AM radio works like this.

antenna broadcasts an RF signal

570 kHz to 1700 kHz

radio receiver does is

detect a particular RF signal

remove the radio waves

detect and isolate the amplitude changes

amplify the decoded audio signal so it can be heard.

Here is a block diagram of a simple radio receiver:

The antenna collects all frequencies in the bandwidth that are broadcast

tuning circuit - selects radio signal

antenna signal is connected to a small transformer. The capacitor is a variable capacitor, so its capacitance can be varied. Because capacitors take time to charge up, the capacitance can be varied to change this time so that the time to charge it up is the same as the period of the RF signal. The circuit then resonates at that frequency and it becomes very strong - much stronger than the other signals of differing frequencies. The tuned, selected frequency is then taken to the next stage. Thus, the tuning circuit selects a *single* radio frequency.

The next stage is an RF amplifier. This is a narrow band amplifier that amplifies frequencies in the 550 Hz to 1700 Hz range. Cheap radios might not have an RF amplifier, but a quality set will. An expensive radio will have several stages of RF amplification.

The next stage is detection. This is where the audio signal is extracted from the RF signal. (Remember that the audio signal is only there as the amplitude changes of the RF signal.)

First, the RF signal is rectified by running it through a diode circuit. This chops off the bottom half of the RF signal. Then it removes the RF signal (the radio waves) and the audio signal is left.



The capacitor is in parallel with the resistor, this causes a filtering action. It prevents the voltage from dropping to zero through the resistor. It raises the average DC value and causes it to confirm more accurately to the input signal. Next the audio amplifier amplifies the audio signal and sends the output to a speaker so that it can be heard.

Here is a block diagram and schematic for a real radio (schematics are drawings of the actual circuit which use proper electronic device symbols):



Transistorized superheterodyne receiver (Graymark Enterprises, Inc.)

All electronic devices utilize electronic circuits. They can be found in tape players, walkmans, radios, VCR's, television sets, coffee makers, computers, etc. Generally such devices will have a power supply - which provides proper working voltages, and then the specific circuits to do the mission of the device.

A VCR for example would have a power supply (a transformer and rectifier), a circuit that detects a changing magnetic field on the tape that moves past the playback head (or heads) during playback, a circuit which can generate a changing magnetic field that can be applied to tape as it moves past the recording head (during the record function), amplification circuits to amplify the video and audio signals from the playback head, circuits to generate the video signal so it will be in a form a television monitor can accept, circuits to turn a TV signal into a magnetic signal to apply to the tape, timing circuits so everything happens at the right time, circuits to set the different functions, time delays, tuning circuits to select a single channel off the airways or cable, etc. A lot of circuits (and we've only named a few). These devices can be very complicated, but each individual circuit is fairly simple.