CECsci.140

TITLE: JELLO CELLS

AUTHOR: Kate Hayne, Soroco Junior High
Oak Creek, Colorado.

GRADE LEVEL/SUBJECT: Appropriate for JHS
Life Science Students!

OVERVIEW: Cells as 3D objects is a difficult concept for students to grasp as all diagrams and cells under the microscope appear as 2D objects. This activity allows the students to build 3D cell models and so have a concrete example to help them to develop this concept.

OBJECTIVE(s): Students will be able to:
1. Describe the cell as a 3D object rather than the 2D object they are accustomed to observing.
2. Describe the appearance and location within the cell of the various cell organelles.
3. Compare and contrast their 3D plant cell and their 3D animal cell.
4. Compare and contrast 3D plant and animal "tissues"

RESOURCES/MATERIALS:
Teacher materials: Plastic sacks,twist ties,jello, gelatin and boiling water as well as large mixing bowls and spoons.

Student materials: Plastic "tupperware" sandwich containers, canned fruits, paper and writing implement.

ACTIVITIES:
1. Students, in groups or individually, will select 2 plastic sacks. They will put one plastic sack in a small square "tupperware" container so that the plastic sack completely lines the container and the extra sits outside the container. The other sack should be open on the desk.
2. Each student or group of students should then put similar amounts of "Knox Blox", warm, lemon gelatin into the two sacks so that the container will be close to full. Then fruits representing required cell organelles should be put into the gelatin: plums to represent nuclei, mandarin oranges to represent mitochondria, grapes to represent chloroplasts etc. The plastic sacks represent cell membranes while the plastic container represents a cell wall.
3. The "cells" should then be closed using twist ties and refrigerated to set (several hours or until next day).
4. The completed cells can be compared for structural and overall shape differences, stacked to form "tissues" showing the difference between plant and animal tissue and then eaten and remembered for many years!

TYING IT ALL TOGETHER: It is always interesting to observe all the differently shaped "animal cells"(depending how they were stored to set) and the regularly shaped "plant cells". Students can observe and draw their cells from various angles as well as make various cross and longitudinal sections. It is easy to duplicate the "brick wall" plant cell pattern so often seen under the microscope- but in 3D cells!

To find out answers to the function section:

1. Goto: http://www.mrbrewer.org/Pages/resources.php

2. Under the Biology section use one or both of the following websites:
    a. "Cells Alive" - http://www.cellsalive.com/
    b. "Cell Structures and Processes" - http://www.tvdsb.on.ca/westmin/science/sbi3a1/Cells/cells.htm

3. Indicate which website used. _____

4. Be sure to answer what materials were used and why each materials was used.

Name _____ Date _____ Period _____

JELLO CELL MODEL ACTIVITY

You will either make an ANIMAL or PLANT cell; mark "N/A" if the cell does not contain this part.

Structure	Plant	Animal	Function	Material Used in Model	Why Material used?
Cell Wall					
Cell Membrane					
Nucleus					
Nucleolus					
Cytosol					
Chloroplast					
Mitrochondrion					
Gogli Complex					
Endoplasmic Reticulum (ER)					
Ribosome					
Vacuole					

Name _____ Date _____ Period _____

STRENGTHS & LIMITATIONS OF THE JELLO CELL MODEL ACTIVITY	
STRENGTHS (LIKE)	**LIMITATIONS (NOT LIKE)**
1. How is your model like a real cell? 2. . 3. . 4. . 5. . 6. . 7. . 8. . 9. . 10. .	1. How is your model different than a real cell? 2. 3. . 4. . 5. . 6. . 7. . 8. . 9. . 10. .

Then answer these questions In Your Journal, (beneath this page).

1. Is this a good model of the cell? Why or why not?

2. If this is not a good model of the cell, then what is the purpose of making this model?

3. What are some limitations of models in general?