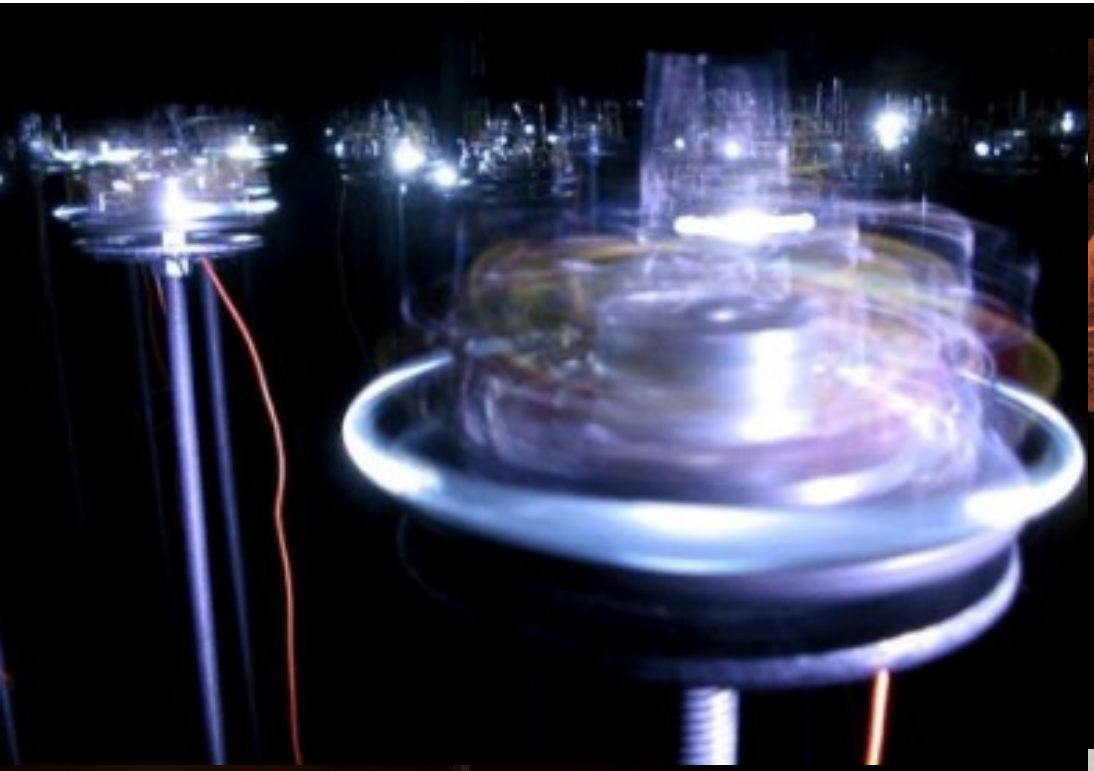
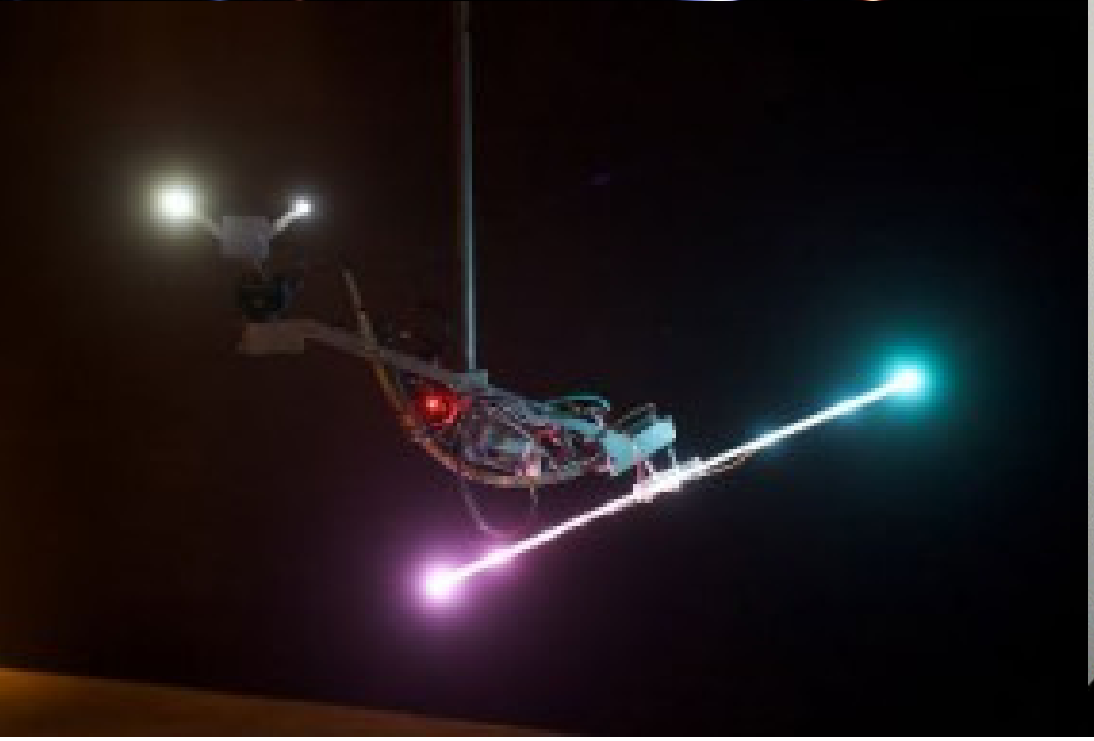
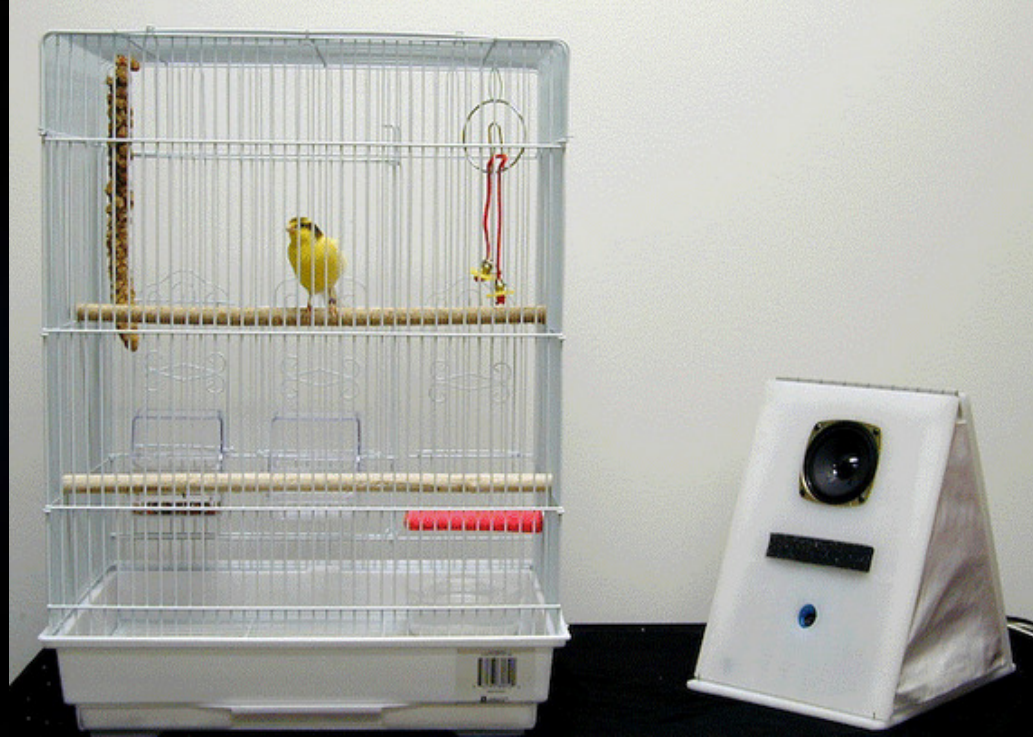



Change You Want
84 Havemeyer
Bro
thechangey
Coworki





ARTRICKS

OPTRICKS

Emergence—Art and Artificial Life

Marc Böhlen
Ruairi Glynn
Leo Nuñez
Karolina Sobecka

This exhibition features international artists exploring both the biological and computational manifestations of emergent behavior arising from dynamically changing, interactive sculptures. We as human beings are created and create through a process of emergence. Whether these emergent forms originate organically or are man-made, they can illustrate to us the rich variety of mutating systems with all their variety and ability to adapt to a changing world.

Donn M. Silberman
Founding Director

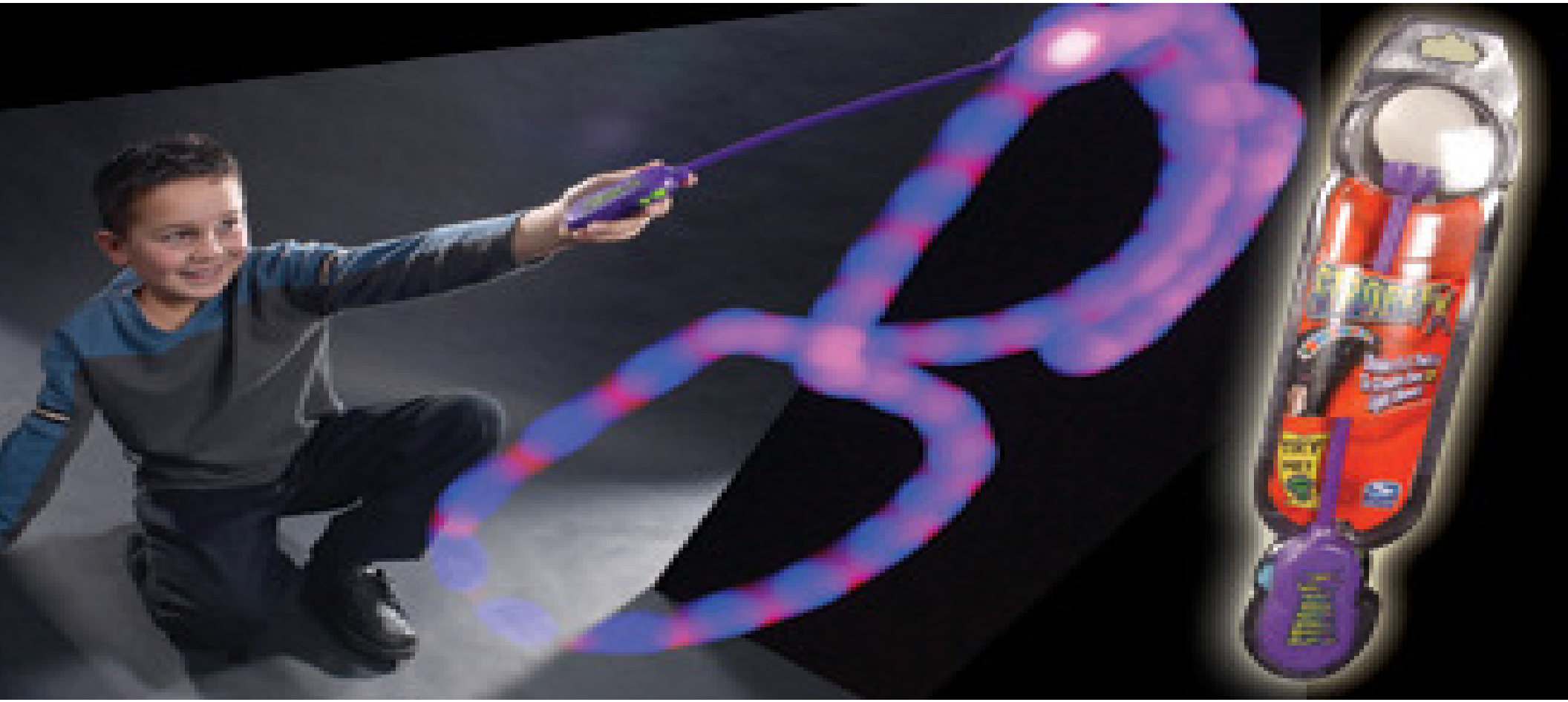
The Optics Institute of Southern California

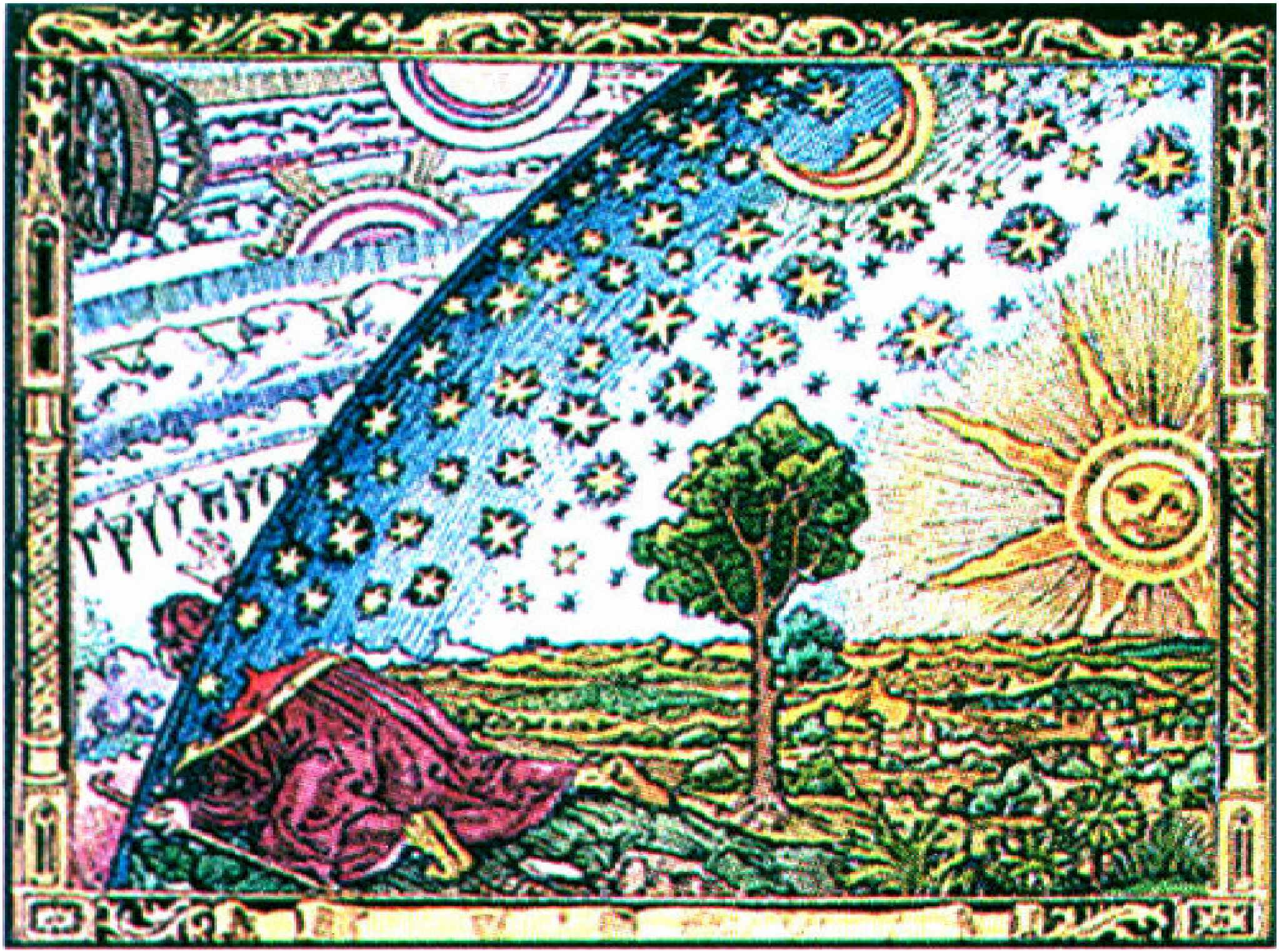
BEALL CENTER FOR ART + TECHNOLOGY

University of California, Irvine
Family Day, Apr. 17, 2010
11:00 am to 3 pm

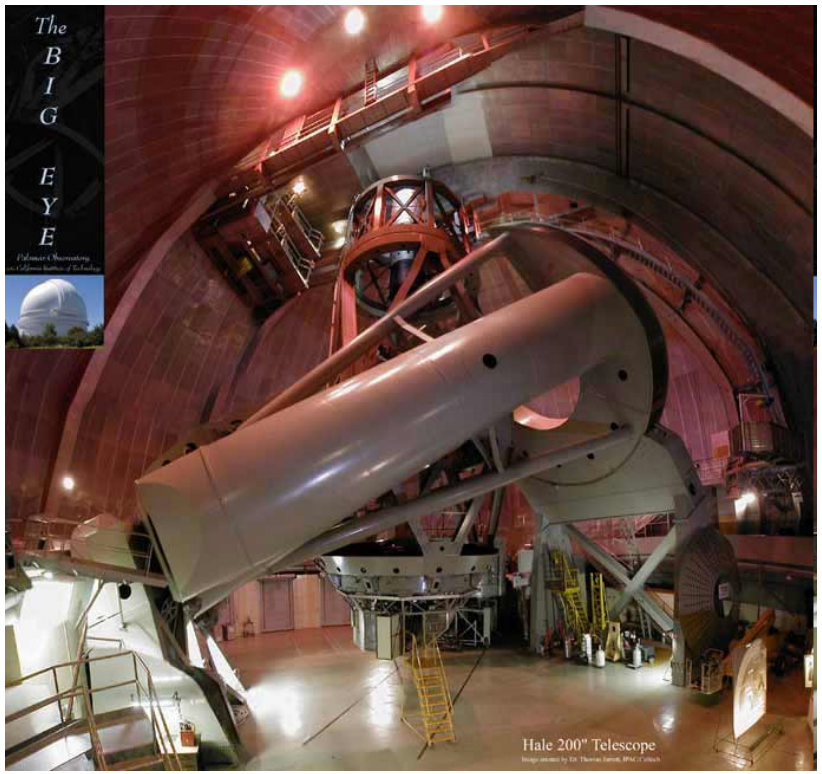
Strobe FX

Colors moving in Space-Time





ART

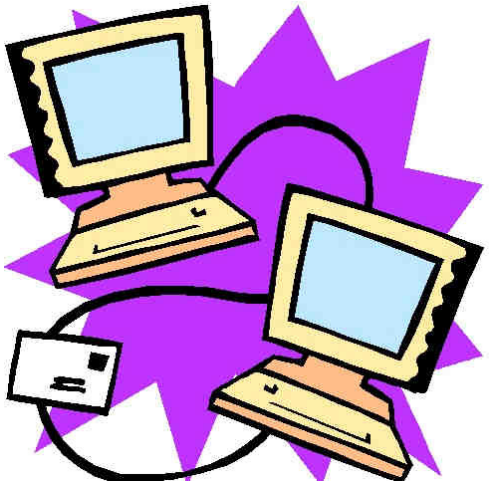


TECHNOLOGY

Art + Technology

- Artists have always used ‘Technology’
- Some technologies have been around for hundreds of years.
- Some technologies are new
- Some are now called:

  “New Media” or “Digital”



- Anyway you look at ‘it

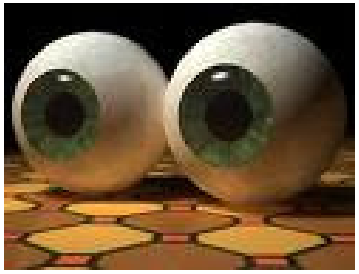
IT IS ALL ART!!

What are optics?

. Glasses

. Camera

. Telescope



. Eyeballs

PRODUCED BY THE FOUNDATION FOR EDUCATION, SCIENCE AND TECHNOLOGY FOR NATIONAL SET WEEK 2003

PERIODIC TABLE of the ELEMENTS

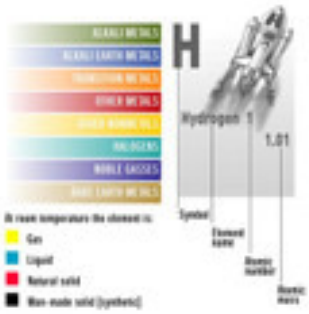
DEPARTMENT OF SCIENCE AND TECHNOLOGY

DMITRI MENDELEYEV (1834 – 1907)

The Russian chemist, Dmitri Mendeleyev, was the first to observe that if elements were listed in order of atomic mass, they showed regular (periodical) repeating properties. He formulated his discovery in a periodic table of elements, now regarded as the backbone of modern chemistry.

The crowning achievement of Mendeleyev's periodic table lay in his prophecy of then, undiscovered elements. In 1869, the year he published his periodic classification, the elements gallium, germanium and scandium were unknown. Mendeleyev left spaces for them in his table and even predicted their atomic masses and other chemical properties. Six years later, gallium was discovered and his predictions were found to be accurate. Other discoveries followed and their chemical behaviour matched that predicted by Mendeleyev.

This remarkable man, the youngest in a family of 17 children, has left the scientific community with a classification system so powerful that it became the cornerstone in chemistry teaching and the prediction of new elements ever since. In 1955, element 101 was named after him: Md, Mendelevium.



1	H Hydrogen 1 1.01																He Helium 2 4.00
2	Li Lithium 3 6.94	Be Beryllium 4 9.01											B Boron 5 10.81	C Carbon 6 12.01	N Nitrogen 7 14.01	O Oxygen 8 16.00	F Fluorine 9 19.00	Ne Neon 10 20.18
3	Na Sodium 11 22.99	Mg Magnesium 12 24.31											Al Aluminium 13 26.98	Si Silicon 14 28.09	P Phosphorus 15 30.97	S Sulphur 16 32.06	Cl Chlorine 17 35.45	Ar Argon 18 39.95
4	K Potassium 19 39.10	Ca Calcium 20 40.08	Sc Scandium 21 44.96	Ti Titanium 22 47.88	V Vanadium 23 50.94	Cr Chromium 24 52.00	Mn Manganese 25 54.94	Fe Iron 26 55.85	Co Cobalt 27 58.93	Ni Nickel 28 58.69	Cu Copper 29 63.55	Zn Zinc 30 65.39	Ga Gallium 31 69.72	Ge Germanium 32 72.61	As Arsenic 33 74.92	Se Selenium 34 78.96	Br Bromine 35 79.90	Kr Krypton 36 83.80
5	Rb Rubidium 37 85.47	Sr Strontium 38 87.62	Y Yttrium 39 88.91	Zr Zirconium 40 91.22	Nb Niobium 41 92.91	Mo Molybdenum 42 95.94	Tc Technetium 43 (98)	Ru Ruthenium 44 101.07	Rh Rhodium 45 102.91	Pd Palladium 46 106.42	Ag Silver 47 107.87	Cd Cadmium 48 112.41	In Indium 49 114.82	Sn Tin 50 118.71	Sb Antimony 51 121.76	Te Tellurium 52 127.60	I Iodine 53 126.90	Xe Xenon 54 131.29
6	Cs Caesium 55 132.91	Ba Barium 56 137.33	Lanthanide Series	Hf Hafnium 72 178.49	Ta Tantalum 73 180.95	W Tungsten 74 183.85	Re Rhenium 75 186.21	Os Osmium 76 190.23	Ir Iridium 77 192.22	Pt Platinum 78 195.08	Au Gold 79 196.97	Hg Mercury 80 200.59	Tl Thallium 81 204.38	Pb Lead 82 207.20	Bi Bismuth 83 208.98	Po Polonium 84 (209)	At Astatine 85 (210)	Rn Radon 86 (222)
7	Fr Francium 87 (223)	Ra Radium 88 (226)	Actinide Series	Rf Rutherfordium 104 (261)	Db Dubnium 105 (262)	Sg Seaborgium 106 (263)	Bh Bohrium 107 (262)	Hs Hassium 108 (265)	Mt Meitnerium 109 (266)									

Lanthanide Series	La Lanthanum 57 138.91	Ce Cerium 58 140.12	Pr Praseodymium 59 140.91	Nd Neodymium 60 144.24	Pm Promethium 61 (145)	Sm Samarium 62 150.36	Eu Europium 63 151.96	Gd Gadolinium 64 157.25	Tb Terbium 65 158.93	Dy Dysprosium 66 162.50	Ho Holmium 67 164.93	Er Erbium 68 167.26	Tm Thulium 69 168.93	Yb Ytterbium 70 173.04	Lu Lutetium 71 174.96
Actinide Series	Ac Actinium 89 227.03	Th Thorium 90 232.04	Pa Protactinium 91 231.03	U Uranium 92 238.03	Np Neptunium 93 (237)	Pu Plutonium 94 (244)	Am Americium 95 (243)	Cm Curium 96 (247)	Bk Berkelium 97 (247)	Cf Californium 98 (251)	Es Einsteinium 99 (254)	Fm Fermium 100 (257)	Md Mendelevium 101 (258)	No Nobelium 102 (259)	Lr Lawrencium 103 (262)

FEST

Chemistry of Silicon

Sand

add

Water (H20)

Sand Castle

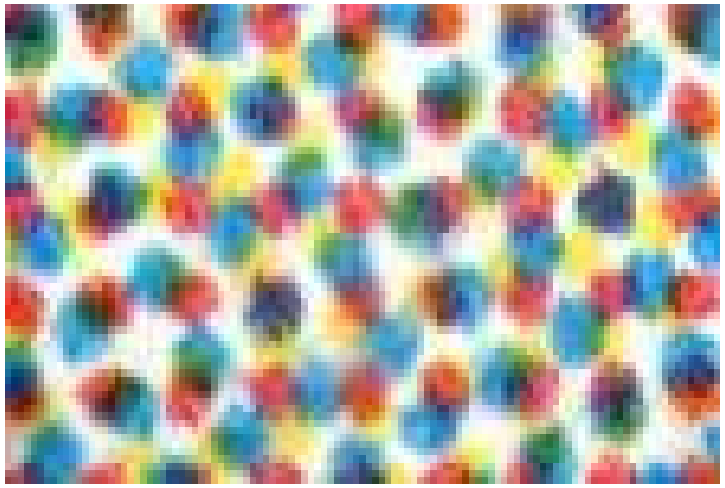
Silicon Wafer

add

Oxygen (O2)

Glass

Lenses and Magic Dots



Part I – How Do We “See” the World Around Us?

EyeBall Optics

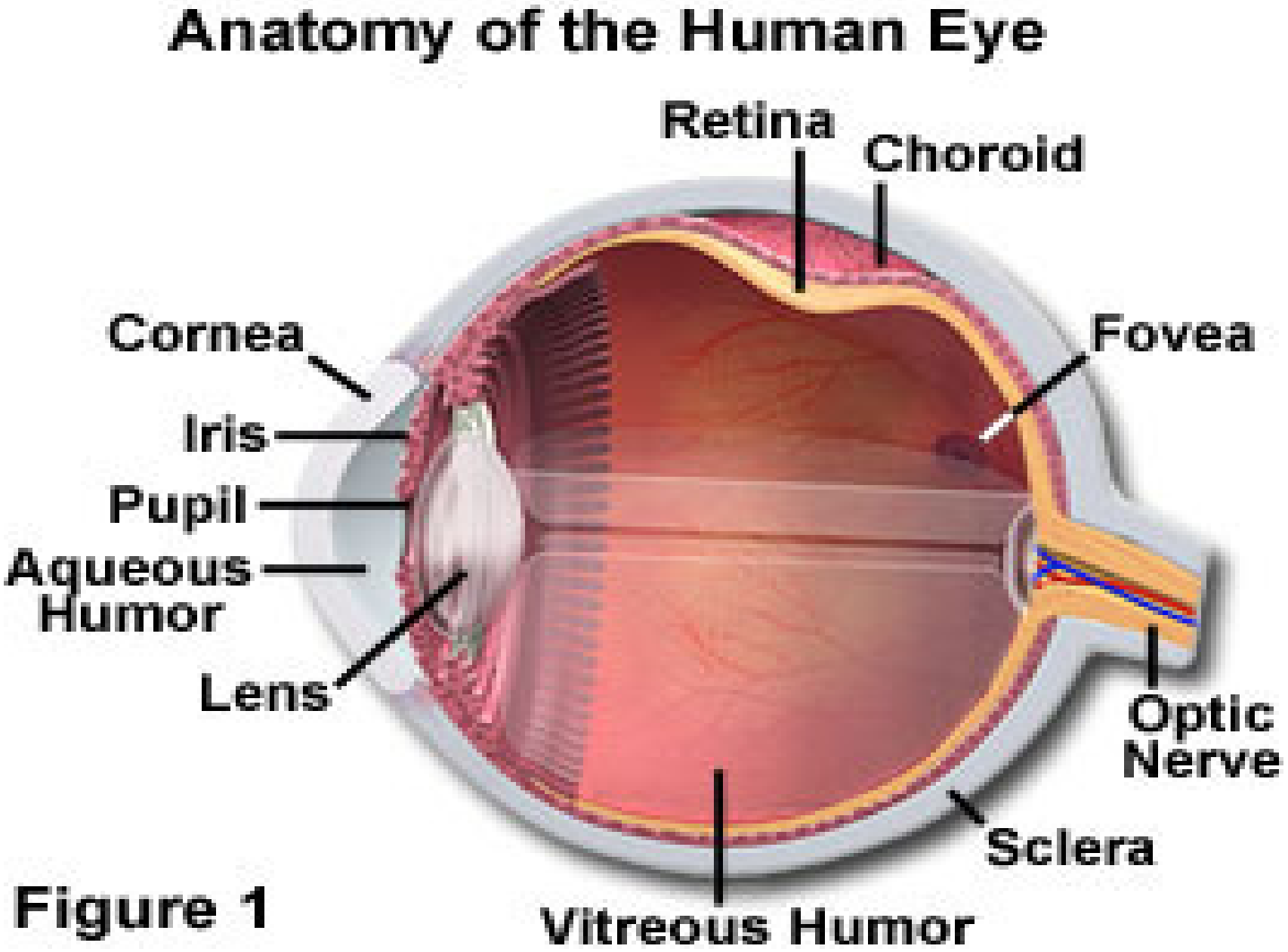
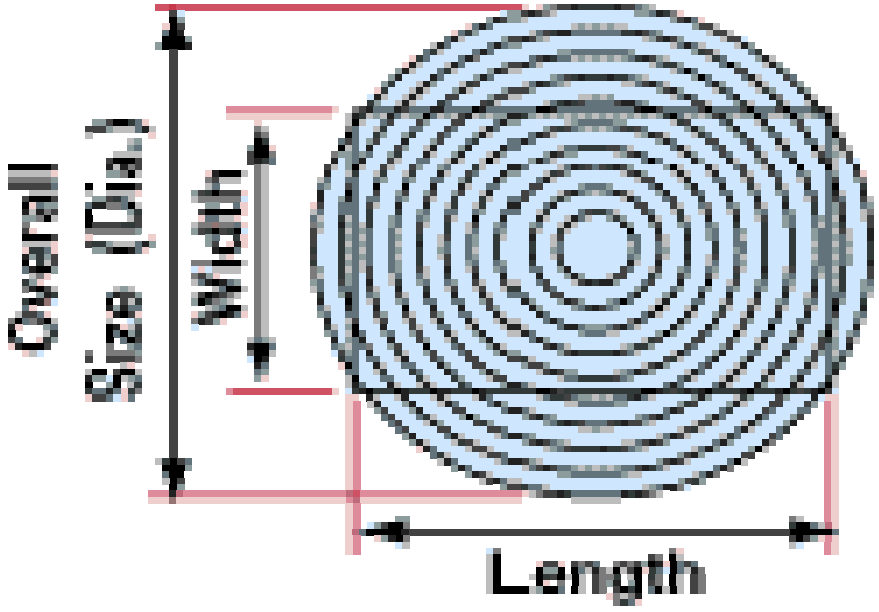
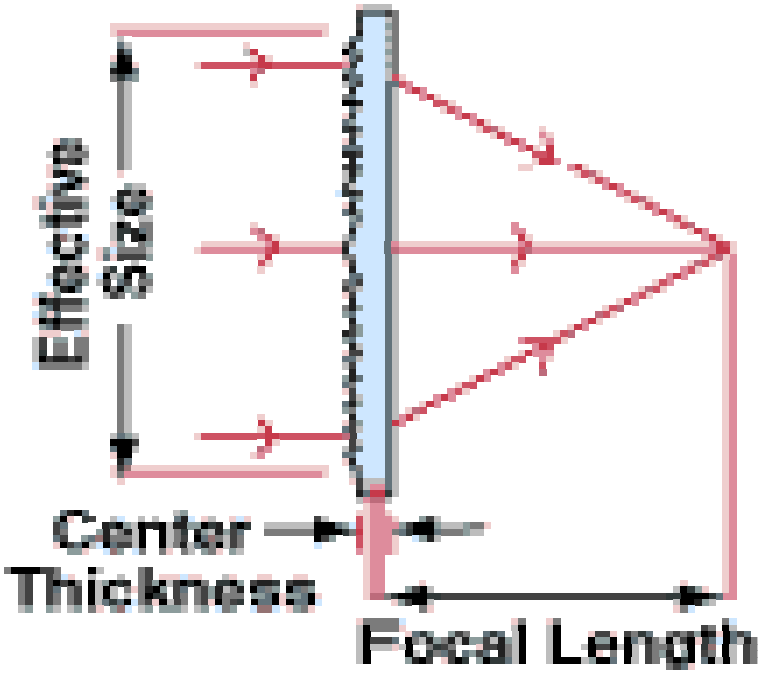


Figure 1

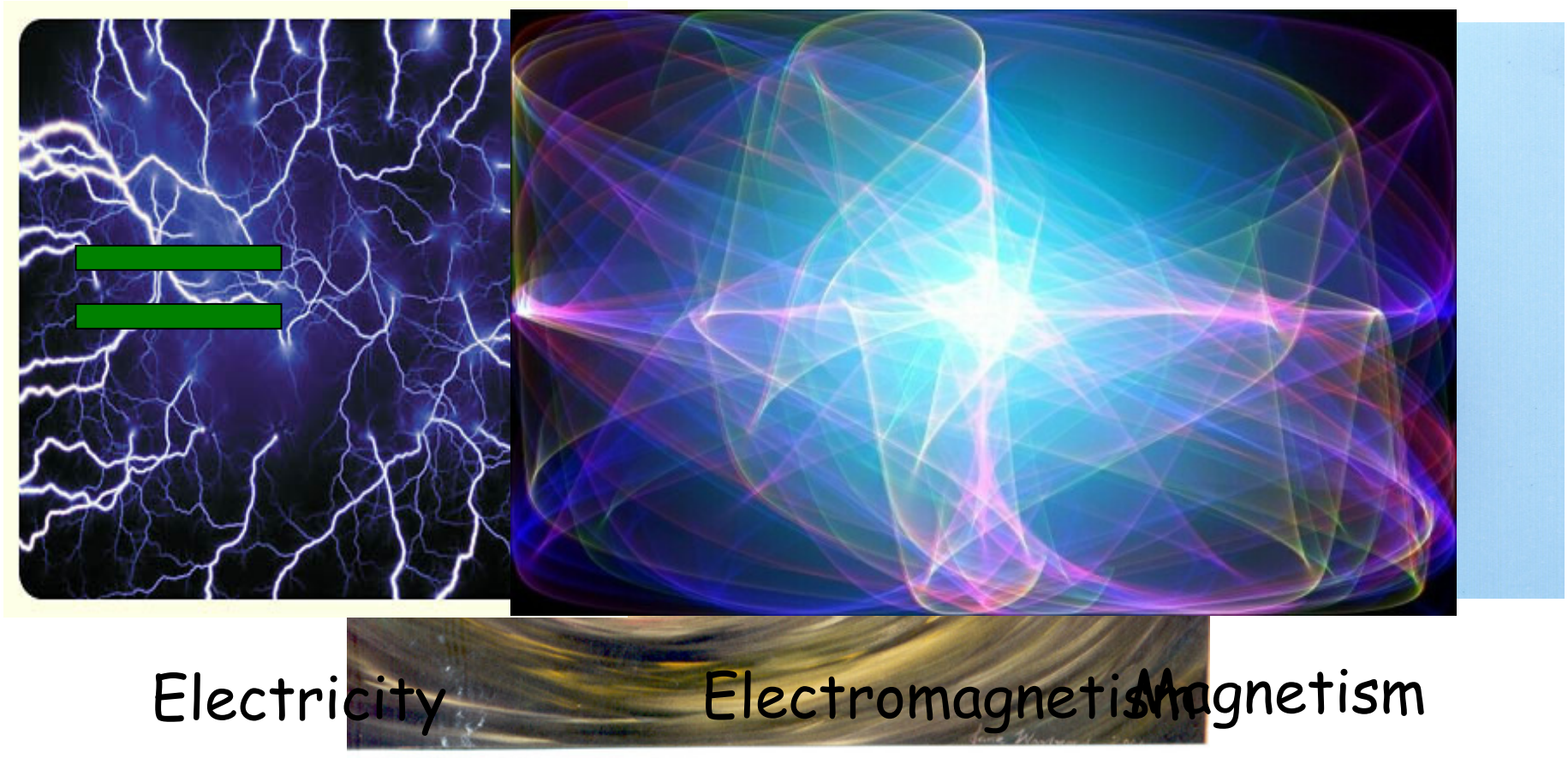
What's a Fresnel Lens Anyway?





What is Light??

Light is a Wave
Light is an electromagnetic Wave

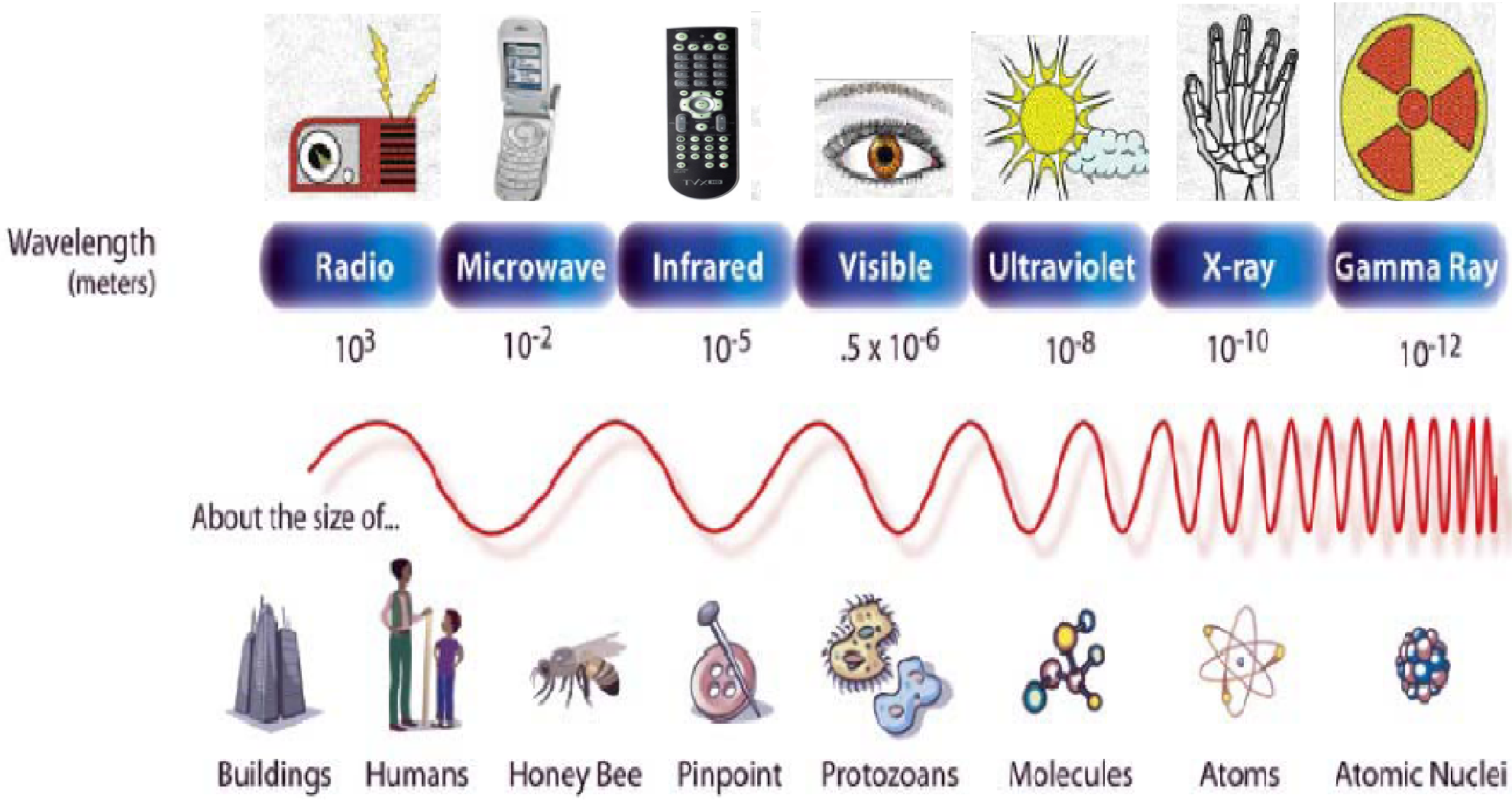


Electricity Electromagnetism Magnetism

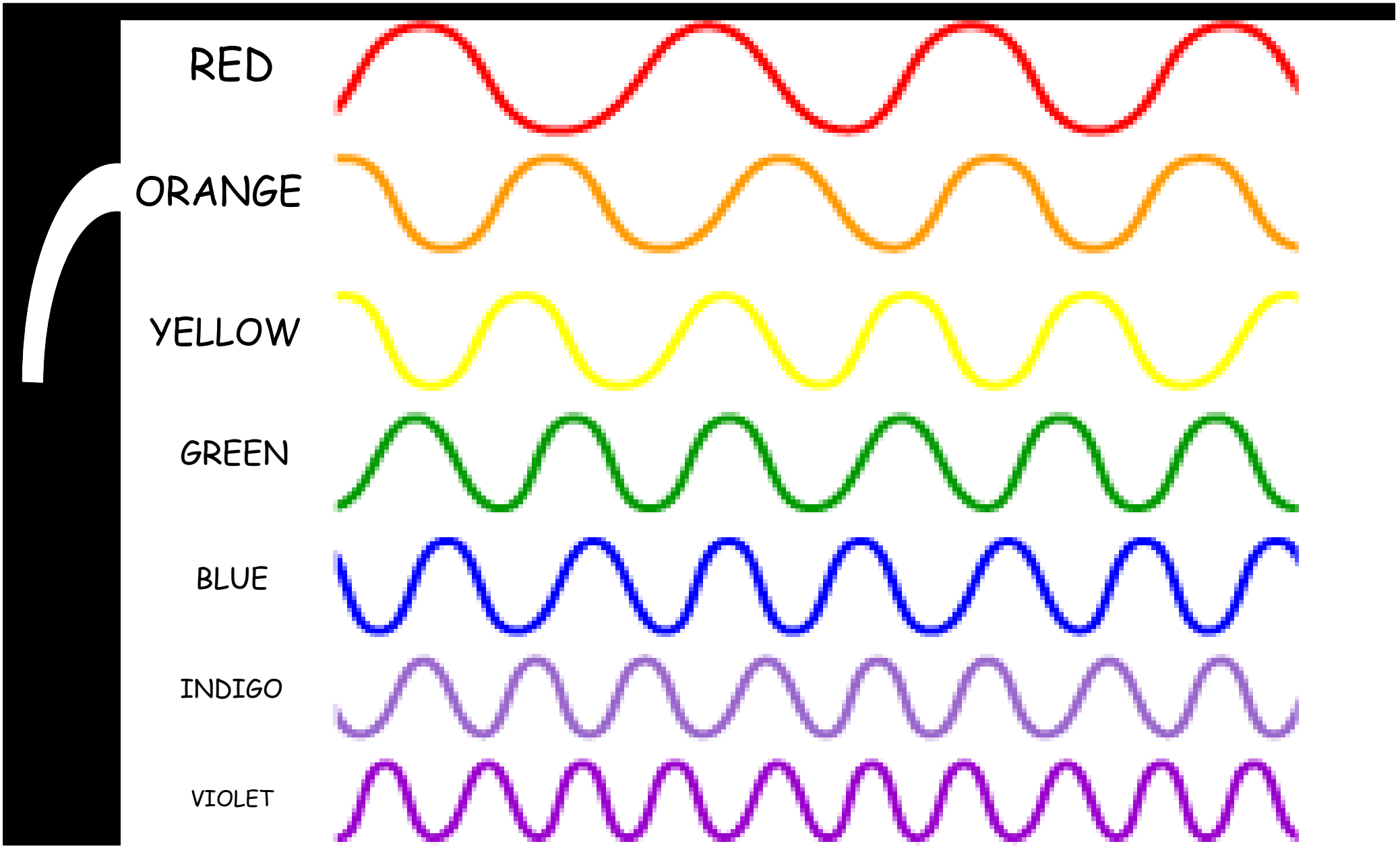
Waves have both size and direction

The Electromagnetic Spectrum

Size of waves

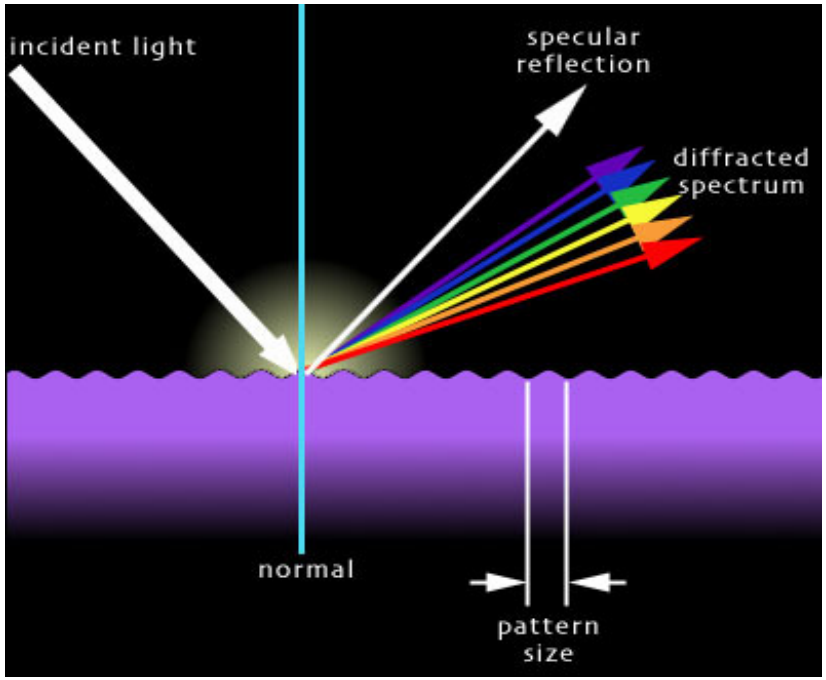


Color = Wavelength



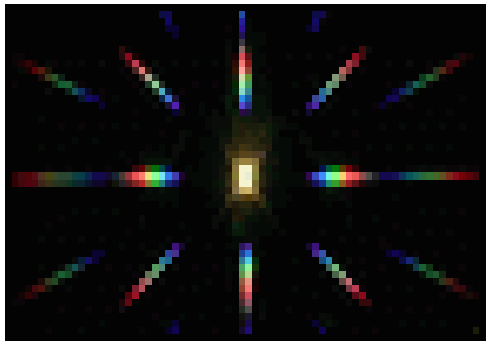
Diffraction – Separate the waves

- Since light is a wave, it can be made out of a bunch of waves
- You can separate the waves to see the different colors.

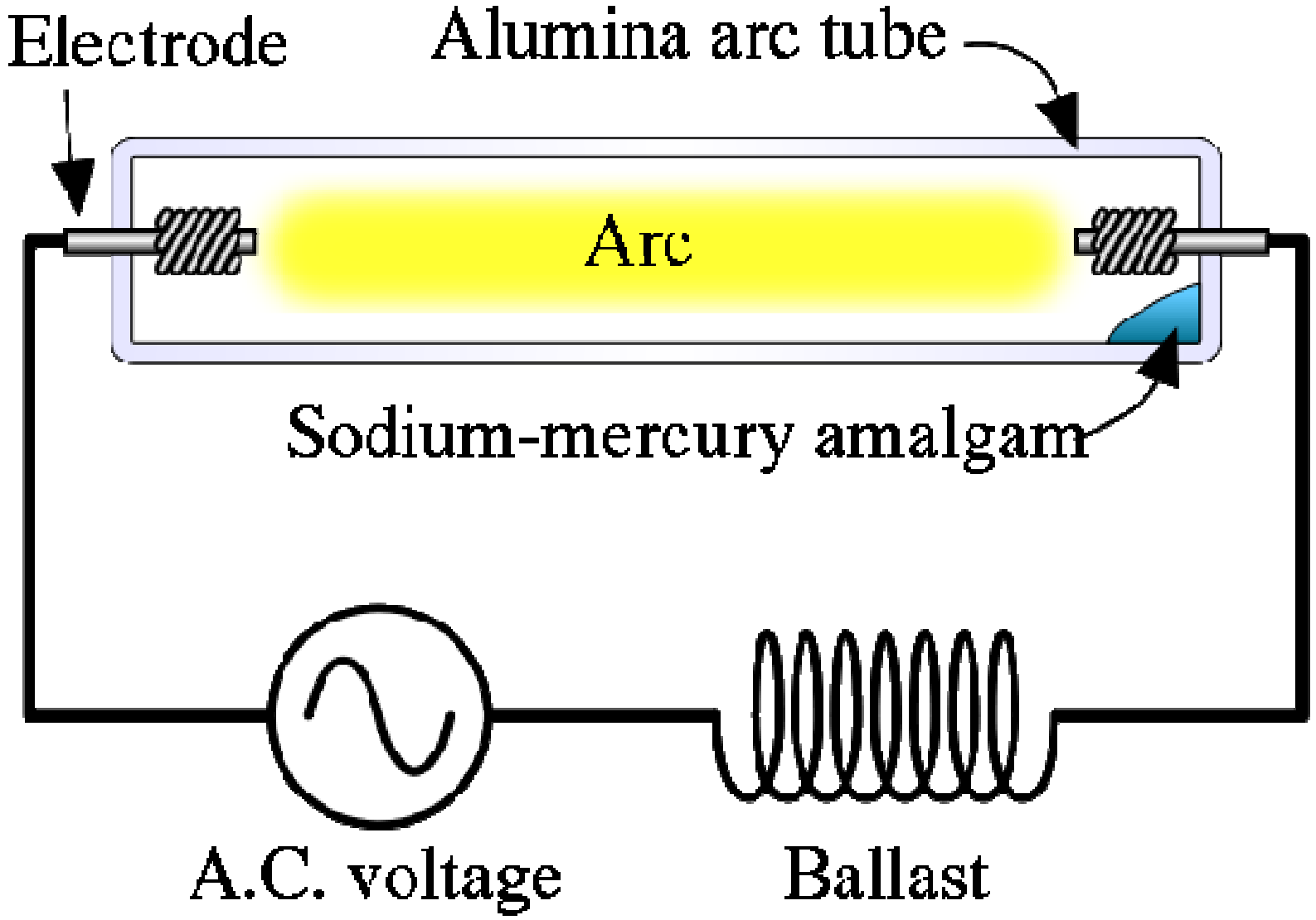


Rainbow Peepholes®

Diffraction Gratings



NEON Type Lamps



Magic Stripes

Polarization of Light

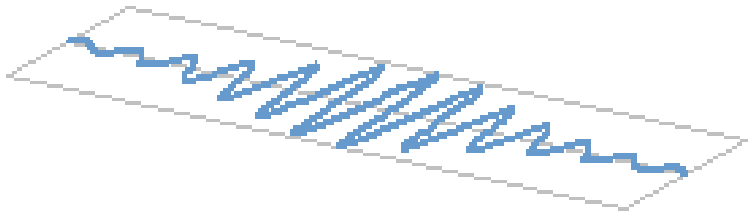
- **Where do the colors come from?**

- **Make your own polariscope and find the stripes in the plastic and glass materials.**

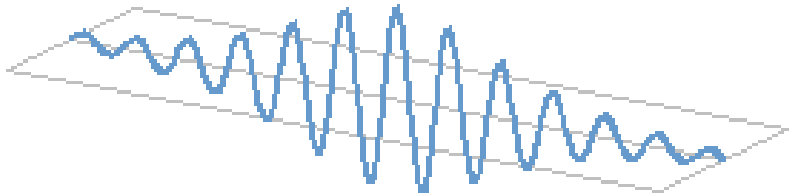
- **Geologists, identify minerals with polarized light microscopes.**

- **Civil engineers examine stresses inside structures with transparent models and a polariscope.**

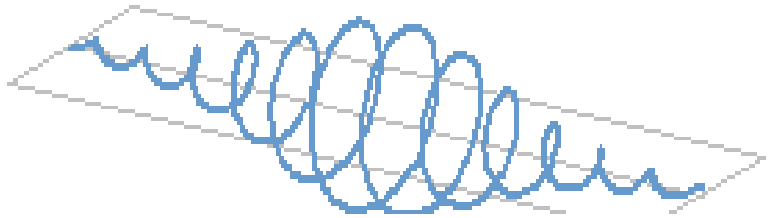
Polarization = Wave Direction



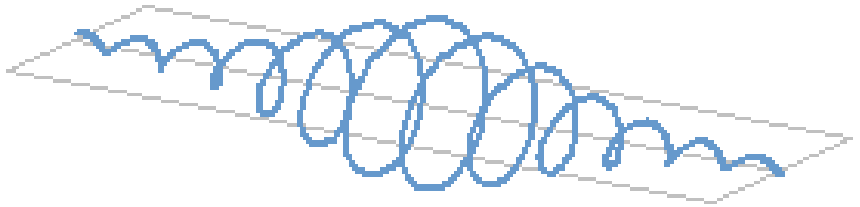
Horizontal Linear Polarization



Vertical Linear Polarization

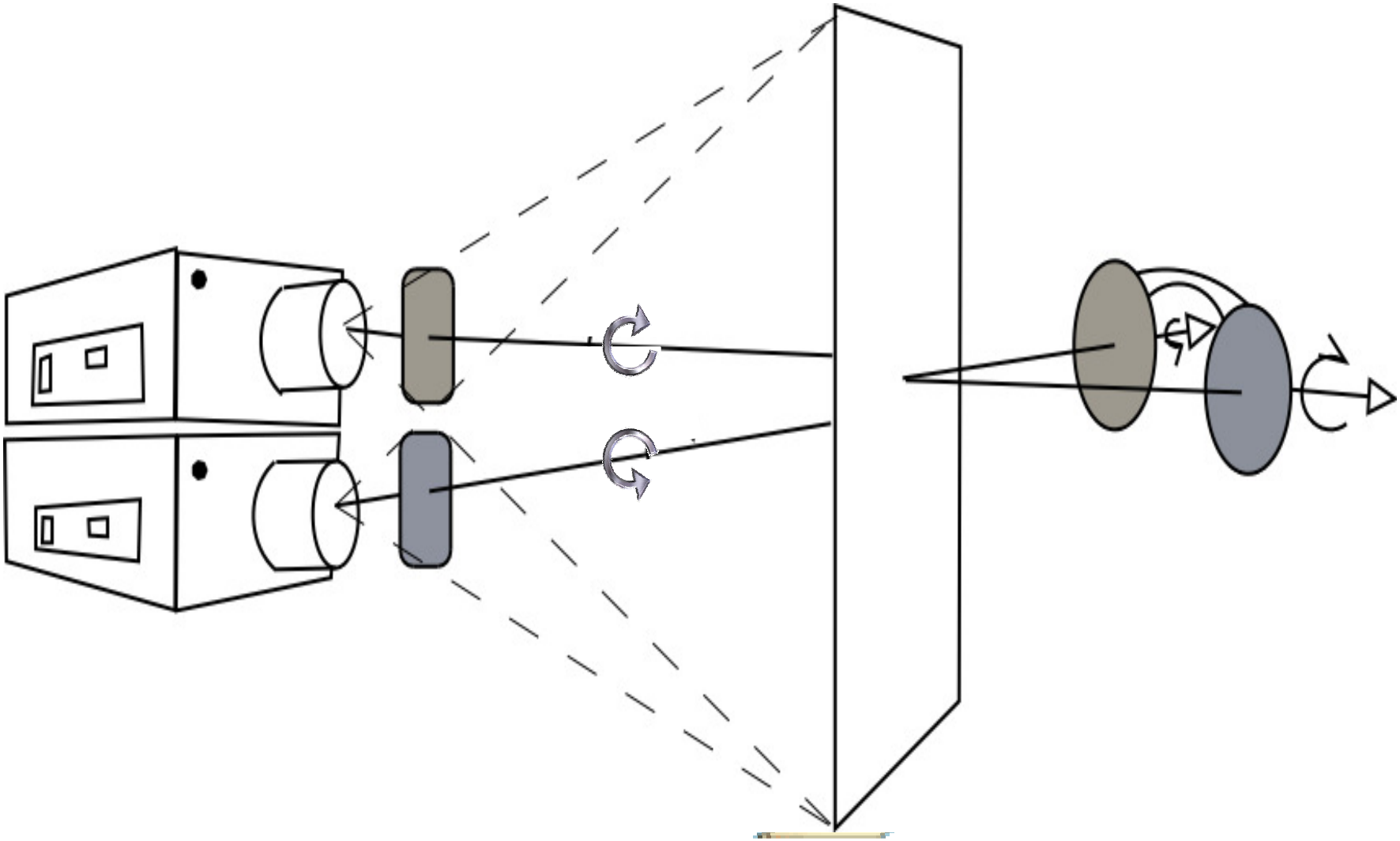


Left Circular Polarization



Right Circular Polarization

Polarization 3-D

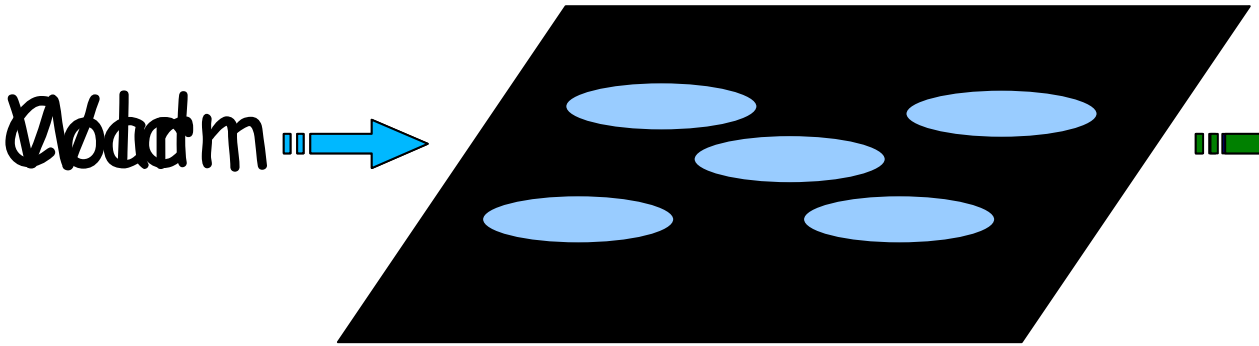


Polarization III





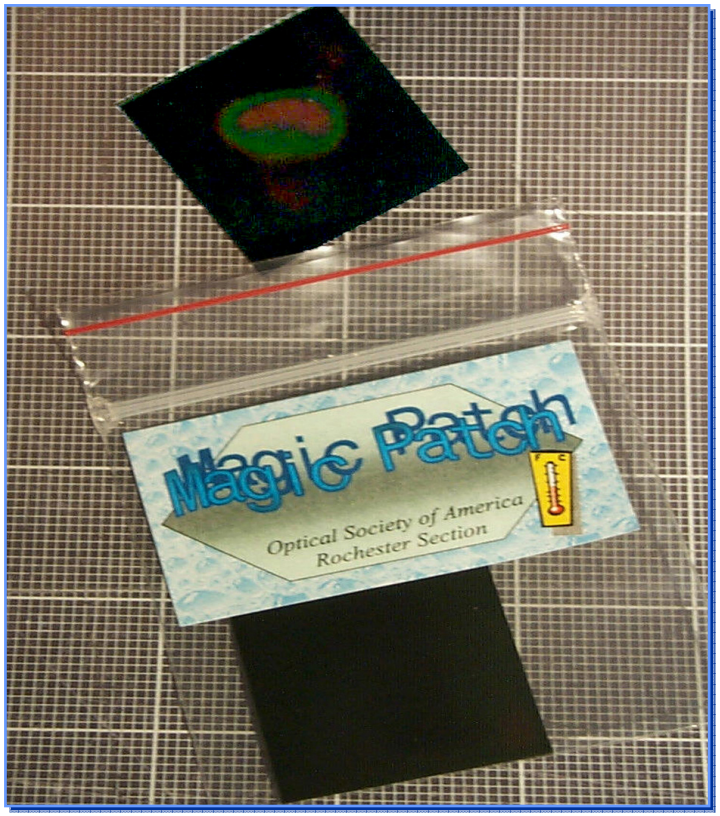
Liquid Crystals

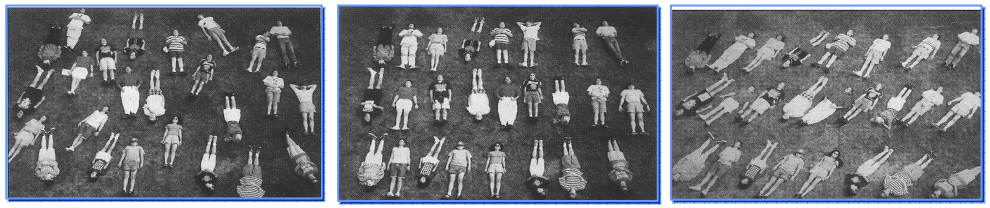


Green to Black

Magic Patch (temperature data vs. color)

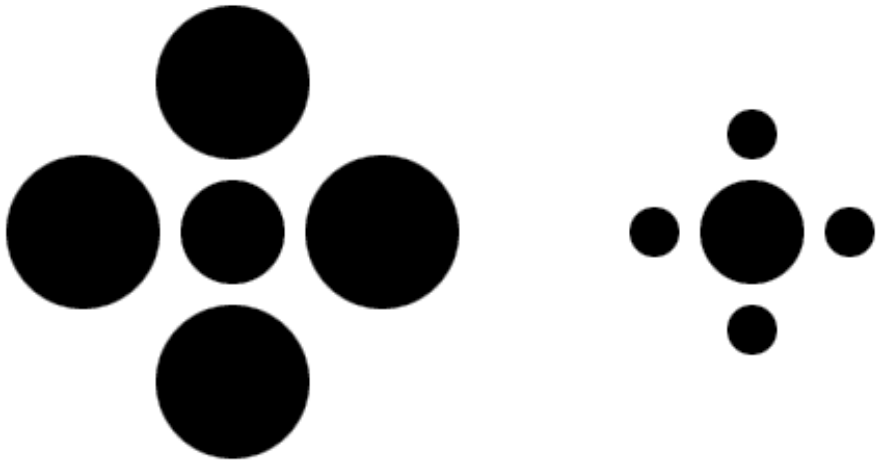
- Place the patch on your wrist and perform the "vampire test."
- The "*Magic Patch*" changes color with the heat from your body. The "living dead" give off no heat!
- Where do the colors come from?
- Does anyone see a vein or artery?
- This is an example of "selective reflection" by liquid crystals, painted onto the black paper.
- Liquid crystal are "ordered," just like the students across the page.
- Scientists use liquid crystals to build displays for watches and computer games.

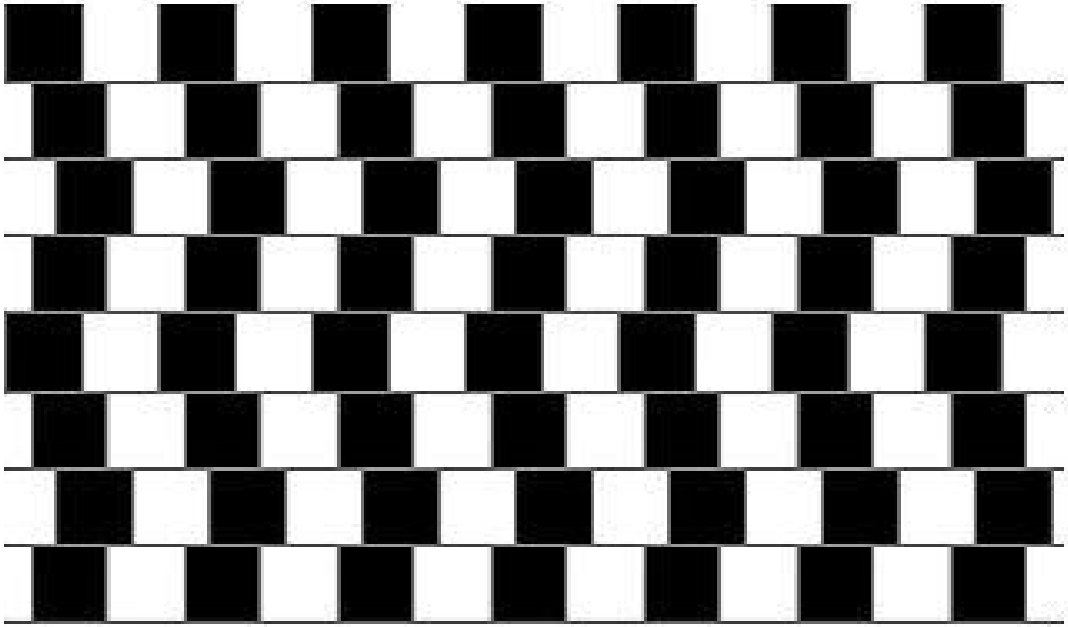




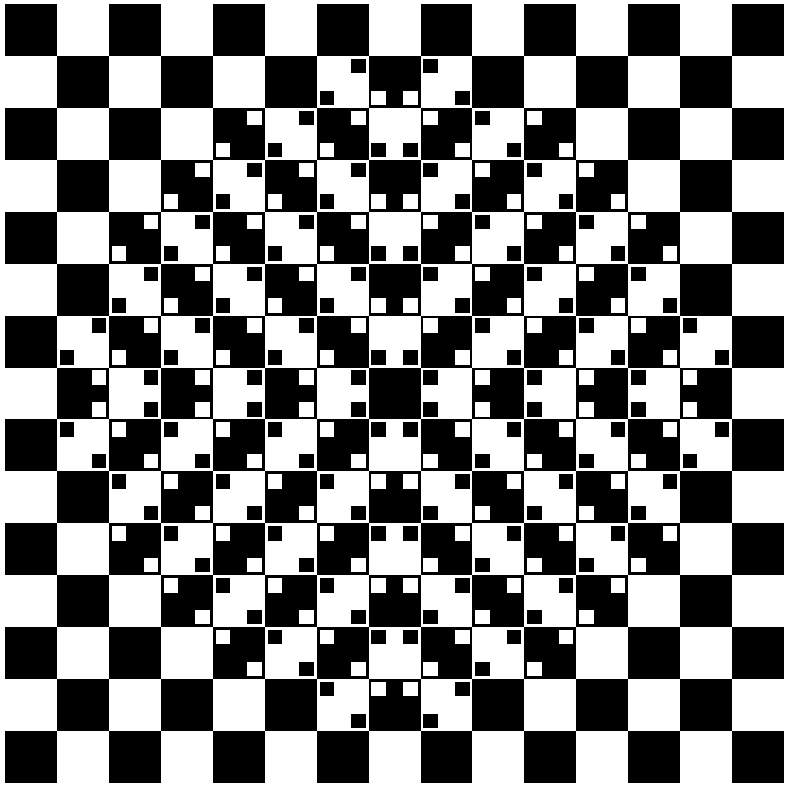
Fooling your brain

Fooling your brain

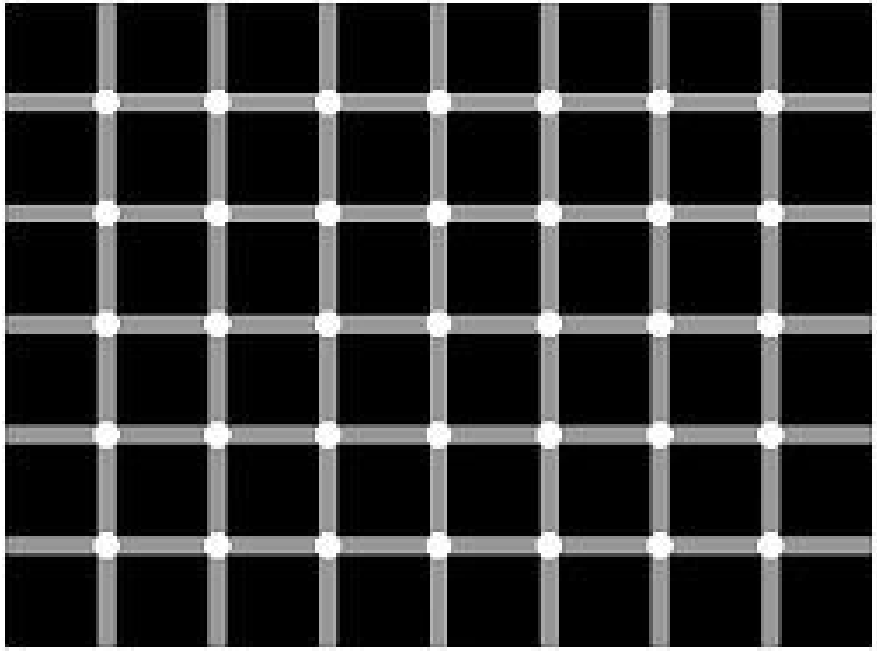




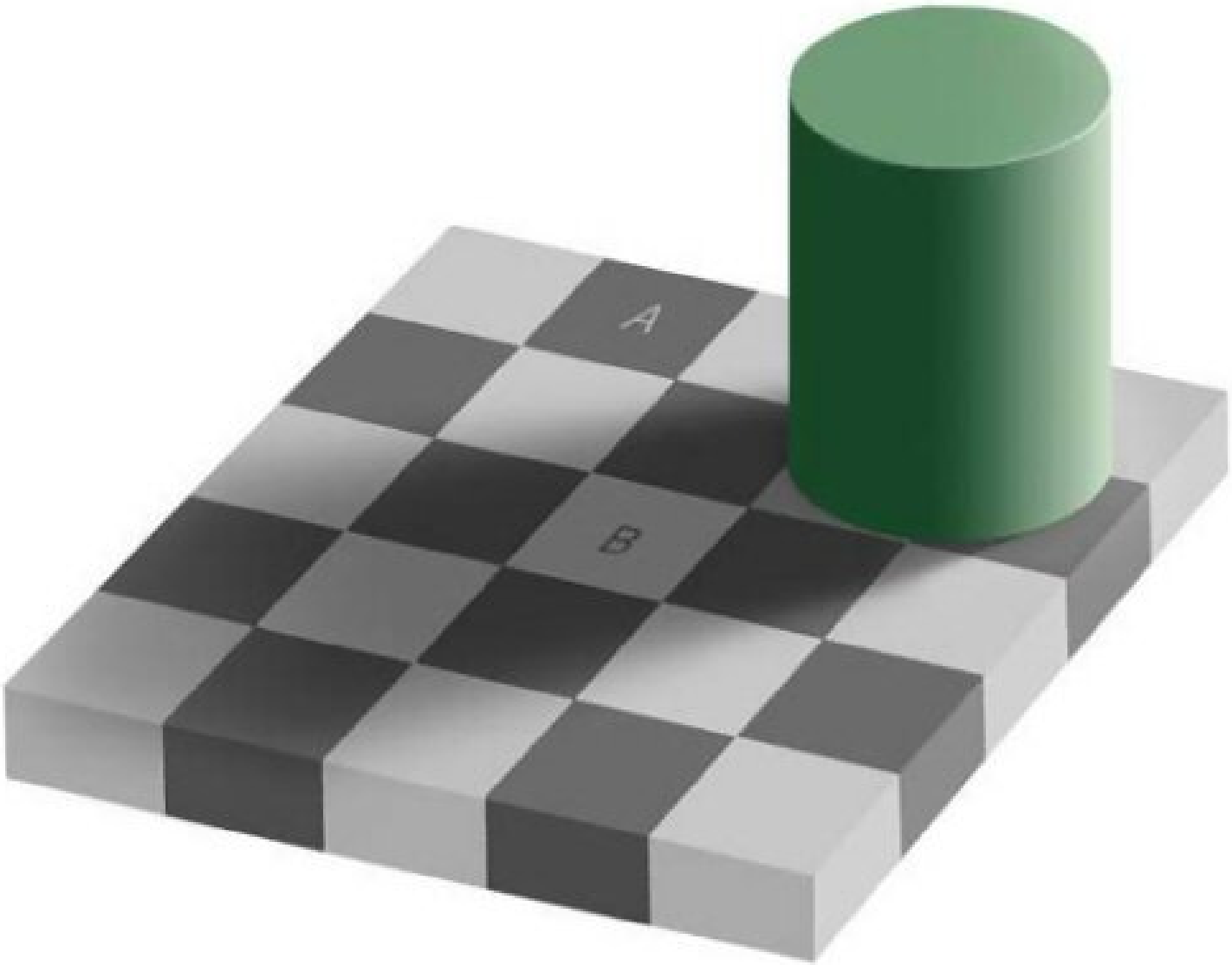
Are the horizontal lines parallel or do they slope?

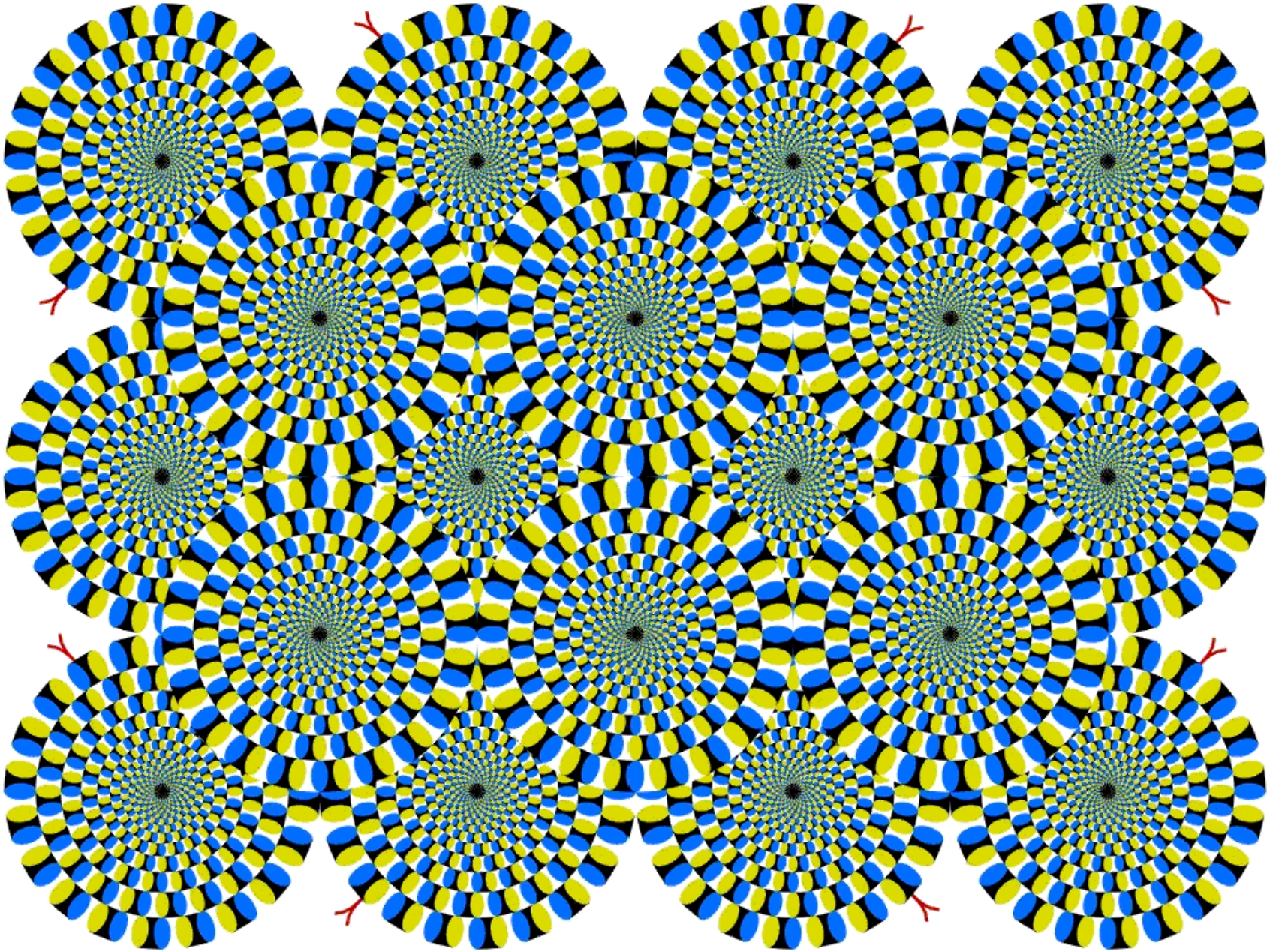


dots



Count the black dots! :o)

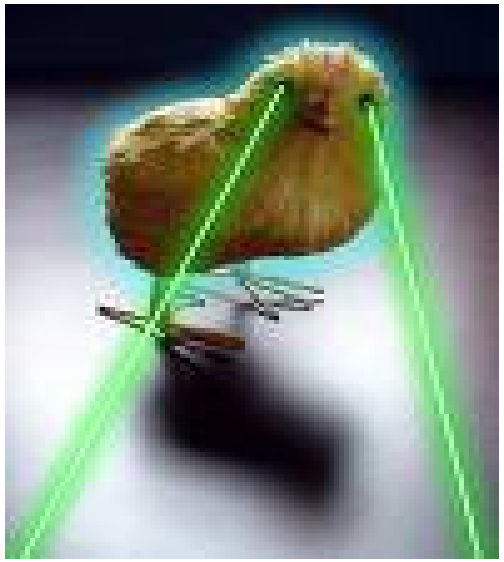

A
B



Thanks for paying attention

Always ask questions

Do well in school



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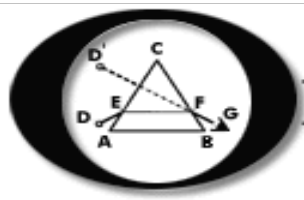
Please teach your children personal financial responsibility.

We would like to thank our sponsors and partners on the following slide.

Enjoy the rest of your Family Day Event



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