



Case Study: Jazmine, Grade 4

Student Background:

Jazmine is beginning fourth grade at age nine. She has been diagnosed with Autism Spectrum Disorder and has a moderate intellectual disability. Jazmine also struggles with sensory processing and is distressed by loud noises, so she wears noise-protecting headphones throughout the school day. She expresses herself in repetitive short phrases, and she often uses a robotic voice to respond. Jazmine loves sharks and has shown interest in life science. Her parents encourage her interests by providing her with books and materials so that she can research her interests further.

She has benefitted from using pictures of certain animals to show classification, basic needs of these animals (food, shelter, water) and has demonstrated her understanding of grouping animals into their habitats. Although Jazmine has expressed interest in life science, she is very hesitant to deviate from her established set of animal pictures. Most recently, she has shown excitement about butterflies. Jazmine can identify the difference between a caterpillar and a butterfly, she can also identify that butterflies live near flowers. However, when Jazmine is asked what structure (part) of the butterfly helps it survive, she becomes nonresponsive and ignores the question. Knowing Jazmine's favorite animal is a shark, her teachers begin to ask Jazmine questions about the photo of a great white shark. She can identify the difference between a whale and a shark, and she can explain why sharks live in water. However, when Jazmine is asked what structure (part) of the shark helps it survive she responds by repeating facts (length, weight, etc.) about the great white shark and doesn't answer the question. While her teachers continue to have Jazmine interact with the new and old sets of pictures, they've noticed that Jazmine has continued to excel in her routines; however, she appears to be lacking a deeper connection of which parts of the animals help them to survive. When her teachers try to introduce a new animal to their lesson, Jazmine is nonresponsive and ignores the newly-introduced animal. Her teachers are concerned about her transferring the deeper understanding of which animal structures assist in an animal's survival and why these structures are important when faced with an alternative set of animal photos.

High-Quality Planning and Instruction:

In the general education classroom, the science teacher instructs fourth-grade students to examine the internal and external structures of animals through a phenomenon-based model. Mr. Lallinger engages students with a video featuring fish from the perspective of a bald eagle flying several hundred feet in the air. Using this as a starting point to pique the students' interest, the teacher's lesson plan includes emphasis on using models as well as short nonfiction texts to better understand the importance of internal and external structures in animals. Students are shown the four types of eyes that animals can have: eyespot, pinhole eyes, compound eyes, and camera eyes using the book, *Eye to eye: How animals see the world* by Steve Jenkins. As they discuss, Mr. Lallinger prompts students to think about the types of eyes an eagle should have in order for it to locate its food from such a far distance. Each group of students is provided with materials that will serve as models for different types of eyes. Students use these models to see what different animals see. The students sketch and describe what they see from each perspective and discuss how the external structure of the eye assist the eagle in its survival.

The special education teacher, Ms. Major, reviews the lesson with the science teacher to ensure appropriate differentiation for Jazmine. Ms. Major also previews the lesson with Jazmine's reading teacher who will be working with her students on argumentation through writing and now plans to integrate a nonfiction text featuring animals and their structures into an upcoming adapted lesson for Jazmine. Jazmine has strong knowledge of certain animals but struggles with applying this knowledge to better understand and identify how certain structures assist animals in survival. Ms. Major uses the [Louisiana Connectors for Students with Significant Disabilities](#) crosswalk document and determines that 4-LS1-1a is an appropriate benchmark in supporting Jazmine's mastery of acknowledging that certain structures are needed for animals to survive.



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Grade 4 Science

FROM MOLECULES TO ORGANISMS: STRUCTURE AND PROCESSES

Louisiana Student Standards	Louisiana Connectors (LC)
4-LS1-1 Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.	LC-4-LS1-1a Identify external macroscopic structures (e.g., bird beaks, eyes, feathers, roots, needles on a pine tree) that support growth, survival, behavior, and reproduction of organisms.

Because Jazmine has over-sensitivity to loud sounds, the teacher examines the video being shown and examines alternative ways to deliver the same information in the most effective way. To prepare for the lesson, Mrs. Major consults the [Student Response Modes](#) document found on the Louisiana Believes website. She decides to show the video, but she removes the sound by placing it on mute. In addition to this, Mrs. Major also uses photos to show the perspective of the eagle and believes this will allow Jazmine to experience the phenomenon in a more familiar medium. After watching the muted video, Jazmine is shown three photos of the fish from the eagle’s perspective. To gauge Jazmine’s understanding of the introductory phenomenon, the teacher says, “We have watched a video and I have shown you three pictures. What animals did you observe?” She lets Jazmine examine the photographs closer and Jazmine identifies a bird and a fish.

The teacher praises Jazmine for her response. Knowing Jazmine is hesitant to explore other animals, Ms. Major shows Jazmine a photograph of a great white shark. She asks Jazmine to list two differences between the great white shark and the fish from the video and photographs. Keeping with her normal routine, Jazmine identifies that great white sharks live in the ocean and eat smaller fish. Jazmine also identifies that the fish from the video is not a fish that a great white shark would normally eat. The teacher shows Jazmine a detailed photograph of a shark eye and a chart which displays facts about the vision of a great white shark. She asks Jazmine to examine the two and share her observations. Jazmine chooses two facts from the chart and reads them aloud. She provides Jazmine with a shark eye model made from classroom materials. She encourages Jazmine to explore the model. She asks Jazmine, “Why do you think this structure (part) of the great white shark is important?” Jazmine explains that the great white shark needs its eyes to be able to see and observe its habitat. The teacher praises Jazmine for her response.

Pleased with Jazmine’s observations, Ms. Major decides to show Jazmine a different photograph of the eagle. This photograph has more details of the eagle’s parts (beak, feathers, claws, etc.). She asks Jazmine to describe what she sees in the photograph. Hesitant to examine a different animal, Jazmine states that she sees a bird and that birds are not sharks. Jazmine identifies that this bird does not live in the ocean. The teacher asks Jazmine, “Are there any structures (parts) in this photograph that are different from the shark photograph?” Jazmine touches the new photograph of the eagle and the shark photograph. She responds by identifying that birds have wings, like butterflies, and sharks have fins.

The teacher then shows Jazmine a detailed photograph of an eagle eye and a chart which displays facts about the vision of an eagle. She asks Jazmine to examine the two and share her observations. Jazmine chooses one fact from the chart and reads it aloud. She provides Jazmine with an eagle eye model made from classroom materials. She encourages Jazmine to explore the model. She asks Jazmine, “Why do you think this structure (part) of the eagle is important?” Jazmine explains that the eagle needs its eyes to be able to see.” The teacher pushes Jazmine to make deeper connections by asking, “What would happen if the eagle couldn’t see?” Touching the photographs of the eagle eye and the chart of facts, Jazmine sits in silence for a few minutes before stating the eagle would die if it couldn’t see because it couldn’t fly or see any of its habitat. The teacher praises Jazmine’s response and asks why it is important for the eagle to fly and see its habitat. Jazmine responds, “The eagle needs to fly so it can go places and find food. If it does not have food, it will die.” The teacher nods in affirmation and praises Jazmine again.



As Jazmine demonstrates her identification of external structures of animals that support survival after prompting and deep practice, Ms. Major prepares for the following day with Jazmine’s reading teacher where they will begin developing more concrete evidence which supports an argument that animals have external structures that help it survive in their environments. She believes that by working with Jazmine’s reading teacher to dissect various forms of nonfiction text, coupled with Jazmine’s experiences with models and photographs, Jazmine will be able to further showcase her deeper understanding of these concepts.