

Literacy STEM Lesson Plan

Losson Titlo	To understand an organ system, you must think like an organ system	Lesson #	4	Date:	November 21st
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			Anatomy and		
Name:	Liam Edey	Subject:	Physiology	Grade(s):	12

Rationale:

An effective method of learning and understanding is through persona writing. This lesson allows students to take the creative lead in demonstrating their understanding of the subject material to the teacher as well as work on their presenting skills. This variation of persona writing adds a more bodily-kinesthetic and movement centered approach to this literacy strategy, which is something that is increasingly rare as grade level increases. This lesson also has huge opportunity to promote a humorous environment when it comes to the skit presenting. This lesson was designed to be more of a fun exercise for students to work with others collaboratively which provides another assessment option for teachers.

Core Competencies:

Communication	Thinking	Personal & Social
 Students must present a skit orally and physically to class and communicate their thinking and explanation of organ systems Students will have to communicate their "two stars and a wish" to each presenting group which enhances ability to give and take criticism 	 Promoting the use of critical thinking skills by working in groups to come up with ideas cooperatively Premade questions give students a direction of thought Students providing peer assessment stimulates critical thinking into seeing the good in others work as well as areas for constructive criticism 	 Students will always be working together in groups and working in specific roles, stimulating social skills and interaction Students must coordinate themselves and delegate roles, take turns, and respect group members Students provide peer assessment to groups which helps with students being able to be honest with one-another

Big Ideas (Understand)

Organ systems have complex interrelationships to maintain homeostasis.

Learning Standards

(DO) (KNOW)

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Learning Standards - Curricular Competencies	Learning Standards - Content	
Use knowledge of scientific concepts to draw conclusions that are consistent with evidence	disease as an imbalance in homeostasisorgan systems:	
Analyze cause-and-effect relationships	structure and function structural and functional interdependence maintenance of homeostasis	

Instructional Objectives & Assessment				
Instructional Objectives	Assessment			
SWBAT:	Formal:			
 Work in groups collaboratively to make and present a scientifically accurate skit about one of the 11 main organ systems in the human body Write then deliver peer assessment to each presenting group in the form of "two stars and a wish" Perform a variation of "persona writing" about one of the 11 main organ systems Demonstrate clear understanding of the past unit's material about organ systems Work efficiently and respectfully with group members Organize themselves (and even others) in a group setting and perform roles 	 Two stars and a wish peer assessment sheet (if group size does not allow only one writer per presentation then it is fine for more than one student to write for the same presentation in order to ensure every student provides peer assessment) to assess the critical thinking of positives and negatives of each presentation and the validity of each response Persona writing skit script to assess how well each presentation adhered to the criteria and marking rubric Informal: Walking around during group working gauging how well, respectful and inclusive students are when working together Visiting each group during group working to gauge if students are understanding the 			

Prerequisite Concepts and Skills:

Prior lessons will have gone much more in depth into each of the mentioned organ systems as well as have provided the materials needed for further research and/or clarification (this lesson is a form of recap for a unit and thus is more centered around assessment, group work, presentation design). Specifically, the following:

assignment (steering students in the right

direction if needed)

- The 11 organ systems (Integumentary, skeletal, muscular, nervous, endocrine, cardiovascular, endocrine, cardiovascular, urinary, respiratory, lymphatic, digestive, reproductive)
- How and why certain diseases can impact certain systems (optional but adds to the lesson)

Indigenous Connections/ First Peoples Principles of Learning:

None (I could not see including anything without having it seem "shoehorned" in and thus would be a disservice to including a connection/First Peoples Principles of Learning).

Universal Design for Learning (UDL):

- Modifying persona writing to make it skit based provides more movement for students and supports bodily kinesthetic/tactile learning which is somewhat rare in a typical classroom
- By providing options for the execution of the skit presentation it supports students who have organizational issues while also providing ways for students who are uncomfortable with things such as oral presentation a way to still participate while not making themselves too uncomfortable. This also allows students to be creative and personalize their presentation to highlight strengths
- By presenting skills audio and visual learners are also supported because they can physically see and listen to what is happening which will promote higher levels of association and learning of the material
- Having a virtual version of the premade sheets and powerpoint so students who only use or prefer to keep everything online have that option.
- By having the option of virtual delivery students who are unable to make it to class will not miss out on the lesson (see below)
- By having the beginning summary lecture in the form of powerpoint with pictures visual learners will have even more support
- The lesson as written covers all 11 organ system but not all classrooms will have covered each of these topics so teachers can easily alter this lesson to only include the relevant information (picking slides)

Differentiated Instruction (DI):

Making the lesson dyslexia friendly:

- Posting summary and instructional lecture slides so students can familiarize themselves with the material prior to the class
- All slides and sheets will be using sans serif fonts and words will have larger inter-character spacing
- All slides and sheets will be to-the-point and kept simple with less info per side (allows better focus)
- Slides and sheets will have an off-white background and a dark font
- Provide extra teacher-student engagement (this step must be done without being too obvious as it can be very alienating for dyslexic students if other students know they are getting extra help
- One of the biggest bonuses of making a more dyslexia friendly lesson is that studies have shown the same strategies that are beneficial to dyslexic students are also beneficial to all students, so it is a win win.
- If a dyslexic student was unable to be in class that day they would be provided a recording of the lecture material (summary and instruction) with a program such as LoomTm that records the screen as well as the teachers face as this is the preferred recording method (rather than just audio or just visual of teacher) for dyslexic students

Making the lesson virtual: (option 1 asynchronous, option 2 synchronous)

- Delivery options:
 - 1.The summary and informational lecture slides will be posted using a program such as LoomTm to record slides and face to make it a more personal lesson despite the asynchronicity.
 - 2. The lesson will be live using programs like Zoom or BigBlueButton (BBB) and the teacher will perform the lesson as they would in class.
- This lesson is designed around group work which can be difficult if they are not in the same room, but here are two solutions to that problem:
 - 1. The lesson will be divided into 2 lessons, one for working on and filming the skit and one for students to watch all of the presentations and fill out their **two stars and a wish** sheets. Students will have a choice of working in groups or working individually. Teacher will provide office hours and answer emails for student questions. Students will be assigned a presentation to complete the **two stars and a wish** sheets by the teacher to avoid confusion on who has to review which presentation.
 - 2. The students (while using a program like Zoom or BBB) will be placed into breakout rooms to do their group work. The teacher will periodically check in with each group room as time continues as well as respond to any time students raise their virtual hands or notify the teacher somehow.

Materials and Resources

-Pre-made:

- "Two stars and a wish" sheets (see attached)
- Marking rubric and criteria sheets (see attached)
- Powerpoint lecture of very brief reminder/recap of each of the 11 organ systems (see attached)
- Skit of one of the organ systems for teacher to demonstrate to class (this system will not be a choice listed for students) (see attached)
- -Projector
- -White board and markers (optional but preferred)

Lesson Activities:

Teache	er activities	Student Activities	Time
Teach	ers will:	Students will:	
Post 1	Perform a teacher led summary lecture of the each of the past organ systems (depending on the class not all of the organ systems will be taught; edit powerpoint accordingly): Integumentary, skeletal, muscular, nervous, Endocrine, cardiovascular, endocrine, cardiovascular, urinary, respiratory, lymphatic, digestive, and reproductive (see attached) Perform a very short simple example of the skit the students will be designing and presenting (optional but very encouraged for teachers to do this step) (See attached)	 Listen to teacher led summary lecture of the organ systems taught about in the previous unit(s) Watch teacher example persona writing skit that they will soon be developing and performing 	10 min
Part 1	List and organize the groups that students will be working in, and show the list where all students can see When students are organized explain the persona writing skit activity	Meet up with other group members	
•	Provide and hand out the criteria and rubric sheets to each group (or individual student) and have a quick walkthrough with them so everyone understands (see attached) List the ways that students can execute their skit: By having only 1 narrator that will explain the information while the other students perform By having each student narrate their own part then perform their own corresponding actions By having each student narrate a part while other students perform, then switching narrators Any combination or variation of the above as long as a student is either performing or narrating (for example half the group narrates while the other half performs)	Listen to explanation of persona writing skit activity and read the criteria and rubric along with the teacher	65 min
Part 2	Randomly assign organ systems to each group through use of teacher (or students) pulling organ system names and numbers (for order of who will present) from a hat Allow a large period of time for groups to work on their skits Visit each group and answer any questions they may have as well as gauge how cohesive groups are (making adjustments if absolutely needed) and make sure students understand the task at hand Be open to assist any groups Stop group working and hand out two stars and a wish	 Elect a group member to go up and pic a number and organ system from a hat Work with group members to research and develop their persona writing skit (inclusively and respectfully) Organize themselves and/or group to figure 	
	sheets to each students and explain to class how they are to be filled out. Fill in the sheets during the presentations and after presentations are done the feedback will be read out loud. Students will fill out two stars and a wish sheets for each group. Only one student from each group will fill out a form for each presenting group but students will swap and take turns writing a form. (1 writer from each group for each presentation. When presentations switch so will writers in each group)	 out who will be doing what during the demonstration Listen to teacher explanation of two stars and a wish, and read directions on sheet 	

 Teacher will also be filling out the sheet for each group Call up the groups in order for presenting 1 group at a time Give applause to each group to promote positivity 	 Present persona writing skit Give applause to each group 	
 Ask for at least one student who reviewed group 1 to share their peer assessment feedback out loud and repeat until all groups have been addressed at least once (if impossible then teacher can share their own feedback Ask all students to hand in their two stars and a wish sheets as well as their scripts/reading cards for their skits 	 (semi optional) orally say what was on their (applicable) two stars and a wish sheet Hand in two stars and a wish sheet and script/reading cards for persona writing skit 	15 min

Organizational Strategies:

- Groups will take a random number from a hat (from 1 to the total number of groups) and students will choose what organ system they would like to work with. This is to avoid any dispute in which group gets which organ system.
- Premade groups to save time and prevents disputes that would arise from custom group making
- Teacher checking for problems with group dynamics to stop problems from happening and making sure groups are working well and being inclusive/respectful (changing groups if need be).

Proactive, Positive Classroom Learning Environment Strategies:

- Providing students clear instructions on paper for the persona writing skit and the two stars and a wish peer assessment to reduce confusion and thus save time.
- Providing students clear options for organization and role delegation will reduce time needed to figure it out for themselves thus saving time and preventing confusion.
- Groups are made in a way that higher level students are paired with less proficient students and/or students who are more proficient at oral/presenting/leadership skills with those who are less proficient in those areas. This provides less skilled students more assistance and provides higher level students with a higher challenge and a way to practice their skills.

Extensions:

• For further assessment (or extra credit) students (either group or individually) can be randomly assigned one of the other organ systems to create another skit on. This will be a take home assignment and students are not required to perform this second skit in front of the class and instead have the option to write stage notes beside each line of the skit or can record the skit and supply it to the teacher. Two stars and a wish will be performed by the teacher.

Second organ system must be one that was not already seen in the day's lesson if possible

Reflections (if necessary, continue on separate sheet):