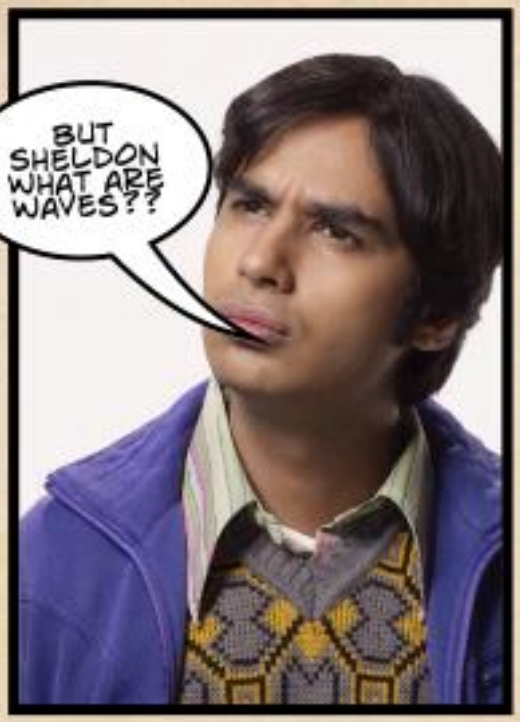
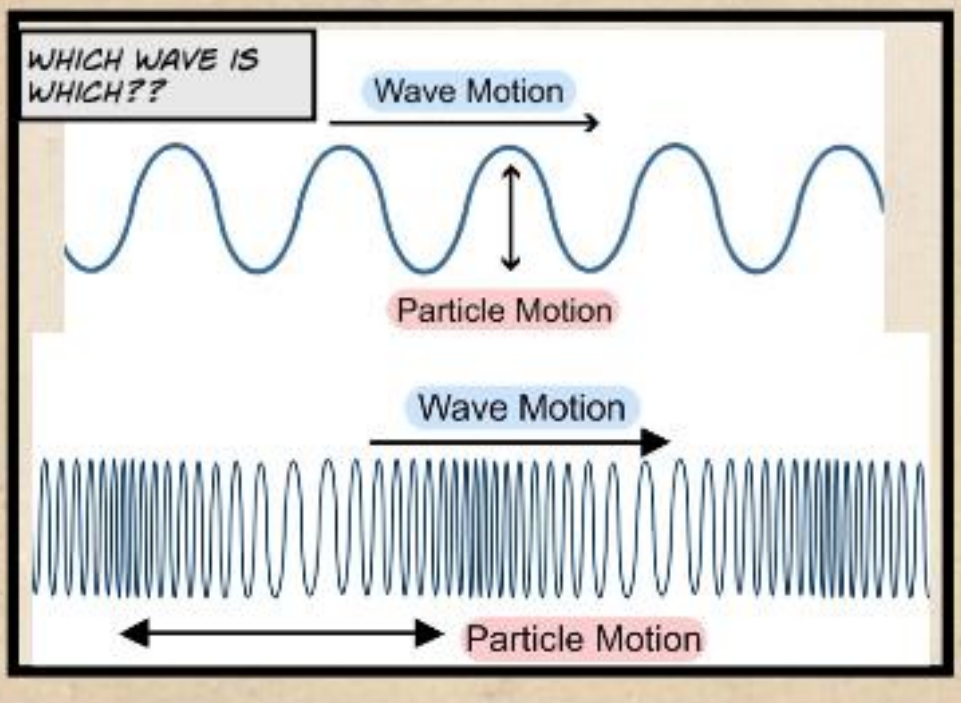
FUN WITH WAVES


BUT SHELDON WHAT ARE WAVES??

WAVES IS THE TRANSFERRING OF ENERGY FROM 1 PLACE TO ANOTHER

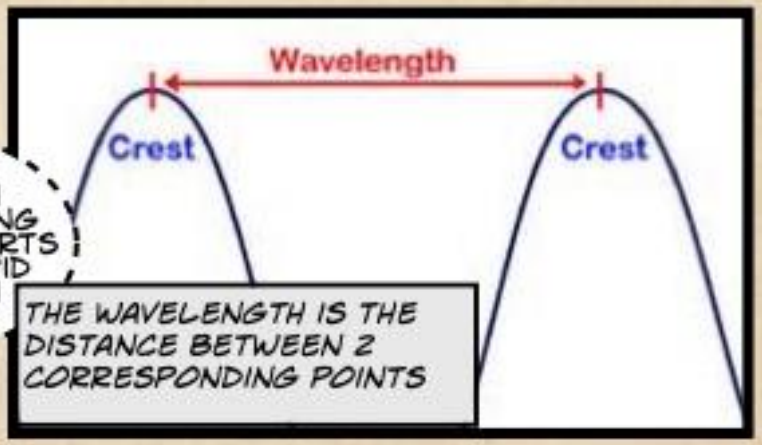
TRANSVERSE WAVES
THE MEDIUM MOVES AT RIGHT ANGLES TO THE DIRECTION OF THE MOTION OF THE WAVE
LONGITUDINAL WAVES
THE MEDIUM MOVES IN THE SAME DIRECTION AS THE THE MOTION OF THE WAVE
INTERESTING

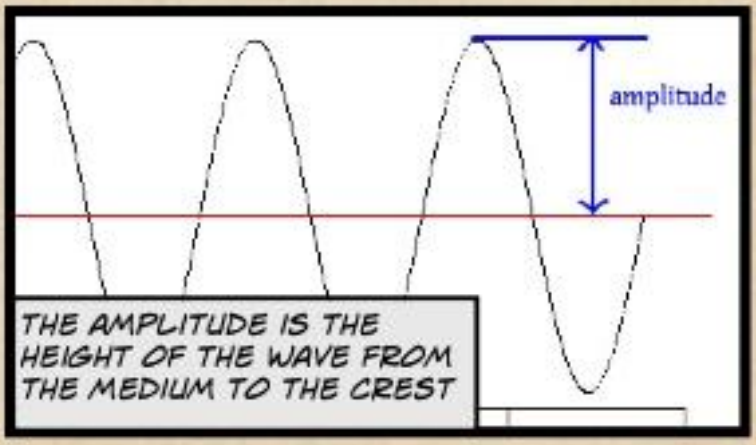

WHICH WAVE IS WHICH??
Wave Motion
Particle Motion
Wave Motion
Particle Motion

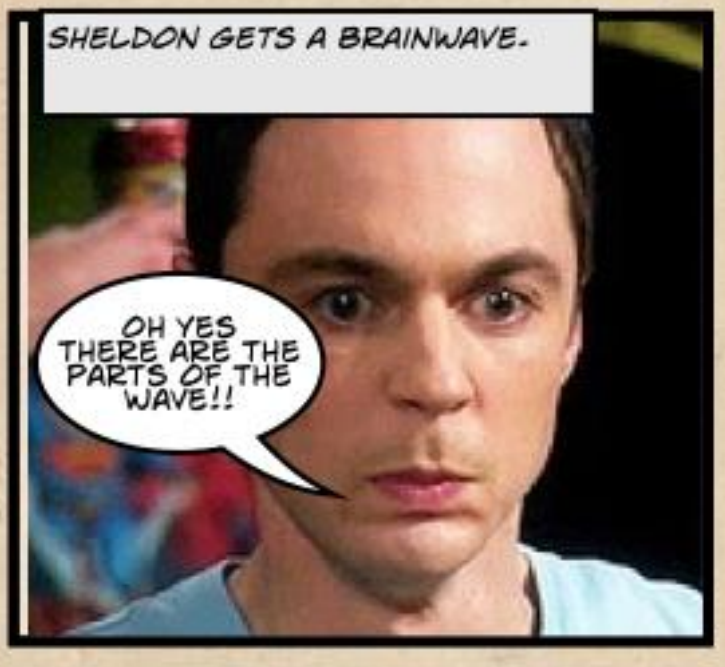
PENNY DOESN'T LOOK AMUSED
SHELDON YOU ARE BORING ME CAN WE PLEASE TALK ABOUT MY LIFE FOR ONCE!?
BORED

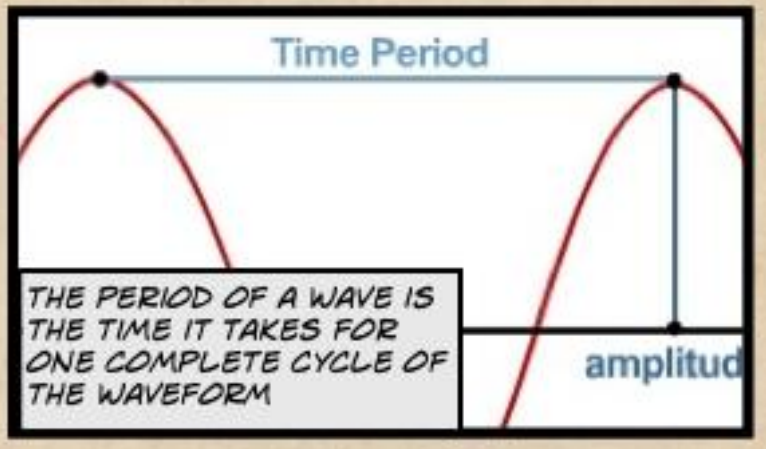
GO AWAY PENNY THIS IS A DISCUSSION FOR SMART PEOPLE

OK FINE YOU CONTINUE GOING ON WITH THE PARTS OF YOUR STUPID WAVES THEN


Wavelength
Crest
Crest
THE WAVELENGTH IS THE DISTANCE BETWEEN 2 CORRESPONDING POINTS


amplitude
THE AMPLITUDE IS THE HEIGHT OF THE WAVE FROM THE MEDIUM TO THE CREST


SHELDON GETS A BRAINWAVE.
OH YES THERE ARE THE PARTS OF THE WAVE!!


Time Period
THE PERIOD OF A WAVE IS THE TIME IT TAKES FOR ONE COMPLETE CYCLE OF THE WAVEFORM
amplitud

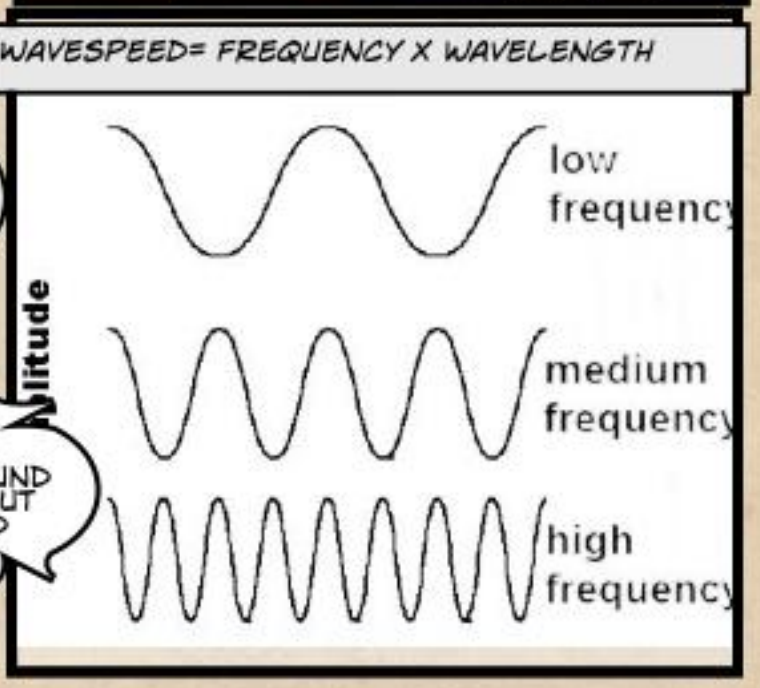
HOWARD ENTERS THE DISCUSSION
SHELDON YOU HAVE FORGOTTEN ABOUT THE FREQUENCY

I DIDN'T FORGET ABOUT IT. I HAVE A PHD AND YOU ONLY HAVE A MASTERS SO I THINK THAT I KNOW WHAT I'M TALKING ABOUT

THE FREQUENCY IS OBVIOUSLY THE NUMBER OF CYCLES OF THE WAVEFORM PER SECOND
Fact

SHELDON PUTS HOWARD IN POSITION

AMY ADDS ON TO SHELDON'S FACTS
ALSO TO WORK OUT THE FREQUENCY YOU HAVE TO 1 DIVIDED BY THE PERIOD
ONCE THE FREQUENCY IS FOUND YOU CAN WORK OUT THE WAVESPEED


WAVESPEED= FREQUENCY X WAVELENGTH
low frequency
medium frequency
high frequency
Amplitude

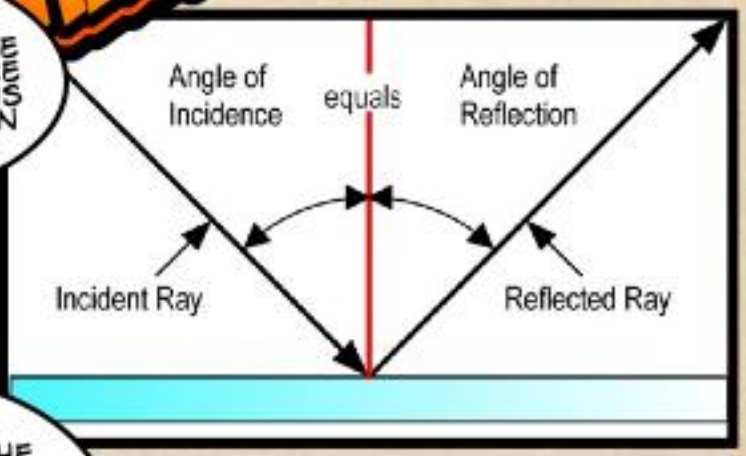
LEONARD ADDS INFORMATION ABOUT WAVES BEHAVIOUR

WAVES CAN BEHAVE IN DIFFERENT WAYS. THEY CAN BE REFLECTED, REFRACTED AND DIFFRACTED

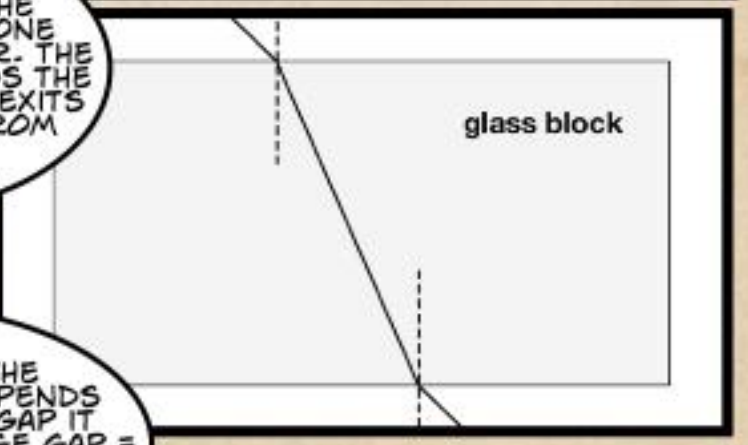
KEEP IT SIMPLE LEONARD FOR ALL THE PEOPLE AT HOME

LEARNING

IN REFLECTION, THE ANGLE OF INCIDENCE AND REFLECTION ARE EQUAL, THE ANGLE IS MEASURED BETWEEN THE RAY AND THE NORMAL



REFRACTION OCCURS WHEN THE RAY GOES FROM ONE MEDIUM TO ANOTHER. THE RAY MOVES TOWARDS THE NORMAL AND AS IT EXITS IT MOVES AWAY FROM THE NORMAL

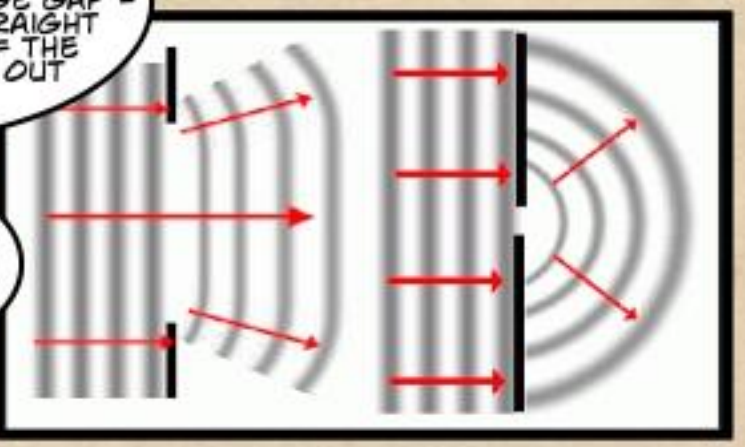


LEONARD CONTINUES WITH HIS SMART LONG SPEECH

IN DIFFRACTION THE WAVES BEHAVIOUR DEPENDS ON THE SIZE OF THE GAP IT GOES THROUGH. A LARGE GAP = PASS THROUGH IN STRAIGHT LINES. SMALL GAP = THE WAVE WITH SPREAD OUT

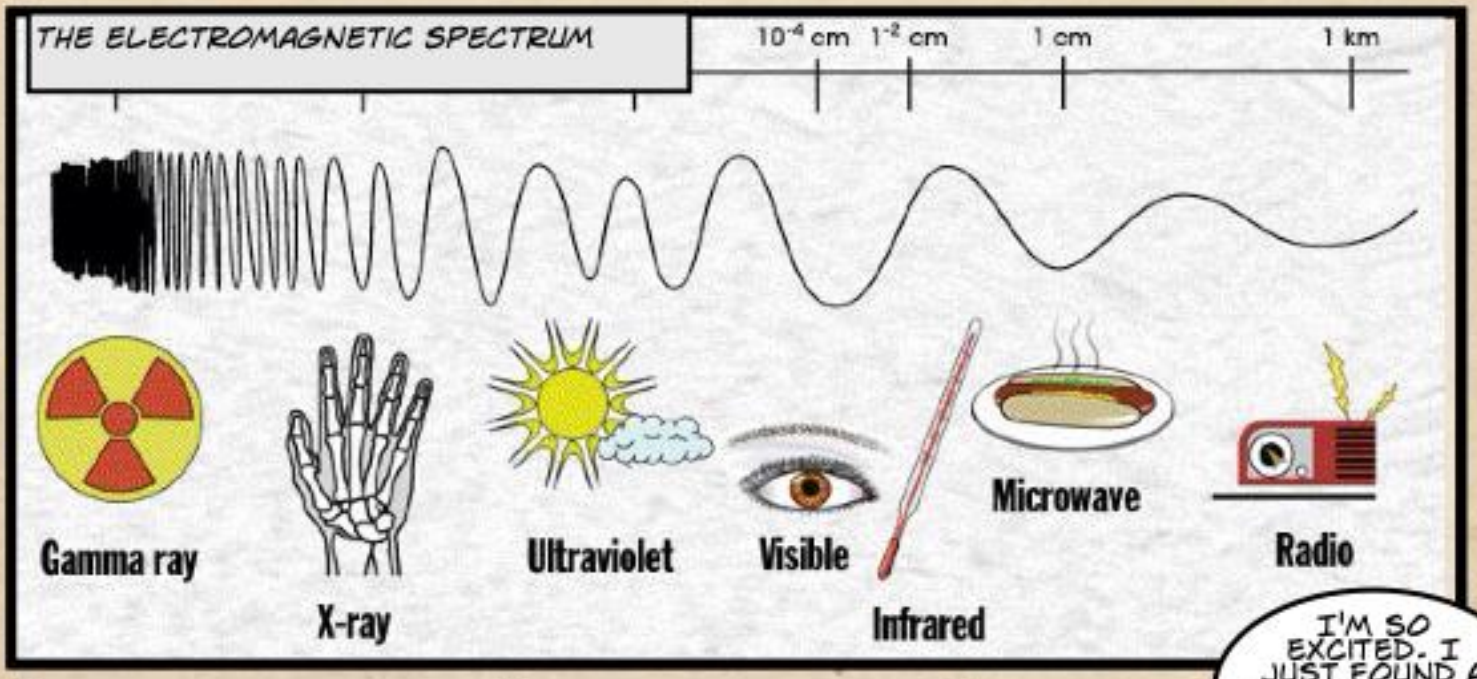
EXITING

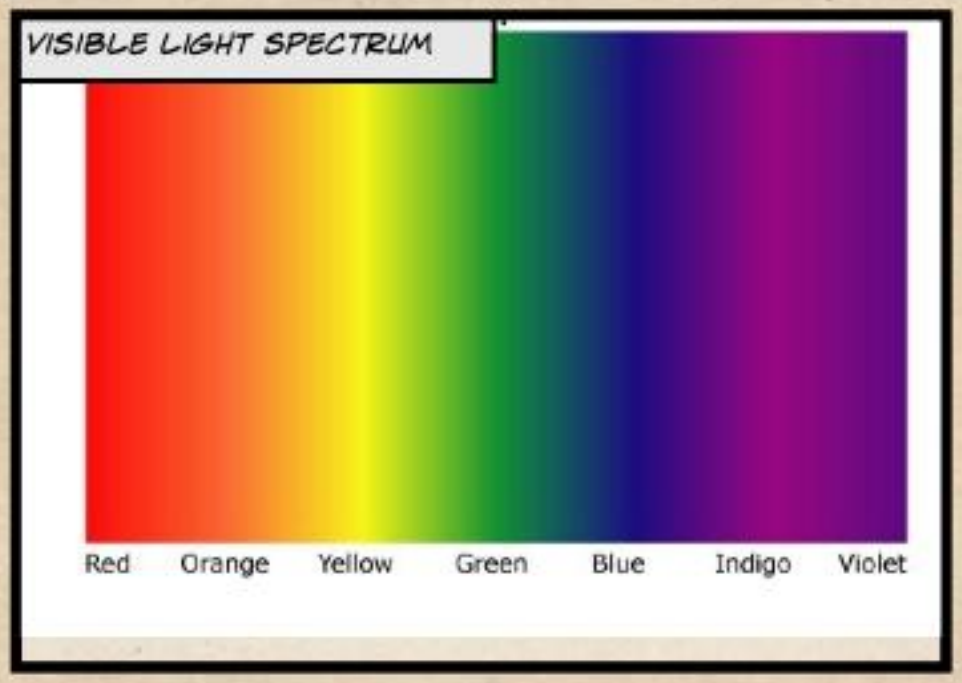
AND LOOK, I'M IN SHELDON'S SPOT!!!

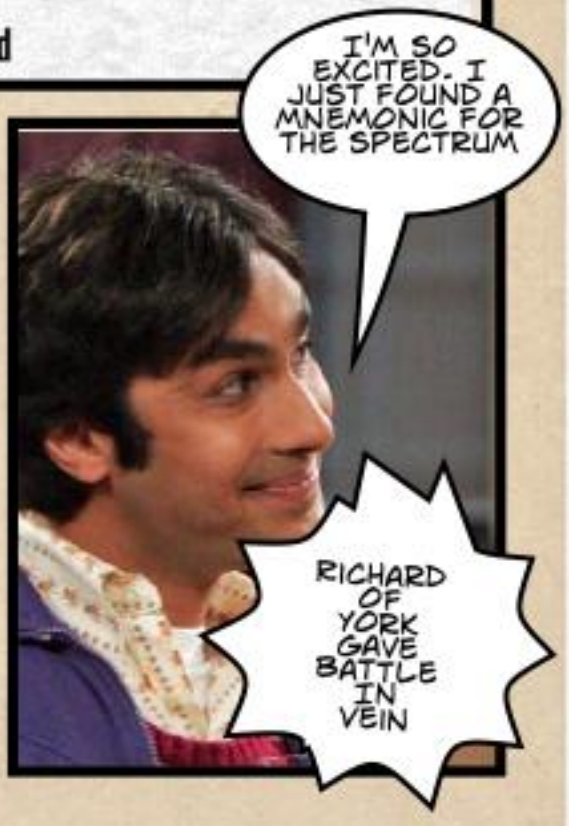


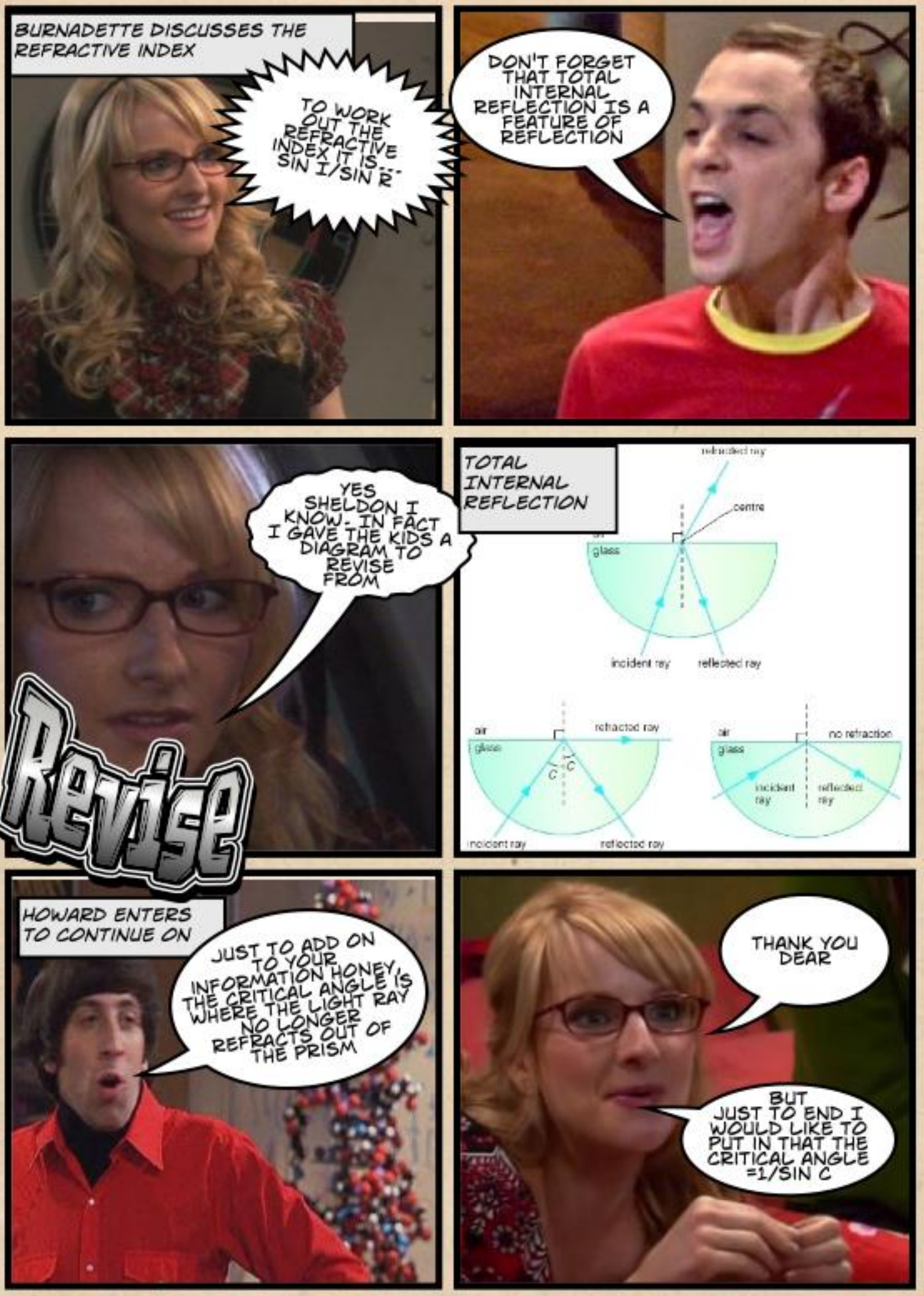
HELLO.
I AM HERE TO TELL YOU THE SIMPLE WAY OF REMEMBERING THE EM SPECTRUM

RAJ FINDS SOMETHING INTERSTING ON THE INTERNET
IT JUST FOUND A GREAT WAY TO REMEMBER THE ELECTROMAGNETIC SPECTRUM
RUN MILES IN VERY UNPLEASANT EXTREME GAMES

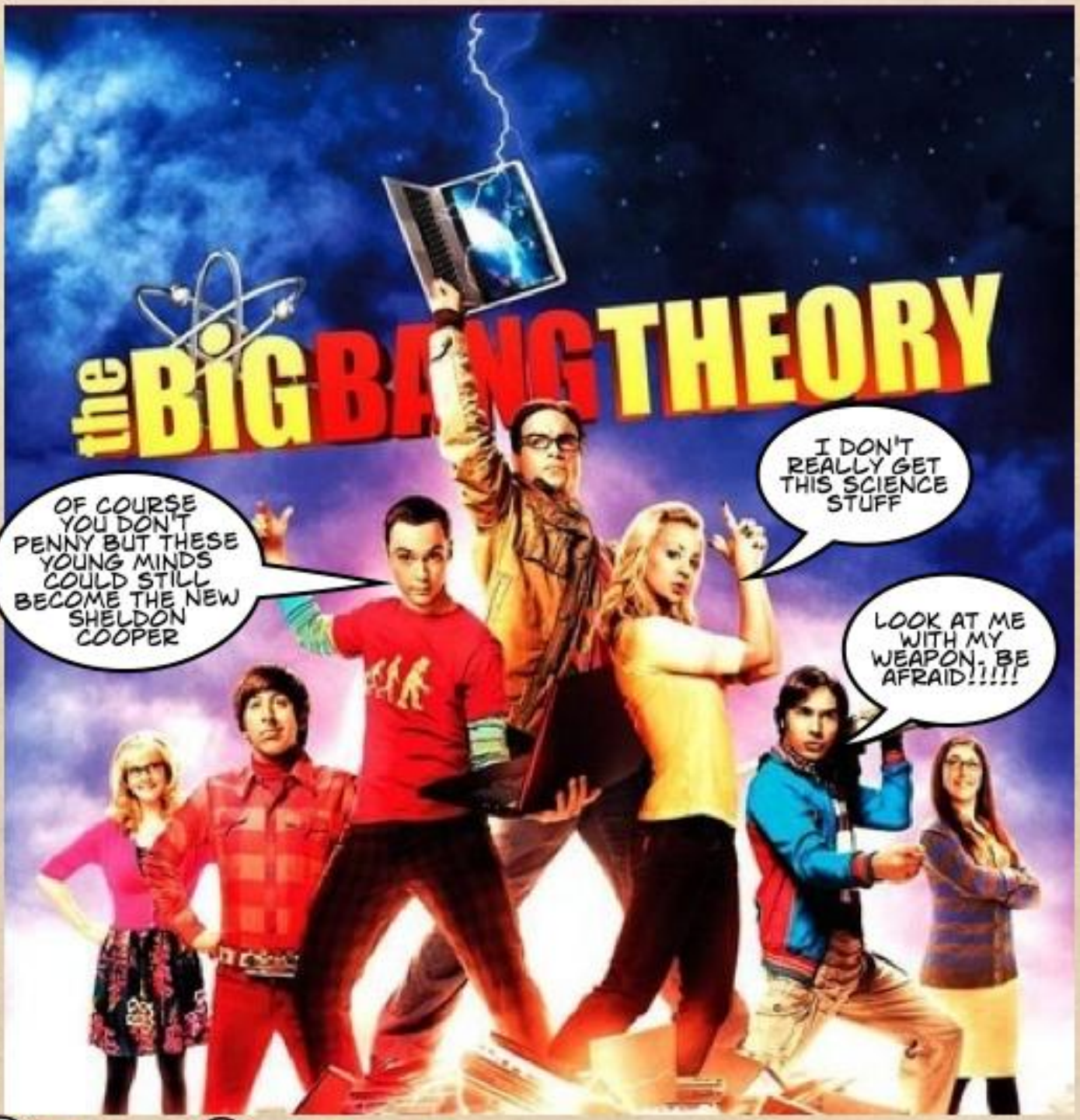

THE ELECTROMAGNETIC SPECTRUM
10⁻⁴ cm
1⁻² cm
1 cm
1 km
Gamma ray
X-ray
Ultraviolet
Visible
Infrared
Microwave
Radio


VISIBLE LIGHT SPECTRUM
Red
Orange
Yellow
Green
Blue
Indigo
Violet


I'M SO EXCITED. I JUST FOUND A MNEMONIC FOR THE SPECTRUM
RICHARD OF YORK GAVE BATTLE IN VEIN


BURNADETTE DISCUSSES THE REFRACTIVE INDEX
TO WORK OUT THE REFRACTIVE INDEX IT IS... SIN I/SIN R
DON'T FORGET THAT TOTAL INTERNAL REFLECTION IS A FEATURE OF REFLECTION
YES SHELDON I KNOW- IN FACT I GAVE THE KIDS A DIAGRAM TO REVISE FROM
Revise
TOTAL INTERNAL REFLECTION
refracted ray
centre
glass
incident ray
reflected ray
air
glass
refracted ray
C
incident ray
reflected ray
air
glass
no refraction
incident ray
reflected ray
HOWARD ENTERS TO CONTINUE ON
JUST TO ADD ON TO YOUR INFORMATION HONEY, THE CRITICAL ANGLE IS WHERE THE LIGHT RAY NO LONGER REFRACTS OUT OF THE PRISM
THANK YOU DEAR
BUT JUST TO END I WOULD LIKE TO PUT IN THAT THE CRITICAL ANGLE =1/SIN C

SHELDON PUTS IN THE FINAL FACTS
TO END I WOULD LIKE TO TALK ABOUT FREQUENCY IN MORE DETAIL
LARGE OBJECTS TEND TO VIBRATE SLOWLY CREATING A LOW PITCH SOUND. SMALLER OBJECTS VIBRATE FASTER CREATING A HIGH PITCH SOUND
YOU SHALL LEARN
PHYSICS
Louder
Higher pitch
Deeper pitch
SHELDON WRAPS UP FREQUENCY
WE CAN SEE THE FREQUENCY THROUGH A CATHODE RAY OSCILLOSCOPE
Quieter



BY LOUIS OF HAMLOCK