

Ask Andy

Wave Lengths Blend in White Light

Andy sends a complete, 20-volume set of the World Book Encyclopedia to Barry Lehman, age 13, of Jersey Shore, Penn., for his question:

What is the wave length of white light?
White light is a form of energy and all forms of energy can be measured in weight. One ounce of heat energy will melt about two million tons of rock to white hot lava. And every second, the sun pours forth about four million tons of electromagnetic energy. Just a small fraction of this energy is white light.

The radiant energy of the sun pulses along in millions of different wave lengths, all traveling at about 186,000 miles a second. Each pulse of energy has a crest. The assorted wave lengths in the sun's total electromagnetic energy vary from fractions of a millimeter to many miles.

White light is a blend of many short wave lengths. When bent by a glass prism, these different wave lengths reveal

themselves as the rainbow colors of the spectrum of white light. The shortest wave lengths are the violet rays, the longest are the red rays. Each wave length is a little longer from violet, through indigo, blue, green, yellow, orange to red.

The wave lengths of white light are usually measured by the Angstrom unit, which is one hundred millionth part of a little centimeter. And the entire range of the wave lengths blended together in white light ranges from about 4,000 to 8,000 Angstroms. It takes about 130 red wave lengths and about 260 violet wave lengths to equal the thickness of a sheet of paper.

There are invisible longer and shorter wave lengths in the sun's electromagnetic energy and white light is but a tiny fraction of the total picture. Longer rays which become heat measure up to more than a million Angstroms. Ultraviolet wave lengths are shorter than those of white light.

When we speak about white light, we are being very human. For though these are the wave lengths by which we see things, other creatures may be unable to see all these wave lengths and perhaps see others which we cannot see. Bugs, for example, keep away from a yellow light because they cannot see the wave lengths in this range. Certain night prowling mammals seem unable to see the red wave lengths of light. A pit viper may be able to sense the longer infrared rays which are beyond our vision.

There are an infinite number of different wave lengths blended together in the form of energy we call white light. The red wave lengths, for example, range from 6,300 to 7,800 Angstrom units. The blue-violet colors range from 3,800 to almost 5,000 Angstroms.

Andy sends a Hammond's Library World Atlas to Linda Allen, age 12, of Rochelle, Ill., for her question:

Where is the temperate zone?

The climate zones circle the globe between the equator and the two poles. The torrid zones include the equator and lies between the Tropics of Capricorn and Cancer, about 23 degrees north and south of the equator. The two temperate zones extended from the tropics to the Arctic and Antarctic Circles. Within the polar circle lie the frigid zones.

The two temperate zones are about 43 degrees wide. In these two belts of moderate climate, north and south of the equator, lives most of the world's human population.

Andy awards each day a full set of the World Book Encyclopedia for the first question he selects to answer. When a second question is answered a large world globe or atlas is awarded. Questions are accepted from teen-age or less-than-teen-age readers. They should be addressed to the Register-Guard, 975 High St., Eugene. Andy prefers that questions be written on postcards, rather than in letter form.

Despite Freeways

Toll Roads Still Retain Popularity

WASHINGTON—Toll roads will speed thousands of vacationers across the United States this summer.

The toll roads retain their popularity in spite of a growing network of free superhighways. In 1961, motorists traveled almost 14 billion vehicle miles on toll roads, an increase of 568 million miles over 1960.

Though the 3,000 miles of toll roads are uniform in their high engineering standards, the routes are as diverse as the United States itself, the National Geographic Society says.

Florida's Sunshine State Parkway cuts through almost primitive glades, swamps, cypress groves and pinewoods. Travelers may see a flock of wood ibis, herds of Brahma cattle and the thatched huts of Seminole Indians.

In contrast, the New Jersey Turnpike is a corridor through the heart of the industrial East. Veteran Jersey Turnpike travelers don't need maps and mileposts. They can tell where they are by sniffing the distinctive aromas from chemical and manufacturing plants along the way. The Pennsylvania Turnpike, opened in October, 1940, is the oldest of the modern toll roads. Skeptics said its daily traffic never would reach the planned 30,000 vehicles a day. Some 80,000 cars and trucks now use the road daily, and about 240,000, 000 vehicles have sped over the smooth concrete ribbons since 1940.

The West Virginia Turnpike threads its way over, under and

It Really Kept Them Off the Street

BOSTON—The senior class at suburban Wakefield High School found a new wrinkle for post-graduation parties designed to keep classmates out of trouble on their "big night."

The class hired a Boston Harbor excursion boat and whooped it up on a midnight dance cruise under the watchful, but lenient, eyes of chaperoning parents.

To Your Good Health

To Cure Asthma, Cure the Allergy

By DR. JOSEPH G. MOLNER

Dear Dr. Molner: Our 5-year-old son has asthma. Does climate have anything to do with this? We live where the humidity is high most of the time.

How much do emotions have to do with asthma? Are there many people who have abdominal cramps when they have an attack?—MRS. D. W.

A dry climate may—may, I repeat—help an asthma case, but it is by no means certain, and I would not think of moving without doing two things first: try the known methods of easing it; and try a different climate on a temporary basis before doing anything as drastic as uprooting a family—job, friends and all.

Opinions vary on the importance of emotions in asthma. I doubt that a general rule is possible. However, there is no question in my mind that emotional tensions are strong factor in triggering attacks. But I am not convinced that this is important in all cases. Each must be judged by its own characteristics.

I have never observed an asthma case in a child in which allergy was not a basic factor. After all, what is asthma? A constriction of the air passages. Allergy, one of the commonest of all human ailments, has varied manifestations: Rash, itching, sneezing, swelling, cramps, vomiting; effects on eyes, nose, digestion, respiratory passages. And on and on.

Asthma is one of the several serious consequences. The air passages swell and constrict, the unhappy victim wheezes and gasps for breath.

Too often people still think some single medicine will "cure" asthma. What needs curing—well, you don't "cure" it, but you may control it—is the allergy.

It can be something breathed: House dust, pollen, animal danders and many other things. Skin tests are helpful in identifying these.

Foods can do it—and skin tests are not as definite in this regard. Eggs, wheat and milk are relatively common offenders, and all are usual ingredients in a child's diet.

However, abdominal cramps along with asthma attacks are a strong hint that food allergy may be present. (No, not all asthma sufferers have such cramps.)

It is possible for a germ (as from chronically infected tonsils or sinuses) to be the "substance" that touches off allergy attacks.

It is notable that some youngsters, asthmatic at first, outgrow the trouble, but the more severe the case, the less chance of doing this completely. For a rule of thumb, the case that is outgrown by about age 12 is fortunate; asthma that continues later that is something that will have to be fought constantly.

If you can find out what things touch off the allergy, then you have a tremendously valuable and fundamental fact to work with. A "food diary," from which you can check back to see what foods always precede an attack (and in today's case the abdominal cramps) can be most valuable. And it's something only you can do; the doctor can't.

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