Name: Nate Tiner

Science Lesson Plan

Learning Segment Focus: Identifying Different Mutations Based on Observations.

Lesson 1 of 1 Topic: Biology/Mutations Date: 5/3/21 Grade: 8th

Student Outcomes

Specific learning **objectives** for this lesson.	Students will be able to identify different types of mutations on cells by observing their features.
Justify how learning tasks are appropriate using examples of **students' prior academic learning**.	Students will already be familiar with make-up of cells and using microscopes to look at certain slides, this will go into mutations and how they might affect the overall body, etc.
Justify how learning tasks are appropriate using examples of **students' personal, cultural, linguistic, or community assets**.	We are all made up of cells, it is a part of who we are, and it is important to understand the basic levels of life, including the smallest unit.

State Academic Content Standards

List the **state academic content standards** with which this lesson is aligned. Include abbreviation, number & text of the standard(s).	8-LS3-1: Develop and use a model to describe why structural changes to genes (mutations) located on chromosomes may affect proteins and may result in harmful, beneficial, or neutral effects to the structure and function of the organism.

Key Vocabulary

What **vocabulary terms/content specific terminology** must be addressed for students to master the content?	- Gene - Cell - Mutation - Organism

Academic Language Support

What are the **Academic Language Function(s)** (the content and language focus of the learning task represented by the active verbs within the learning objectives/outcomes) and explain how they are utilized in the lesson plan? What planned **Academic Language Supports** will you use to assist students in their understanding of key academic language to express and develop their content learning and to provide varying supports for students at different levels of Academic Language development? How do these supports address all three **Academic Language Demands (vocabulary, syntax, and discourse)?**	Students will know exactly what they are looking for based on the vocabulary, they should easily be able to identify a cell, a gene, a mutation if they saw a picture of it. We will go over each of the important concepts and differing levels of each.

Materials

Materials needed by the teacher for this lesson. (such as books, writing materials, computers, models, colored paper, etc.)	- Video - Digital Microscope - Apple TV - iPad or iPhone to Cast to Apple TV.

Materials needed by **students** for this lesson. (computers, journals, textbook, etc.)	- Rocket books for observations/notes - Digital Microscopes - iPad - Review Worksheet - Pencil/Pen

Lesson Timeline with Instructional Strategies & Learning Tasks

Amount of Time	**Teaching & Learning Activities (This should be a BULLETED LIST)**	**Describe what YOU (teacher) will be doing and/or what STUDENTS will be doing during this part of the lesson. (This should be VERY DETAILED)**
15 minutes	**Introduction**: - Recap - Pitch to video	I will recap what we have been learning with structural chances to genes or mutations. I will reintroduce vocabulary words and have students define them for me. I will introduce what we are doing today, in actually seeing the difference in a lot of different mutations. I will first show a video in what will have different types of mutations. They should also be taking notes on the video in their rocketbooks for them to reference back too.
45 Minutes	**Instruction:** - Instructions - Model - Pass out materials - Students make observations - Share what we found	Once the video is complete, I will cast my device to the Apple TV to model using the Digital Microscopes, which each student should have. I will pull out a microscope slide and show them what they will be looking at. I will then pass out slides throughout the class, and they will be looking at them and taking note, or observations on what they see. They will need iPads as well for the microscopes. Each slide is labeled, and, in their notes, they are expected to write down what they observed in their Rocketbooks, and if they are comfortable, they may identify what the slides show, it may have them recall certain concepts learned in previous grades. After each student has had a chance to make observations on each slide, we will go over them as a class, and I will ask students to identify what type of mutations or other action has happened to the respective cell.
15 Minutes	**Closure:** - Closure - Worksheet	After we go over what we saw, I will wrap up and tell students to be prepared for a test later on where they will have to identify mutations based on what they look like or observations on them. I will then have them start a worksheet, that they will need to take home if they do not complete as we will go over it the next class period.

Technology Integration

Provide your **rationale** for your technology choices that accurately reflects those choices within your teaching context. **Identify** what technology(s) you are using as part of your lesson plan. **Describe** how the use of technology aligns to your learning objectives, content standards, and central focus. **Explain** how technology-based instructional strategies are essential to students accomplishing the learning objectives (beyond what could be accomplished without using the technology). **Specify** how the technology selections meet or exceed the needs/strengths of all students**. Justify the "fit"** of chosen technologies, showing how the content, instructional strategies, and technology "fit" together.	Students with this technology will get hands on experience with looking at microscope slides, they are cheaper and easier to use then a normal microscope, not to mention a lot lighter as well. Without it, we would not get to look at as many slides because we would be sharing microscopes. Students also get to watch a video that explains the different types of mutations and what to look out for. It is much more engaging than me going over it, and takes less time. The technology really streamlines the learning, and I believe does a better job at explaining the content than I could.

Accommodations/Modifications

How might I **modify** instruction for: *Remediation?* *Intervention?* *IEP/504?* *LEP/ESL?* (All students who have plans mandated by federal and state law.)	While students that are struggling or behind, I might periodically check in with them throughout the activity to see if the technology is working properly and that they understand, if necessary I will explain to them in more detail about the content and what to look for. If after the activity I see that students are not understanding, I will work with them individually or in small groups with more activities that will be more teaching of the content before we move on, while the rest of the class works on more practice or another activity.

Differentiation

How might you provide a variety of techniques (enhanced scaffolding, explicit instruction, contextualized materials, highlighters/color coding, etc.) **to ensure all student needs are met?** (All students who are not on specific plans mandated by federal and state law.)	I am specifically demonstrating how to use a tool and how to take good notes and observations to identify what a certain slide is. I will give many examples of what they are to look for, to give them practice before they practice individually making observations and drawing conclusions based on their observations. It will be explicit instruction.

Assessments: Formative and/or Summative

Describe the **tools/procedures** that will be used in this lesson to monitor students' learning of the lesson objective(s) (include type of assessment & what is assessed).	☐ **Formative** /~~☐ Summative~~	As a formative assessment, students will be required to put into practice what they just picked up in identifying different types of cells and mutations.
	☐ **Formative** /~~☐ Summative~~	As a formative assessment, students will be required to complete a worksheet, that
	~~☐ Formative~~ /☐ **Summative**	As a summative assessment, students will have to complete a unit test, that will require students to identify certain objects based on observations.

Research/Theory

Explain **connections to theories and/or researc**h (as well as experts in the field or national organization positions) that support the approach you chose and justify your	Vygotsky: This theorist stated the scaffolding technique is beneficial and effective when used in the classroom to help students succeed to higher standards. Students will be observed by me during the lesson for participation, and will know what is expected of them before, I'm looking for students to

choices using **principles of the connected theories and/or research.**	show that they are capable of making observations and draw conclusions from those and even if they are incorrect, that they learn from it. Bloom: This theorist is known for having students remember facts and create something new in regards to what content they are learning. Students will be asked to recall what they had just learned and put it in to practice, while also identifying objects that they have learned about in the past.

Lesson Reflection/Evaluation

What went **well**? What **changes** should be made? How will I **use assessment data** for next steps?	*TO BE FILLED IN AFTER TEACHING*

Include supporting material such as slides, pictures, copy of textbook, and handouts for any activities students will be using as part of your lesson.

*adapted from: http://webcache.googleusercontent.com/search?q=cache:EsQcNWuG1ZoJ:web.mnstate.edu/harms/StudentTeachers/edTPA-LessonPlan.doc+&cd=2&hl=en&ct=clnk&gl=us; http://www.moreheadstate.edu/getmedia/cd3fd026-939f-4a47-a938-29c06d74ca01/Lesson-Plan-and-Reflections.aspx; http://www.mcneese.edu/f/c/9cb690d2/Lesson%20Plan%20Rubric%20Aligned%20with%20InTASC.docx;https://www.uwsp.edu/education/Documents/edTPA/Resource12.pdf; https://www.uwsp.edu/education/Documents/edTPA/Resource11.pdf; https://www.uwsp.edu/education/Documents/edTPA/Resource11a.pdf; https://www.uwsp.edu/education/Documents/edTPA/LessonPlanTemplateSOE.docx; https://www.uwsp.edu/education/Documents/edTPA/SpecEdLessonPlanGuide.docx; https://www.uwsp.edu/education/Documents/edTPA/SpecEdLessonPlanTemplate.docx