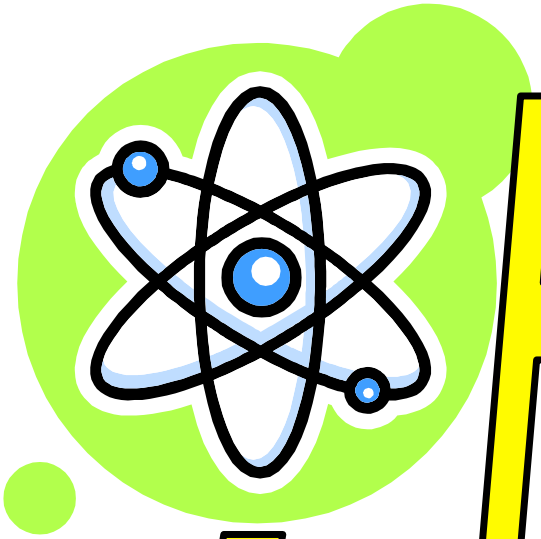
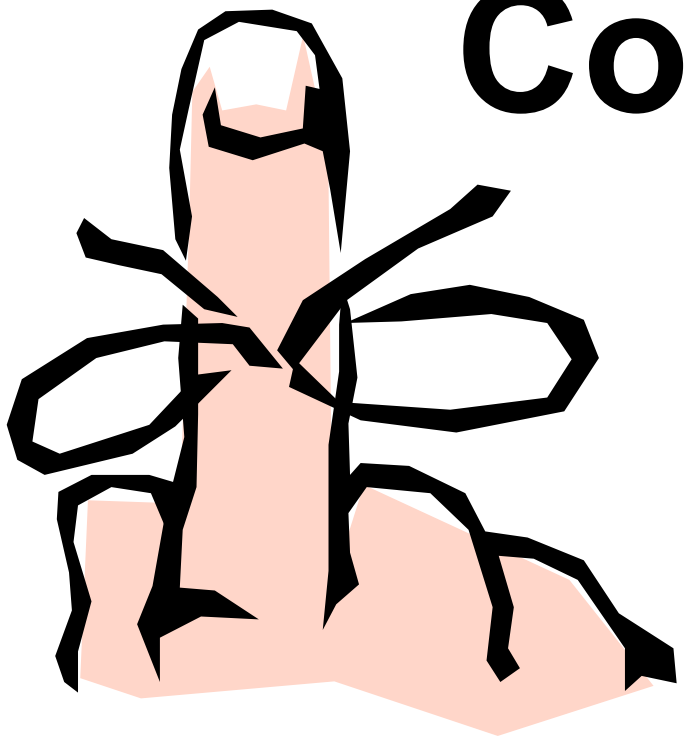


Final Exam Jeopardy

Adapted by T. Trimpe http://sciencespot.net/



Contestants Don't Forget...

RULES

1. You should NOT write your answers in the form of a question.

2. You DO need to keep track of your score. You do NOT lose points if you answer incorrectly.

RULES

3. Your team should answer EACH question on your whiteboard.

4. We will rotate who has control of the board, choosing the question.

Physical or Chemical?	Atomic Structure	EM Spectrum	The Eye	Light Properties
100	100	100	100	100
200	200	200	200	200
300	300	300	300	300
400	400	400	400	400
500	500	500	500	500

Physical or Chemical? for $100

Rust forming on a metal fence

Chemical Change

The metal has been changed and cannot change back

Back to Game

Physical or Chemical? for $200

Evaporation of rubbing alcohol

Physical Change

The rubbing alcohol is in the air and could have been trapped with condensation

Back to Game

Physical or Chemical? for $300

Chalk crushed with a mortar and pestle

Physical Change

The chalk, although it looks different can be reformed and can still be used as chalk

Back to Game

Physical or Chemical? for $400

Marshmallow toasted over the campfire

Chemical Change

The marshmallow is changed (color, texture) and cannot be changed back

Back to Game

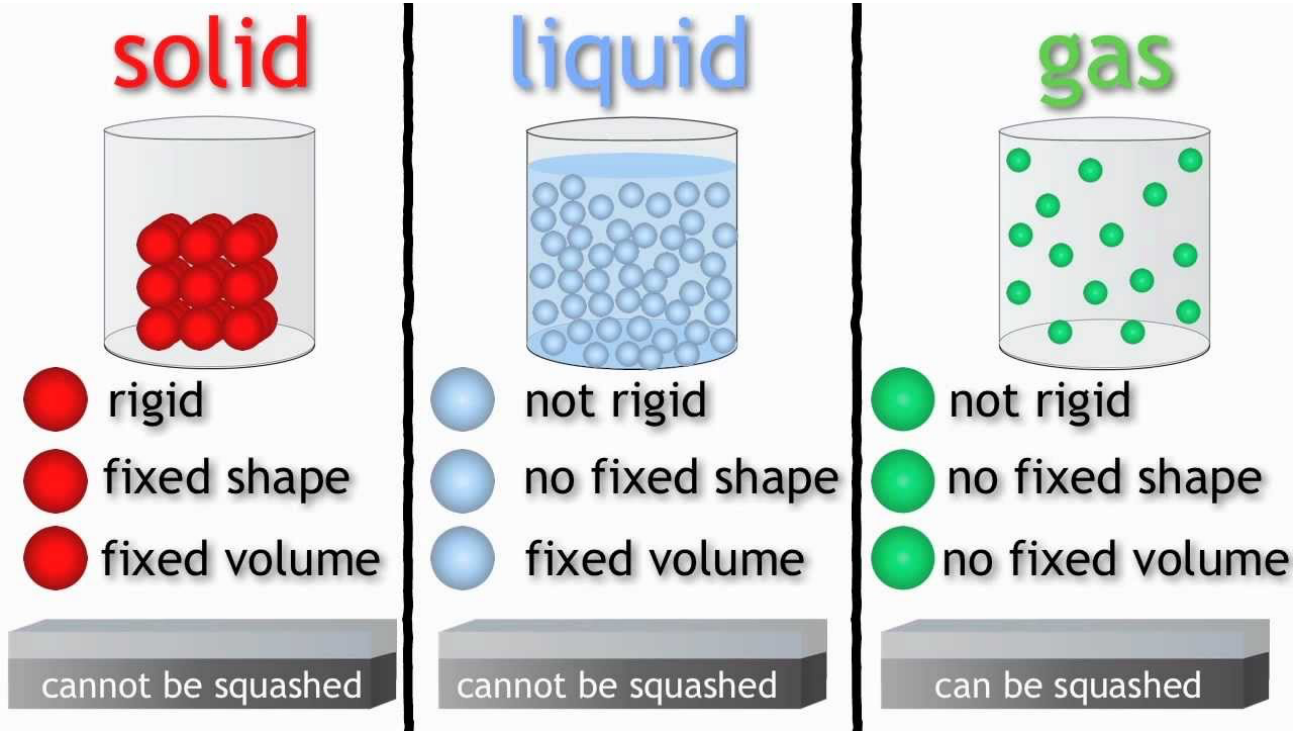
Daily Double!!

(Worth 2x the points!)

Water transforming from ice to liquid to gas.

Also describe the molecular movement in each step

Physical Changes: **Any change that occurs without altering the chemical composition of a substance**



Back to Game

Atomic Structure for $100

What are the subatomic particles that are positive and their number can be identified by the atomic number?

Protons!

Back to Game

Atomic Structure for $200

What two particles are measured by the atomic mass and what are their charge?

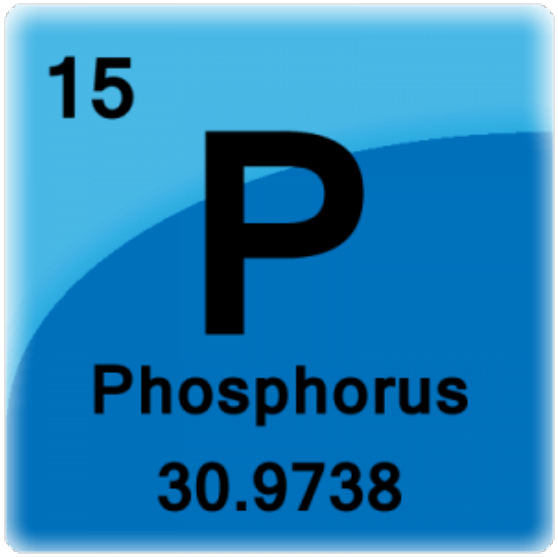
Protons (positive)

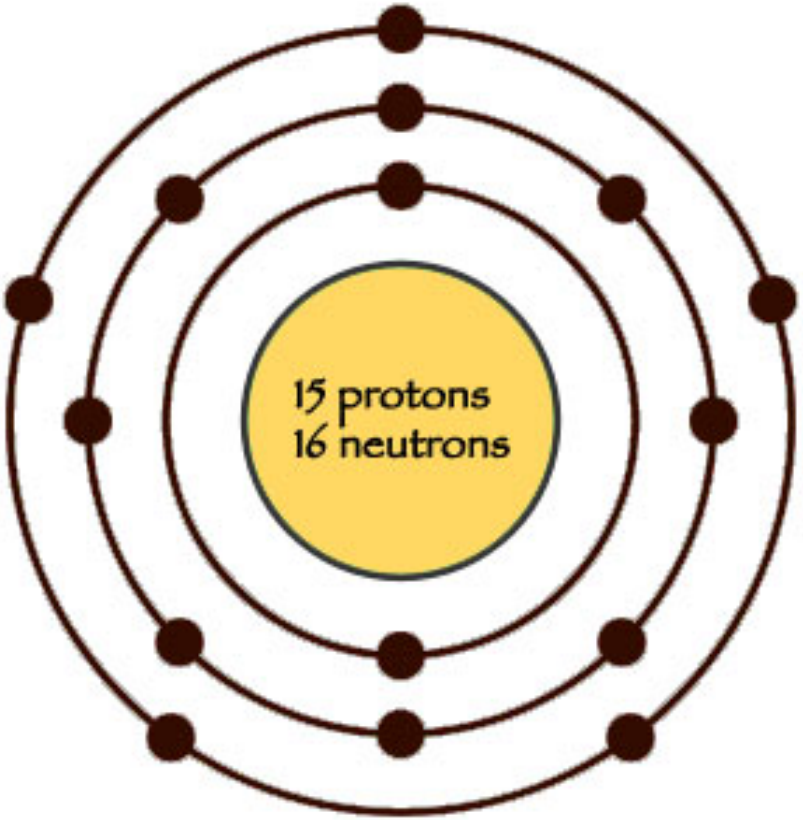
Neutrons (neutral)

Back to Game

Atomic Structure for $300

Create a Bohr Model structure for the element Phosphorus





Back to Game

Atomic Structure for $400

Calculate the number of neutrons for the element Fluorine

19 – 9 =

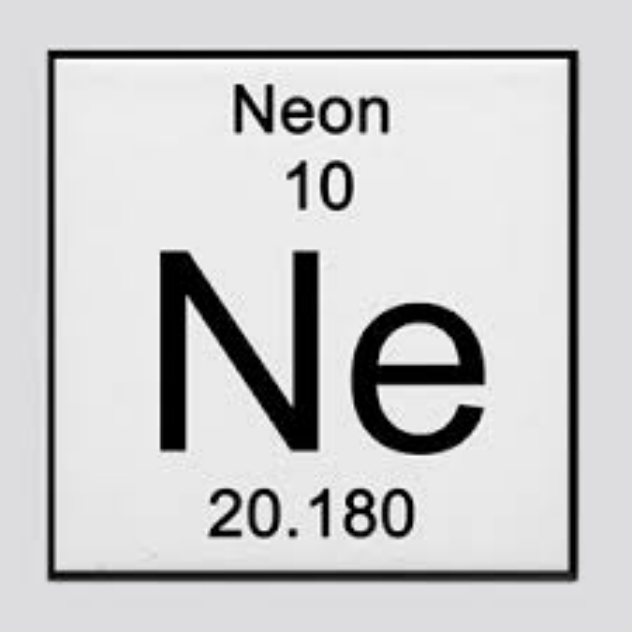
10 neutrons

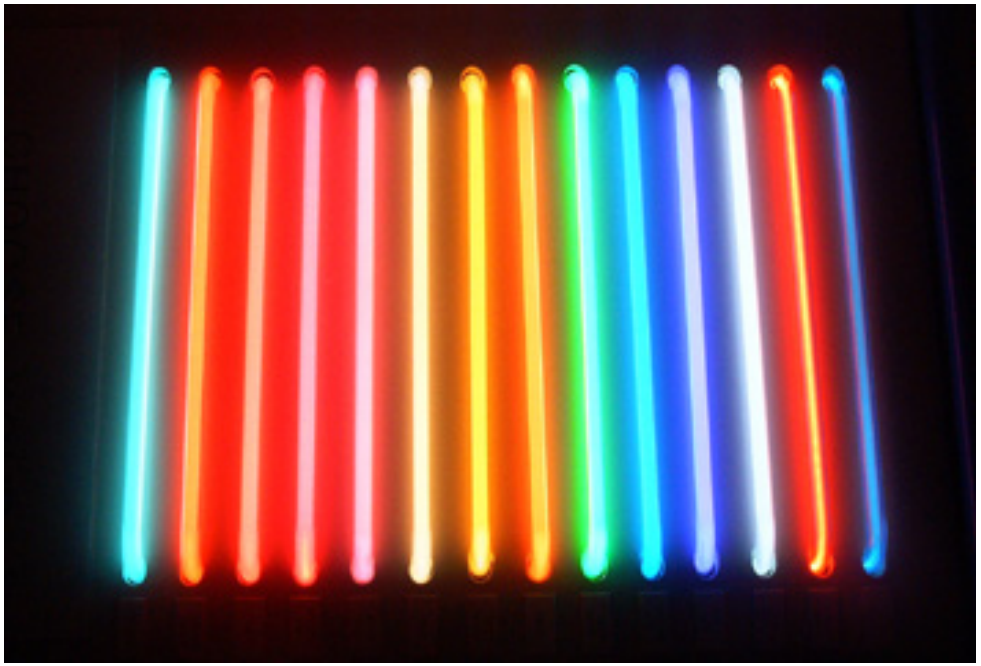
Back to Game

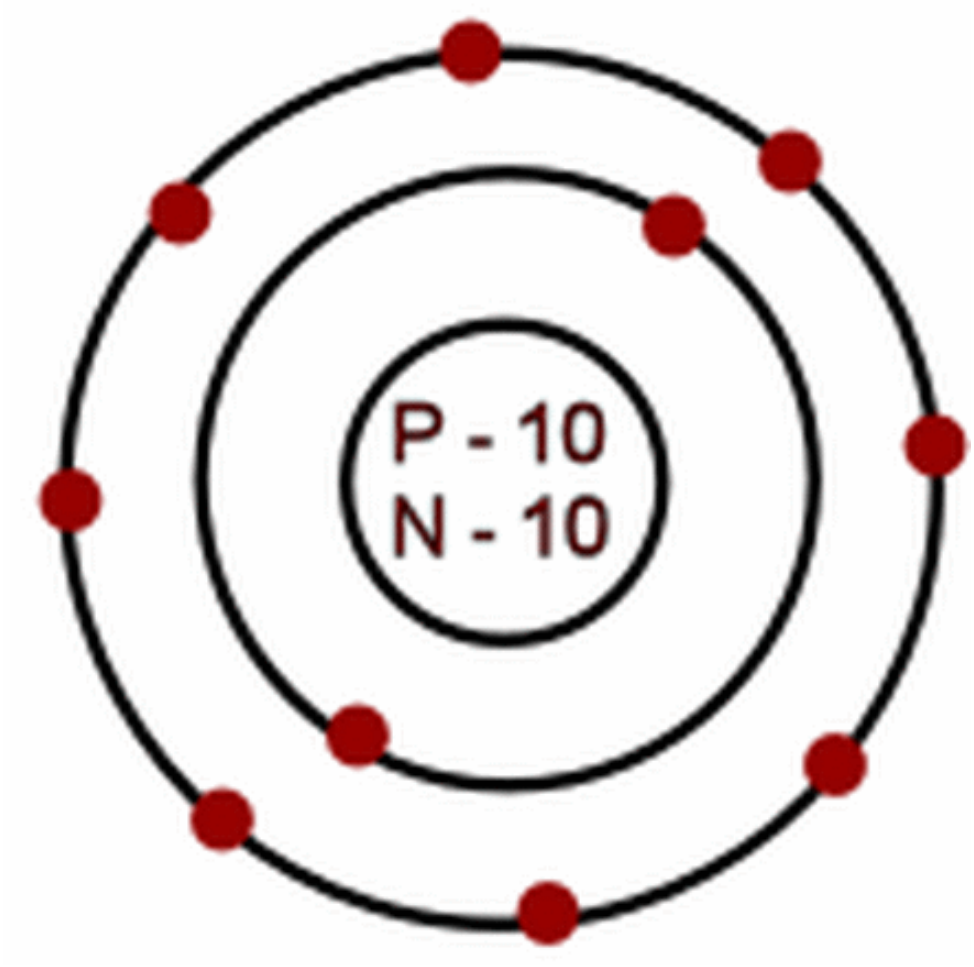
Atomic Structure for $500

Create a complete Bohr Model for the element Neon.

Is it reactive? Why or Why not?







Neon is un-reactive

It has a full valence shell with 8 electrons

***So does every element in the Nobel gas family**

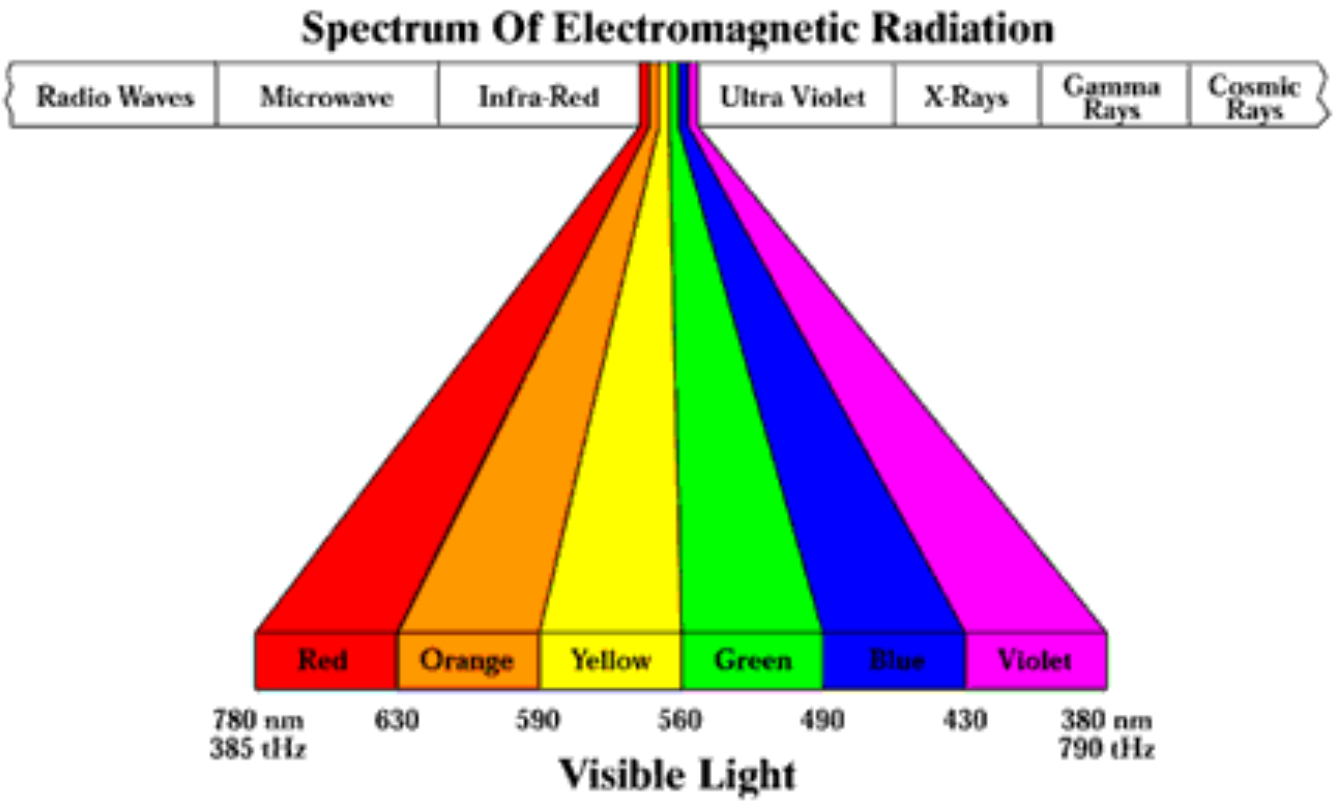
?

Back to Game

EM Spectrum for $100

The only portion of the EM Spectrum we can see with just our eyes

Visible Light!

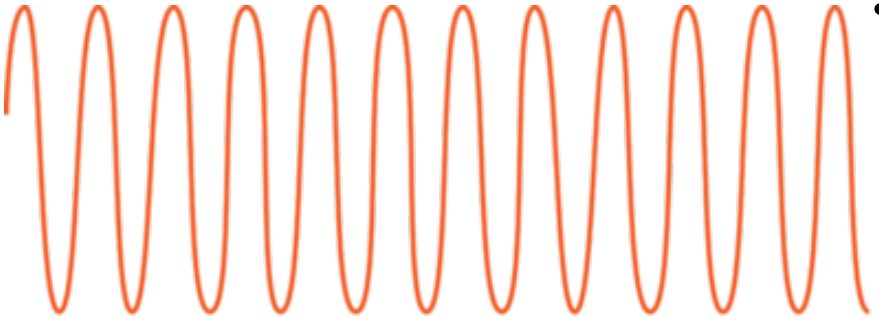


Back to Game

EM Spectrum for $200

One of these is higher frequency than the other
Which wave is it and how do you know?

1

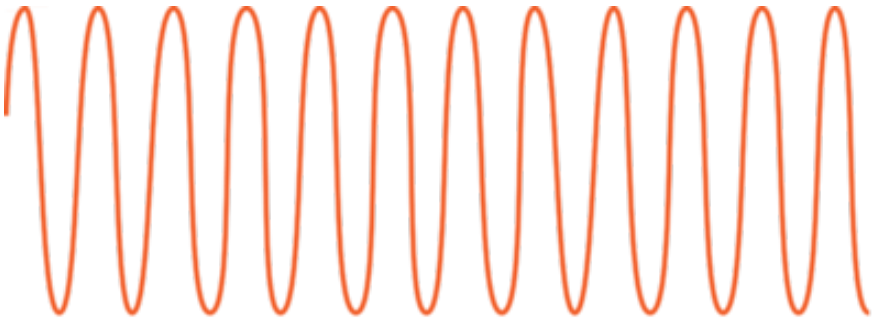


2

Valence Electrons

Wave # 1

It has more crests and troughs in the given time frame and the wavelengths are shorter



High frequency

Low frequency

Back to Game

EM Spectrum for $300

The highest frequency waves in the EM spectrum.

Gamma Rays

Back to Game

EM Spectrum for $400

The lowest energy waves in the EM spectrum

Radio Waves

Back to Game

EM Spectrum for $500

Why are we not overwhelmed by all of the EM waves in the room right now?

We can only see visible light!

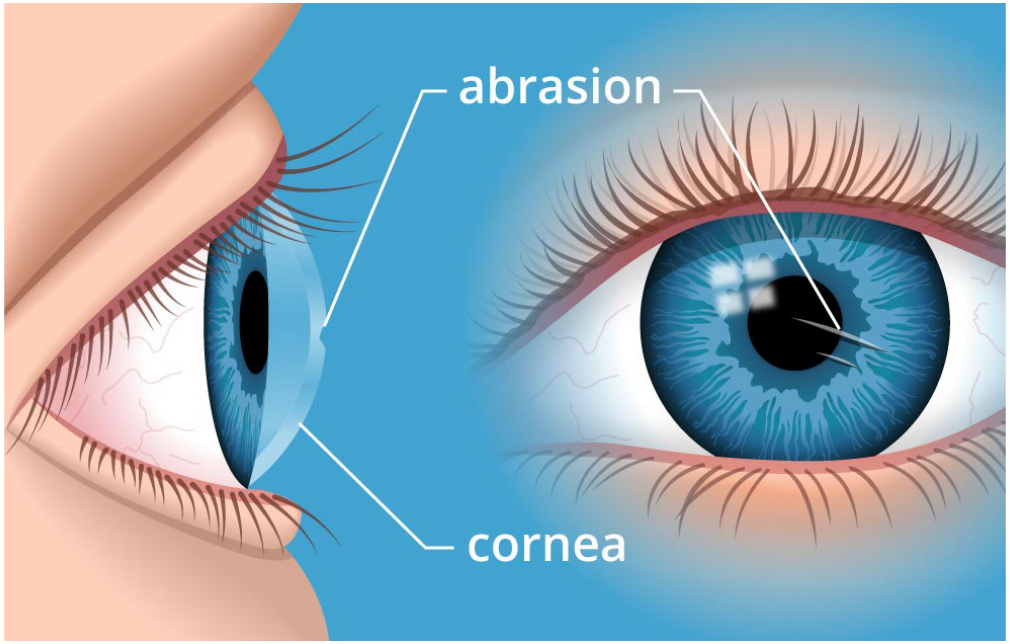
All the other waves are here, but we can't see them

Back to Game

The Eye for $100

This part of the eye is a clear protective outer coating where light first enters the eye and is easily scratched.

The Cornea

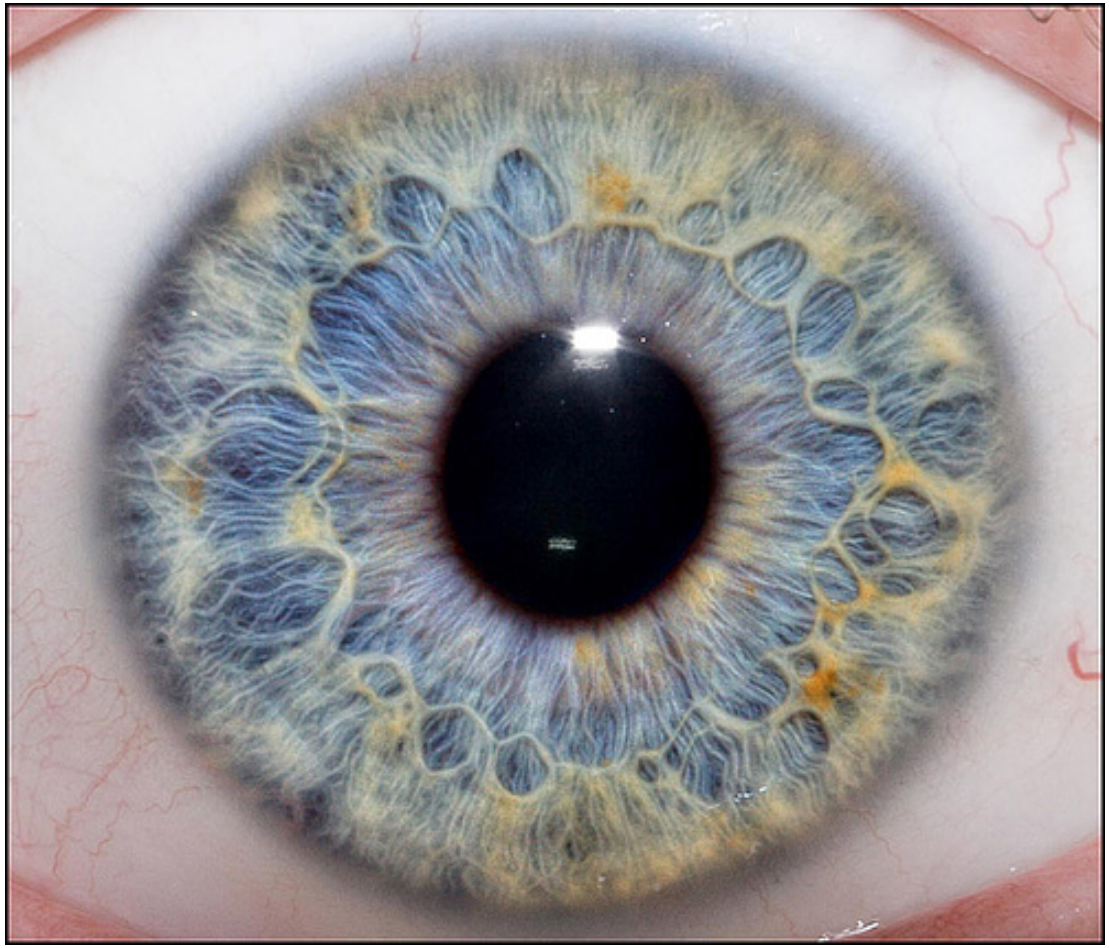


Back to Game

The Eye for $200

This part of the eye is a beautiful colored muscle

Iris

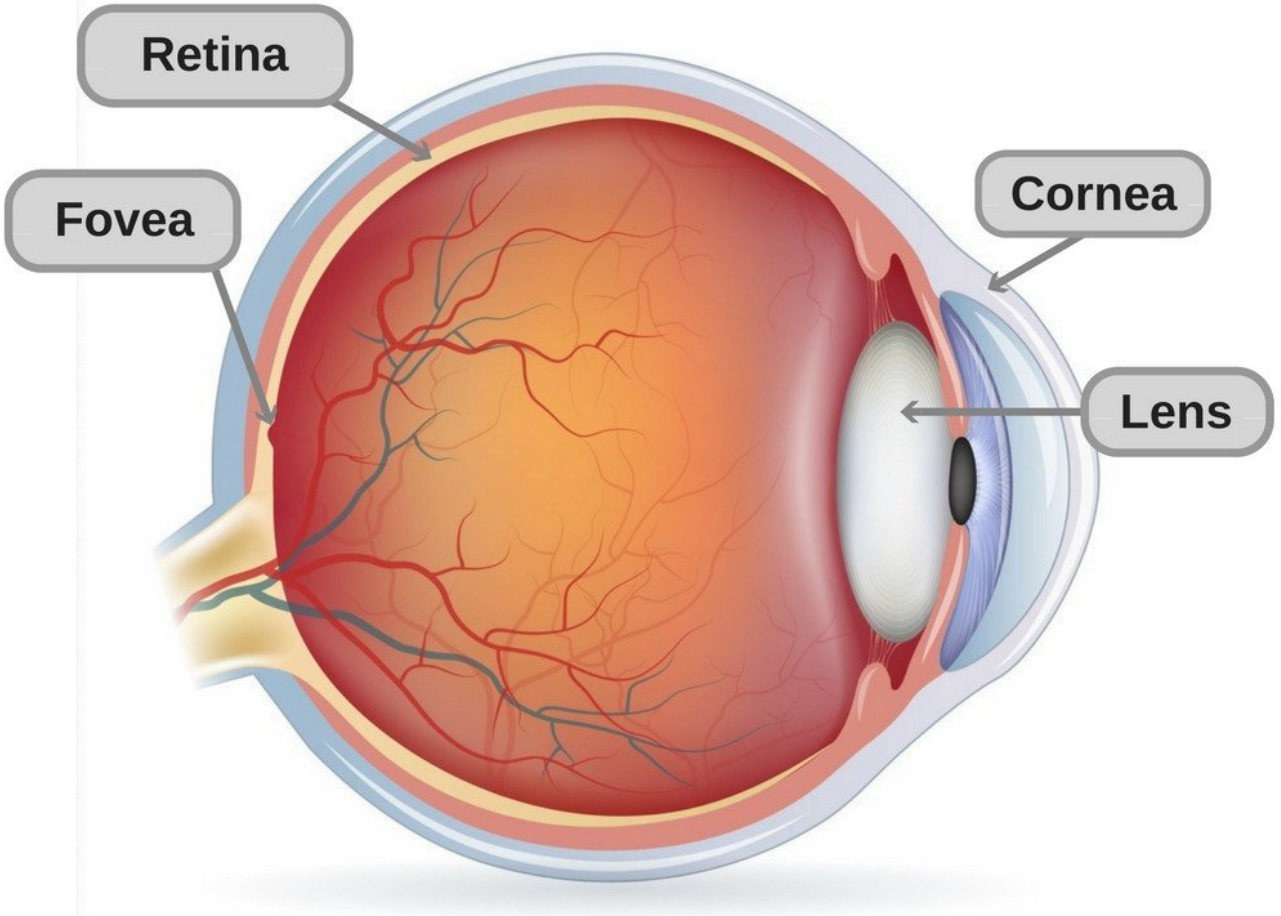


Back to Game

The Eye for $300

This part of the eye refracts the light causing an inverse image

The Lens

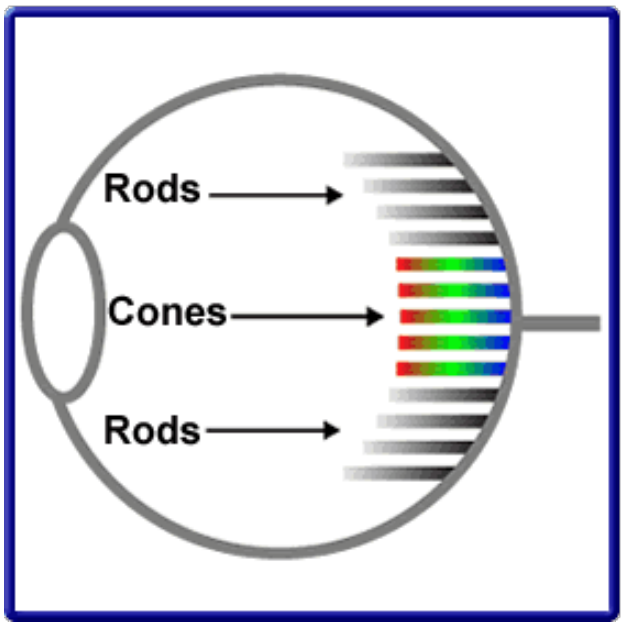


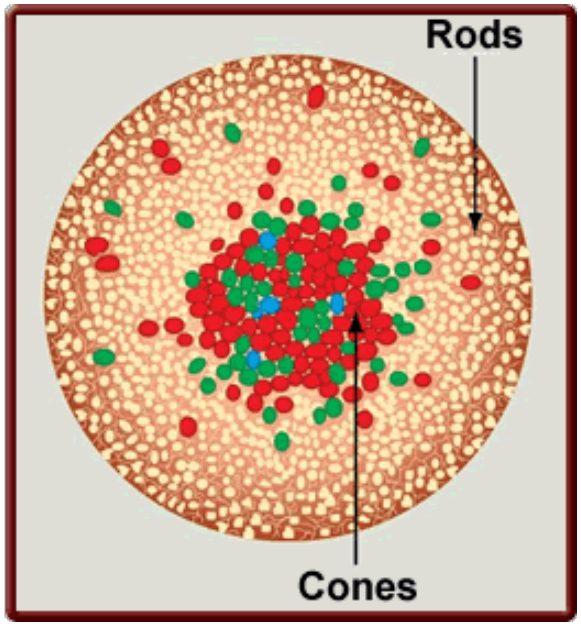
Back to Game

The Eye for $400

The retina, has three types of these special cells that allow us to see color, red blue and green.

Cones



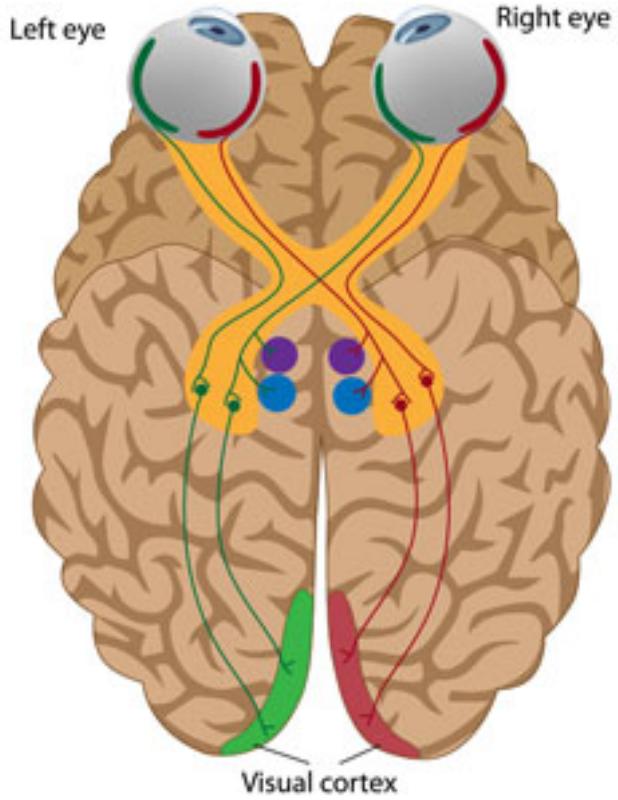


Back to Game

The Eye for $500

This major organ interprets our images collected by the retina and turns everything right side up again.

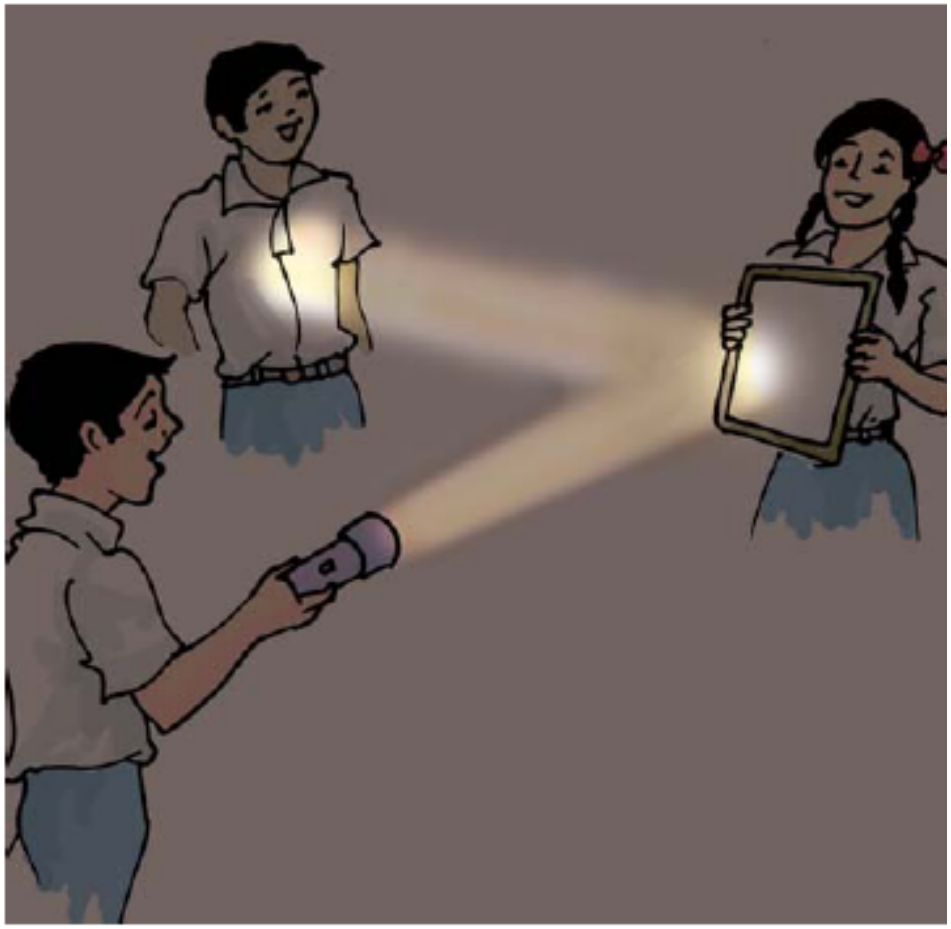
The vision center of the Brain



Back to Game

Light Properties for $100

What property of light is characterized by light bouncing off of a shiny surface?



Reflection

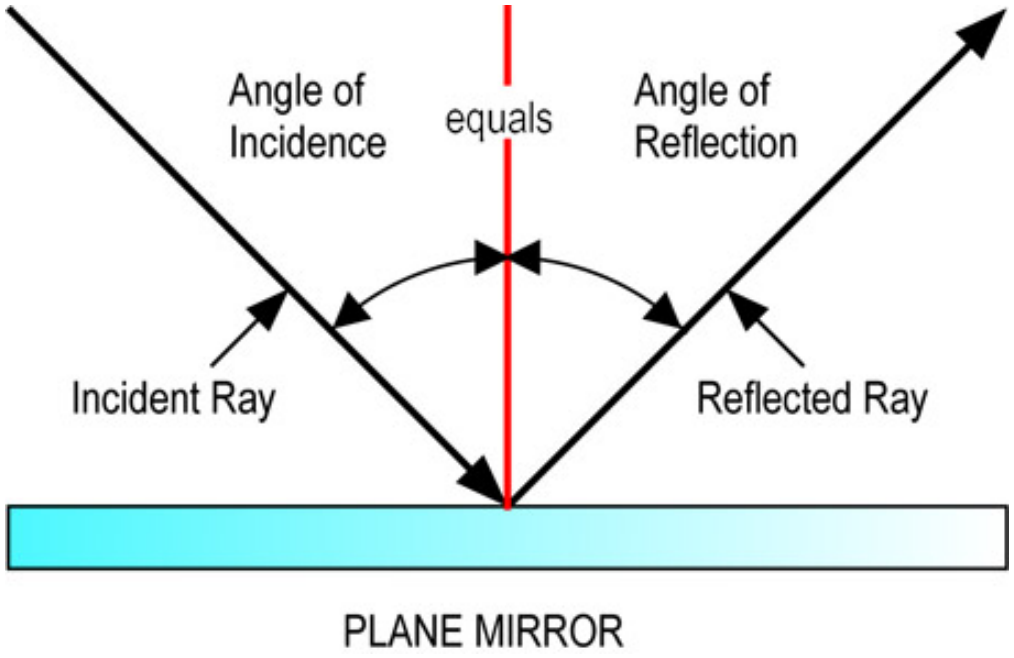
Back to Game

Light Properties for $200

When light reflects with an angle of incidence equal to 76^0, what is the resulting angle of reflection?

Please explain and draw an approximate diagram.

76^0 76^0



Back to Game

Light Properties for $300

Why does the leaf appear green?

White light from the sun contains ALL colors of the rainbow Green light reflects while all other colors are absorbed.

Back to Game

Light Properties for $400

What property of light causes the image of a man to look this way in a 'fun house' mirror?

Describe what the light is doing?

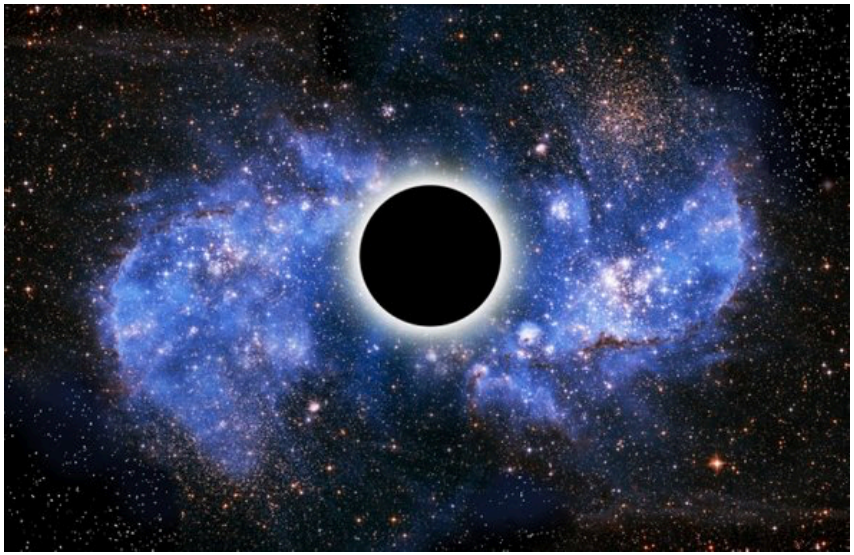
Refraction

Light is bending at different angles causing the image to look distorted

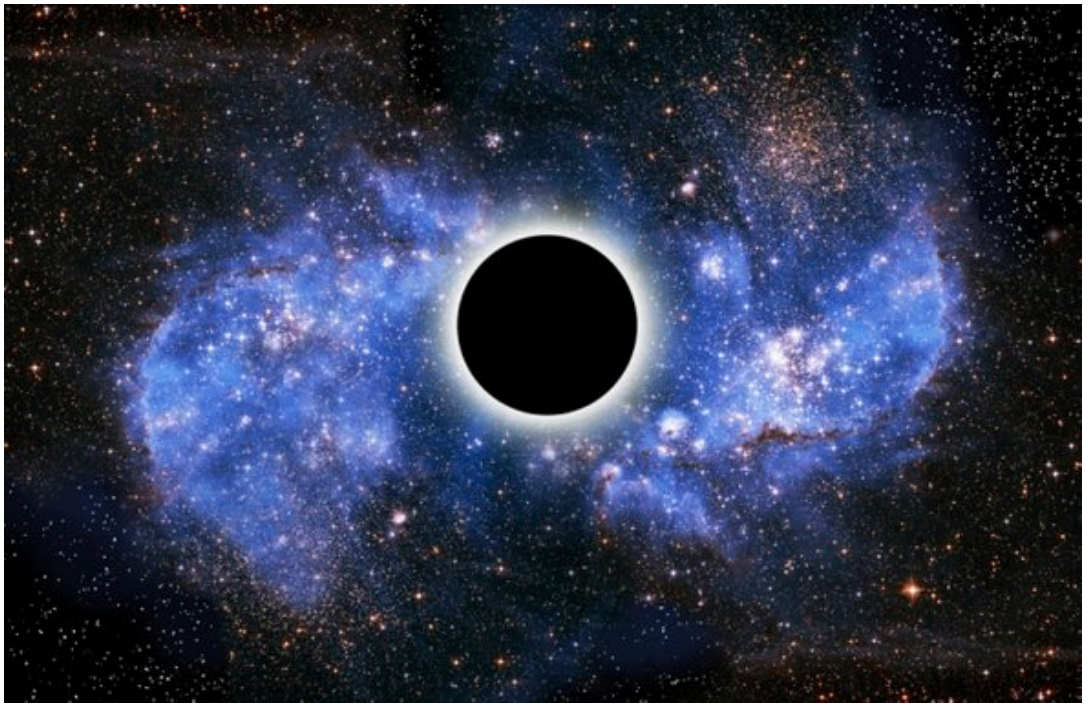
Back to Game

Light Properties for $500

What property of light is largely on display in this space phenomenon?



Absorption
(Not even light can escape a black hole)



Back to Game

Final Jeopardy

How many points do you want to risk?

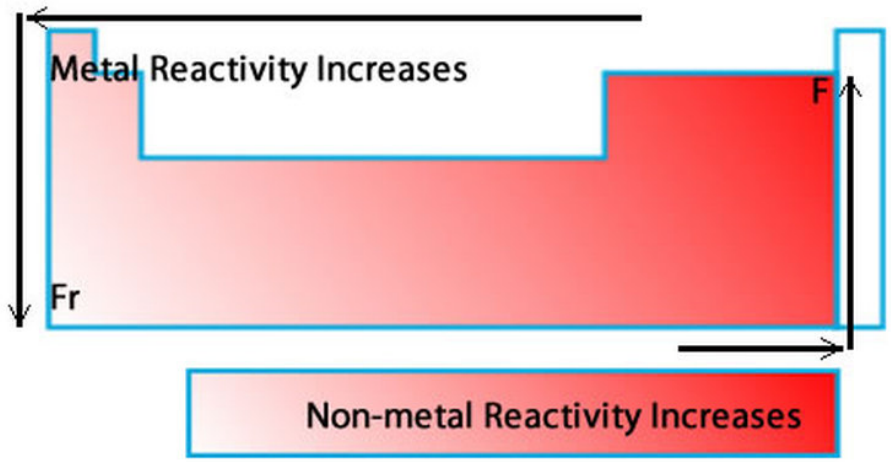
Final Jeopardy

How does reactivity change as you move across the periodic table?

Atomic number equals the number of protons and electrons. The number of electrons, and the number in an element's valence shell determines the reactivity of that element.

As you move across the table on the left elements have one valence electron and are very reactive (those with 7 in their valence shell are also very reactive).

while all the way on the right the valence shell is full with 8 electrons leaving the element un-reactive or inert.



And the winner is …