Bio 4.1

Goals

* Define the four macromolecules

* Define polymers, monomers, and link to DNA, Protein, and carbohydrates

* Model trans and cis fatty acids using molecule kits

Plan

Bellwork: How do elements bond together? Which elements are the central ones for building complex molecules?

Reading structural formulas (10 min)

Practice (10 min)

What are the macromolecules? (10 min)

Lipids – triglycerides and more (5 min)

Video: Lipids, Bozeman Science (10 min)

Polymer chemistry (10 min)

Video: Polymers, Bozeman science (5 min)

Carbohydrates,

Video: Carbohydrates (10 min)

Activity: Modeling fatty acids and triglyerides

HW: Reading: 2.3

Bio 4.2

Goals

* Describe properties of the four types of macromolecules, including their subunits and functions

Plan

Bellwork:

1) What are the main classes of macromolecules? What job does each do in your body?
2) Build a molecule that contains 6 carbon atoms and 2 oxygen atoms. Fill in hydrogen wherever needed.

You are what you eat: the four macromolecules (10 min)

Video: Biomolecules, Amoeba sisters (5 min)

Worksheet practice (Reminder)

HW: Go over worksheet

Bio 4.3

Goals

* Connect DNA to protein through the central dogma of molecular biology

* Describe the four levels of protein organization

* Pair DNA nucleotides

* Describe the structure of DNA and RNA

Plan

Bellwork:

1) What is the main function of lipids?
2) What is the main function of proteins?

What does DNA do, really? (10 min)

Review macromolecules

Central dogma of molecular biology

Problem solving: What would happen if an enzyme were injected into cells which destroyed all RNA, what would be made? What about RNA of a particular pattern? Pair and Share (5 min)

Video: Protein folding revolution (5 min)

What about proteins? What are they and how are they organized (primary through quaternary structure) (10 min)

Video: Prions: The Real Zombie-Makers (5 min)

Why do proteins fold? (10 min)

DNA to RNA to Protein activity (remainder)

Extra bits

What does DNA actually look like? (10 min)

Karyotypes and chromosomes are not typical