Contribution from…
Piscataway Township Schools
Instructional Plan

Week of:		**Teacher/ Grade**	7	**Subject/ Period**	SCIENCE
Theme:	Cells, Life Processes, and the Chemistry of Life				

Enduring Understandings

Students will understand that science is an ongoing, investigative process that demands a variety of safe methods, posing questions, explaining, and predicting outcomes about the universe. The methods chosen are based on honesty, the known and unknown, and the risks/benefits of the solution while communicating the results to others for their review.
Students will understand that there are a set of investigative skills such as hypothesizing, identifying and controlling variables, collecting and analyzing data, and drawing conclusions.
Students will understand that survival of all organisms is dependent upon diversity of structure, function and behavior due to genetic makeup and/or environmental conditions.
Students will understand that changing environmental conditions can result in the evolution or extinction of a species and individual organisms with certain traits are more likely to survive and reproduce.

Essential Questions

What is the best way to investigate?
Why are we who we are?

Objectives
Students will know… Cells are the basic units of all living things. Life arises from life. The difference between a uni- and a multi-cellular organism. The invention of the microscope was extremely important in the discovery of cells. The three parts to the cell theory. The structure and function of plant, animal and bacterial cells. The differences in structure between eukaryotes and prokaryotes. The differences in structure between the eukaryotes, plant and animal cells. The individual roles and jobs that each organelle within in a cell performs for the cell. **Students will be able to…** Take Cornell notes from readings and lecture. Utilize Cornell notes as a study tool. Recite the three parts of the cell theory. Recognize and identify the individual organelles that compose cells. Identify key differences between prokaryotes and eukaryotes. Identify key differences between plant and animal cells. Describe the functions of each organelle within a cell. Make comparisons between cell organelles and common structures found in the real world. Use those comparisons as a study guide in memorizing not only cell parts, but their functions as well.
Content Vocabulary
Hooke, van Leeuwenhoek, Redi, Pasteur, controlled experiment, Matthais Schleiden, Theodor Schwann, cell theory, magnification, lenses, resolution, electron microscope, eukaryote, prokaryote, cell wall, cell membrane, mitochondria, nucleus, nucleolus, lysosome, ribosome, chloroplast, endoplasmic reticulum, golgi body, cell, organelle
Resources/Materials
Life Science textbook, teacher made reproducibles, www.cellsalive.com, magna cell, 3-D cell models

Instructional Strategies/Lesson Sequence		
	MONDAY – B day	**TUESDAY – A day**
Access Prior Knowledge (Assessing what students know)	What do you feel is the most difficult thing to do when finding a specimen in the microscope. Why is this difficult for you? What do you do to fix the problem. What is the easiest thing for you to do when using the microscope?	
Motivation (the hook)	Students will get the opportunity to asses their own skill in using the microscopes by viewing what the image SHOULD have appeared like in their field of view. The images will be shown on the microscope pupil cam.	

Learning Activities	1. DO NOW – see access prior knowledge 2. a new marking period assignment log will be handed out. Students will use this as a tool to keep record of all grades received throughout the marking period. Students will be handed back a few papers and asked to record their grades. The letter "e" lab will checked for clarification of key points of microscopy as the quiz on this topic will be the next day. 3. The teacher will place each of the 12 station slides from the previous week up on the Pupil cam. Students will assess their observations off of the point of view shown on the screen. 4. As a review for the upcoming quiz, students will complete a concept map on the parts and functions of the compound light microscope. They will compare answers with their lab partner and check for accuracy. 5. Students will silently read the section titled "Discovering Cells" and answers several questions in their note section on the content covered there. Major topics include scientists whose work helped in the discovery of cells and the development of the cell theory.
Closure	Teacher will point to the various parts of the microscope on the diagram and ask for student responses. Popcorn questions on microscopy will be asked in a rapid fashion.
Homework	STUDY! Quiz: What is Life and Microscopy
Assessment	Students will assess their own observations from the stations lab. Those that determine they need more practice on the scopes will be given the opportunity during lunch to improve.

Instructional Strategies/Lesson Sequence		
	WEDNESDAY – B day	**THURSDAY – A day**
Access Prior Knowledge (Assessing what students know)	How did you use your Cornell Notes to help you prepare for today's quiz? Write one MULITPLE CHOICE question that could be on today's quiz. Include four answer choices. Write the correct answer.	
Motivation (the hook)	Students may be surprised to find one of their questions from the DO NOW on the actual quiz. Others may find that using their Cornell notes DID prepare them and helped them memorize vocabulary and key concepts.	

Learning Activities	1. DO NOW - see access prior knowledge 2. Students will complete a 25 minute quiz on Microscopy and The Characteristics of Life. Test questions will include a diagram, multiple choice, and short answer section. 3. Upon completion of the quiz, students will begin reading pages 34-42 in their textbook and complete Cornell notes on the entire section. Students will be reminded to include content questions on the left, vocabulary, and a simple diagram of a plant and animal cell.
Closure	Remember, the better you make your notes, the better study guide you will have for your Chapter one test.
Homework	Complete Cornell Notes 34-42
Assessment	Quiz will be graded for 50 points

Instructional Strategies/Lesson Sequence		
	FRIDAY	**NOTES**
Access Prior Knowledge (Assessing what students know)	What's the difference between a prokaryote and a eukaryote? Name one organelle and its function that can be found in a eukaryotic cell but NOT a prokaryotic cell.	**Anticipated Results/Actual Results** ▪
Motivation (the hook)	Students will get a number of visual references to the various parts of cells, through models, magnetic manipulatives, and the internet.	

Learning Activities	1. DO NOW – See access prior knowledge. 2. Students will take Cornell Notes based on a Power Point Presentation on Cells. 3. During the presentation the website www.cellsalive.com will be referenced to give students a visual representation of cell organelles. 4. The teacher will also use magnetic and 3 D models of the cell to accentuate the numerous parts of the cell.	
Closure	You must begin studying both the STRUCTURE and FUNCTION of all the cell parts in preparation for your upcoming cell project.	
Homework	Label Plant and Animal Cell Diagrams.	
Assessment	Teacher will circulate during powerpoint to make sure students are updating and completing notes.	

Administrator's Feedback: Name _____Date: _____

Alignment: Curriculum and Instructional Plan is aligned with curriculum or NJCCCS if curriculum not designed using Understanding By Design as framework.

Rigor: Instruction focuses on discovering the concepts that lies at the heart of the curriculum.

Transfer: Students demonstrate the use of knowledge and skills in new situations

Assessments: Uses the Six Facets of Understanding to measures level of understanding as evidenced through open-ended prompts and challenges that promote the use of knowledge and skills in new, engaging and authentic ways.