force

A force is a push or a pull.
Every force is exerted *by* some object *on* another object.
Force is a vector: it has a direction and a magnitude, and it can be broken into components.
The general symbol for the magnitude of a force is F.
The SI units for force are Newtons (N).

weight force

The weight force on an object is the *gravitational* force exerted by *the Earth* on the object (assuming that the object is close to the Earth, rather than to some other astronomical body.)
In a typical physics course, the weight force is usually the only first-semester force that can be exerted by something that is not *touching* the object. This is because the weight force is gravitational, and gravitational forces can act "at a distance".
All objects near the Earth experience a weight force.
direction of the weight force = straight down
magnitude of the weight force: $w = mg$ Notice that there is a "special formula" for the magnitude of the weight force.

normal force

A surface can exert *both* a normal force *and* a frictional force on an object. Some typical "surfaces" are floors, tables, walls, inclined planes, etc.
direction of the normal force = perpendicular to, and away from, the surface that is touching the object (In math, "normal" means "perpendicular".)
magnitude of the normal force = n There is no special formula for the magnitude of the normal force. The "purpose" of the normal force is to prevent the object from moving *through* the solid surface. Therefore, the magnitude of the normal force will be *whatever it takes* to prevent the object from moving through the surface, as determined by the Newton's Second Law equations.
When an object is on the borderline of losing contact with a surface, the normal force on the object is zero.

tension force

The tension force on an object is the force exerted by a *rope* (or string, or cord, etc.) on the object.
direction of the tension force = parallel to the rope, and *away* from the object This rule embodies the commonsense idea that a rope can only *pull*, not push.
magnitude of the tension force = T There is no special formula for the magnitude of the tension force.
In introductory physics, we typically assume that all ropes, strings, etc., are "ideal" (i.e., massless and unstretchable) unless the problem indicates otherwise. The magnitude of the tension force is the same at both ends of a massless rope.

kinetic friction force

The kinetic friction force is the frictional force exerted by a surface on a *sliding* object.
Direction of the kinetic friction force on an object = parallel to the surface, and opposite to the direction that the object is sliding
Magnitude of the kinetic friction force: $f_k = \mu_k n$ Notice that there is a special formula for the magnitude of the kinetic friction force.

maximum static friction force

The static friction force is the frictional force exerted by a surface on an object that is not sliding.   Static friction is at its *maximum* when the object is on the *borderline* between sliding and not sliding.
To find the direction of the maximum static friction force on an object: 1. Ask, in what direction are we imagining the object to be on the borderline of sliding?   2. The direction of the max $\vec{f}_s$ is parallel to the surface, and opposite to the direction found in step 1.
magnitude of the *maximum* static friction force: max $f_s = \mu_s n$ Notice that there is a special formula for the magnitude of the *maximum* static friction force.

coefficients of friction

μ_k = coefficient of kinetic friction, μ_s = coefficient of static friction
μ_s is used only for finding the *maximum* static friction
μ_k and μ_s have no units. $0 \leq \mu_k < \mu_s < 1$ [1]
Loosely speaking, μ_k and μ_s both measure how "rough" the surface and object are.

static friction force
when we do *not* assume that static friction is at its maximum

The static friction force is the frictional force exerted by a surface on an object that is not sliding.
To find the direction of the static friction force on an object: 1. Ask, in what direction would the object slide if there were no friction?   2. The direction of $\vec{f}_s$ is parallel to the surface, and opposite to the direction determined in step 1.
magnitude of static friction = f_s When we do *not* assume that static friction is at its maximum, there is *no special formula* for the magnitude of the static friction.   The "purpose" of static friction is to prevent the object from sliding along a surface.   Therefore, the magnitude of the static friction will be *whatever it takes* to prevent the object from sliding, as determined from the Newton's Second Law equations, up to the limit set by the formula, max $f_s = \mu_s n$.
Consider an object that, initially, is not sliding.   If the f_s required to prevent sliding > max f_s, then the object *will* begin sliding.   If the f_s required to prevent sliding < max f_s, then the object will *not* begin sliding.

1 It is theoretically possible for μ_k or μ_s to be greater than 1, but this rarely occurs on typical problem.