Arizona State Standards
Science 4.L4U1.11
ELA: 4.RI.10, 4.W.2, 4.W.6, 4.W.7
Extended Idea:
Educational Technology: 4.CI.OW.PO.2, 4.CC.D.PO.1, 4.RI.P.PO.1, 4.TO.A.PO.4

Lesson Objective: Students develop an understanding of adaptations and how they are a reflection of the habitat the species lives in. They will be able to compare and contrast two different species and tell what adaptations allow them to inhabit their habitat. They will understand that without adaptations, species go extinct and we find evidence of that through fossils.

Anticipatory set: Show a video about the Flores giant rat. This rat is about twice the size of a typical brown rat. It is only known to live on the island of Flores in Indonesia. It has small round ears, a chunky body, and a small tail. It is believed to eat leaves, buds, fruits, and insects.

Lesson: Observe our classroom pet. Write on your sticky note which natural habitat you believe our pet is best suited to live in, and why.
Assign students into four to five groups. Assign each group one species of rat to study. Some example species are: Desert Woodrats (Pack Rats), Marsh Rice Rat, Long-Nosed Rat, Bush rat, Bulldog Rat, Brown Rat, Cotton rat.
Students will work together on a computer to describe the physical features and behaviors of rats living in different environments. They will write the following for their group's rat species: description, behavior, habitat, and diet.

Extended idea: Have students create a short slideshow using Google Slides, or a similar program, to teach the rest of the class about their rat species.

Have students record data about the noticeable similarities and differences between the species of rats. As a class or small groups, discuss how some of the differences help that species of rat survive in their unique habitat. Introduce the vocabulary word "adaptation" and "habitat" and discuss them while comparing and contrasting the species of rats.

Leading Questions:

- Adapt means to change or adjust. The term adaptation is used when we talk about animal species. What do you think it means?
- How does that help the species survive in its habitat?
- What is different about that habitat than this other one?
- What do you think caused that to become an adaptation?
- What would happen if they had not adapted that way?
- What other way could the species have adapted to that change?

Discuss what would happen if a species did not develop adaptations when their habitat changed over time. Discuss how we find evidence of creatures who have gone extinct, and why their species might have died out.
Students will draw a venn diagram comparing two of the rat species: Desert Woodrat and Marsh Rice Rat

Students then write a paragraph explaining the similarities and differences they see in these two rat species and why they have these special adaptations. Students must use a form of the following key terms in their paragraph: habitat, survive, benefit, harmful, adaptations

Extention Activity: Create a new environment which our classroom pet rat must adapt to. Write a paragraph describing the adaptation that our pet rat will develop to help it survive in the new environment. Draw a picture of our class pet with its adaptation in its new habitat.

Wrap up: Share with a neighbor what an adaptation is, and what it does for a species. Use the terms “habitat and extinct” in your explanation.