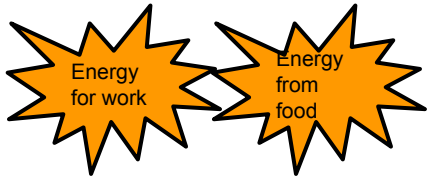


- "File" → "Make a copy"
 - Title: Your name ATP
 - Use the shapes to build the model for each box
 - You can drag each shape where you want and copy & paste to make more.
 -Share (upper right)with amessina@stcharlessd.org



1) Build an ATP molecule

2) Show how a energy is released from ATP

3) Show how a new ATP is created

4) -ATP is used for _____.
 -Above comes from _____.
 - _____ can be synthesized using ATP.
 -ATP energy is used to drag items along _____.
 -Metabolites like _____ and _____ can be imported using ATP.
 -Ions like _____ and _____ can be pumped in and out of the cell with ATP
 -ATP activates some proteins by adding a _____.
 - _____ is required for muscle filaments to reset.

Build an ATP molecule

TABLE 6.1 HOW CELLS USE ATP ENERGY TO POWER CELLULAR WORK

Biosynthesis
 Cells use the energy released from the exergonic hydrolysis of ATP to drive endergonic reactions like those of protein synthesis, an approach called energy coupling.

Contraction
 In muscle cells, filaments of protein repeatedly slide past each other to achieve contraction of the cell. An input of ATP is required for the filaments to reset and slide again.

Chemical Activation
 Proteins can become activated when a high-energy phosphate from ATP attaches to the protein, activating it. Other types of molecules can also become phosphorylated by transfer of a phosphate from ATP.

Importing Metabolites
 Metabolite molecules such as amino acids and sugars can be transported into cells against their concentration gradients by coupling the intake of the metabolite to the inward movement of an ion moving down its concentration gradient, this ion gradient being established using ATP.

Active Transport: Na⁺-K⁺ Pump
 Most animal cells maintain a low internal concentration of Na⁺ relative to their surroundings, and a high internal concentration of K⁺. This is achieved using a protein called the sodium-potassium pump, which actively pumps Na⁺ out of the cell and K⁺ in, using energy from ATP.

Cytoplasmic Transport
 Within a cell's cytoplasm, vesicles or organelles can be dragged along microtubular tracks using molecular motor proteins, which are attached to the vesicle or organelle with connector proteins. The motor proteins use ATP to power their movement.