Lesson Plans   CMST Institute

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Linking Plant and Animal Cells

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CMST SCOLLARCITY Lesson Plan Template-Lesson Plan using TI Technologies
(Due Tuesday, July 27th)

Submit as hard copy AND electronically through ANGEL

Name: Jacqueline Keily
Grade level(s)/Subject taught: Special Education (8:1:1) life science
Objectives: (Remember…How will the modeling tool help the student better learn the objective?) At the end of this lesson students will: 1. Be able to demonstrate, via the graphing calculator, knowledge of plant and animal cells.   2. Be able to compare and contrast cells and their functions using their study cards as a guide.

Items to include in your TI Technologies lesson plan: (use your area/discipline/concepts).

For the math teacher:
1. Write the Mathematical Concept or "key idea" that TI Technologies will be used to teach: (e.g. Students use mathematical modeling/ multiple representation to provide a means of presenting, interpreting, communicating, and connecting mathematical information and relationships)

and/or…

For the Science teacher:
1b. Write the Science Concept or "key idea" that TI Technologies will be used to teach: (e.g. Organisms maintain a dynamic equilibrium that sustains life).

Plant Cells and animal cells can be both compared and contrasted

For your TI Technologies lesson and using the following prompts, please provide a rich one-page, single-spaced description or a vision of your best thinking on a way or ways you might teach the planned lesson using the TI technology. Pay special attention to the modeling package in your description. Also, construct and submit a tentative rubric that you might use with your students. ** see example page 5

Before beginning my lesson, let me start with a brief description of what my classroom looks like. I have eight students and one paraprofessional. Student's desks are arranged in pairs and are facing each other. My laptop and calculator are in the front of the room near the whiteboard. Each student has his/her own calculator at his or her desk. Various "silent teacher" posters and student work adorn the walls.

As we begin our lesson, I ask the students what they remember about plant cells (we just finished a unit on plants and are heading into animals). Hopefully, a few hands will go up! My paraprofessional is expected to circulate and give kids any support needed. As kids start throwing facts out there I'm writing down answers on the easel.

Okay, now how about animal cells? Most of them should have learned some basic animal cell facts previously. I draw a line down the center of the easel paper and record correct answers. When we are finished the easel is turned to a clean sheet of paper.

Students are then asked to get their calculators ready, we are using study cards today. The study cards have already been transferred to all of their calculators by my para and myself. Now I give the class step by step instructions for turning on and getting to the cell study cards application on their calculators (on, apps, study card, enter). I like to move about the room as I'm talking so I can see whom needs more direction etc. We've done this before but repetition is always good. My para is circulating throughout to assist kids as needed and to help keep them focused. I have my screen projected onto the white board so kids have a larger visual to use.

"Let's take a look at the bottom of your screen. Everyone should have five options to choose from, menu, yes, no, flip, and stat. We only need to worry about three----yes, no, and flip." I go over with the class each function and when to use it while a student volunteer records the answers on the easel.

Ok, now we are ready to get started. I've found that making it into a little game increases motivation and, at times, decreases negative behaviors. Basically, the rules are as such:

1. Each vocabulary word is worth 10 points.
2. Whoever has the most points at the end wins
3. The game is played clockwise

Our first vocabulary word is cell membrane. Player one has two chances of getting it right before moving on to player two and so on. Students are not allowed to flip their cards until a correct answer has been given. My paraprofessional and myself circulate throughout the game and prompt when appropriate. After we played a round of plant cell cards we move on to animal cells. Now, because we haven't studied them yet they may be harder to define. Same game as with the plant cells, this time I'm expecting more questions and more incorrect answers. At the end of game 2 we will have two winners. I record their names on the white board and give out their prizes.

With both games done, it's time to compare and contrast cells. The students still have their calculators on and in the study card application. Our first organelle is the nucleus. " Who can remind me what the nucleus does again?" " Which type of cell or cells have a nucleus ?"

This time students are also completing a Venn Diagram (graphic organizer designed for comparing/contrasting-----I use these often.) as part of their notes. Plant cells in one circle, animal cells in the other circle, and both where the circles overlap.

As far as a rubric is concerned, due to the nature of my lesson most of my assessment will be discussion based. However, the following rubric will be used as part of the assessment tool for this lesson.

__Target__	__Acceptable__	__unacceptable__
Student was able to define most of the vocabulary words		
Student was able to define half of the vocabulary words		
Student was not prepared;could not define any vocabulary words.		
Student was able to follow directions without any prompting		
Student knew the basic study card functions		
Student is capable of stating similarities and/or differences between cells.		

…a rich one-page, typed, single-spaced, description or a vision of your best thinking…"

Prompts:
1. How will you assess the prior knowledge of the student?
2. How will you begin the lesson?
3. What are the teacher and students <u>doing</u> every 5-10 minutes? (Teacher Actions and Student Actions
4. How will you assess the learning for the lesson?
5. How will TI be integrated into your teaching? (i.e. you may want to discuss a problem or describe how you might use the chosen modeling package in your plan. How does the model/tool help the concept(s) to be taught)?

Using _____, I plan on having my students…
                    (software / modeling package(s)

Example: "I was thinking about beginning the class on [modeling X] by using the overhead to ask students what they know about X. From this brainstorming session, I might ask them to get into groups and discuss one or more of the ideas they gave me. After about ten minutes, I would have the students give their ideas on X and write them down on a transparency so they would be able to see them for the entire hour. From here, I would provide a 10 to 15 minute demonstration of the basics of using _____ modeling software. I would use an conceptual example that they would find familiar with such as getting a cold and how it is transmitted. From here, I would have students at the computer stations using a prepared guide or tutorial to get them started on basic software usage. I expect that in a short time a number of students would "catch on" rather quickly and be able to help others. ……………….. By the third lesson, I suspect that most would be well on their way to development of their own or small group models using the _____ software. My plan of assessment would probably be a group model so they would gain more confidence in using the software in a meaningful way. After the second or third lesson, I would ask them to choose from a list of thematic or topic areas that fit the software nice and develop a model using the technology. As a product, I may have partners share their model and describe to other small groups how it works. The rubric I design would be general at first so that I might see the kinds of the products the student were capable of creating. From the prototypes, I would hone my rubric to make the modeling product as challenging as possible without making it too difficult." Etc…

For all lesson plans and within the context of the lesson plan(s) you develop, design (add) a rubric that addresses your objectives AND "guides" your students to success in the modeling arena you choose (AS, Stella, GSP, TI, IP). The rubric should have three or four levels or mastery with the highest level [TARGET], which should detail what you might initially expect of the capabilities from a student doing the best s/he can do. (etc…)

Ex:

Target	Acceptable	Unacceptable
Model uses at least 5 functions of Agent Sheet Software.	?	?
Math / Science Concept thoroughly addressed. Described (written) in rich detail.		
Graphs are neat, accurate and based on data from the model.	?	?
Student is very capable of describing the model to a small group of peers and is able to respond meaningfully to questions about the model.	?	?
Defines exactly how the modeling software "helped" solve the problem.		