Activity: Building a Protein

TEACHER GUIDE

Objectives:

Students build a paper Protein to review that they are long stands of connected amino acids and that it takes energy to build them.

Materials

Paper Amino Acid Molecules (variety)

Clear Tape for connecting paper

Masking Tape for taping to the wall

Scissors

Students:

Look at their individual amino acid molecules (monomers) and notice that they cannot be connected as they are but need to be modified

Have the students connect their amino acid molecules

Begin by cutting on the dotted lines (MAKE SURE THEY DO NOT THROW THE STRIPS OF PAPER AWAY).

Next connect the molecules together with clear tape where the other elements where removed.

Keep connecting all the molecules until you have a long chain of amino acid molecules.

Ask: What elements where removed? (H, H, O)

What molecule can we make with these elements? H2O

Think back to the other reaction: The breaking apart of the protein. What happened when your body broke down the protein molecules into the monomers of amino acids? What molecule was needed to make each amino acid complete?

A water molecule is used to make the amino acid monomers complete. *Does this help you to understand why it might be a good idea to have a glass of water at every meal?*

We now have the beginning of a protein molecule. What do you notice is different from our molecule compared to the molecules we have seen?

The chain of amino acids is folded.

Then let’s fold

Fold the paper chain into a “ball” of amino acids to represent your protein.

We did a lot of work, putting the amino acids together, make water molecules, folding our protein. What does it take to do work?

Energy!