

photos

[Fō TOSS] light

photograph - (graph - write, draw)-picture drawn by light

telephoto - (tele-distant) - light from far away

photometer - (metron - measure) - a device which measures light

phototropic - (tropos - turn) - turning toward light

photophilia - (philia - love) - love of light

photophobia - (phobos - fear) - fear or dislike of light

photosynthesis - (syn - together, thesis - putting) - a process of putting things together by using light

Teaching Notes:

Photograph - Discuss the process of photography and have a child present a report to the class on how it works. With smaller children it would make a good research job to be done as homework with parents. Telephoto - Discuss the purpose of a telephoto lens. If possible, show a sports video which illustrates the zoom effect. Photometer - Ask if anyone can bring one from home to show the class. (Maybe a parent will come and do a presentation for the class!) Phototropic - Grow some beans on the window sill and watch the leaves turn to face the light. Photosynthesis - Put some of the bean plants in a dark closet so the children can see what happens when they are deprived of light.

Extra Words:

Photokinesis (kinesis - movement) light making something move. Science museum shops have photovoltaic devices that look like light bulbs, with little windmill-like panels inside. The panels spin when exposed to light. Phosphorous - (phos - light; photos is another form of this word; + pherein - to bear or produce) - producing light. The Romans took this Greek word, Phos, and made Phosphorus - their name for the bright morning star, Venus.

graph

[GRAFF] to write or draw

photograph - (photo - light) - picture drawn by light

phonograph - (phono - sound) - machine for writing (or recording) sound

telegraph - (tele - distant) - writing from far away

graph - pictured information

lithograph - (lithos - stone) - drawing made on a stone

graphite - black carbon used for drawing or writing

autograph - (autos - self) - to write one's own name

phonogram - (phono - sound) - written symbol for a sound

hologram - (holos - complete) - a three-dimensional photograph of a whole object

Teaching Notes:

Phonograph - Discuss the early process of sound recording, before magnetic tape and cassettes, in which a needle cut a recording on a wax plate. Telegraph - Let someone present a research report on Thomas Edison's early days as a telegrapher. Let someone do a report on Morse code and give a demonstration of it. Graph - Introduce various kinds of graphs in math class. Lithograph - Discuss the process of lithography and talk about Currier and Ives. Their lithographs are still used every year as Christmas cards. Make potato or linoleum block prints. Graphite - Have someone research how it is used today. Hologram - Show students a hologram (on a *National Geographic* cover or on your credit card). Autograph - Have the class write to famous people, requesting an autograph. Phonogram - The Greek word gramma, meaning "letter" or "something written down", comes from graphein. Discuss the invention of the alphabet as an early system of written-down sound.

Extra Words:

Pictograph (pictura (L.) painting) - A writing form in which there is a picture for each word. You might find pictures of Egyptian hieroglyphics and Chinese characters to show the children.

tele

[TAY leh] far away, distant

television - (video, visum (L.) - see) - seeing distant things

telephone - (phone - sound) - sound from far away

telegraph - (graph - write) - writing from a distance

telephoto - (photo - light) - light from far away

telescope - (skopeo - look at) - device for looking at distant objects

telepathy - (pathos - feeling) - knowing how someone far away is feeling

telethon - (Marathon - a battlefield in ancient Greece) a telephone fund raiser which runs on non-stop, as Pheidippides ran after the battle of Marathon.

Teaching Notes:

Telethon - The great battle between the Athenians and the Persians in 490 BC took place on the plain of Marathon. When the Greeks won, they sent a runner, Pheidippides, to Athens, 26 miles away, with the news. As the runner arrived, he delivered the message - and died. Modern 26-mile races are called "Marathons", and so any long, grueling session or fund-raising campaign may be called a marathon - and if it happens on television, it's a telethon.

Extra Words:

Telekinesis - (kinesis - movement) the movement of an object which is far away from the power (spiritual or magical) which is moving it. Telex - A recently-coined technological word for a communication service using "tele-typewriters" connected by wire. We are very fond of such "high tech" sounding words. We tend to mine the ancient Greek vocabulary whenever we want to coin a "new" word.

metron

[ME tron] measure

meter - unit of measure - 39.47 inches long

geometry - (geo - earth) - measurement of the earth

optometry - (opsis - sight) - measure eyesight

symmetry - (sym - same, equal) - measuring the same

barometer - (baros - weight, pressure) - device to
measure air pressure

thermometer - (thermos - heat) - measure heat

diameter - (dia - through, across) - measuring across

centimeter - (centum - hundred) - one hundredth of a
meter

anemometer - (anemos - wind) - measures wind speed

Teaching Notes:

Meter - The definition given above is just one of many. If it's appropriate for your children, you can discuss the meter as the basis for the metric system. A meter is supposed to be one ten-millionth of the distance around the world measuring through the equator and the poles. What we call "meter" in poetry is very enjoyable to learn for some classes. Why not learn a bit of Shakespeare's iambic pentameter!

Explain to the children that we will make separate cards for as many of the partner words, such as geo, sym, thermos, etc., as possible. Mixing and matching new combinations - even coining new words, then seeing whether classmates can figure out the meaning - is a good way to help children begin to play with words and become comfortable with them.

Extra Words:

Metronome (nomos - law) - An instrument for measuring the exact time so a musician knows how fast to play a piece of music. Would the school music department have a metronome which the children could see in operation?

tropos

[TROH poss] turning

tropics - the area of the earth from the equator north to the Tropic of Cancer and south to the Tropic of Capricorn

tropical - the climate of the earth in the tropics

phototropic - (photo - light) - turning toward light as leaves and flowers do

heliotrope - (helios - sun) - a flower named for its tendency to turn toward the sun

tropophilous - (philia - love) - plants or trees which like a change or turning of seasons - hot and cold, wet and dry

thermotropism - (thermos - heat) - turning toward heat (as cats do!)

Teaching Notes:

Tropics - A little geography lesson would help on this one. The Tropics are the two circles on the globe at 23 degrees, 27 minutes latitude called Tropic of Cancer (north of the equator) and Tropic of Capricorn (south of the equator). These are the farthest latitudes from the equator on which the sun shines STRAIGHT DOWN. The two tropic lines are the latitudes at which the sun seems to "turn" and go back the other way (you need a globe to explain this!). In the Northern Hemisphere the turning time is called the summer solstice. In the Southern Hemisphere, it is called the winter solstice. The solstices are, for us, the longest and shortest days of the year.

Extra Words:

Tropometer (metron - measure) - An instrument which measures the amount of turning of eyeballs or bones in their sockets. Chromotropism (chroma - color) - Turning or changing color. It is really a chemical term, but why couldn't we say that chameleons or autumn leaves are "chromotropic"?