Biodiversity Mathbench Module: https://mathbench.umd.edu/modules/env-science\_mountaintop/page01.htm

Definitions – Please fill these in as you go through the module:

|  |  |
| --- | --- |
| Biodiversity |  |
| Niche |  |
| Endemic |  |
| Community |  |
| Richness |  |
| % dominance  | (aka Relative abundance) |
| EPT |  |

Profile your favorite salamander from their Facebook Page (if you click the “photos” tab, you’ll get quick links to quite a few:

What are some commonalities of places such as Florida and Hawaii that explains why they have such high biodiversity?

Why do the Appalachian Mountains have such high biodiversity?

Also home to large coal deposits, mining is a big threat to species diversity in the Appalachian Mountains. What are three major effects of the deforestation associated with surface mining?

|  |  |  |  |
| --- | --- | --- | --- |
|  | 1 | 2 | 3 |
| Ecosystem damage |  |  |  |
| Effect |  |  |  |

Mountaintop removal also leads to deposition of that land elsewhere, often in valleys, which impacts stream health.

Why do we measure stream macroinvertebrates as indicators of stream health?

Be sure to keep filling in definitions…

Section 10- 11: Why are the % EPT likely higher in the pristine stream?

Section 12:

|  |  |  |
| --- | --- | --- |
| Stream | % Dominance/Relative Abundance | Simpson’s Index |
| Pristine |  |  |
| Polluted |  |  |

Section 15: Your ~~lazy~~ busy, research partner left you to summarize the data of your research project:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Stream | Richness | % Dominance/Relative Abundance | % EPT | Simpson’s Index |
| Pristine Site |  |  |  |  |
| Valley Fill Site |  |  |  |  |

Please show your equations here, or attach an excel worksheet if you calculate them in excel:

Please summarize the conclusions (in your own words) on the effect of the application of valley fill from the mining operation: