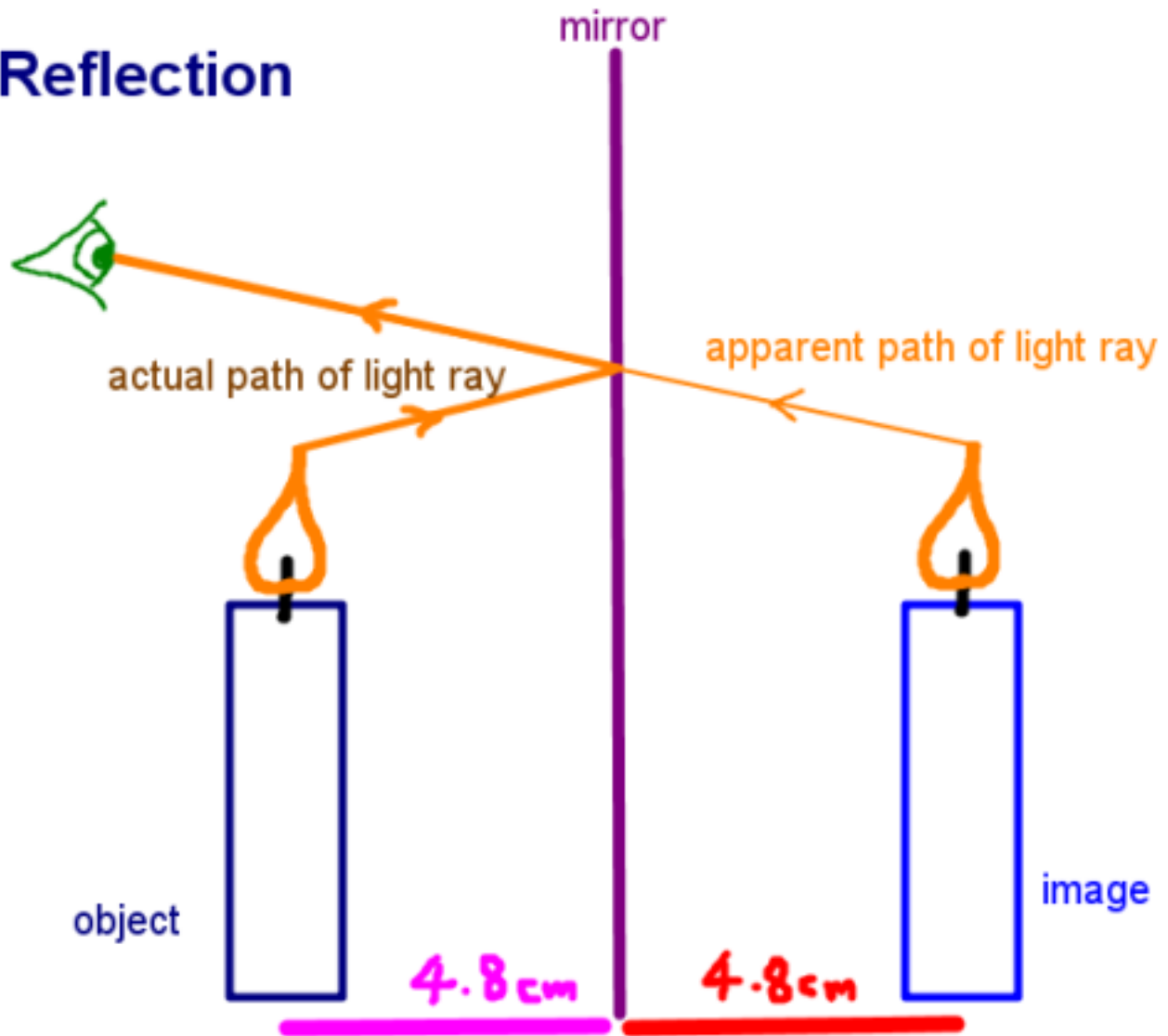


Single Ray in Reflection

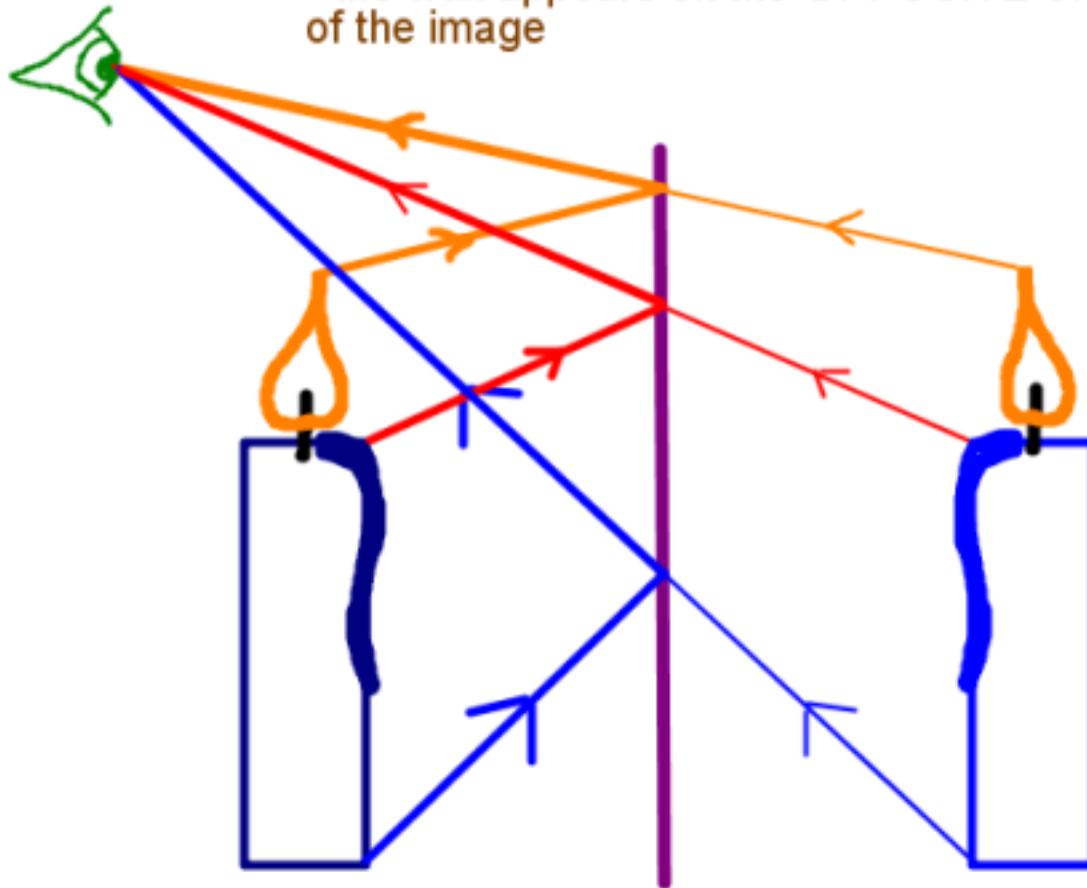
Reflection



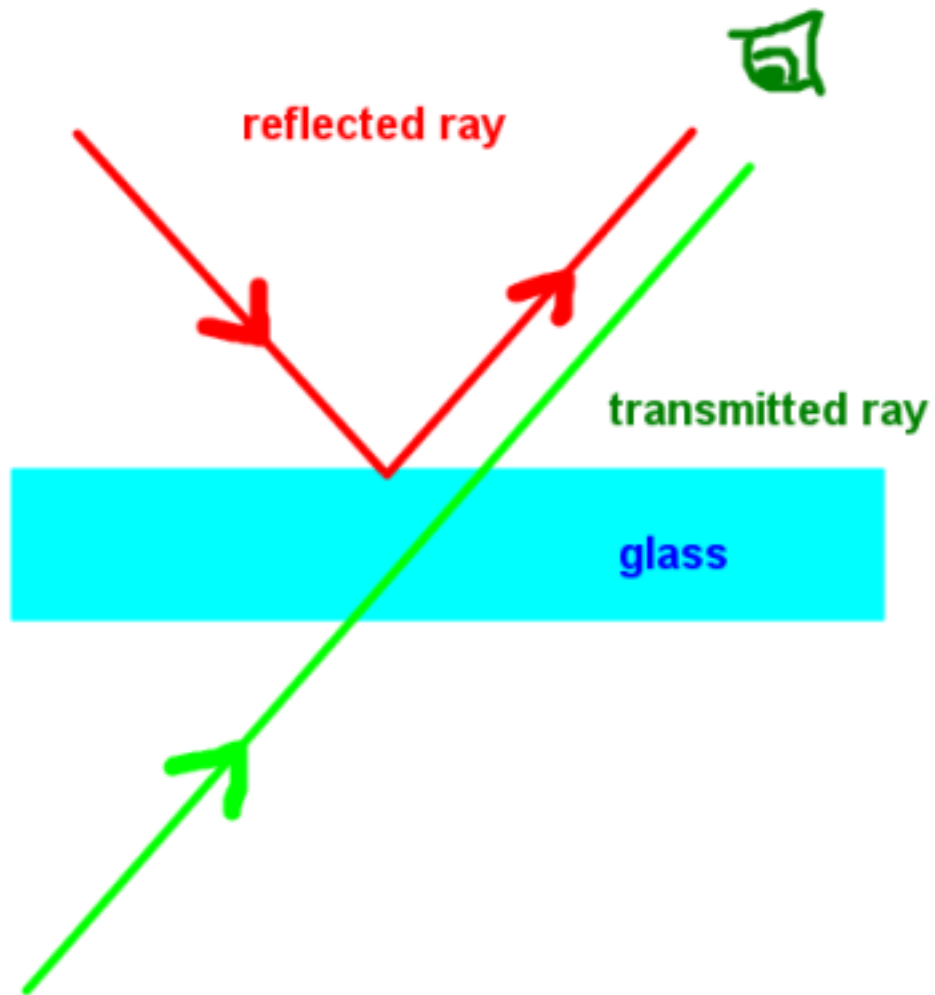
Multiple Reflected Rays

Several reflected rays shown

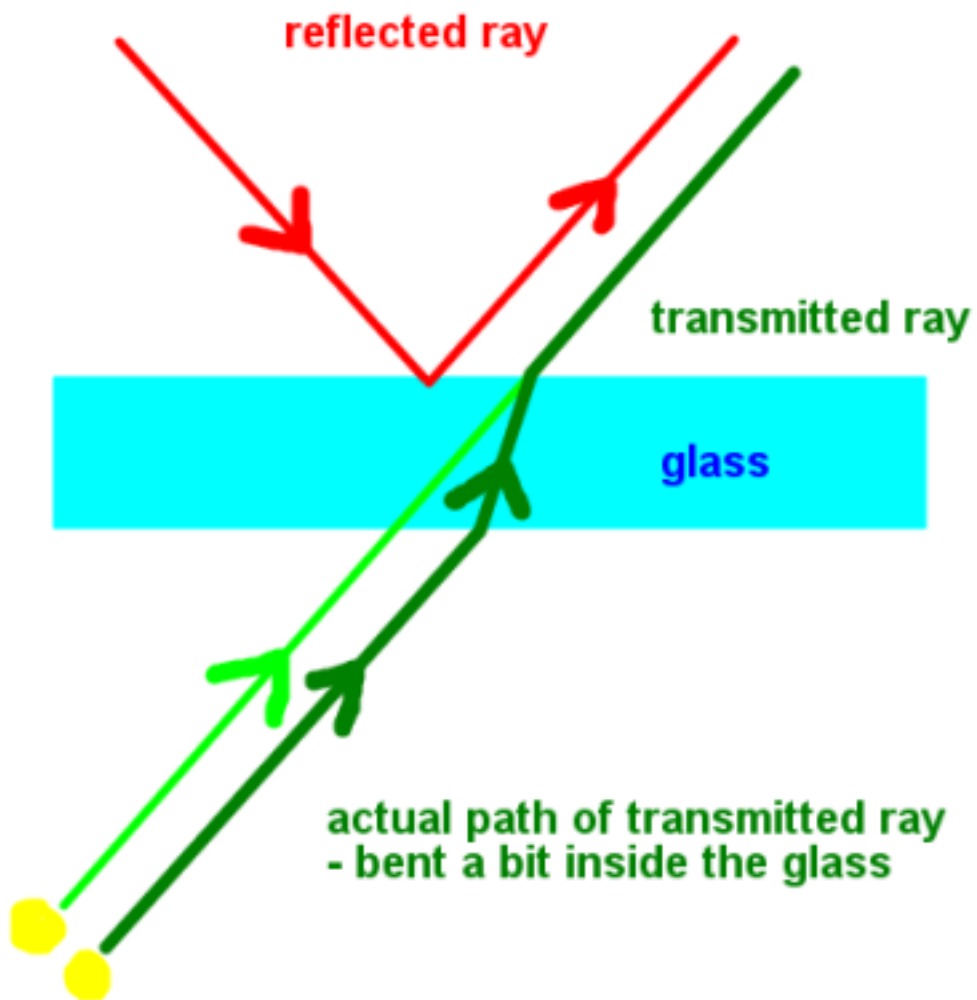
NOTE: image is a REFLECTION of the object
- the wax appears on the OPPOSITE SIDE
of the image



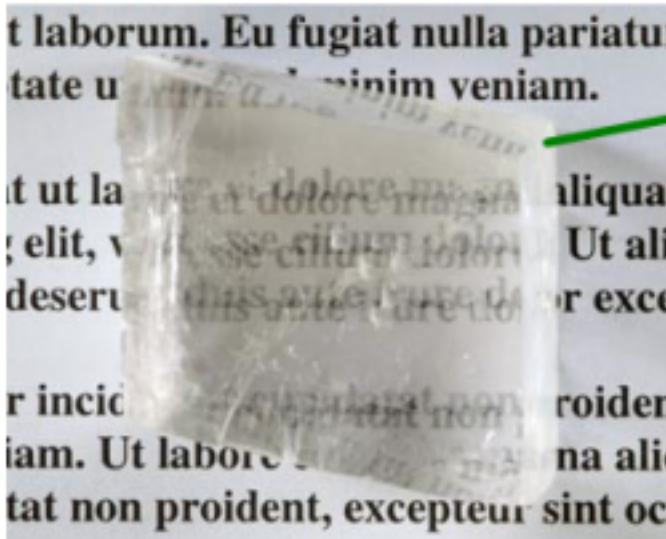
Light Through Glass 1



Light Through Glass 2



Light Through Calcite 1



calcite

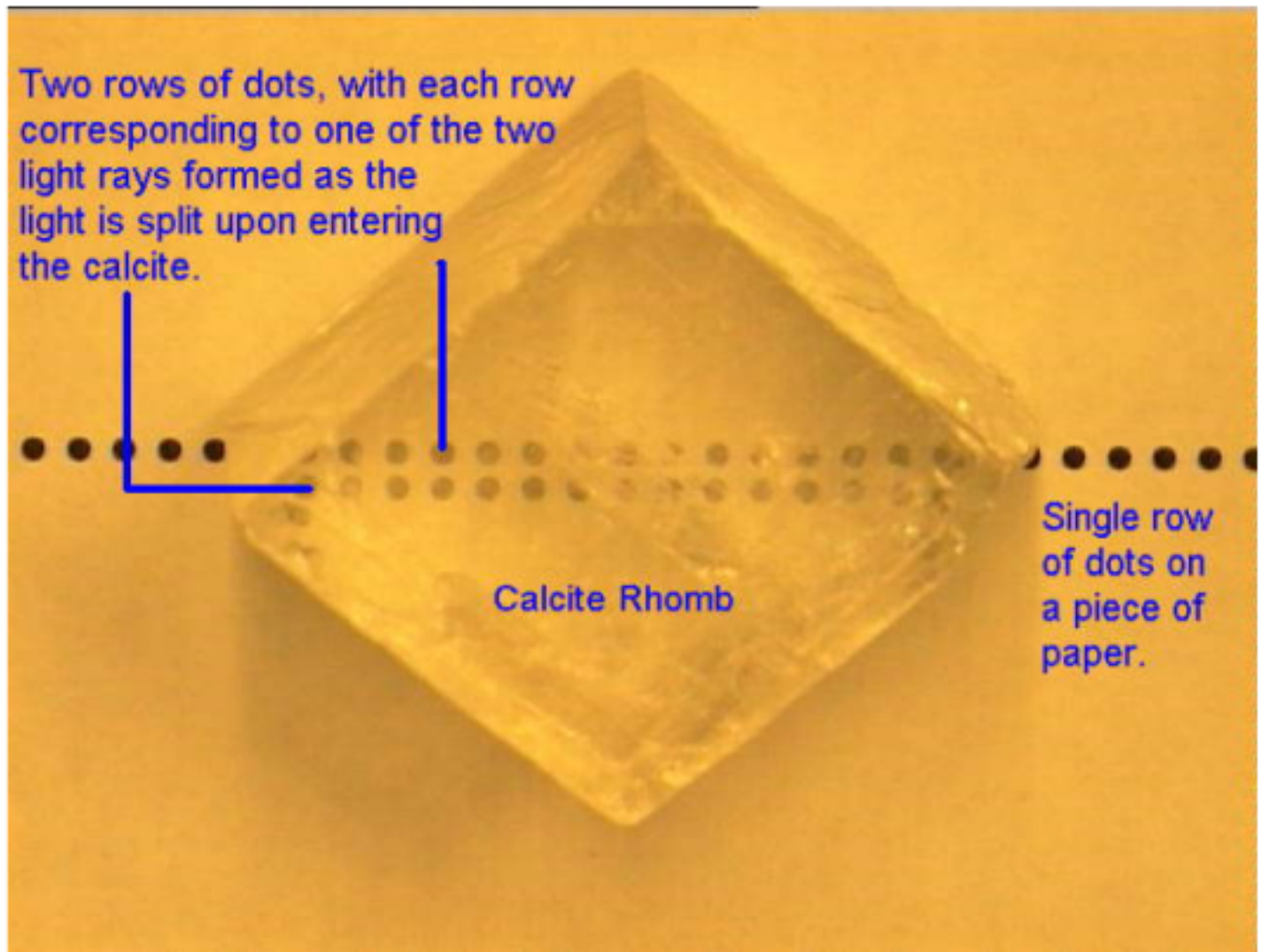
**(transparent if you
have a lucky find)**

**showing double
refraction**

**refraction means
bending of light rays**

http://geology.auckland.ac.nz/rocks_minerals/minerals/calcite.html

Light Through Calcite 2



<http://www.brocku.ca/earthsciences/people/gfinn/optical/unioptc.htm>

Guided Work

Guided Work

- 1) Check any of the references on the previous slides
- 2) Find out about Viking sun stones or sun crystals
- true or myth ?

see the following, plus links in the file sent in class

<http://www.polarization.com/viking/viking.html>

<http://www.xs4all.nl/~dmeijers/artikelen/viking/polarized.htm>

also:

<http://etimage.com/>

Refraction Experiment to do

Refraction Experiment

Aim: To see the effect of passing through water on rays of light

Apparatus:

1 mug
1 coin

1 glass water

optional: 1 helper

Diagram: See next slide

Method:

Put a coin in the bottom of a mug and move your head until it just disappears from view.

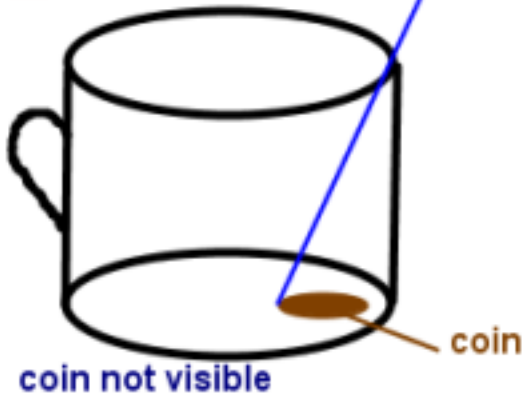
Get your helper to pour water into the mug

Make observations about what you see,
and try to explain with the aid of a ray diagram

Refraction Experiment Diagrams and Results

RESULTS:

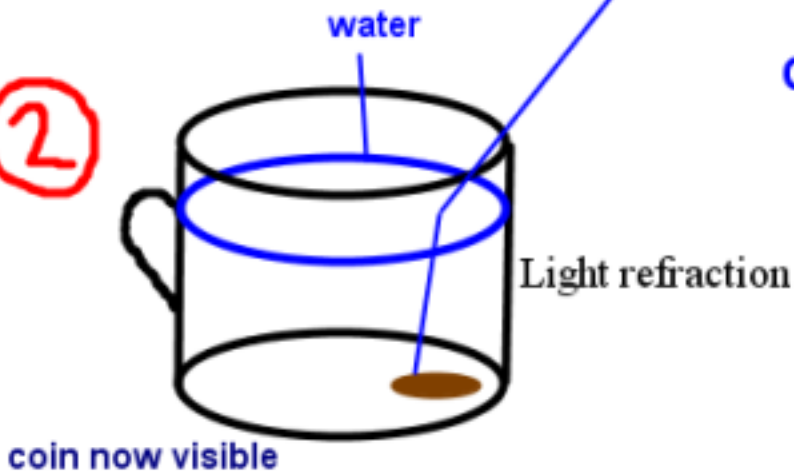
①



I put my coin in the mug, then made sure the coin was out of sight, I poured the water in and was able to see the edge or part of the coin not very clear but I could see it.

I tried it 4 times and each time the same result

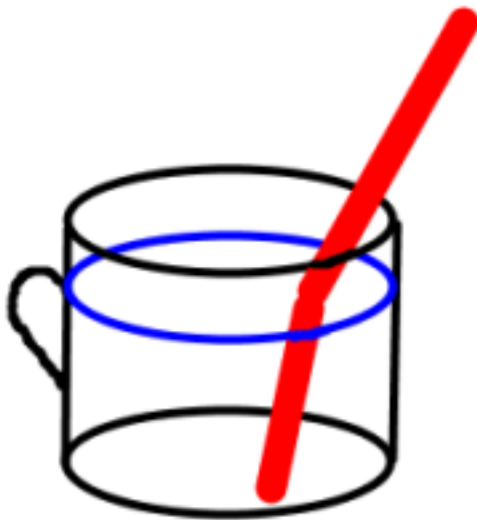
②



Conclusion:

coin now visible
so I conclude that
water refracts the light

Refraction Experiments - bent pencil and pole



pencil in water appears bent



pole into swimming pool appears bent