

Lesson 1: Intro to Biology

Teacher: Mike Lambert

Lesson Date: 4/10/12

Lesson Time: 54 minutes

Subject Area: Biology, Cells

Number of Students: 30

Grade Level: 7th grade

Materials:

- Science Starter #19 (4/10/12)
- “Introduction to Biology and Cells” information page
- “Introduction to Biology” Microsoft PowerPoint presentation
- Levels of organization materials (10 sets/ 1 for each table)
 - o Level cards (Atom, Molecule or Compound, Organelle, Cell, Tissue, Organ, Organ System, Organism)
 - o Sheet with examples of levels (oxygen, glucose, nucleus, blood cell, muscle tissue, heart, cardiovascular tissue, cat, etc.)
 - o Plastic bin to hold materials

Lesson Objective:

- 1) Students will gain a basic understanding of the meaning of biology.
- 2) Students will leave the lesson with an introductory understanding of cells and what their integral role for living organisms.
- 3) Students will attain an understanding of the various levels of function included in living organisms.

Anticipatory Set:

Science Starter #19 (4/10/12) – Projected up on the overhead, the Science Starter is a question presented to the students that either introduces a new topic or reviews a topic from the previous class. In both instances, the function of the science starter is to orient the students’ minds toward science related topics and prepare them for class. This also helps to get all the students into their seats and have something to work on while the teacher is taking attendance. There is a different science starter for each day. The science starter number is the same over one full week. At the end of the week, the students hand in their paper with each science starter for that week.

Q: “What is the definition of Biology?”

A: “Biology is the study of living organisms.”

→Students are shown only the question to start and proceed to record their answers.

→The teacher then asks the students to offer an answer.

→The students are shown the answer to correct their own answer as needed.

Teaching/Instructional Process:

1. Science Starter #19 (4/10/12) (see above) (10 min)
2. Hand out “Introduction to Biology & Cells” information sheet. (2 min)
→ “This info sheet is something we are going to call “a keeper sheet”. You will want to find a safe place for this since it will be very helpful to use when you study.”
3. Proceed through the “Introduction to Biology” PowerPoint presentation (15 min)
→ “As I go through the PowerPoint, please follow along on your info sheet.”
4. Levels of organization activity. (25 min)
5. Closing (2 min)

Guided Practice:

Levels of organization activity

Step 1 – Students label a blank piece of paper as follows:

Smallest Level Examples

Largest

(There is a 2x8 grid directly below “level” and “examples” for the students to fill in)

Step 2 – Each table retrieves their table’s box of materials (See materials section).

Step 3 – As a table group, students arrange the level cards from smallest element to the largest element of a living organism. Record those in order on the levels side of their page.

Step 4 – Using the sheet with examples, write in the examples on the “examples” side of their page according to the level that they belong to.

Step 5 – Once each group has had a chance to place all examples, go through the examples as a class to ensure they are placed correctly

Step 6 – table groups replace the materials in their boxes and return them to the front of the room.

Closure:

- 1) Restate the learning objectives for the lesson.
- 2) Before they leave class, ask if there was anything that they were surprised by today.

Lesson 1 Reflection

I felt this lesson was an effective introduction to the topic of Biology. I felt it was important to have a clear introduction to the topic in general since it is almost completely new to the students.

I think it was good to have something as concrete as a PowerPoint to display the concepts for the students, but I think it would have been better to have some aspect of the introduction that was a little more interactive. It might help to engage the students even more in the topic of biology.

Lesson 2: Intro to Microscopes

Teacher: Mike Lambert

Lesson Date: 4/11/12

Lesson Time: 44 minutes

Subject Area: Biology, Cells

Number of Students: 30

Grade Level: 7th grade

Materials:

- Science Starter #19 (4/11/12)
- Fill-in-the-blank microscope worksheet.
- “Create an Organism” directions sheet.

Lesson Objective:

- 4) Students will leave the lesson knowing the parts of a microscope.
- 5) Students will gain a strong understanding of the proper way to safely and effectively use a microscope.
- 6) Students will solidify their understanding of the essential elements that comprise any living organism.

Anticipatory Set:

Science Starter #19 (4/11/12) –

Q: “Are plants an example of a living organism? Why?”

A: “Plants are an example of a living organism because...

- > **They are made of cells.**
- > **They can reproduce.**
- > **They take in, transform and use energy from the environment.**
- > **They grow and develop.**
- > **They can adapt to their environment.”**

→Students are shown only the question to start and proceed to record their answers.

→The teacher then asks the students to offer an answer.

→The students are shown the answer to correct their own answer as needed.

Teaching/Instructional Process:

6. Science Starter #19 (4/11/12) (10 min)
7. Hand out microscope worksheet. (2 min)
8. Proceed through the microscope worksheet (15 min)
→ “Please follow along and fill in the blanks on the worksheet as we go through.”
9. Create your own organism activity. (15 min)
10. Closing (2 min)

Guided Practice:

Microscope worksheet

Step 1 – Hand out worksheets

Step 2 – Show teacher sample on elmo smart board and uncover answers one at a time.

Step 3 – guide students in filling out their own sheets.

Create Your Own Organism Activity

Step 1 – Hand out direction sheets.

Step 2 – explain the directions with the class.

Step 3 – Each student will describe or draw their organism, paying particular attention to each of the essential elements that all living organisms require.

Closure:

- 3) Ask for students to share some elements about the organism they have created.
- 4) Restate the learning objectives to the class.

Lesson 2 Reflection

I was happy with the content that was covered in this lesson. It was very important that the students had a firm grasp of how to properly use the microscopes before we actually started using them. It proved to be very helpful in making the lab process much smoother.

It was unfortunately a bit tedious to go through the worksheet together. There were not a lot of hands on work which made for a dull lesson. I was able to infuse some fun and interest in there by asking students to model the proper technique for using a microscope.

Lesson 3: Microscopes Intro Lab

Teacher: Mike Lambert

Lesson Date: 4/12/12

Lesson Time: 54 minutes

Subject Area: Biology, Cells

Number of Students: 30

Grade Level: 7th grade

Materials:

- Science Starter #19 (4/12/12)
- “Intro to Microscope Lab” Directions and lab sheet.
- Microscope lab equipment (13 sets, 1 for each group of 2-3 students)
 - o 1 microscope
 - o 1 plastic container for:
 - 3 microscope slides
 - 3 slide cover slips
 - Piece of newspaper type
 - 1 pipette
 - 1 jar of regular water
 - 1 jar of pond water

Lesson Objective:

- 7) Students will continue to use their knowledge of the proper use of microscopes (from the previous class) and put them into practice.
- 8) Students will gain an understanding of how to draw detailed depictions of their discoveries in the microscope.

Anticipatory Set:

Science Starter #19 (4/12/12) –

Q: “Is yogurt alive?”

A: “Yes, yogurt is full of bacteria and bacteria are living organisms.”

→ Students are shown only the question to start and proceed to record their answers.

→ The teacher then asks the students to offer an answer.

→ The students are shown the answer to correct their own answer as needed.

Teaching/Instructional Process:

11. Science Starter #19 (4/12/12) (10 min)
12. Hand out microscope lab packet (directions and lab sheet). (2 min)
13. Describe, in detail, the microscope lab directions (20 min)
 - “Please follow along as we go through the directions. If you are working on the lab and forget the next step, you will have this to refer back to.”
14. Start the lab (will have one more day with the classroom teacher to finish). (20 min)
15. Closing (2 min)

Guided Practice:

Microscope Lab

Step 1 – Get together with your group

Step 2 – Check out a microscope for your group.

Step 3 – retrieve your tray of lab equipment for your group and take it back to your table.

Step 4 – cut a lower case “e” out of the newspaper and place it on one of the slides.

Using the pipette, place one drop of water on top of the “e”. Carefully place the cover at an angle on top of the “e” so as to push out any air bubbles.

Step 5 – Place the slide under the microscope. Starting on Low power first, find the “e” and focus it using the course adjustment knob. Each group member will look at the focused image and draw what they see.

→ “your drawing should be very detailed and depict as exactly as you can what you see through the eyepiece. Anyone looking at your picture should be able to clearly identify the image.”

Step 6 – place the used slide in the bin on the front counter labeled “dirty equipment”.

Step 7 – using a second slide, place a hair of one of the group members on the slide and again place a drop of water on top of it. Place a cover slip over this (same as above).

Step 8 – Place the slide under the microscope. Starting on low power, find the hair and focus use the course adjustment knob to focus. Move to the medium and then high objective lenses, using the fine adjustment knob to focus.

→ “Remembering from our knowledge of using microscopes, do not use the course adjustment knob on the medium and high objective lenses.”

Step 9 – Again, each group member will observe and draw a detailed illustration of the hair on your lab sheet.

Step 10 – place the used slide in the “dirty equipment” bin.

Step 11 – using the last slide in the equipment, place a drop of pond water on the slide and cover it with a cover slip.

Step 12 – place it under the microscope. Start on low power and use the course adjustment knob to focus the image. Move to medium and high power.

Step 13 – each member will observe and draw a detailed illustration of their observation.

Step 14 – place used slide in “dirty equipment” bin.

Step 15 – check the microscope back in.

→ “Replace new slides and cover slips in your equipment tray so that it is ready for the next group.”

Closure:

- 5) Ask for students to share what they were surprised by when they looked at those objects up close. Did the Newspaper/ Hair look like they expected?
- 6) Restate the learning objectives to the class.

Lesson 3 Reflection

I thought this lesson went very well. It was the first time that the students were able to really interact with the material. The microscopes were new to the students and they were very interested in being able to see these everyday items (Newspaper, etc.) in a different way than they have ever seen.

The lab was successful in that each student was able to put into practice those techniques we went over the previous day about how to use a microscope. It seemed that every student had the chance to use the microscope at least once in their group. There were a good number of questions about trying to find and focus the object in the finder, but they began to get the hang of it.

Lesson 4: Animal and Plant Cell Lab

Teacher: Mike Lambert

Lesson Date: 4/17/12, 4/18/12

Subject Area: Biology, Cells

Lesson Time: 98 minutes (2 class periods)

Number of Students: 30

Grade Level: 7th grade

Materials:

- Science Starter #20 (4/17/12), (4/18/12)
- “Animal and Plant Cell Lab” Directions and lab sheet.
- Pieces of onion, sliced
- Elodea plant leaves
- Microscope lab equipment (13 sets, 1 for each group of 2-3 students)
 - o 1 microscope
 - o 1 plastic container, in each container there is/are:
 - ➔ 3 microscope slides
 - ➔ 3 slide cover slips
 - ➔ Toothpicks
 - ➔ 1 jar of regular water
 - ➔ 1 jar of methylene blue with a pipette
 - ➔ 1 jar of iodine with a pipette

Lesson Objective:

- 9) Students will leave the lab with a clear understanding of the difference between animal cells and plant cells.
- 10) Students will continue to use their knowledge of the proper use of microscopes (from the previous class) and put them into practice.
- 11) Students will continue to perfect their understanding of how to draw detailed depictions of their discoveries in the microscope.
- 12) Students will be able to describe in detail the difference between animal cells and plant cells.

Anticipatory Set:

Science Starter #20 (4/17/12) –

Q: “Which types of cells have cell walls: Animal cells, plant cells or both?”

A: “Only plant cells and some other living organisms have a cell wall.

Animal cells do not have cell walls.”

Science Starter #20 (4/18/12)

Q: “What Organelle do plant cells have but animal cells do not have? Hint: it is not the cell wall.”

A: “Only plant cells have chloroplasts, animal cells do not have chloroplasts.”

→ Students are shown only the question to start and proceed to record their answers.

- The teacher then asks the students to offer an answer.
- The students are shown the answer to correct their own answer as needed.

Teaching/Instructional Process:

16. Science Starter #20 (4/17/12) (10 min)
17. Hand out Animal and Plant Cell lab packet (directions and lab sheet). (2 min)
18. Describe, in detail, the Animal and Plant Cell lab directions (20 min)
 - “Please follow along as we go through the directions. If you are working on the lab and forget the next step, you will have this to refer back to.”
19. Start the lab (will have one more day with the classroom teacher to finish). (49 min)
20. Students will answer the follow up questions to the lab (15 min)
21. Closing (2 min)

Guided Practice:

Microscope Lab

Step 1 – Get together with your group

Step 2 – Check out a microscope for your group.

Step 3 – retrieve your tray of lab equipment for your group and take it back to your table.

Step 4 – Peel off a small piece of onion skin and place it on the slide. Place 2 drops of iodine stain on top of the onion skin. Carefully place the cover at an angle on top so as to push out any air bubbles.

Step 5 – Place the slide under the microscope. Starting on Low power first, find the onion and focus it using the course adjustment knob. Each group member will look at the focused image and draw what they see. You will need to label the cell wall, the cell membrane, the nucleus and the cytoplasm.

→ “your drawing should be very detailed and depict as exactly as you can what you see through the eyepiece. Anyone looking at your picture should be able to clearly identify the image.”

Step 6 – place the used slide in the bin on the front counter labeled “dirty equipment”.

Step 7 – Using a second slide, place a few drops of water on it and place a small piece of an elodea leaf over the water. Place a cover slip over this (same as above).

Step 8 – Place the slide under the microscope. Starting on low power, find the hair and focus use the course adjustment knob to focus. Move to the medium and then high objective lenses, using the fine adjustment knob to focus.

→ “Remembering from our knowledge of using microscopes, do not use the course adjustment knob on the medium and high objective lenses.”

Step 9 – Again, each group member will observe and draw a detailed illustration of the hair on your lab sheet. You need to label the cell wall, the cytoplasm, the cell membrane and the chloroplasts.

Step 10 – place the used slide in the “dirty equipment” bin.

Step 11 – using the last slide in the equipment, place a drop or two of the methylene blue on the slide. One group member will use a toothpick to gently scrape the inside of their

cheek and then mix that end of the toothpick into the blue solution on the slide. Cover it with a cover slip.

Step 12 – place it under the microscope. Start on low power and use the course adjustment knob to focus the image. Move to medium and high power.

Step 13 – Each member will observe and draw a detailed illustration of their observation. You will need to label the cell membrane, the cytoplasm and the nucleus.

Step 14 – Place used slide in “dirty equipment” bin.

Step 15 – Check the microscope back in.

→ “replace new slides and cover slips in your equipment tray so that it is ready for the next group.”

Closure:

- 7) Ask students to describe some of the parts of the cell that they were able to see. Were they surprised by anything they saw?
- 8) Restate the learning objectives to the class.

Lesson 4 Reflection

As an extension off of the intro to microscopes lab from the day before, the students picked up on the procedure quite readily for this lab. They picked up the steps quickly. The most important learning point from this lesson for me was the directions on doing detailed illustrations. Scientific illustrations are a new concept to the students and these are things that the students do not have previous experience with seeing. I think in the future, I would show them pictures of actual cells that they will be looking at as well as show them examples of other well done illustrations to give them some familiarity with these.

Lesson 5: Cell Catalog

Teacher: Mike Lambert

Lesson Date: 4/19/12, 4/20/12, and 4/23/12

Lesson Time: 162 minutes (2 class periods)

Subject Area: Biology, Cells

Number of Students: 30

Grade Level: 7th grade

Materials:

- Science Starter #20 (4/19/12)
- “Cells Catalog” PowerPoint Presentation.
- 30 Organelle information sheets, 1 for each student
- 30 scoring sheets, 1 for each student.
- At least 300 blank half sheets of paper (for catalog pages)
- Art Equipment (10 sets, 1 for each table)
 - o 1 plastic container, in each container there is/are:
 - ➔ Assorted colored pencils
 - ➔ 2 rulers
 - ➔ A pencil sharpener

Lesson Objective:

- 13) Students will gain a strong understanding of what an organelle is.
- 14) Students will be able to describe the function of the individual organelles of the cell.
- 15) Students will be able to distinguish which organelles are found only in plant cells and not in animal cells.

Anticipatory Set:

Science Starter #20 (4/19/12) –

**Q: “Please define the following words: Mitochondria:
Ribosomes:
Golgi Bodies:
Endoplasmic Reticulum:
Vacuole:”**

- ➔ Students are shown only the question to start and proceed to record their answers.
- ➔ The teacher then asks the students to offer an answer.
- ➔ The students are shown the answer to correct their own answer as needed.

Teaching/Instructional Process:

22. Science Starter #20 (4/19/12) (10 min)
23. Hand out Cell Catalog scoring and direction sheet. (2 min)
24. Proceed through the “Cell Catalog” powerpoint (20 min)
25. Cell Catalog work time (128 min)
26. Closing (2 min)

Guided Practice:

Cell Catalog

Students will create a catalog filled with illustrations and descriptions of the 6 required organelles (nucleus, mitochondria, chloroplasts, ribosomes, cell wall, and cell membrane) with other organelles as extra credit (Endoplasmic reticulum, vacuole, and golgi bodies). Their task is to not only draw and describe the organelle but also use persuasive voice in their descriptions to “sell” their organelle products from their catalog. They are graded on their illustrations, accurate descriptions of the organelle and their persuasive voice. They will have over three class periods to work on this.

Closure:

- 9) Restate the learning objectives to the class.

Lesson 5 Reflection

I think this was a good placement for this lesson. The Cell Catalogs give the students a chance to have some creative working time. Although there are directions to guide them in making the catalogs, there are less structured directions. This is a nice change from the intense directions given for the labs in the previous lessons.

The directions seemed to be just right as the students were clear on what they needed to do and were able to work pretty diligently in class.

Lesson 6: Intro to Diffusion and Osmosis

Teacher: Mike Lambert

Lesson Date: 4/24/12

Lesson Time: 54 minutes

Subject Area: Biology, Cells

Number of Students: 30

Grade Level: 7th grade

Materials:

- Science Starter #21 (4/24/12)
- “Diffusion and Osmosis” PowerPoint Presentation.
- Art Equipment (10 sets, 1 for each table)
 - o 1 plastic container, in each container there is/are:
 - ➔ Assorted colored pencils
 - ➔ 2 rulers
 - ➔ A pencil sharpener

Lesson Objective:

- 16) Students will begin to understand what diffusion and osmosis are.
- 17) Students will leave with an introductory understanding of the difference between diffusion and osmosis.
- 18) Students will understand the meaning of the term “selective permeability”.

Anticipatory Set:

Science Starter #21 (4/24/12) –

Q: “What does the term diffusion mean? (pg. 41 in the text book).”

A: “Diffusion is the process of molecules moving from an area of high concentration (high density) to an area of low concentration (low density).”

- ➔ Students are shown only the question to start and proceed to record their answers.
- ➔ The teacher then asks the students to offer an answer.
- ➔ The students are shown the answer to correct their own answer as needed.

Teaching/Instructional Process:

27. Science Starter #21 (4/24/12) (10 min)
28. Time to finish up cell catalogs (17 min)
29. Introduce “Diffusion and Osmosis” with powerpoint (15 min)
30. Balloon Selectively Permeable Activity (10 min)
31. Closing (2 min)

Guided Practice:

Diffusion and Osmosis Powerpoint

Selectively Permeable Balloon Activity

I had four different varieties of balloons with different scents in each. The students would take turns smelling each balloon and trying to identify the smell. This activity highlighted that the balloon's membrane is selectively permeable (allows air to transfer but not water) just like cell membranes.

Closure:

- 10) Ask students to share a creative example they would like from their cell catalogs.
- 11) Restate the learning objectives to the class.

Lesson 6 Reflection

This lesson had a nice flow to it. The students were able to come into class and get started on finishing their catalogs and have about half the time working on those. This made the powerpoint presentation a little less central to the class which allowed me to keep their interest a bit longer. They expressed a good amount of interest in the topic with their many questions during the powerpoint.

Lesson 7: Osmosis Lab

Teacher: Mike Lambert

Lesson Date: 4/25/12

Lesson Time: 54 minutes

Subject Area: Biology, Cells

Number of Students: 30

Grade Level: 7th grade

Materials:

- Science Starter #21 (4/25/12)
- Egg/ Osmosis lab sheet (30 copies)
- Lab follow up questions (30 copies)
- Osmosis Lab materials (10 sets, 1 for each table group)
 - o 2 eggs (soaked in vinegar overnight)
 - o 2 Used plastic yogurt
 - o Maple syrup

Lesson Objective:

- 19) Students will gain hands on experience with the process of diffusion
- 20) Student will be able to describe the process of diffusion through their groups example with the egg.

Anticipatory Set:

Science Starter #21 (4/25/12) –

Q: “Using scientific terms from yesterday, explain why you were able to smell the scent through the balloon.”

A: “Through the process of diffusion, the selective permeability of the balloon allowed the high concentration of scent molecules inside the balloon to pass through to the low concentration of air molecules outside of the balloon.”

→Students are shown only the question to start and proceed to record their answers.

→The teacher then asks the students to offer an answer.

→The students are shown the answer to correct their own answer as needed.

Teaching/Instructional Process:

- 32. Science Starter #21 (4/25/12) (10 min)
- 33. Hand out Osmosis lab sheet (2 min)
- 34. Go through the directions for the lab (10 min)
- 35. Lab work time (25 min)
- 36. Lab clean-up (5 min)
- 37. Closing (2 min)

Guided Practice:

Osmosis Lab

Step 1 – Take two eggs for your group.

Step 2 – rinse the egg while lightly rubbing away the remaining shell. It should come off easily.

→ “Be very careful with your eggs, they are very fragile.”

Step 3 – Rinse out the yogurt containers that contained the vinegar so that they can be reused.

Step 4 – Label one container “syrup” and your table number and class period. Label the other container “Water”, also with your table number and class period.

Step 5 – mass one of the eggs. Record this mass under “mass before osmosis” as “egg 1 – syrup” on your data table.

Step 6 – measure the circumference of the egg by carefully placing a string in your hand and placing the egg on top of it. Lay the ends of the string over the top of the egg and mark where they meet. Then lay the string along a ruler to find out the circumference of the egg. Record this measure under “circumference before osmosis” on “egg 1- syrup”.

Step 7 – place the egg in the first container and pour just enough syrup over the top to cover the egg. Place it at the back of the class.

Step 8 – repeat steps 5 – 7 only using water rather than syrup.

Step 9 – wait 24 hours then carefully take out the eggs to rinse off the excess syrup.

Step 10 – again, measure the mass and circumference of each egg and record those in the appropriate areas on your data table.

Step 11 – draw pictures of your eggs after osmosis has occurred.

Step 12 – answer the lab questions when you are finished.

Closure:

12) Restate the learning objectives to the class.

Lesson 7 Reflection

This was the most difficult lesson so far. With the fragile raw eggs involved in this lesson, the directions were vital to get to the students. I tried to explain the directions as clearly as possible, but there was an extra challenge involved since not all of the egg shells were quite dissolved yet by the lesson day.

Because of this hiccup, some groups were ready to go while other groups had to wait another day. This confusion made the lab a bit more hectic and I had more students requesting my assistance than I could effectively handle.

I think in the future, I would be sure to highlight the directions on the front of their lab page for them to go to if they are unsure of the next step. I had a lot of questions about the next step of the lab and I did not use the lab sheet to refer to them.

Lesson 8: Cell Transport

Teacher: Mike Lambert

Lesson Date: 4/26/12

Lesson Time: 44 minutes

Subject Area: Biology, Cells

Number of Students: 30

Grade Level: 7th grade

Materials:

- Science Starter #21 (4/26/12)
- “Diffusion and Osmosis in Cells” info sheet (30 copies)
- “Diffusion and Osmosis Questions” worksheet (30 copies)
- “Cell Transport” worksheet (30 copies)
- “Active vs. Passive Transport” Powerpoint presentation.

Lesson Objective:

21) Students will be able to discern the difference between active and passive transport.

Anticipatory Set:

Science Starter #21 (4/26/12) –

Q: “Other than a cell, describe something else that acts the same way as a selectively permeable membrane.”

→ Students are shown only the question to start and proceed to record their answers.

→ The teacher then asks the students to offer an answer.

→ The students are shown the answer to correct their own answer as needed.

Teaching/Instructional Process:

38. Science Starter #21 (4/26/12) (10 min)

39. Finish Osmosis Lab (20 min)

40. Go through “Active and Passive Transport” Powerpoint (10 min)

41. Hand out worksheets (2 min)

42. Work time (if time)

43. Closing (2 min)

Guided Practice:

Active and Passive Transport Powerpoint and venn diagram

As we go through the powerpoint, the students will create a venn diagram on their own paper which will highlight the similarities and differences between active and passive transport in cells.

Closure:

- 13) Open class up to discussing what they found out from the osmosis lab.
→ “What did your data show?”
- 14) Restate the learning objectives to the class.

Lesson 8 Reflection

This first part of this lesson was still a bit challenging due to the fact that the lab groups were still off schedule and we had to try and finish up the lab. I was still fielding many questions on the lab which is to be expected I think considering the mix up we had.

The second half of the lesson was good. In showing the powerpoint, I had the students make a venn diagram to show the difference between active and passive transport. These can be difficult concepts to tease out and I think this method of showing how they are similar and different was really a nice way to do it.

Lesson 9: Prokaryotic and Eukaryotic Cells

Teacher: Mike Lambert

Lesson Date: 5/1/12

Lesson Time: 54 minutes

Subject Area: Biology, Cells

Number of Students: 30

Grade Level: 7th grade

Materials:

- Science Starter #22 (5/1/12)
- “Prokaryotic Cells and Eukaryotic Cells” Powerpoint.

Lesson Objective:

22) Students will be able to discern the difference between Prokaryotic and Eukaryotic Cells.

Anticipatory Set:

Science Starter #22 (5/1/12) –

Q: “Describe the difference between diffusion and osmosis.”

A: “Diffusion is the passive transport of any material from high concentration to low concentration. Osmosis is a specific type of diffusion and it describes the movement of water only.”

→ Students are shown only the question to start and proceed to record their answers.

→ The teacher then asks the students to offer an answer.

→ The students are shown the answer to correct their own answer as needed.

Teaching/Instructional Process:

44. Science Starter #22 (5/1/12) (10 min)

45. Work time (15 min)

46. Go through “Prokaryotic Cells and Eukaryotic Cells” Powerpoint (10 min)

47. Continue with Quiz Bowl Powerpoint (17 min)

48. Closing (2 min)

Guided Practice:

Quiz bowl review activity

As a table group, the students will try their best to answer each question. They will keep their answers hidden from other table groups. The teacher collects these and finds out which table got the most points. This is designed to help the students review for the quiz the next day.

Closure:

15) Restate the learning objectives to the class.

Lesson 9 Reflection

I would say the highlight of this lesson was ending it with the quiz bowl challenge. I wanted to be sure to assess the students' learning and help them prepare for the quiz the next day. They had done quite a few worksheets up to this point, I thought this would be a more fun way to prepare for the quiz. The students really seemed to enjoy it and it helped them prepare for the quiz.