

A closed system is an environment that is controlled by people. They created the way the system works.

Battery, Oven, Pop Machine, Cars

An open system is an environment in which the system is NOT controlled by a person. It runs itself.

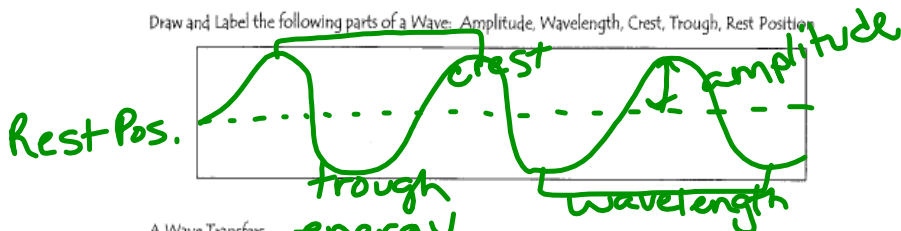
Water Cycle

Sixth Grade Science Final Study Guide

Final Test will be on _____

WAVES 511-527

Draw and Label the following parts of a Wave: Amplitude, Wavelength, Crest, Trough, Rest Position



A Wave Transfers energy

Properties of Waves: Amplitude Wavelength Freq. Speed

What medium does sound move the fastest through? Solid

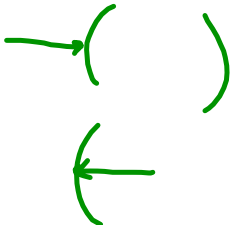
Why? The particles are packed close together.

LIGHT

List the parts of the ELECTROMAGNETIC SPECTRUM in order from Lowest to Highest Frequency (7)

Radio, micro, infrared, visible, ultraviolet, X-rays, gamma

Draw the Following:



<p>Concave Mirror</p>	<p>Convex Mirror</p>	<p>Flat/Plane Mirror</p>
<p>Concave Lens</p>	<p>Convex Lens</p>	<p>Focal Point where all rays meet</p>

White is all colors reflected. Black is all colors absorbed

METRIC SYSTEM 44-47

Give an example of something you would measure using the following:

Meter width of room Kilometer distance Gram pencil marble Milliliter eyedropper

What do the items below measure?



mass
Triple Beam Balance



temp
thermometer



length
ruler



volume capacity
graduated cylinder

What is the difference between MASS and WEIGHT

mass never changes

What two things affect the gravitational pull between all objects

distance mass

Define Density:

$$D = \frac{\text{mass}}{\text{volume}}$$

Convert the Following: 5 kg = 5000 G 250 ml = 0.25 L

STATES OF MATTER

What has to be added or taken away to change STATES OF MATTER?

heat

What happens to the particles when heat is added?

They move faster + could become a gas

Explain the steps an ice cube goes through to change from a solid to a gas:

Ice melts - becomes liquid.
The liquid then boils + evaporates to a gas.

Define Diffusion and give an example of Diffusion:

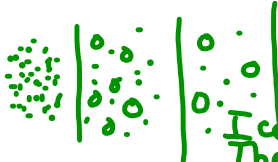
Molecules moving from areas of high concentration to low concentration

Define Thermal Expansion and give an example of Thermal Expansion:

The expanding of matter when heated.
(crack in road)

How can we speed up the dissolving process? (Three Ways)

add heat, shake, add more water



TECHNOLOGY

22-27

What is the difference between Science and Technology?

Science studies the natural world
Technology changes the world to make life easier.

Define Tradeoff (Risks/Benefits):

where one benefit is given up for another

Examples of Tradeoffs:

lightweight helmet that costs less

What are the steps of the Design Process?

identify need,

Define a Subsystem:

smaller system within a larger one

What is the difference between an open and closed system?

open: is human made, closed: operates without humans

Example of Each:

open: oven, pop machine, closed: water cycle

nothing can leave

FORCES AND MOTION

Forces can be added together only if they are

acting on the same object

Speed + Direction =

velocity

Which of Newton's Laws States When a hammer strikes and exerts force on a nail, the nail exerts a force back on the hammer?

3rd Law

ENERGY

443-451

Energy associated with Motion is

Kinetic

When we add potential and kinetic energy together we get

mechanical energy.

A flashlight uses

Electromagnetic, electrical

energy (may be more than one).

Can energy be converted into other forms?

yes

Examples:

mech → elec.
windmill

elec → Thermal
oven

Give an example of potential energy being converted to kinetic energy.

bowling ball
rolling

Where does the energy in Fossil Fuels originally come from?

sun