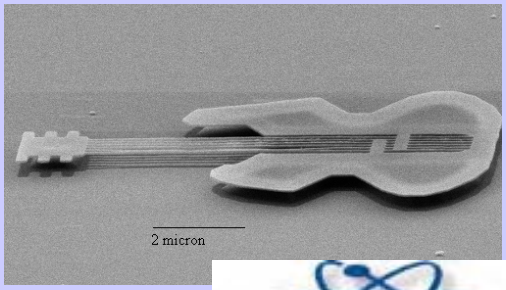
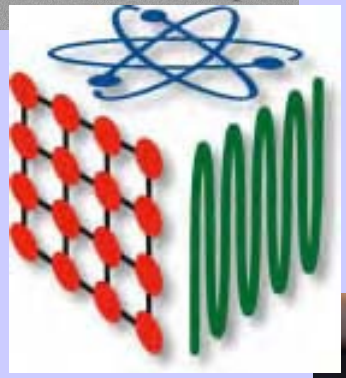
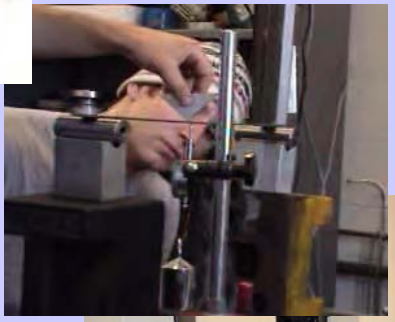




The project to be presented represents a small portion of what was gained from this experience.



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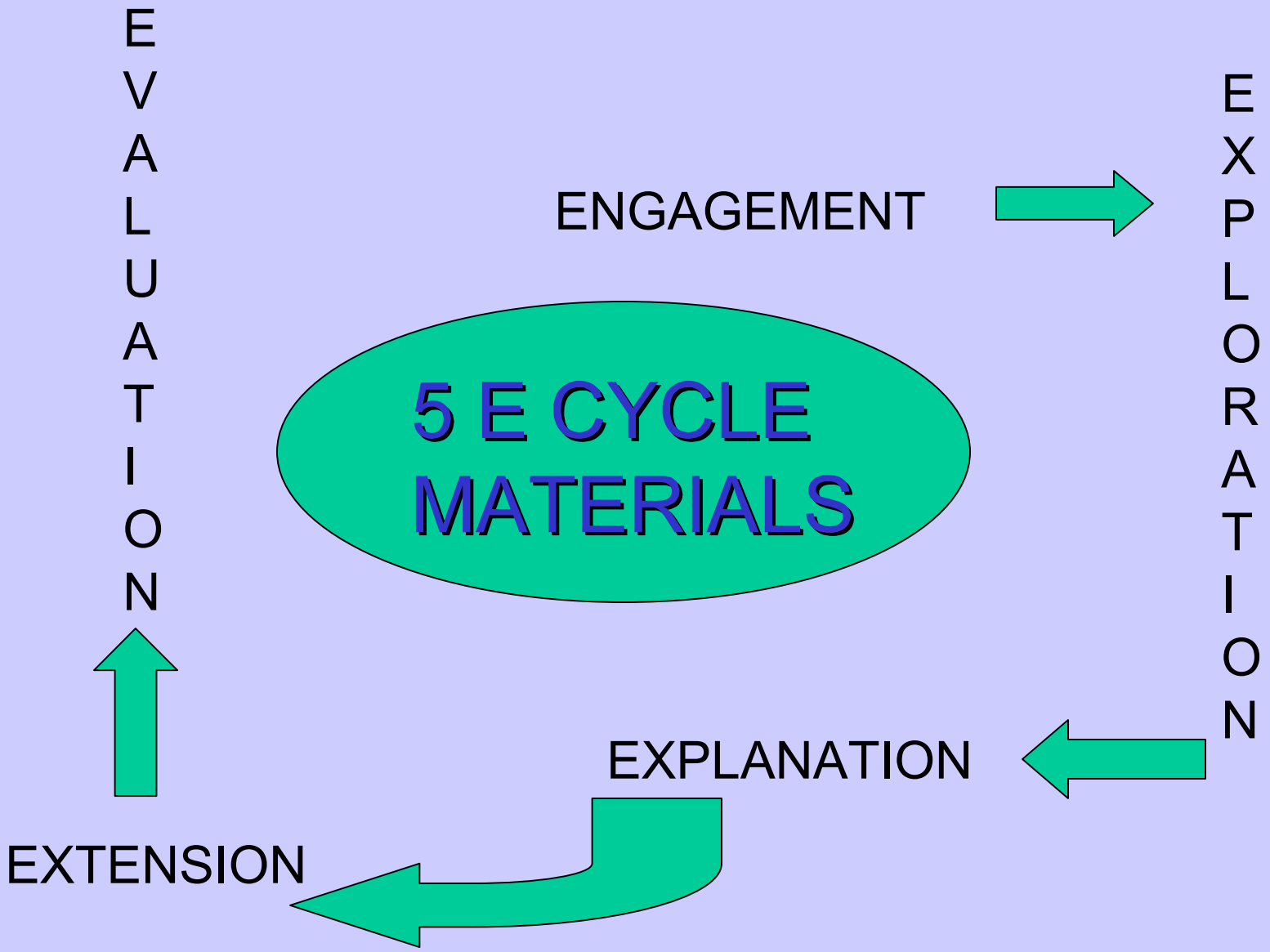

ENGAGEMENT
EXPLORATION
EXPLANATION
EXTENSION
EVALUATION
5 E CYCLE MATERIALS

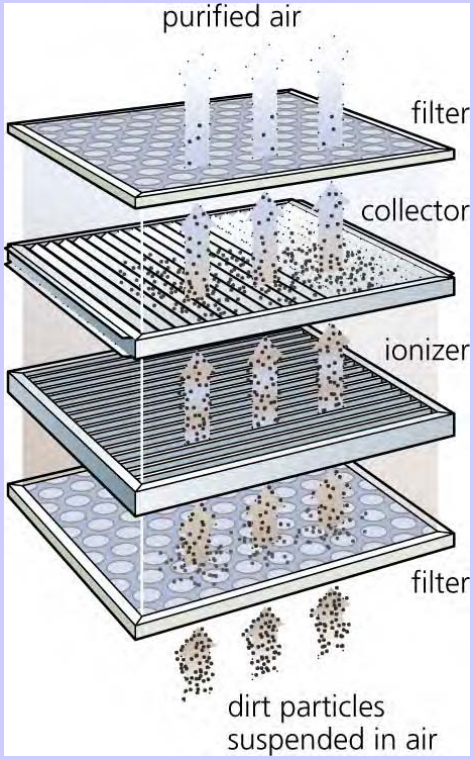
ELECTROSTATIC FORCES

ENGAGEMENT- Moving a board with a balloon

EXPLORATION- Given the triboelectric series, students will create a demo for the class

EXTENSION- Make a brochure to explain your new product that uses one of the following processes:

*electrophotography,
*electrostatic precipitator,
*electrostatic spray painting



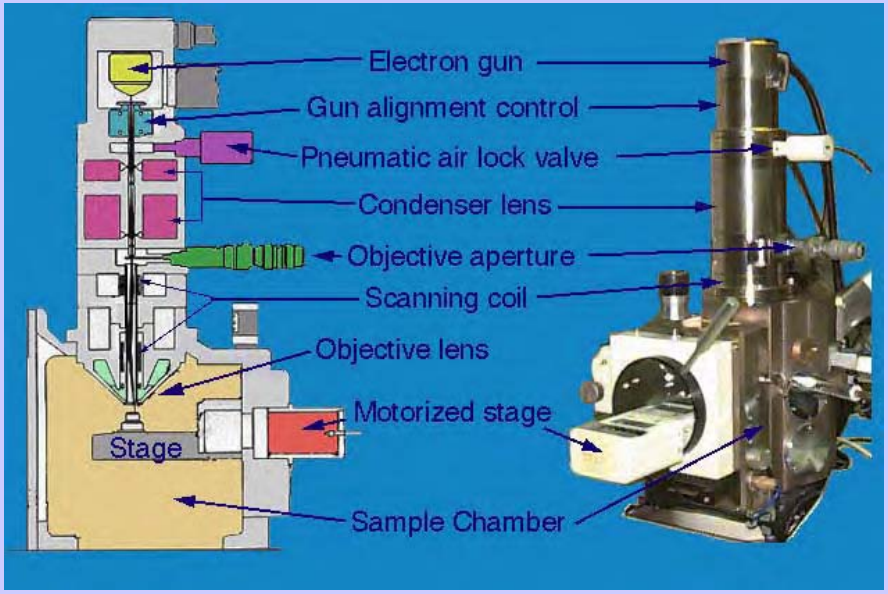
ENGAGEMENT:

-Flame test demo, use spectroscope
-Project the spectrum with overhead projector

EXPLORATION:

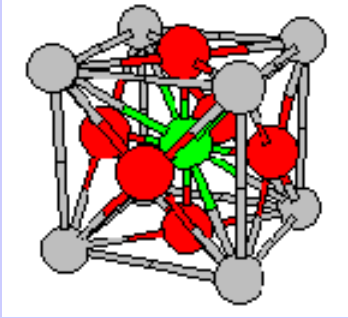
-Making a “log” soaked with different solutions, identify ions present
-Diffraction lab

MORE ON ELECTRONS



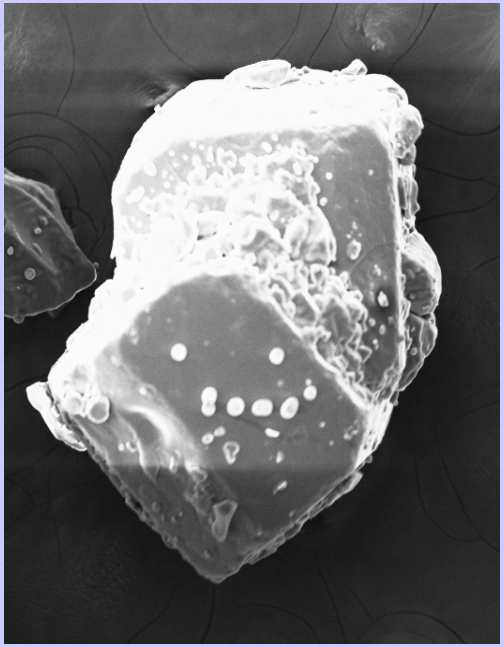
EXTENSION: Electron microscopes and viewing electro micrographs on the internet

ENGAGEMENT: create a fettuccini structure that can support their book 5 cm off the table



EXPLORATION: draw pictures of crystals, put in order of strength

CRYSTALS



EXTENSION:
-X-ray diffraction
-compare graphite to diamond crystal structure

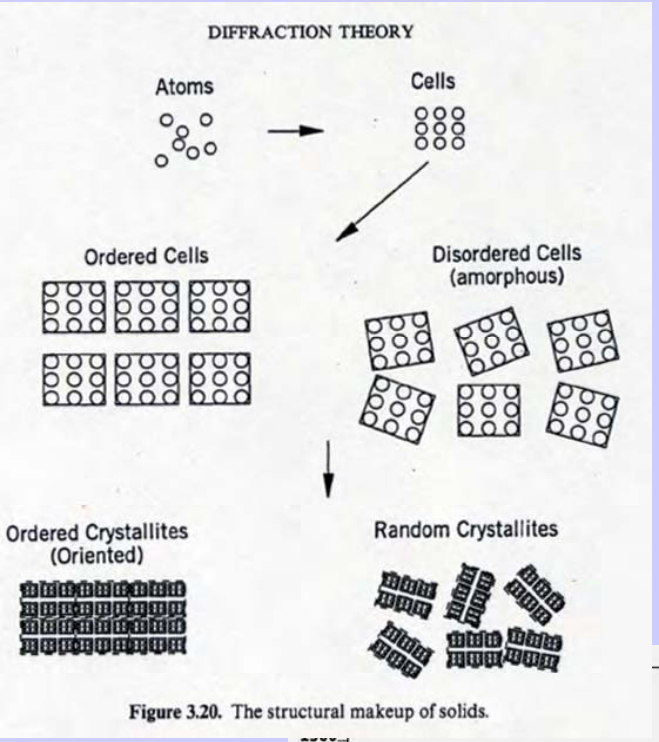
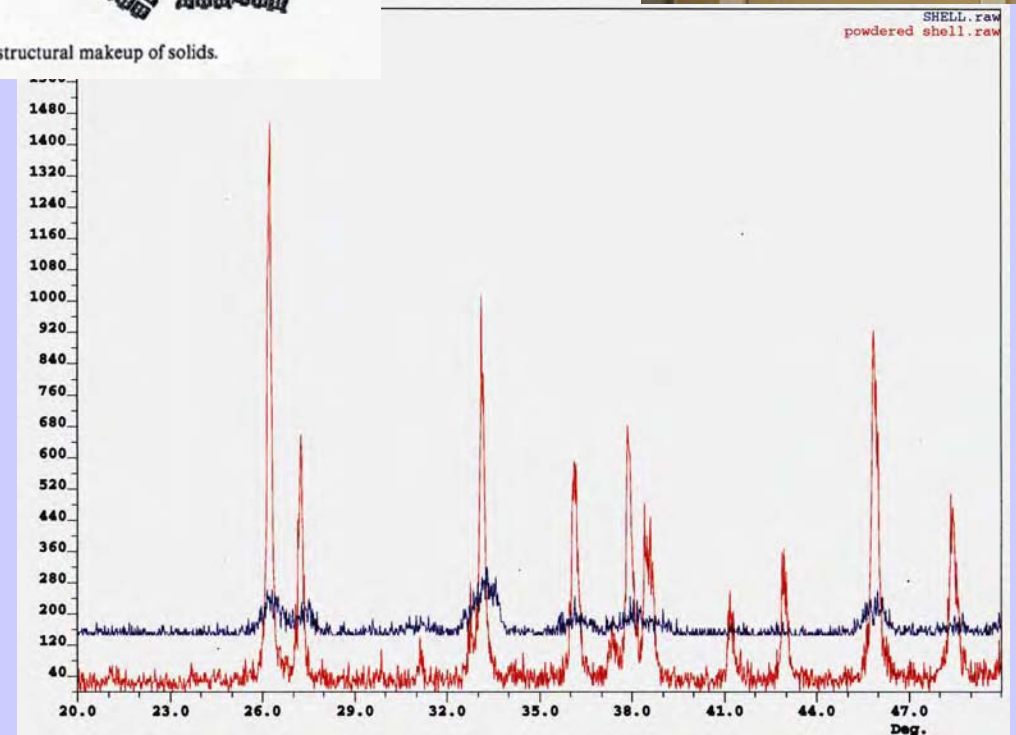


Figure 3.20. The structural makeup of solids.

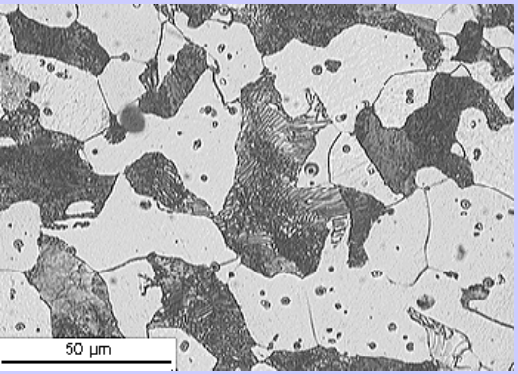


X-ray Diffraction

ENGAGE: compare elasticity of different metals

EXPLORATION:
Design an experiment to
-see if elasticity is related to thermal conductivity
-see if "elasticity ranking" is the same when using rods of a smaller size

METALS &
their "sea of electrons"



Electromicrograph of low carbon steel

EXTENSION: Use a website to compare "normal" low carbon steel to that with ductile fracture, along with a lab that models the fracturing process

Thanks…..
Nev, Julianne and everyone at CCMR and Cornell

NSF

Horseheads High School

My team!!