

acoustic impedance	a measure of how easy it is to transmit sound waves through a medium; it is equal to the product of the density of the material and the velocity of sound through it
a-scan	an ultrasound scan in which a single transducer scans along a line in the body and the resulting echoes are plotted as a function of time
biopsy	the removal of a small amount of tissue for medical examination
b-scan	an ultrasound scan where a linear array of transducers scans a plane in the body (a slice from front to back)
coherent bundles	bundles of optical fibres in which the individual fibres are kept in the same relative positions in the bundle at both ends

computerised axial  
tomography (CAT)

a non-invasive technique  
that uses x-rays to produce  
images of various internal  
parts of the body

current loops

occur when current is  
moving in a circle; a  
current loop acts like a  
bar magnet

Doppler effect

the apparent change in  
frequency when there is a  
relative motion between a  
source of sound and the  
observer

echocardiography

the use of ultrasound  
and the Doppler effect  
to diagnose heart  
(cardiac) problems

electromagnets

made by passing electric  
current through a  
conductor, which acts as  
a magnet

endoscopes

devices that use optic fibres to look inside the body;  
endoscopes assist in observing internal organs and in obtaining tissue samples for biopsy

endoscopy

the medical examination of the interior of the body by inserting an endoscope through an opening in the body

fibre optics

a technology where light travels through fine glass tubes (optic fibres) as a result of total internal reflection

gamma rays

high-energy photons emitted during radioactive decay

half-life

the time it takes for half the given mass of a radioactive element to change into a new element

hertz

a unit of frequency  
equal to one cycle per  
second

imaging

the process of creating an image of  
the interior of the human body by  
using ultrasound, x-rays, radio  
waves or electromagnetic waves or  
gamma rays

Larmour frequency

the frequency of  
precession of a proton  
or electron in a uniform  
magnetic field

magnetic moment

a measure of the turning effect of a  
spinning charge in a magnetic field;  
it determines how difficult it is for  
the charge to align its axis of  
rotation in the direction of an  
external magnetic field

magnetic resonance  
imaging (MRI)

a non-invasive technique used  
to produce images of tissues  
inside the body using radio-  
frequency energy and strong  
magnetic fields

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nuclear imaging

the use of radioisotopes  
to produce an image of  
the internal organs

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optical fibres

glass fibres with an outer layer that  
has a lower refractive index than  
the inner layer; used to transmit  
light over distances and around  
corners

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