REFRACTION

WHEN LIGHT TRAVELS AT AN ANGLE FROM ONE SUBSTANCE/MEDIUM TO ANOTHER, IT BENDS OR REFRACTS

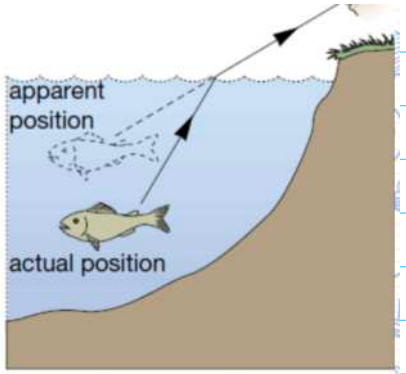


Figure 3.26 The bending of light can make it difficult to see where an object is located in the water.

WHY? DUE TO THE SPEED OF LIGHT AS IT MOVES BETWEEN MATERIALS OF DIFFERENT DENSITIES.

IN SPACE... LIGHT TRAVELS @ 300,000 km/s BUT SPACE IS A VACUUM W/ NO PARTICLES IN THE WAY

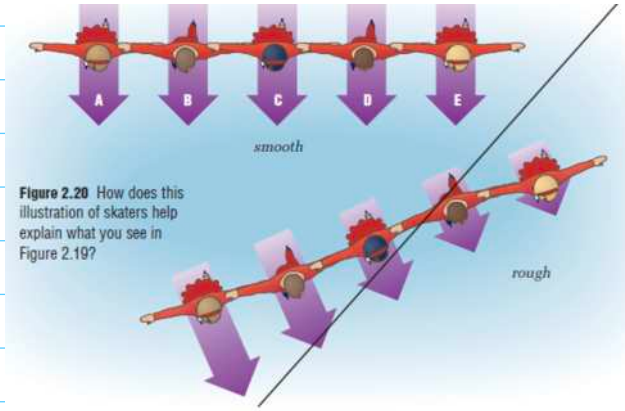
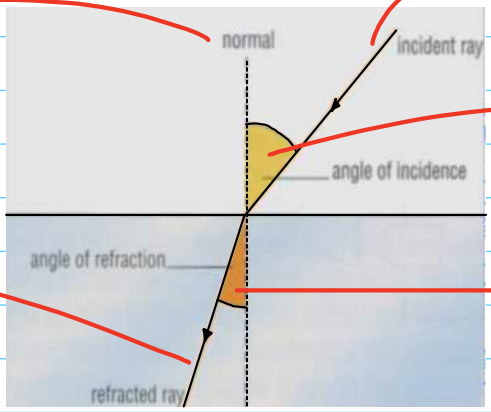


Figure 2.20 How does this illustration of skaters help explain what you see in Figure 2.19?

FOR EXAMPLE...

SKATERS D & E HIT ROUGH PATCH, SLOWS THEM DOWN BUT... THE OTHERS MAINTAIN = SPEED CAUSING THEM TO TURN

NORMAL LINE
PERPENDICULAR TO MEDIA INTERFACE

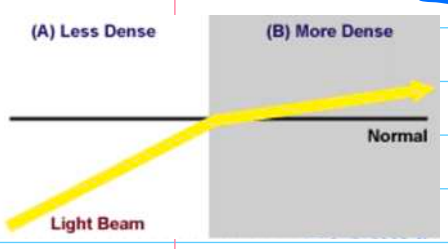


INCIDENT RAY FROM LIGHT SOURCE OR OBJECT

ANGLE OF INCIDENCE
BETWEEN NORMAL & INCIDENT RAY

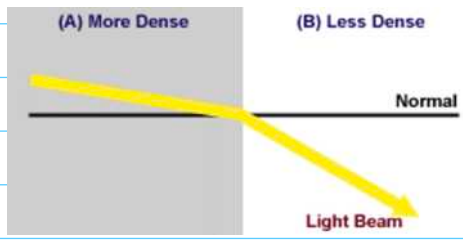
REFRACTED RAY
RAY THAT MOVES THROUGH MEDIUM

ANGLE OF REFRACTION
BETWEEN REFRACTED RAY & NORMAL



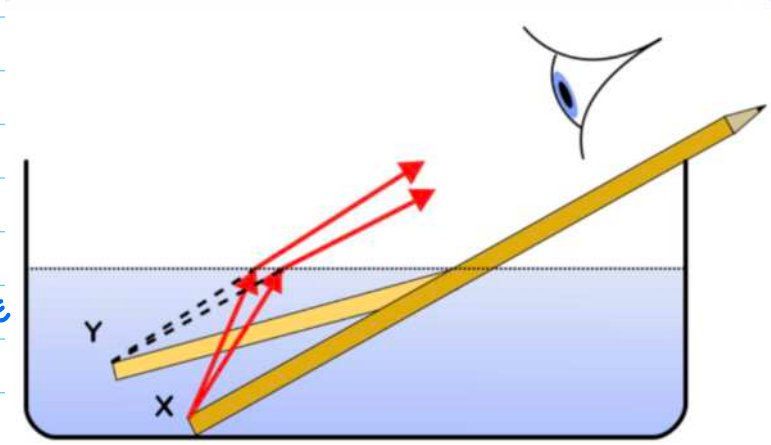
LIGHT DOES NOT REACT THE SAME IN DIFFERENT MEDIUMS.

THE MORE DENSE THE NEW MEDIUM IS, THE MORE LIGHT SLOWS DOWN... THE MORE IT REFRACTS



REFRACTIVE INDEX → DESCRIBES BEHAVIOR of LIGHT in MEDIUM RELATIVE TO A VACUUM

EX: GLASS HAS REFRACTIVE INDEX of 1.5 → 1.5x SLOWER THAN A VACUUM



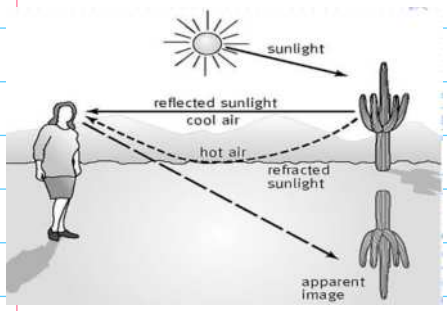
APPARENT IMAGE



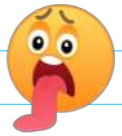
EVER SEEN THIS?

B/C TEMPERATURE of AIR AFFECTS HOW LIGHT TRAVELS THROUGH IT.

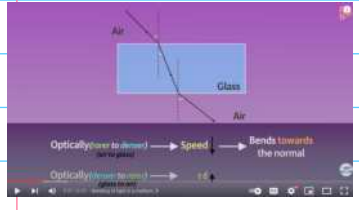
WARM AIR is LESS DENSE THAN COLD AIR CAUSING LIGHT TO BEND AND CAUSE A MIRAGE.







This isn't H_2O...



https://youtu.be/e5pKQk4JEao?si=kLcIzOI26oc38rhl

REFRACTION of LIGHT