**EOC Weaknesses!**

**B1.4** Controlled variables are what many teachers refer to as constants. Be sure students know these terms are synonymous.

**B1.3** Graduated cylinders may be marked (calibrated) in different ways. In general, a measuring instrument’s precision is greater when the marks are closer together. Beakers are not used for measuring for that reason.

Ask students to examine the graduates below and determine what the time marks mean. If someone fills the first one to 65ml (there is no 65mL line) there is great room for error—give or take 10mL. If someone fills the last graduate to 6mL, there is less room for error—give or take 1mL.



**B2.4** Initially cells divide forming a ball of cells that are identical, but they must begin to differentiate into different types of cells.

Zygote🡪Blastula🡪Gastrula (3 layers of cells: Endoderm, mesoderm, and ectoderm)





**B2.5** Are your students able to make a comparison chart comparing active and passive transport? Do they know which forms of transport are active and which are passive? If told that

Sample: A cell is getting rid of a large worn out organelle. Through which method of transport would this occur?

Sample: A skin cell needs more glycine to function normally. Given the size of glycine molecule, through which method of transport would it receive more glycine molecules?

Sample: About 20% of the weight of a muscle cell is oxygen (O2). How does this much oxygen likely enter the cells?

Video explaining the difference between active and passive transport: <http://www.diffen.com/difference/Active_Transport_vs_Passive_Transport>

**B2.7** Interesting article about cancer cells: <http://thebrainbank.scienceblog.com/2013/03/11/cancer-when-good-cells-go-bad/>

Check out this skin cancer webquest: <http://www.classzone.com/cz/books/bio_07/chapter_home.htm?cin=5>

\*Refer to section 5.3 in the McDougal-Little textbook.

**B3.1** Historical Photosynthesis Expriments: (Priestly, Calvin, Ingenhouz,

<http://www.juliantrubin.com/bigten/photosynthesisexperiments.html>

**B3.3**

ATP Cycle animation:

<http://www.dnatube.com/video/3421/ATP-cycle>

ATP Cycle from Khan Academy:

<https://www.khanacademy.org/test-prep/mcat/biomolecules/overview-metabolism/v/atp>

**B4.3 and B4.4**

Transcription & Translation Animations

<http://www.dnalc.org/resources/3d/16-translation-advanced.html>

From classzone.com. Click on Build a protein.

<http://www.classzone.com/cz/books/bio_07/get_chapter_group.htm?cin=3&ci=8&rg=animated_biology&at=animated_biology&npos=2&spos=8&var=animated_biology>

Examples of proteins:

<http://examples.yourdictionary.com/examples-of-protein.html>

Why does our body need protein? We must eat protein (chicken, fish, nuts, etc.) in order to have the building blocks to make the proteins we need (hormones, amylase, collagen, etc.). When we consume protein our digestive system breaks the bonds between the amino acids so that those amino acids are available in our cytoplasm when the tRNA needs it during translation.

**B5.4**

Help with defining a species:

\*<http://evolution.berkeley.edu/evosite/evo101/VSpeciation.shtml>

<http://www.globalchange.umich.edu/globalchange1/current/lectures/speciation/speciation.html>

**B5.5 and B5.6**

Using Molecular Evidence to show Relatedness:

<http://www.pbs.org/wgbh/nova/education/activities/0304_01_nsn.html>



An example of molecular homology:

-The numbers represent the number of amino acid differences between the [beta chain](http://users.rcn.com/jkimball.ma.ultranet/BiologyPages/B/Blood.html#oxygen) of human hemoglobin and the hemoglobins of the other species. In general, the number is inversely proportional to the closeness of kinship.

-All the values listed are for the beta chain except for the last three, in which the distinction between alpha and beta chains does not occur.

-The human beta chain contains 146 amino acid residues, as do most of the others.

Cytochrome C Comparison Lab:

<http://teacherweb.com/FL/JohnAFergusonHighSchool/MrBerneBiology/Cytochrome_C_Lab-Student.pdf>

**B6.2**

Abiotic and Biotic Factors Influence upon an Ecosystem

<https://www.youtube.com/watch?v=MdlwPtKg-VI>

This is pretty good! The link is to p. 1. Look through the next 6 pages. <http://www.bbc.co.uk/bitesize/standard/biology/biosphere/investigating_an_ecosystem/revision/1/>

**B6.4**

Nitrogen Fixation

Crash Course: \*<https://www.youtube.com/watch?v=leHy-Y_8nRs>

Chemical Formula for Chlorophyll: [C](http://www.chemspider.com/Molecular-Formula/C55H72MgN4O5)[55](http://www.chemspider.com/Molecular-Formula/C55H72MgN4O5)[H](http://www.chemspider.com/Molecular-Formula/C55H72MgN4O5)[72](http://www.chemspider.com/Molecular-Formula/C55H72MgN4O5)[MgN](http://www.chemspider.com/Molecular-Formula/C55H72MgN4O5)[4](http://www.chemspider.com/Molecular-Formula/C55H72MgN4O5)[O](http://www.chemspider.com/Molecular-Formula/C55H72MgN4O5)[5](http://www.chemspider.com/Molecular-Formula/C55H72MgN4O5)

Carbon Cycle: <https://www.youtube.com/watch?v=aLuSi_6Ol8M>

**In this document, sample EOC questions begin on p. 7:**

<http://ed.sc.gov/agency/programs-services/41/documents/BiologyTeachersGuide.pdf>