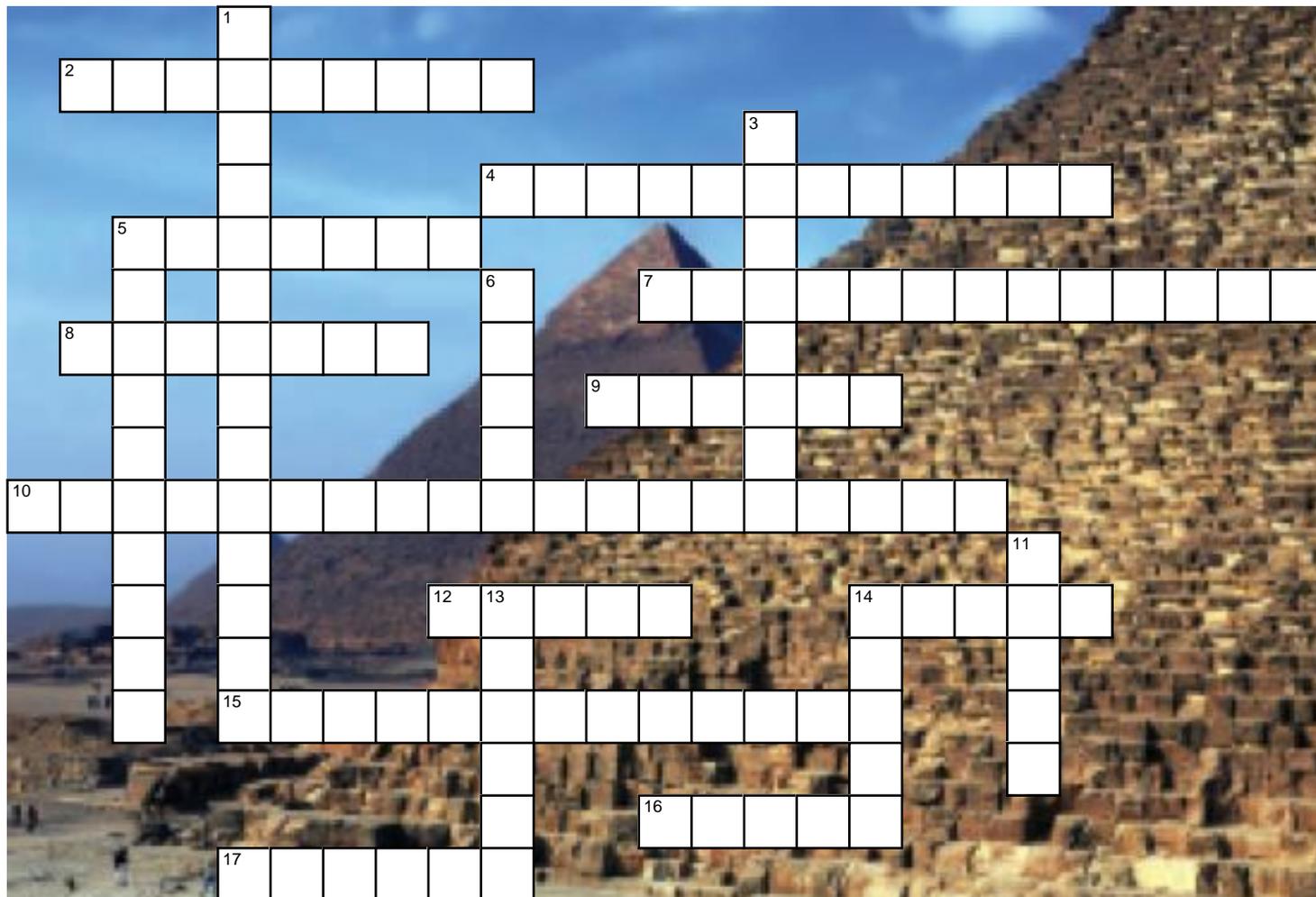


# 5.1 Simple Machines and Mechanisms



## Across

2. A mountain bike is actually made up of several different types of machines that work together as one mechanical system, or \_\_\_\_\_.
4. The ideal mechanical advantage of a pulley system is equal to the number of \_\_\_\_\_.
5. The point on a lever where the bar is supported is called the \_\_\_\_\_.
7. A sloping surface on which an object can move is called an \_\_\_\_\_.
8. When the length of the input arm is greater than the length of the output arm, that lever has an ideal mechanical advantage \_\_\_\_\_ than 1.
9. If the input force is applied to the axle of a wheel and axle machine, the ideal mechanical advantage can be calculated by dividing the \_\_\_\_\_ of the axle by the \_\_\_\_\_ of the wheel. (same word)
10. When the chain is mechanically moved from one sprocket to another when changing gears on a mountain bike, the \_\_\_\_\_ of this simple machine changes.
12. A \_\_\_\_\_ is a bar that is supported at one point.
14. A \_\_\_\_\_ is simply an inclined plane wrapped around a rod.
15. A \_\_\_\_\_ is a machine that requires the application of a single force to do work.
16. \_\_\_\_\_ pulleys change only the direction of a force.
17. A \_\_\_\_\_ consists of a grooved wheel with a rope or cable looped around it.

## Down

1. Doorknobs and the pedals on your bicycle are examples of \_\_\_\_\_.
3. When the amount of \_\_\_\_\_ is relatively small, calculating the ideal mechanical advantage can provide a good approximation of the machine's actual mechanical advantage.
5. When used to open a paint can a pry bar is an example of a \_\_\_\_\_-\_\_\_\_\_ lever, which has the fulcrum between the input and output forces.
6. The \_\_\_\_\_ mechanical advantage of a lever can be calculated by dividing the length of the input arm by the length of the output arm.
11. A \_\_\_\_\_ is an inclined plane that travels through the object or material.
13. Simple machines (such as a ramp) and mechanisms (such as a mountain bike) both use forces to transfer \_\_\_\_\_.
14. A third-class lever is useful because the distance and the \_\_\_\_\_ of the output end of the lever are greater than at the input end.