

S12282: The Extremes of Life
Lesson 4: Metabolism, Metagenomics, and Microbial Dark Matter

What is “metabolism”?

How do scientists classify metabolism? Fill out the following box:

Classification by metabolism

Classify the following organisms by metabolism:

- Plants
- Humans
- Halobacteriaceae
- *Desulforudis audaxviator*

We watched a video about searching for organisms deep beneath the surface. Consider the following questions based on the video:

What are the challenges of studying life deep in the earth?

What is the proposed energy source of deep-dwelling life?

How does this research relate to NASA?

What does it mean to “culture” an organism? What percentage of organisms have been cultured?

What is “metagenomics”?

In the space below, draw a diagram of a “metagenomics pipeline”:

What are the differences between genomic sequence data and metagenomic data?

What is the 16S ribosomal RNA sequence and what information does it provide?

What information does metagenomic data provide?