OS1 Earthquakes are Devastating

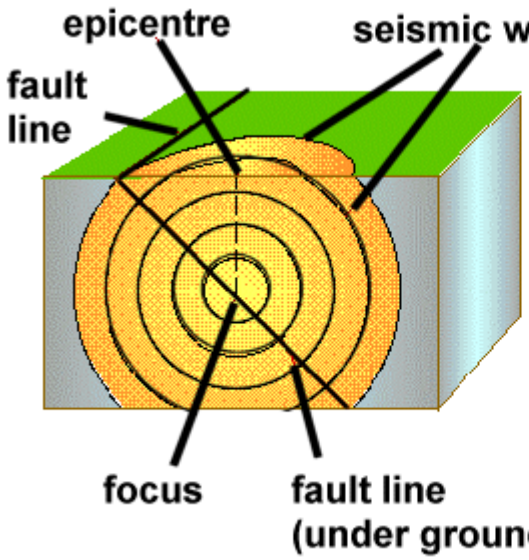
Photographs from an Earthquake in Turkey:

The quake measured 7.2 on the Richter scale.

Its epicentre was in the town of Duzce.

See the website:
http://news.bbc.co.uk/1/hi/world/europe/518597.stm

OS2 Cause of Earthquakes



Earthquakes

Earthquakes occur along plate margins (where plates meet). When plates move past, towards or away from each other the movement is not smooth. Friction causes the plates to get stuck. This causes pressure to build up. Earthquakes occur when this build up of pressure is released. The point where the earthquake starts is called the focus. Energy waves race rapidly from this point.The point at ground level, directly above the focus, is called the epicentre.

Reference: http://www.bennett.karoo.net/topics/earthquakes.html

OS3 Earthquake Damage Scales

Richter scale number	Number of earthquakes per year	Typical effects of this magnitude
< 3.4	800 000	detected only by seismometers
3.5 – 4.2	30 000	Just about noticeable indoors
4.3 – 4.8	4 800	most people notice them, windows rattle
4.9 – 5.4	1400	everyone notices them, dishes may break, open doors swing
5.5 – 6.1	500	slight damage to buildings, plaster cracks, bricks fall
6.2 – 6.9	100	much damage to buildings, chimneys fall, houses move on foundations
7.0 – 7.3	15	serious damage, bridges twist, walls fracture, buildings may collapse
7.4 – 7.9	4	great damage, most buildings collapse
> 8.0	one every 5 to 10 years	total damage, surface waves seen, objects thrown in the air

Reference: http://www.bennett.karoo.net/topics/earthquakes.html

OS4 pH values for liquids

Liquid	pH	Concentration of positive ions (Moles / litre)
Sulphuric Acid	0	1
Vinegar	2.5	$0.03 = 3\times10^{-2}$
Tomato Juice	4	$0.0001 = 1\times10^{-4}$
Milk	6.5	$0.0000003 = 3\times10^{-7}$
Pure Water	7	$0.0000001 = 1\times10^{-7}$
Blood	7.5	$0.00000003 = 3\times10^{-8}$
Detergent	9.5	$0.0000000003 = 3\times10^{-10}$
Ammonia	11	$0.00000000001 = 1\times10^{-11}$
Potassium Hydroxide	14	$0.00000000000001 = 1\times10^{-14}$

OS5 Decibels and sound

Source	**Intensity in** W/m^2	**Intensity Level**	**Number of times greater than TOH**
Threshold of hearing(TOH)	1×10^{-12}	0 dB	10^0
Rustling leaves	1×10^{-11}	10 dB	10^1
Whisper	1×10^{-10}	20 dB	10^2
Normal conversation	1×10^{-6}	60 dB	10^6
Busy street traffic	1×10^{-5}	70 dB	10^7
Vacuum cleaner	1×10^{-4}	80 dB	10^8
Large orchestra	6.3×10^{-3}	98 dB	$10^{9.8}$
Walkman at maximum level	1×10^{-2}	100 dB	10^{10}
Front rows of rock concert	1×10^{-1}	110 dB	10^{11}
Threshold of pain	1×10^{1}	130 dB	10^{13}
Military jet takeoff	1×10^{2}	140 dB	10^{14}
Instant perforation of eardrum	1×10^{4}	160 dB	10^{16}