Day 1

Goals: As a result of this day's teaching you should be able to:

1. Easily use the scientific method of inquiry: Claim, evidence, warrant/ reasoning
2. Be able to pose questions which elucidate the process.

Breakfast: Claim Evidence Warrant/Reason—superposition Young rock layers overly older ones

Why are rocks frequently found in layers?

Since we live on top of the rocks why should anyone care what is underneath?

Would you expect some rocks to not have layers?

Overlook

What difference does it make if layers of rock are tilted under us?

In a tilted sequence, which way is up?

Does this attitude of tilting occur everywhere in between outcrops where we can see it?

What opportunities does tilting offer us?

Artesian well

What are the properties of an aquifer and aquiclude?

Stand on the roadway leading to the driveway. Look around. Does what you see seem reasonable?

Besides groundwater, what is significant about aquifers?

How did native copper get concentrated in the mines in Keweenaw?

Cent #6

What will happen as a result of erosion of dipping rock layers?

What kinds of landscape clues are there to recognize when layers are tilted?

How does

Jacob's creek

What happens at coastlines when there are tilted layers?

Can we predict the future shape changes of the coastline if we know the tilt direction and angle of rock layers?

Can we look at a coastline and infer where there are harder and softer layers?

What makes a rock layer harder or softer?

Eagle Harbor

Are ridges always held up by harder layers? What are the harder layers in the Copper Harbor Conglomerate (recall Horseshoe Harbor)?

Can we assume that conditions of formation of a conglomerate now are the same as they were 1.1 billion years ago? Make a claim about this.

Most places on the surface have no outcrop or the outcrop is underwater. In those places how can we know what the layers are doing?

Are there places where the same layers may be tilted differently? How can we explain this? Can we make a model to explain changes?

Brockway

How does a conglomerate record magnetism? Do sediments have magnetic orientation like lavas?

How can we apply this geology to an economic plan to generate wealth and make money and opportunity?

Where is the best location for wind power on the Keweenaw?

How was the Michigan Copper District discovered and started?

Lighthouse – Roche Vert

Lavas and redbeds are an association of rocks that is seen in many places on earth—so much so that we can list the places. Why should we care?

If we make the claim of a Keweenaw rift—what are ways can we test the idea? Can you think of another claim that is equally credible?

Hunter's Pte