

EARTH SYSTEM SCIENCE

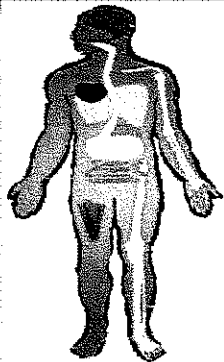
**System- a group of
interacting parts that form a
complex whole.**

CAN YOU THINK OF ANY EXAMPLES?



The human body
acts as a
SYSTEM.

With your partner,
list some of the
organs that
interact/depend on
one another to
function.



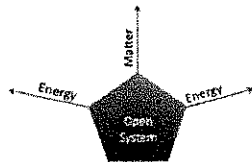
Definitions

Open System:

a system that can freely exchange matter and energy with its surroundings.



The saucepan is an open system because it allows for the transfer of matter (for example adding spices to the saucepan) and for the transfer of energy (for example heating the saucepan and allowing steam to leave the saucepan).



Closed System:

type of system where matter is conserved within the system, but **energy** is allowed to freely enter or exit the system.

Closed System

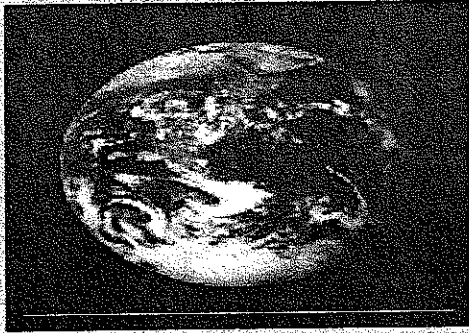


By putting a lid on the saucepan, matter can no longer transfer because the lid prevents matter from entering the saucepan and leaving the saucepan. Still, **the saucepan allows energy to transfer.**

Closed System



IS EARTH AN OPEN OR CLOSED SYSTEM?



Earth is an
The reason why it isn't entirely is that
some matter is exchanged.

**The atmosphere loses hydrogen ions to
space.**

**Matter enters the system occasionally through
meteorites.**

What are some
consequences
of living in an
(almost) closed
system?