Sense of smell

Olfactory bulb: located at top and sides of the inner nasal cavity, eye level, about size of lima bean.
Covered with olfactory epithelium, lined with 10 million nerve cells. Each nerve has a bundle of six to eight tiny hairs, equipped with receptor cells (80 million). The odor molecules fit like a puzzle into a specific place (lock and key model).

Three phases of perceiving smells (happening in less than one second):
1. Reception: odor molecules - bind to receptor cells of olfactory epithelium.
The olfactory membrane is the only place in the human body where the central nervous system is exposed to direct contact with the environment. It is a direct neurological pathway to the brain.
2. Transmission: stimulation of receptor cells becomes electrical impulse, which travels from olfactory nerves into brain
3. Perception: when message is received and interpreted by brain.
Hypothalamus: transmits impulses to other parts of limbic system
Pituitary: releases hormonal responses into bloodstream
Olfactory cortex: distinguishes odors
Thalamus: connects odor messages to higher thought function
Neocortex: analyses odor messages, relates them to other senses and higher brain functions, which stimulate conscious thoughts.

The olfactory nerves are directly connected to the limbic system. The limbic system is one of the oldest parts of the brain; it is part of the 'reptilian brain,' which deals with sexual and emotional behaviour. The limbic system stores responses to memory, pleasure, and emotions, and deeper collective psyche.
Smells, moods, short and long term memory are stored together in the limbic system. The sense of smell acts mostly on an unconscious level. A scent will trigger not only a memory, but the emotions that went with it. The limbic system is also the site of creativity.

Essential oils directly affect the central nervous system. Different types of odors stimulate the brain to secrete different neurochemicals.

Euphoric oils (grapefruit) cause secretion of enkephalins (associated with pleasant feelings of well being and natural pain killers).

Aphrodisiacs stimulate endorphins (which reduce pain, stimulate sexual feelings).

Sedating oils trigger secretion of serotonin which helps sleep, relaxation, and calming.

Because of the direct affect on brain chemistry, aromatherapy is particularly useful for raising the spirit, counteracting depression, and enhancing positive moods. This has a significant effect on the outcome of healing. Smells influence the autonomic nervous system, that part which is usually not under conscious control (breathing, digestion, and heartbeat). Fragrances can slow down and deepen our breathing, and affect the heartbeat. Aromas stimulate the appetite.

The sense of smell is 10,000 times more sensitive than taste. The sense of taste is primarily smell. There are only four primary flavors: bitter, sweet, sour, salty; everything else is smell. When people lose their sense of taste, they lose their appetite for life. Anosmia is frequently accompanied by depression.

We smell differently according to our moods. Meat eaters smell different than vegetarians. Different diseases have characteristic smells. Smell is one of the traditional ways of diagnosing.
Women's sense of smell increases and decreases following hormonal rhythms.
The darker the olfactory membrane, the more acute the sense of smell. Animals have dark yellow, humans, light yellow. Dark skinned people have a more acute sense of smell; albinos have weak sense of smell.

Parosmia: olfactory hallucinations. Introverted type: imagines foul odors coming from oneself; extroverted type: imagines foul odors coming from others.

A male butterfly can smell a female six miles away.
We breathe 23,000 times a day.