Lenses

How many lenses?
Lenses can be broken down into 4 loose categories, they are,

- ***Standard***
- ***Wide (shorter than standard)***
- ***Telephoto (longer than standard)***
- ***Zoom (several lenses combined into one)***

What makes a standard lens "standard"? A standard lens measures 50mm on a 35 mm camera, this lens length most closely approximates the "field of vision" that humans have. Therefore any lenses that deviate from this measurement is considered either shorter or longer, with the exception of zoom lenses.

(Zoom lenses are in fact several lenses combined into one, which often includes a wide normal and telephoto length, some typical zoom lens lengths,

- **28 to 80 mm**
- **75 to 200 mm**
- **28 to 200 mm**

Zoom lenses are not to be confused with Telephoto lenses!)

The number 50mm is based on the diagonal of the film format, therefore a 60mm x 60 mm size neg, (medium format) has as "normal" an 80mm and a large format camera with a neg size of 120 x 100 mm has as it's standard a 150mm lens.

What makes each Lens different?.
Each lens affects the results of the scene photographed in a variety of ways. These affects are,

- ***Image area***
- ***Depth of field***
- ***Perspective.***

Normal
As I said earlier the 50mm lens most closely perspective of human vision.

Wide angle
Wide angles on the other hand, which are numerically shorter than standards, have a tendency to *distort or exaggerate perspective,* making objects seem closer to the camera than they really are, and pushing distant objects further away than they are really are. They also cover a *larger image area,* and have *greater depth of field* than normal lenses at the same given aperture.

Telephoto.
These lenses act in the opposite manner to wide angles, they compress perspective, and have less depth of field, at the same aperture as a standard lens.

Zoom lenses.
These lenses combine all of the above features into one lens, this makes them more convenient for certain situations such as travel photography.

A word of warning!
If you are trying to achieve the sharpest possible image, the closets shutter speed to the focal length of the lens, is the lowest you can hand hold to achieve sharpness! IE, if the lens is a 75 to 200, 1/250 is the lowest shutter speed you can use to hand hold a camera and expect to achieve acceptably sharp results.

Which Lens for what?
Given that each lens has particular characteristics, some lens are traditonally used for particular situations over others.

Wide angles are often used for landscapes, because of their ability to capture a broad image area and greater depth of field.

Telephoto lenses are traditionally used fro portraiture, as they flatten perspective and make facial features more pleasant, and the shallower depth of field makes for a more pleasing composition.

Zoom lenses combine all the features of the lens types comined.

Further reading.
Chapter 3
"Black and white photography
A basic Manual"
by Henry Horenstein
pub Little brown and Co.

Chapter 5
"The camera"
Ansel Adams.
pub Little brown and Co.