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| NECC_NETS_small | **Lesson Plan for** **Implementing NETS•S** |
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| Teacher Name | Mari Mullen |
| Position | General Education Teacher |
| School/District | Lewis Elementary School / Cobb County School District |
| Grade Level | 5th |
| Content Area | Math, Science and Social Studies |
| Timeline | 3 weeks |

**Standards**

* What do you want students to know and be able to do?
* What knowledge, skills, and strategies do you expect students to gain?
* Are there connections to other curriculum areas and subject area benchmarks?
* **Please give a summary of the standards you will be addressing rather than abbreviations and numbers that indicate which standards were addressed.**

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| Content Standards | S5L1. Obtain, evaluate and communicate information to group organisms using scientific, classification procedures. |
| NETS\*S Standards: | 1.3. Knowledge Constructor Students critically curate a variety of resources using digital tools to construct knowledge, produce creative artifacts and make meaningful learning experiences for themselves and others. |

**Overview** (a short summary of the lesson or unit including assignment or expected or possible products)

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| Classification of Organisms is the second unit in 5th grade science. It focuses on only one standard and takes three weeks to cover. Students will learn about classification of animals and plants though PowerPoint presentations, podcasts, reading comprehension articles, and videos. In this unit, there are three objectives or learning targets measured through formative and summative assessments.1. The student will determine the differences between vertebrates and invertebrates. The students will identify the five types of vertebrates.
2. The student will determine the differences between vascular and nonvascular plants. The student will identify types of flowering and nonflowering plants.
3. The student will develop a model to illustrate how animals and plants are grouped together based on features.

The learning target is always shared and available on the board for students to reference. This gives students not only an understanding of what they should know but paves the way to what they will be able to do at the end of the unit. Other curriculum areas that the unit is connected to include reading, writing and math. |

**Essential Questions**

* What **essential question** or learning are you addressing?
* What would students care or want to know about the topic?
* What are some questions to get students thinking about the topic or generate interest about the topic?
* What background or prior knowledge will you expect students to bring to this topic and build on?

Remember, essential questions are meant to guide the lesson by provoking inquiry. They should not be answered with a simple “yes” or “no” and should have many acceptable answers.

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| Why do scientists classify things? How do scientists group organisms? How have classification systems changed? What do scientists do when something doesn’t fit in the classification system?How do you use classification in your everyday life?How is the classification of plants and animals similar and different? |

**Assessment**

* What will students do or produce to illustrate their learning?
* What can students do to generate new knowledge?
* How will you assess how students are progressing (*formative assessment*)?
* How will you assess what they produce or do? How will you differentiate products?

**You must attach copies of your assessment and/or rubrics. Include these in your presentation as well.**

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| Formative Assessments:* [Animal Classification Quiz](https://docs.google.com/document/d/13HwRP9W-T5YXTP8NOmzOb2uCckjZmDEs/edit?usp=sharing&ouid=109330046107448409998&rtpof=true&sd=true)
* [Plant Classification Quiz](https://docs.google.com/document/d/13XSV00oDmB493uJ-5cApFRLohH57ZN7X/edit?usp=sharing&ouid=109330046107448409998&rtpof=true&sd=true)

Summative Assessment:* Final Project – Using the Canva poster maker, students will create a model for animal classification and one for plant classification. Students will present their models to each other whole group. This will be grades using a [presentation rubric](https://drive.google.com/file/d/1KPL-OiTQdK1m4bQf1Ssie4OW2rv6ZLMM/view?usp=sharing). Students who prefer not to speak in front of the class, will have the option to make a video of their model on Canva and share it out.

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**Resources**

* How does technology support student learning?
* What digital tools, and resources—online student tools, research sites, student handouts, tools, tutorials, templates, assessment rubrics, etc.—help elucidate or explain the content or allow students to interact with the content?
* What opportunities did you have to collaborate with your students to discover and use new digital resources to meet their learning goals? (Note: This meets part of ISTE standard 4.2)
* What previous technology skills should students have to complete this project?

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| Technology supports student learning by creating a more flexible, interactive, and personalized learning environment. It helps reach students at various levels by allowing for easier differentiation.Digital Tools:* PowerPoint – used to deliver the instruction
* Spotify for Podcasters – teacher recorded mini-lessons
* MindMeister – mind maps
* Quizizz – used for collaborative, engaging additional practice
* Canva – used for the final product

Resources:* [Science Workshop 5th Grade Mystery: Classification](https://www.youtube.com/watch?v=PcGUWTj3k2I)
* [Fierce Flora Carnivorous Plants](https://www.youtube.com/watch?v=eIXK6v5rH48&t=124s)
* Collection of science videos, quizzes, and interactives - [StudyJams! Science Activities | Scholastic.com](https://studyjams.scholastic.com/studyjams/jams/science/index.htm)

Opportunities for collaboration included students accessing the teacher podcasts and participating in a discussion forum on the district learning management system platform. Students were also able to collaborate with the teacher and the class on the MindMeister mind maps, playing instructor-pace games on Quizizz for review and game mode with their classmates, and sharing their final project: live or video mode.For successful completion of this project, students were required to have basic computer and technology skills. This included the ability to log in to their school-issued devices and navigate to access Clever. All student logins were consolidated within this single sign-on system. |

**Instructional Plan and Preparation**

* What student **needs, interests, and prior learning** provide a foundation for this lesson?
* How can you find out if students have this foundation?
* What difficulties might students have?

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| Students need to recall and review some of the knowledge they received in 4th grade such as the basic understanding of the differences between animals and plants, basic plant and animal anatomy, and the concept of habitats. In addition, by using examples of familiar animals and plants, the lesson will not only be culturally relevant but of higher interest to the students. Students’ interest will also be elevated with the integration of multimedia, such as the included videos, interactive activities, and opportunities for collaboration.The prior learning can be assessed with a quick fact chart that will ask: What We KNOW? Questions We Have? What We LEARNED? during the opening videos. Guiding questions will also serve as a quick check-in to gauge how much students remember from the previous grade. If students have difficulties remembering, some reading comprehension activities and videos might help them recall that prior knowledge.   |

**Management --** Describe the classroom management strategies you will use to manage your students and the use of digital tools and resources.

* How and where will your students work? (Small groups, whole group, individuals, classroom, lab, etc.)
* What strategies will you use to achieve equitable access to the Internet while completing this lesson?
* Describe what technical issues might arise during the Internet lesson.
* Explain how you *worked with students* to resolve or **trouble-shoot** them? (This meets part of ISTE standard 4.2.)
* Please note: Trouble-shooting should occur prior to implementing the lesson as well as throughout the process. Be sure to indicate how you prepared for problems and work through the issues that occurred as you implemented and even after the lesson was completed.

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| The unit will provide students with opportunities to work in small groups, whole group and individually. Their desks are arranged in groups of 5, but there are times when students are allowed to take their devices and work around the classroom, such as the front carpet or small table in the back of the classroom. Equitable access to the Internet is achieved through school issued devices. Every student is assigned his or her own laptop and use the single sign-on option. If a technical issue arises that I can not address, students can see the media specialist for support and / or to receive a loaner while their device gets serviced. Throughout the school year, students have practiced different trouble-shooting strategies. From waiting for the computer to be completely loaded prior to opening an application, to checking on district updates and updating the computer as needed, to closing out window tabs that are not being used, to trying different browser, to restarting and shutting down devices, to name a few. A [Student Laptop Care](https://cobbk12org.sharepoint.com/sites/InTechProfessionalLearning/Shared%20Documents/Forms/AllItems.aspx?id=%2Fsites%2FInTechProfessionalLearning%2FShared%20Documents%2FTechnology%20in%20the%20Classroom%2FES%20%2D%20Laptop%20Rules%20and%20Procedures%20Poster%2Epdf&parent=%2Fsites%2FInTechProfessionalLearning%2FShared%20Documents%2FTechnology%20in%20the%20Classroom) poster and a [Student Support](https://sbcobbstor.blob.core.windows.net/media/WWWCobb/medialib/student-laptop-support-posters-vertical-and-horizontal.235af966639.pdf) poster are on display by the laptop cart for students to reference.  |

**Instructional Strategies and Learning Activities** – Describe the research-based instructional strategies you will use with this lesson.

* How will your learning environment support these activities? What is your role? What are the students' roles in the lesson?
* How can you ensure **higher order thinking at the analysis, evaluation, or creativity levels of Bloom’s Taxonomy**?
* How can technology support your teaching?
* What authentic, relevant, and meaningful learning activities and tasks will your students complete?
* How will they build knowledge and skills?
* How will students use digital tools and resources to **communicate and collaborate** with each other and others?
* How will you facilitate the collaboration?

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| The lesson plan follows the format seen below. Within this format there are numerous different research-based instructional strategies embedded in the learning environment. * Opening / Question Board or Opening / Mini Lesson
	+ Direct Instruction – students are explicitly taught the content through lectures using PowerPoint presentations and videos
	+ Differentiated Instruction – teaching strategies and content is varied to account for students varied learning styles and abilities; reading passages are available online with the read to option for English learners and students with that accommodation
* Work Session
	+ Cooperative Learning – students work together in small groups in stations and completing the mind map online
	+ Technology Integration – interactive multimedia is available via the student digital textbook; videos used for instruction along with the podcasts; interactive activities and games used to reinforce the content
* Closing
	+ Feedback and Formative Assessment – teacher directed questions will gauge understanding, formative assessments are reviewed to clear up any misconceptions students may still have
	+ Active Learning – class discussions and group activities help students have a deeper understanding of the content

The learning environment will support exploration, creativity, collaboration, higher-order thinking, critical thinking, and depth of knowledge. My role during most of the lesson, the work session, will be that of a facilitator, guiding students through the learning process. The students’ role is to actively participate in the learning process. For their summative assessment, where students will be tasked with using Canva to create a poster, they will be able to meet the last part of their objective and standard by developing a model that illustrates how animals and plants are sorted into groups using data from multiple sources. To accomplish this, students will need to use higher order thinking at the analysis, evaluation, and creativity levels of Bloom’s Taxonomy. Technology is integral to this process as they will use it to gather information and create their final project. |

**Differentiation**

* How will you differentiate **content and process** to accommodate various learning styles and abilities?
* How will you help students learn independently and with others?
* How will you provide extensions and opportunities for enrichment?
* What assistive technologies will you need to provide?

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| Differentiation is embedded in all parts of the lesson plan. It is part of the teaching methods, it is part of the assessments, student grouping during collaboration activities, and it is seen below with specific extensions and enrichment opportunities. Assistive technology is available with the read to option, captions for videos, and translating technology, all easily accessible on the students’ devices. Classification of Organisms (Animals)Extend: A Question of Kingdoms AIMS activity - Students will make use of a dichotomous questioning strategy, identify characteristics of living organisms, and create a dichotomous key for a set of organisms.Enrich: Generation Genius [Classification of Living Things](https://www.generationgenius.com/videolessons/classification-of-living-things-video-for-kids/) Video – Students will view video and complete the discussion questions. If time allows, they will complete the Online Quiz Game.Classification of Organisms (Plants)Extend: Plant & Animal Classification Mini-Research Project – Students will work on a Plant and Animal Classification packet.Enrich: [Plants are Producers](https://www.k12reader.com/worksheet/plants-are-producers/view/) Reading Comprehension passage – Students will complete the questions on this cross-curricular focus of History and Life Science reading passage. |

**Reflection**

* Will there be a closing event?
* Will students be asked to reflect upon their work?
* Will students be asked to provide feedback on the assignment itself?

Also answer the following questions:

* How will you know if the students found the lesson meaningful and worth completing?
* In what ways do you think this lesson will be effective?
* Why do you think this?
* What problems do you anticipate and why?
* How would you design and/or teach this lesson differently if you had more time?

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| The closing event is the students presenting their final project as described in the summative assessment. Students will be asked to reflect on their own presentation by completing the same rubric I will use for grading their presentation. They will have an opportunity to give additional feedback on the back of the rubric.Their self-completed rubric and feedback will let me know about their perception on the effectiveness of the lessons. I think the lesson will be effective as it will meet the standard. That effectiveness can also be measured by looking at the data generated from the formative assessments. I do not anticipate any problems. If there are any technology related issues, students have been taught how to address them and what the procedures are for issues; see the Management section for additional information. If I had more time, I would have liked to introduce students to the engineering process and have them complete the [Classification Systems: Animals and Engineering](https://www.teachengineering.org/lessons/view/cub_bio_lesson05) STEM challenge. |

**Closure:** Anything else you would like to reflect upon regarding lessons learned and/or your experience with implementing this lesson. What advice would you give others if they were to implement the lesson? Please provide a quality reflection on your experience with this lesson and its implementation.

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| Reflecting on the implementation of this lesson has been a valuable learning experience. The biggest takeaway was how the technology integration was an essential component of the lesson. It was great to see students using their digital literacy skills and navigate all of the digital tools for research, design, and project creation with such ease and most of all, excitement. In addition, providing students with multiple opportunities for differentiation proved beneficial in addressing their diverse needs. The flexibility in groupings and varied instructional strategies made this unit a more personalized experience for all learners.As for advice to others implementing this lesson, I would stress the importance of careful planning and vetting the resources prior to the lesson. Additionally, providing clear guidelines for technology use and offering support for students who may be less familiar with certain digital tools can help create a smoother learning experience. |