



Science and Relationships: Bridging the Gap

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(Oakhurst STEAM Academy)

This curriculum unit is recommended for:
(4th grade Science)

Keywords: ecosystems, relationship, brain dance, movement, tableau, shape museum, science, community

Teaching Standards: See [Appendix 1](#) for teaching standards addressed in this unit. (Insert a hyperlink to Appendix 1 where you've stated your unit's main standards.)

Synopsis: In this unit students will apply concepts of movement and the body to understand the interactions among organisms within an environment. This unit focuses on the essential question, “On an ever-changing planet, what things need to be in place to enable living organisms to survive?” Using project-based learning through the 5E Instructional Model, concepts of Tableaux and dance, students will be able to explain how different organisms satisfy their needs in the environment in which they are typically found. Each component builds on the previous one to ensure students truly grasp the significance of animals and their role within their community. The elements of body, action, and relationship will serve as the pillars of this unit. Hands on activities and group dialogue enables teachers to cultivate a positive classroom environment where students work to exist within shared spaces. Giving students the opportunity to influence how and what they learn can greatly affect their effort, performance, and the degree of how much information is retained. At the end of the unit, students apply what they have learned to create a Tableaux incorporating concepts learned throughout the unit.

I plan to teach this unit during the coming year to 92 students in Science.

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Introduction

Have you ever stopped to think of the many students who have been diagnosed with ADD (Attention Deficit Disorder) or ADHD (Attention Deficit Hyperactivity Disorder)? The average attention span of students in relation to their interest in a topic? The amount of true kinesthetic learners in a classroom? These are all thoughts that spark my interest when it comes to the impact of movement within the classroom. In the book, “The Kinesthetic Classroom: Teaching and Learning Through Movement”, Lengel, Kuczala, and Madigan report that when the body is inactive for 20 minutes or longer, there is a decline in neural communication.¹ This statement proves that movement is a vital part of our everyday lives and contributes to both our mental and physical health.

I teach at Oakhurst STEAM Academy, a Title I and partial magnet school in Mecklenburg County. This school has a population of about 565 students with 44% of students identified as Black, 28% Hispanic, 19% White, 5% Asian/Pacific Islander, and 5% Other. It is noted that 43% of the school’s population is economically disadvantaged which suggests additional challenges for those students.² There is not sufficient data for the past 2 years to determine a school performance grade, however a part of strategic planning for the coming years include TSI, or Targeted Support and Improvement due to at least one subgroup performing at or below the overall school’s performance.

School demographics and performance data is certainly relevant background information, but it only gives a glimpse of the audience this curriculum was created for. Understanding the bodies behind my building will allow you to assess and adapt to your set of students as you see fit. This is my first year teaching Science and Social Studies to three different blocks of 30 children. This year’s fourth grade cohort had one year of a “normal school year” in kindergarten. Since kindergarten this group of students has endured full remote learning during 2 of the most integral academic school years, the emotional and mental weight that came with COVID, and few opportunities to establish necessary developmental skills.

A large percent of my students are highly artistic and enjoy creating and expressing their ideas through movement. They enjoy talking and learning new things, however pairing new content with a fast-paced curriculum requires creative planning and delivery. My CTI experience with Dr. Nesbit has taught me that intentionality, reflection, and experience are three valuable components to curriculum building. As I developed this unit, I often asked myself: Am I

¹ Traci Lengel, Mike Kuczala, and Jean Blaydes Madigan, *The Kinesthetic Classroom: Teaching and Learning through Movement* (Thousand Oaks, CA: Corwin, 2010), 3.

² “Oakhurst Steam Academy,” SchoolDigger, accessed November 20, 2022, <https://www.schooldigger.com/go/NC/schools/0297003368/school.aspx>.

allowing individuality? Are my lessons encouraging community? Have I represented elements of dance/movement well? To carry out this unit it is important for teachers to become very familiar with the foundational dance skills that students will work closely with. These skills will be described more in depth later in the unit.

Oakhurst's mission is to provide students with unique integrated experiences that incorporate critical thinking, problem-solving, and real-world applications leading to deeper comprehension and increased student achievement. My personal professional goal is to support this mission by addressing the integration of physical activity into academic content beneficial for on task behavior. I aim for students to not only enjoy their learning experience, but also absorb the information given and desire more. In an online article, Lindt and Miller further emphasizes this point by stating, movement in the classroom helps to refocus attention and gives the brain a break necessary to consolidate information. The two authors go on to explain how research shows that physical activity is beneficial for cognitive functioning; and when paired with academics it requires students to use different parts of their brain increasing cognitive performance.

Rationale

Children naturally have higher energy levels, yet a great deal of children spend much of their time in a classroom of uninterrupted seated instruction. To further support their argument, Lindt and Miller remind us that since the passage of the No Child Left Behind act in 2001, 44 % of elementary schools in the USA have reduced physical education and recess time.³ Movement in education goes beyond taking an action against obesity and kid entertainment, more importantly it addresses a child's overall development and wellbeing. Aside from a child's physical wellbeing, embodied learning fosters the emotional and social state of a child. As educators we want to provide students with a safe space where they feel accepted and a sense of belonging.

Not only does movement promote academic success, movement allows students to occupy the space around them and learn to exist within spaces with others. Along with movement, behavior also plays a vital role in a child's academic success. To maintain a safe and respectful environment, we create rules and expectations. If we want to decrease off task or defiant behaviors, I feel that we must provide students with the necessary tools. In order to learn, one must use the ability to stay on task & follow directions which are more difficult for children who are not being stimulated properly. As a collective we must realize that children up to adolescence are at the most vulnerable stage of development and as educators we should provide students with tools and resources needed to reach their developmental milestones. One major

³ Lindt and Miller, "Movement and learning in elementary school"

tool is connecting to what the student finds meaningful and important and creating structures and routines to honor and give students space to express themselves.

The term movement is considered taboo to some educators. When it comes to movement within the classroom, most of us will readily agree there is a high probability of chaos which can translate to an unproductive use of valuable time. To help ease the any apprehensions, this curriculum “Science and Relationships: Bridging the Gap” will provide structured ideas that allow teachers to manipulate spatial relationships and encourage student centered learning as it relates to ecosystems.

This unit incorporates the brain dance which is a described by Anne Green Gilbert as a research-based series of movements that replicate the neurodevelopmental patterns that wired the central nervous system in the first 12 months of life.⁴It includes cross lateral and vestibular movements, as well as tactile and breathing patterns. A major benefit of this brain compatible dance is that it is highly adaptive and used in different situations and settings. I believe that this teaching technique, if used with fidelity can yield groundbreaking results with student’s mental, emotional, and social wellbeing. Throughout the unit, students will work to bring awareness to different parts of their body as they take part in several different movement activities.

This unit will include science and art standards that classify and analyze animal adaptations and behaviors in relation to their habitat. Due to the structure of this unit, movement and collaboration are the two main factors that equip students to make connections through their experiences and apply new learning.

Content Research

The relationships between organisms in an ecosystem are very complex and extensive. Changing just one relationship has the potential to make a huge impact on the entire ecosystem. This is especially true for keystone species within an ecosystem. The energy within an environment’s ecosystem is cycled through the organisms. The energy is converted from light energy into chemical energy within the producer level of the food web. Consumers who then eat producers use the chemical energy to grow and survive. The cycle continues up the food web to higher consumer trophic levels. This means the entire food web is reliant on a substantial producer level.⁵ As each organism dies, the energy is provided back to the producers through the soil via the process of decomposition. This proves why ecosystem equilibrium between all the organisms is important

⁴ Gilbert, Anne Green. *Brain-Compatible Dance Education*. Reston , VA: SHAPE America - Society of Health and physical educators, 2019.

⁵ Tschakert et al., “Biodiversity and Ecosystem Resilience.”

Concept of Movement

Educators are often apprehensive about change. Over time we develop structured routines and our aims become centered around student performance and less on the means to achieve the desired outcome. How we choose to engage students will determine the extent of their learning. Buchanan, Davis, and Curry validate this statement in their journal by reporting children have a basic need to move, and research suggests that students are eager to do so when given the opportunity.⁶

Psychological and educational literature views play as an activity that aids in cognitive and emotional development. Fantasy and imagination are two components of play that are developed without preparation. Author Gilbert acknowledges playing and learning as co-evolving processes that invoke improvisational performance, generative experimentation, and creative inquiry.⁷ During this unit students will play a part in planning, creating, and showcasing their understanding of specific content.

The elements of dance are the building blocks and form the foundation of many dance curriculums. This unit brings reference to 4 major dance elements that students will become acquainted with as they explore ecosystems with their bodies. These concepts include body, action, duration, and relationship. When teaching the elements, include models, visuals, and demonstration opportunities so that students can appreciate and gain more insight. Aside from driving your instruction, the elements dance included have the potential to improve classroom management as it offers clear and precise guidelines for carrying out a task.

Element I- Body

In dance, the body is the mobile figure or shape felt by the dancer, seen by others. Our bodies can take on many shapes as we move through space or choose to be still. Things to consider when focusing on your body is what shape or figure it is making. Is it twisted? Curved? Round? Stated by Aldis and Muench, The body is the conduit between the inner realm of Intentions, ideas, emotions and identity and the outer realm of expression and communication.⁸ Dr. Nesbit, a UNC Charlotte dancer, professor and CTI seminar leader, was the first to introduce me to concepts of dance as well as the idea of connecting movements through texts and personal

⁶ Buchanan, Rebecca, Lauren Davis, and Trisha Cury. "Putting Research into 'Action': The Impact of Brain Energizers on off-Task Behaviors and Academic Achievement." *Networks: An Online Journal for Teacher* 23, no. 1 (2021). <https://doi.org/10.4148/2470-6353.1325>.

⁷ Gilbert, "Brain-Compatible Dance Education."

⁸ Aldis, Diane, Genevieve Muench, and Amy Fasteneau. "Body." *The Elements of Dance*, September 2018. <https://www.elementsofdance.org/body.html>.

experiences. Activities completed in my seminar helped me understand and appreciate the different perspectives that dance and movement offer us.

Due to the nature of movement and its fluidity, you as the teacher can choose to implement the concept any way you choose. Lindt and Miller identified five strategies for integrating movement in your lessons. Strategy 1: Dancing to learn information. Teachers provide students with information and pair it with certain movements or a dance. Strategy 2 (similar to strategy 1): Applying movement with content assessment. Teachers require students to associate content with specific movements. Strategy 3: Stations around the room. Students may collect materials around the room or visit stations within a group. Strategy 4: Ordering and organizing. Students actually use their bodies to order or organize information. Strategy 5: Representing with actions. This strategy is used to illustrate key academic terms and ideas.⁹

Element II- Action

Action can be described as any human movement included in the act of dancing. Actions can include facial movements, gestures, walking, and other streams of movement and pauses. There may be a special sequence that is followed. Sequence is a vocabulary word that will become increasingly important throughout the curriculum. When having students move you may guide them by prompting them to pay attention to the action they are doing. Are they hopping? Jumping? Skipping? Or they could be moving and then still. Mood can also be linked to an action and reiterate just how interconnected the elements are. There may be an animal who is naturally on alert, so their movement may be more swift or even stealthy. Within the action element, students will be able to explore a range of thoughts and feelings as they allow their body to mirror their interpretation of their animal.

Element III –Relationship

The relationship piece is one of the most important essential elements of movement. Relationships refer to groupings, interconnected shapes, following/leading, and use of props or objects. The final assessment in this unit requires students to develop a tableaux that will incorporate foundational dance movements that show key details related to how their animal behaves within its ecosystem. Students learn that the energy within an environment's ecosystem is cycled through the organisms. If there is an imbalance within the food chain this can affect the population as well as their environment. Understanding the food chain/web will deepen student's understanding of relationships.

Instructional Implementation

⁹ Lindt and Miller, "Movement and learning in elementary school"

Teacher Strategies

Behavior Management

To successfully guide students through this unit it is imperative that you establish a safe and nurturing classroom environment. Students are most comfortable where they feel seen and heard. If able, incorporate circle time (or something similar) at the start of your day or class to encourage social interactions and community. This time can be 5-10 minutes where students are able to share thoughts and ideas as well as gain respect for those around them. The “Morning Meeting” book included under teacher resources is a great starting point if you have not previously held circle time in your classroom. Days leading up to this unit I might lead discussions centered around community with an activity that focuses on the individual student and their role within their community. For example, students might create a concentric diagram (see Teacher Resources) that typically begins with one circle in the middle and ends with several circles surrounding it to display interrelated units (family, friends, teachers) and their relationship to the central idea (the student). Students could also create a physical concentric diagram based on similarities with other students in the class.

Modeling

With the many concepts of movement and dance, modeling is a key component when teaching this curriculum. Students not only need descriptive explanations, but a visual aid. Modeling shows the expectations and helps to minimize misbehavior and misunderstandings.

Cooperative Learning/Discussions

During the unit, students will work in groups to discuss new findings and make connections between their animals. They will depend on one another for the final Tableau assignment (see [Appendix 5](#)) that provides a visual representation of their animal’s behaviors and adaptations within their environment.

Hands on Learning

To increase engagement and value from the lessons, students will explore with their bodies and props to create their Tableau. The goal is for students give students a greater chance to retain information based on their real-life experience.

Technology

To integrate 21st century learning, students will be given the option to create a digital Tableau as an extension. Students with specific needs/accommodations may also have the option to create digitally.

Video

Videos are useful when you want to hook or grab the attention of your audience. Specifically in this unit, the “Bug’s Life” video (see [Appendix 3](#)) will allow students to make connections and even deeper their understanding.

Rubric

The rubric will explain expectations and be a reference for students. I will use this to guide students throughout their creative process.

Science Instructional Model

- *Engage*

To begin the unit, the goal is to capture students' interest and allow them to make connections between what they know and new ideas. Day 1 will consist of a collective activity and an introduction to some of the movement concepts we will cover over the next few days.

- *Explore*

The next component allows more hands-on opportunities where they can explore the concept of ecosystems and adaptations. Students can pair their interests with research. In addition, we will also reinforce the movement concepts and exercise them.

- *Explain*

Once students have had a chance to explore and become familiar with the ecosystems and other key words, they will develop explanations that essentially answer the “big idea” or overarching question. I often point out to students that as a scientist we are constantly analyzing and reporting data. Students will have more time to research their ecosystem and begin creating the blueprint for their project.

- *Elaborate*

Based on their research, the next step will require students to apply what they have learned. This results in a deeper and more thorough understanding of the concept. Depending on the flexibility

of time, space, and resources students may take up to 2 days to complete this component. Students will work to create their animal's habitat within the ecosystem. It is important to have a model while also encouraging students to tap into their own creative minds.

- *Evaluate*

During the evaluative piece, both the teacher and students are able to reflect on their learning experience. Much like the elaborate phase, this could also take 2 days. I like to refer to this as the final showcase. As the teacher you may choose to facilitate as you like. To receive an accurate depiction of their understanding, it would be beneficial for students to have a small writeup or gist/summary to share with their audience.

The Brain Dance

This multi-sensory approach supports a positive classroom environment that welcomes students. The brain dance, created by Anne Green Gilbert, seeks to warm up the brain through movement patterns in developmental order.¹⁰ In some cases, time constraints and space may play a role in planning the brain dance, however it is important to note that there are many variations of this dance. Gilbert expressed, The Brain Dance also aligns the body by making people aware of all their connective parts—how they move separately and together.¹¹ This dance serves as a preliminary tool to lessons and concepts that are addressed in the unit. It increases self-awareness through breath, tactile senses, core-distal, spinal, and cross lateral movements.

Lessons/Activities

Essential Question: On an ever-changing planet, what things need to be in place to enable living organisms to survive?

Engage - Day 1

Connection: Students begin by completing an animal sort (see [Appendix 2](#)) with the animals given in their baggies. It is best to have students do this in groups for more collaboration and to minimize preparation time. This map encourages students to make connections of the items given. The baggy will include different animals within an ecosystem. Not only does this activity support critical thinking skills, it also serves as a review to prior concepts. This activity resembles a mind map which help spark meaningful conversations. After students have had time to sort, show them an option under a document camera or projector. There are many different

¹⁰ Gilbert, "Brain-Compatible Dance Education."

¹¹ Gilbert, "Brain-Compatible Dance Education."

variations for food webs. The most important concept for students to remember is the producer begins the food chain followed by the herbivore and carnivore.

Activity: Following the introductory activity, show a brief video of “A Bug’s Life” (see [Appendix 3](#)). Lead a conversation about the bird and the animated characters using these discussion questions:

1. How did the animals defend themselves against the bird?
2. What special behaviors or adaptations did you notice?
3. In what ways do artists and animators act like scientists?

Lead the class through a variation of the brain dance. Below I will list the different components and one variation of how you can model. In teacher resources I also have included pages from Anne Green Gilberts book that provides several options for teaching the brain dance. Introduce the brain dance to students and let them know for this lesson they will take on the role of the bugs (preys) from the video.

1. Breath- Prompt students to think of how the bugs felt when they were being hunted. How might they have felt on the inside. Have them show this with their breath. Their breath should be shallow and quick to show fear.
2. Tactile/Cross lateral- Model showing fear by touching cheeks with your hands with a facial expression. Now cross arms and hold the body as if you’re still scared. Now grab your legs to make sure the bird didn’t eat your legs. Now bend down and grab your feet to be sure those are still there too. Remind students they are the bugs and are in a state of panic.
3. Core-Distal/Head Tail- You have now found a hiding spot, make yourself small (crouch down) to hide from the bird. Now jump up fast to see if the coast is clear.
4. Body-Side: Move your body and look to the left to check, now to the right
5. Upper lower: Oh no! The bird is behind you. Wave your arms and run in place to get away!
6. Vestibular: Do a spin to try to release its grip. Yes! You did it. You completed the brain dance

Word Meaning: Vocabulary is a major element of science and is beneficial to students when they can make connections and bring the words to life. Feel free to teach vocabulary how you see fit. Students will need copies of the vocabulary list (see [Appendix 4](#)) This curriculum heavily relies on Frayer models (see [Appendix 5](#)) to teach vocabulary as they are designed to support concept mastery, promote critical thinking, and assist students with identifying and understanding unfamiliar vocabulary in content areas. Before students get to explore, they should define and have a clear understanding of habitat, ecosystems, adaptations, and defense mechanisms. I like to

relate ecosystems and habitats as a house is to a neighborhood. This can be amplified even further as a room is to a house. On day 1, give students these definitions. Kid friendly definitions can be found on the site listed in student resources.

Explore - Day 2/3

Connection: Conduct a poll of students' preferred ecosystem: forest, tundra, desert, savanna, mountain, grassland, and rainforest. This poll will be useful when students begin creating their ecosystem at the end of the unit.

Activity: Lead another brain dance. This time the students will take on the role of the bird from the video. (Show video clip in if necessary). You may choose to omit a component. It would be beneficial to introduce the anchor chart (see [Appendix 6](#)) with the fundamental dance skills so that students can begin to familiarize themselves with the symbols.

1. Breath- Prompt students to think of how the caterpillar felt sacrificing himself to the bird. How might he have felt on the inside. Have them show this with their breath. Their breath could be similar to the previous day.
2. Tactile/Cross lateral- Invite students to add their own variations to tactile if they have other ideas. Otherwise use the prompts from the previous day. Both the bug family and caterpillar shared similar feelings.
3. Core-Distal/Head Tail- Invite students to add their own variations to tactile if they have other ideas. Otherwise use the prompts from the previous day. You have now found a hiding spot, make yourself really small (crouch down) in order to hide from the bird. Now grow and jump up really fast to see if the coast is clear.
4. Body-Side: Invite students to add their own variations to tactile if they have other ideas. Otherwise use the prompts from the previous day. Move your body and look to the left to check, now to the right
5. Upper lower: Invite students to add their own variations to tactile if they have other ideas. Otherwise use the prompts from the previous day. Oh no! The bird is behind you. Wave your arms and run in place to get away!
6. Vestibular: Invite students to add their own variations to tactile if they have other ideas. Otherwise use the prompts from the previous day. Do a spin to try to release its grip. Yes! You did it. You completed the brain dance

Students will receive their research sheet (see [Appendix 7](#)) that they will use throughout the unit. For this lesson students should only focus on their animal's behavioral adaptations. Give students 15-20 minutes to research and record.

Word Meaning: To ensure all vocabulary words are covered, students should focus on 3 vocabulary words a day. Vocabulary is imperative for each lesson in order for students to grasp the overarching concept. Be sure the foundational dance anchor chart is in the view of students. Introduce the “Shape Museum” activity to students. Because students spent time learning about their animal’s behaviors, it would be helpful to focus on the vocabulary words related to behaviors. Model a vocabulary word with students using the Frayer Model. Defense mechanism could be used to start off. Students will use the websites given (see student resources) to fill in the definition in their Frayer Model.

The class will need to be split to do this activity. This can be done by an online group generator, counting off (even on one side, odd on another), etc... Once the class has been split, decide which group will start “outside” of the museum, and which group will start “inside” of the museum. Students outside of the museum may have a seat at their desk or stand on one side of the classroom.

You will instruct students inside of the museum to think of their animal’s defense mechanism. Count to 5 and by the time you reach 5 students need to create a still motion with their bodies that shows their animal using their defense mechanism. Model for students what this may look like. For example, a lion’s defense mechanism is to roar loudly at their predator. So, my shape may be straight, large, and exaggerated with a wide stance with arms out and slightly curved. This shape could also be on the ground on your knees and torso extended with head back to signal the action before a roar.

Once students create their shape, the students outside of the museum will wander around and try to mirror or copy a shape. Once they have mirrored that shape, the other person will then move on and go mirror another person’s shape. The goal is to hold your shape until someone comes and mirrors it. A modification could be to have students work in partners and take turns mirroring each other's shapes. As students are creating, refer to anchor chart and use dance vocabulary terms such as extending, shrinking, round, curved.

Explain - Day 4/5

Connection: Lead students through a less structured brain dance. Students should have their animal in mind and the adaptations they learned in the previous lesson. Challenge students to behave like their animals through core-distal, upper-lower, body side, and vestibular movements. For example, moving upper and lower body like their animal. Some animals may have small, light steps while other animals may have large extended steps. Students might show vestibular movements by moving in a zig zag motion or walking backwards.

On the second day allow students to get into groups that were created based on the poll. Instruct students to create T chart in a science journal or provided sheet (see [Appendix 5](#)) where they list the animal and similarities and differences between the two. This could lead students into deeper conversations of how their animals relate to one another within a shared ecosystem.

Activity: Students will continue their research on their animal over the next 2 class periods. This includes their animals' place in the food chain, adaptations, defense mechanisms, and habitat within the ecosystem.

Word Meaning: Students will focus on 3 different words from the vocabulary list. Students will use the websites to fill in the definition in their Frayer Model. The last 5-10 minutes of class can be dedicated to another round of the shape museum using one of the newer words.

Elaborate- Day 7/8

Connection: Begin with the shape museum activity. After this activity, introduce the idea of Tableau. For their final showcase (assessment) students will use their bodies to create still images (shapes) to represent a scene. In this case, their scene refers to how their animal behaves in their habitat. Explain to students that they will develop a sequence of movements prior to their still shape and a sequence of movements after their shape. Students will need to complete the sheet prior to creating their habitat. Review the rubric (see [Appendix 8](#)) with students to guide their creative process.

On Day 2, have students participate in the shape museum activity only with shapes they have chosen for their Tableau. The repetitive actions will aid in their final scene at the end.

Activity: Remind students of the shape museum activity and how they can incorporate those shapes in their Tableau. Students should not feel pressured to create a new sequence, rather build on what they already have. Their sheet will include boxes for students to represent their movement. Encourage students to refer to symbols from anchor chart to signify changes in their movement. They will have 5 counts of movements that will lead them into their shape and 5 counts of movements after they have formed their shape.

Our school has a “Makerspace” area that is a collaborative work area in our library that houses lots of different arts and crafts resources. A classroom can be considered a makerspace with the right tools. The main supplies needed are: paper, coloring utensils, glue, scissors, and basic craft items. Encourage students to bring things from home that can be of multiple uses (this supports creativity and imagination). Give students rubric for the project. Explain to students that

they will become their animal for the showcase. Their research should include their animals' ways of living including defense mechanisms & adaptations.

Option 1: The objective is for students to create a space similar to that of their animal. For example: A green background (large bulletin board paper) could be the background of the forest. They could create the trees or draw the trees in the background. Blue background if their animal lives in the ocean. They could create the seaweed or draw it. In the end their settings will come to life when paired with their animal movements.

Extension: Students may create a digital representation via Storyboard. (link included in student resources) Storyboard allows students to create a sequence with illustrations or images. This is a free software and user friendly.

Word Meaning: Students will focus on the next 3 vocabulary words. Students will use the websites to fill in the definition in their Frayer Model. Reserve time at the end of class for students to get in their groups and share their Tableau's. This is especially important because students of the same ecosystem must understand the relationship between their animals and how their animals interact with one another.

Evaluate- Day 9/10

Connection: Allow students time with their groups to review how they will move in relation to each other.

Activity: Presentation Day. If needed, students may use their Tableau cheat sheet to remember their shape and movements. To guide students, be sure to include the 5 counts leading up to the still shape and 5 counts after.

Word Meaning: Discuss what vocabulary words were recognized during the presentations.

Challenge students to use them in a sentence. You may give sentence starters.

Example: I noticed that the organism _____.

Example: I know this organism is an omnivore because _____.

Example: This organism showed his defense mechanism by _____.

Assessments

Informal: Throughout my unit, I will assess students through observation, paying close attention to how they use their bodies to represent an animal/behavior. Students will complete a variety of graphic organizers including: T chart, Frayer model, Tableau sequence sheet, and research sheet.

Depending on what information is included, I can decide which students need close supervision or a more scaffolded option.

Formal: Teacher will use the rubric to guide students through their Tableaux. Students should have a completed sequence of 5 counts before shape and 5 counts after that includes their still shape and its corresponding symbol on their planning sheet. The setting should include a backdrop with at least 3 objects that are an accurate depiction of your animal's habitat. For example, if my animal was a scorpion (desert animal), I might create a rock (cover a ball/ something round with construction paper or bulletin board paper) to hide under like a scorpion does. I might also cover the ground with brown construction paper or even small bits to represent the sandy desert.

Appendix 1: Teaching Standards

4.L.1 Understand the effects of environmental changes, adaptations, and behaviors that enable animals (including humans) to survive in changing habitats.

The essential question states, “On an ever changing planet, what things need to be in place to enable living organisms to survive?” Students will conduct research and participate in group discussions in order to answer this question.

4.L.1.2 Explain how animals meet their needs by using behaviors in response to information received from the environment.

Students will be given a data collection sheet where they will record the information they find about their animal. To ensure understanding students will be required to create (via the web or makerspace) their depiction of the animals habitat within the ecosystem and how they survive.

4.L.1.4 Explain how differences among animals of the same population sometimes give individuals an advantage in surviving and reproducing in changing habitats.

Students will have the opportunity to discuss within groups their findings and identify similarities and differences between animals within the same community. During the final showcase (evaluative piece) students will see other animals from ecosystems separate from theirs and make connections.

Appendix 2: Animal Sort

This resource is reduced in size. I recommend duplicating the group of animals to have 2 sets on a page. This will minimize paper usage.



Appendix 3: A Bug's Life Video

<https://www.youtube.com/watch?v=95CCbtB8gWw>

Appendix 4: Vocabulary List

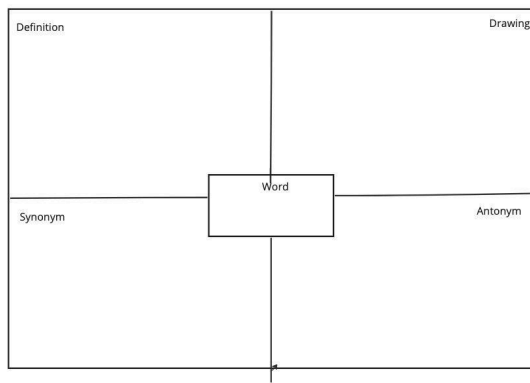
All students will need a copy of the vocabulary list to complete on their Frayer model. I recommend duplicating the table to have 2-4 on a page and print so that students can have half sheets to place in a journal or folder.

adaptation	behavior	camouflage
carnivore	conservation	Defense mechanism
environment	extinction	habitat
herbivore	hibernate	instinct
Inherited behavior	migration	mimicry
omnivore	organism	predator
prey	survival	variation

Appendix 5: Graphic Organizers

Many of the resources included are reduced in size. I recommend duplicating to 2-4 per page in order to minimize paper usage.

Fruyer Model



miro

T chart

Similarities	Differences

Tableau Sequence Sheet

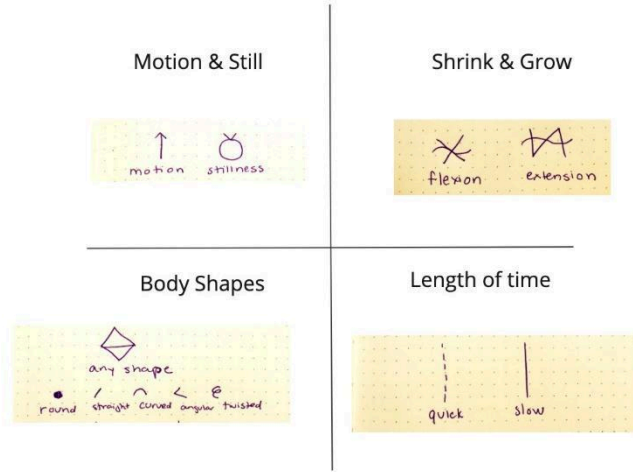
Animal: _____ Name: _____

Use the boxes below to create your Tableau. The box in the middle represents the still shape. The 5 boxes above will be the movements that lead you to your still shape. The 5 boxes below will be the movements after the still shape. Be sure to use the shape symbol's in the boxes. You may also write key words in the boxes.

<table border="1"> <tbody> <tr> <td data-bbox="626 1409 805 1581"></td> </tr> </tbody> </table>					

Appendix 6: Anchor Chart

4 Basic Dance Skills



miro

Appendix 7: Research Sheet

Name:	Animal	Adaptation(s)
Habitat	Draw your animal. Be descriptive	
Food	Extra Information	Interesting Facts

miro

Appendix 8: Rubric

Level 3 –Mastery (7-9 pts.)	Level 2- Progressing (4-6pts.)	Level 1- Developing (1-3 pts.)
Student has ALL boxes completed on Tableau sheet with 5 accompanying symbols leading up to still shape and 5 symbols after.	Student has 7-11 boxes completed on Tableau sheet with accompanying symbols leading up to still shape and symbols after.	Student has 1-6 boxes completed on Tableau sheet with accompanying symbols leading up to still shape and symbols after.
Student has included at least 3 objects that accurately represent the habitat of their animal.	Student has included at least 2 objects that accurately represent the habitat of their animal.	Student has included at least 1 object that accurately represent the habitat of their animal.
Student accurately represents their animal during presentation by choosing a still shape that focuses on the behavioral adaptation.	Student represents their animal during the presentation but does not accurately depict the behavioral adaptation.	Student does not accurately represent their animal or their behavioral adaptation during their presentation.

Student Resources

[Brittanica Kids](#) is a kid friendly resource that provides students with a definition, illustrations, and other ideas/concepts related to the vocabulary word.

[StoryboardThat](#) is a website that allows users to create or organize information in a particular order. The storyboard closely resembles the format of Tableau.

[Ducksters](#) is a great research tool for students. There is a page that specifically lists and goes into detail about the different ecosystems.

[Fact Monster](#) serves as another research tool for students that provides students with specific information related to their topic.

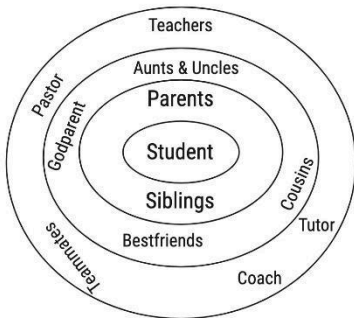
[Kiddle](#) is a safe visual search engine for kids. This site filters through the excess information that is controversial and/or mature.

Teacher Resources

Concentric Diagram

Below is an example of an activity that can be done during circle time to jumpstart the curriculum focusing on relationships between things or people in this case. This allows students to make a connection early on.

Concentric Diagram



[Morning Meeting](#)

This is a sample resource for teachers looking to incorporate circle time in their day. Included are morning meeting greetings and activities for multiple grade levels. I highly recommend investing in the full text for more access.

[Brain Dance](#)

This resource contains a snippet of the book written by Anne Green Gilbert titled “Brain-Compatible Dance Education”. Pages 82-105 offer a variety of ways to incorporate the brain dance.

Materials

Below are materials that will be needed to introduce the curriculum as well as resources that students will use throughout to complete their final Tableaux.

Projector/Document Camera

Computer

Anchor Chart Paper

Graphic Organizers

Vocabulary List

Animal Sort

Markers/Pencils

Art Supplies (whatever is available in your classroom/school)

Notes

Traci Lengel, Mike Kuczala, and Jean Blaydes Madigan, *The Kinesthetic Classroom: Teaching and Learning through Movement* (Thousand Oaks, CA: Corwin, 2010), 3.

“Oakhurst Steam Academy,” SchoolDigger, accessed November 20, 2022, <https://www.schooldigger.com/go/NC/schools/0297003368/school.aspx>.

³ Lindt, S. F., & Miller, S. C. (2017). Movement and learning in elementary school. *Phi Delta Kappan*, 98(7), 34–37. <https://doi.org/10.1177/0031721717702629>

⁴ Gilbert, Anne Green. *Brain-Compatible Dance Education*. Reston, VA: SHAPE America - Society of Health and physical educators, 2019.

⁵ Tschakert, Petra, Karl Zimmerer, Brian King, Seth Baum, Chongming Wang, and Daniel Kunches. “Biodiversity and Ecosystem Resilience.” *Biodiversity and Ecosystem Resilience | GEOG 30N: Environment and Society in a Changing World*, 2020. <https://www.e-education.psu.edu/geog30/node/398>.

⁶ Buchanan, Rebecca, Lauren Davis, and Trisha Cury. “Putting Research into ‘Action’: The Impact of Brain Energizers on off-Task Behaviors and Academic Achievement.” *Networks: An Online Journal for Teacher Research* 23, no. 1 (2021). <https://doi.org/10.4148/2470-6353.1325>.

⁷ Gilbert, Anne Green. *Brain-Compatible Dance Education*. Reston, VA: SHAPE America - Society of Health and physical educators, 2019.

⁸ Aldis, Diane, Genevieve Muench, and Amy Fasteneau. “Body.” *The Elements of Dance*, September 2018. <https://www.elementsofdance.org/body.html>.

⁹ Lindt, S. F., & Miller, S. C. (2017). Movement and learning in elementary school. *Phi Delta Kappan*, 98(7), 34–37. <https://doi.org/10.1177/0031721717702629>

¹⁰ Gilbert, Anne Green. *Brain-Compatible Dance Education*. Reston, VA: SHAPE America - Society of Health and physical educators, 2019.

¹¹ Gilbert, Anne Green. *Brain-Compatible Dance Education*. Reston, VA: SHAPE America - Society of Health and physical educators, 2019.

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