Name: _____ Date: _____

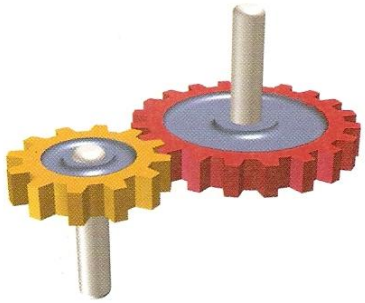
Gear Information

Like pulleys, **gears** can be used to transfer forces and motion from one object to another. Some **gear systems** can also be used to change the speed and direction of the motion. Gears have **teeth** on them that interlock with teeth from other gears. When teeth from two gears are in contact, we say they are **meshed**. When three or more gears are used together they are called a **gear train**. Gears turn on an **axle**, similar to a wheel.

There are many types of gears designed for different purposes. They differ in the arrangement and type of teeth, the way the axles are put together, and the angle at which the teeth meet.

Spur Gears

In spur gears, the teeth meet on a flat surface and can change the speed and direction of motion.



Bevel Gears

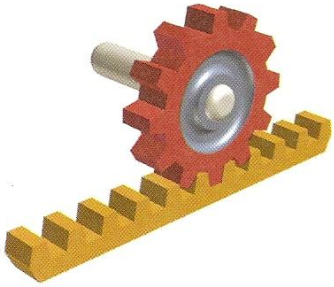
In bevel gears, two gears connect at an angle. Bevel gears are often cone-shaped. They can also change the speed and direction of motion.

Worm Gears

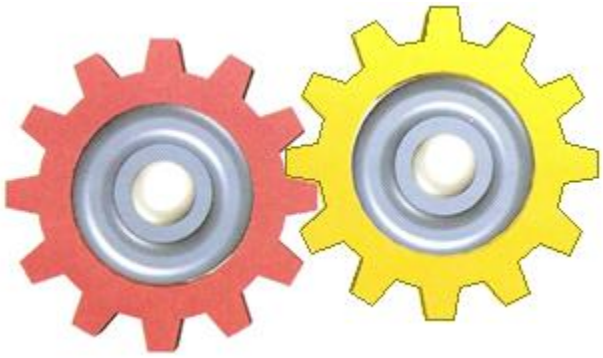
In worm gears, an axle or shaft has a screw thread that connects with another gear. This system is used to reduce the speed and change the direction of motion.

Rack and Pinion Gears

In rack and pinion gears, a single gear, called the pinion, meets with a toothed rack. The rack may slide or stay in one place. The system changes circular motion into motion in a straight line.



1. On the image below, label the following: Gear, Teeth, Axle, Meshed Area



2. What two things can a gear system change?

   _____ _____

3. How do you make a gear train?

   _____

   _____

4. How are gears and wheels similar?

   _____

   _____

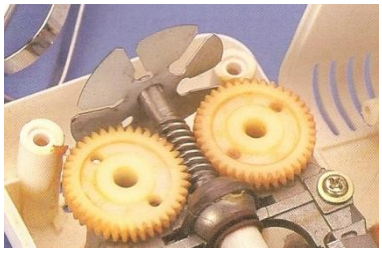
5. What type of gears meet at an angle?

   _____

6. What type of gears use a screw?

   _____

7. What types of gears are being used in the hand mixer and electric mixer shown below?



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