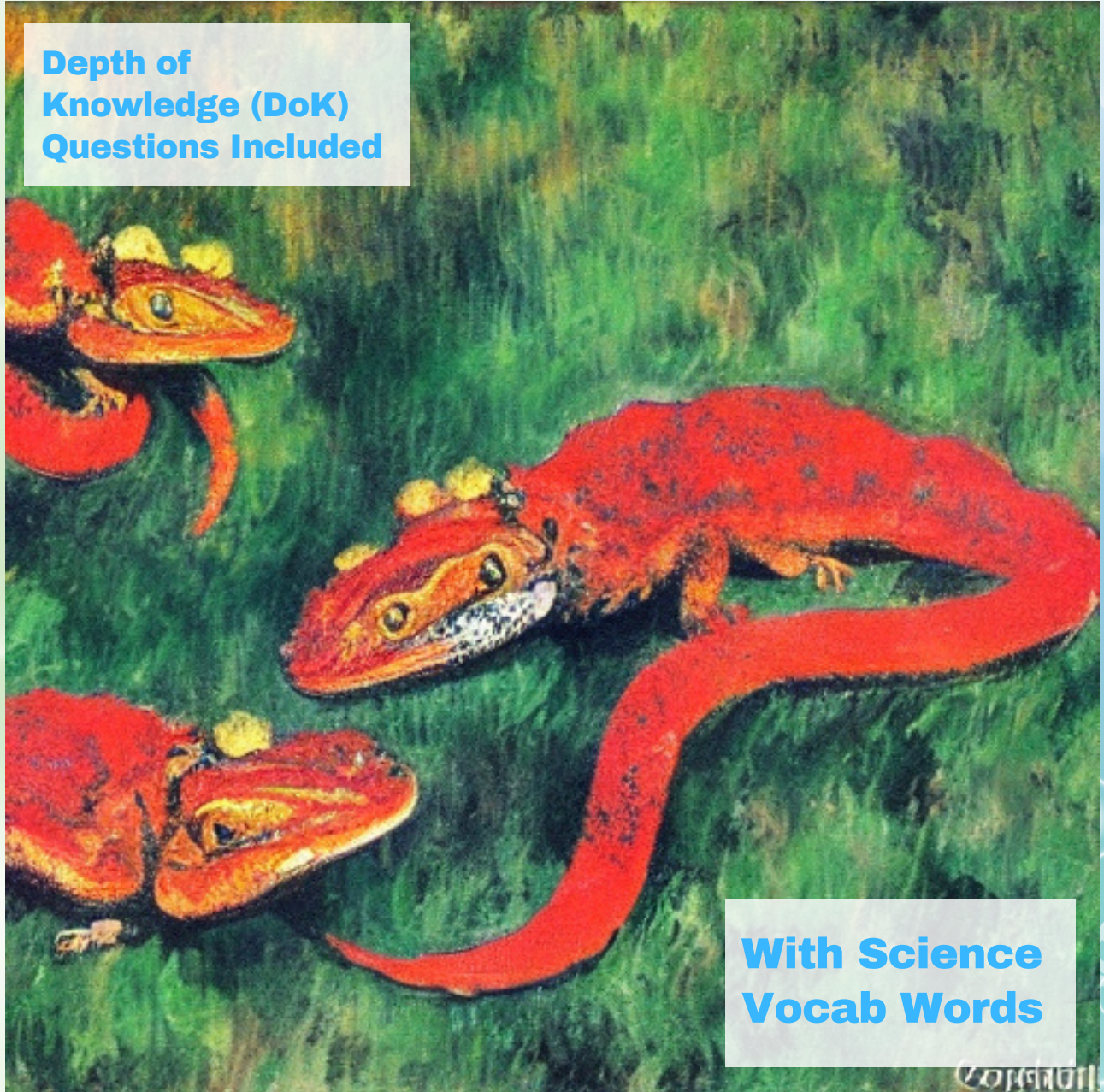


STEM ED TODAY SCIENCE STANDARDS-BASED STORY

THE INVASIVE REPTILE RUCKUS

**Depth of
Knowledge (DoK)
Questions Included**



**With Science
Vocab Words**

5-LS2-1 Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment.

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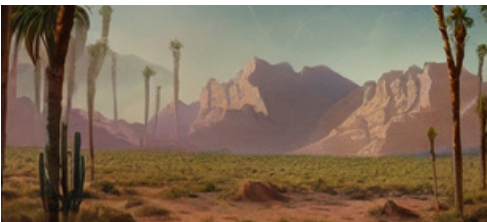
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New Discoveries



It was another hot summer day in Las Vegas, Nevada, and four fifth-graders named Alex, Maya, Jackson, and Lily were out exploring their school playground. The four of them had been friends since kindergarten and loved to go on adventures together. They had explored every corner of their neighborhood, but today they stumbled upon something new.

As they were walking, they noticed a group of lizards that they had never seen before. They were reddish-brown with black spots and seemed to be everywhere. Alex, who loved animals, immediately recognized that these lizards didn't belong in their area.

Maya, who was always concerned about the environment, suggested that they research the lizards to find out where they came from and how they might be harmful. Jackson, who was a bit of a prankster, joked that the lizards were aliens from another planet. But he quickly became serious when he saw how concerned his friends were.

Lily, who was always organized and a natural leader, suggested they create a plan to safely remove the lizards without hurting them or other wildlife in the area. And so began their mission to protect their neighborhood and the creatures that called it home.

The Invasive Species



The group decided to investigate further, and as they followed the creature, they saw more and more of them. They realized that the red reptiles had invaded their school playground.

"Guys, we need to do something about this," said Jackson. "These reptiles are not **native** to this area, and they could harm the environment."

"I agree," said Lily. "We need to find a way to safely remove them."

The group of fifth-grade kids stood huddled around a patch of dry, dusty ground. They had discovered a strange-looking reptile in their school playground and were trying to figure out what it was.

As they examined the creature, one of the kids spoke up. "I think this might be an **invasive** species," she said. "That means it's not supposed to be here and could cause problems for the **ecosystem**."

The other kids looked at her in surprise. They had never heard of an invasive species before.

Using The Design Process



"That's right," said their science teacher, who happened to be walking by. "Invasive species can cause a lot of damage to an ecosystem. They can take over habitats, outcompete native species, and disrupt the natural balance."

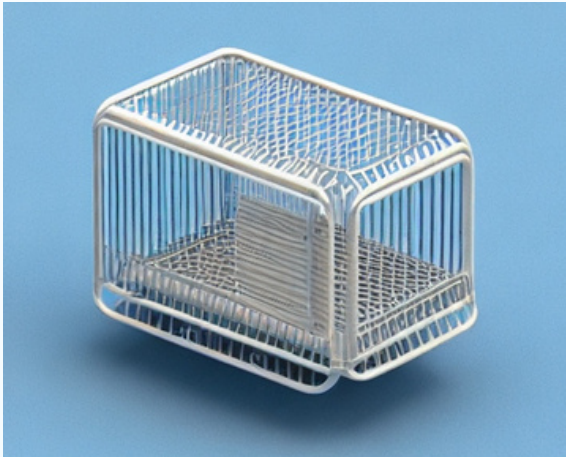
The kids were alarmed. They didn't want their neighborhood to be damaged by an invasive species. They knew they had to do something about it.

They decided to use the **design process** to help them ask questions, explore ideas, create a model, explain ideas, and analyze the situation. They started by brainstorming questions they had about the invasive species. They wrote them down on a whiteboard:

- What kind of reptile is it?
- Where did it come from?
- How did it get here?
- What does it eat?
- Where does it live?
- How does it interact with other species in the ecosystem?

Next, they researched the topic. They read articles and watched videos about invasive species and learned about the negative effects they can have on ecosystems. They also researched the specific type of reptile they had found and learned about its habits and behaviors.

Building a Model



With this information, they began to develop a model of the situation. They drew a diagram of the ecosystem, with the reptile at the center. They labeled the other species in the ecosystem and showed how they interacted with the reptile. They also drew arrows to show the movement of matter among the plants, animals, **decomposers**, and the environment.

The kids then explained their model to their classmates, pointing out the connections between the different elements of the ecosystem and how the invasive reptile was disrupting the natural balance.

Finally, they analyzed their model to come up with a plan for removing the invasive species. They realized that simply capturing and relocating the reptile would not solve the problem, as it could simply continue to cause problems in another location. Instead, they decided to focus on preventing the reptile from reproducing and spreading. They came up with a plan to trap the reptiles and prevent them from laying eggs and multiplying.

The kids worked together to design and create traps to catch the invasive red reptiles in their neighborhood. They wanted to make sure the traps were safe for both the reptiles and the environment. They started by researching different types of traps online and in books to get ideas.

After brainstorming and discussing different designs, they settled on a trap made of PVC pipes and wire mesh that would allow them to catch the reptiles without hurting them. They used PVC pipes to create a box-like structure and covered it with wire mesh to create a cage. They also attached a door to the cage that would close once the reptile entered the trap.

Testing

INVASIVE SPECIES TASK FORCE



To lure the reptiles into the trap, the kids researched the reptile's diet and found out that they love to eat insects. They decided to use crickets as bait and placed them in the back of the trap.

Once the traps were built, they carefully placed them in different areas where the red reptiles were commonly seen. They monitored the traps daily and were excited to find that they had caught several of the reptiles safely.

The kids made sure to release the reptiles back into their natural habitat, away from their neighborhood. They were proud of their traps and the success they had in removing the invasive species from their community while keeping them safe and unharmed.

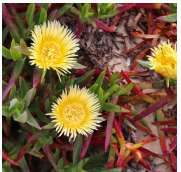
From that day on, the group of friends became known as the "Invasive Species Task Force" and worked together to keep their neighborhood and ecosystem safe. They learned that every small action can have a big impact on the environment, and they were determined to make a positive difference.

VOCABULARY WORDS



NATIVE

"Native" refers to something or someone that originates from a particular place or country. Example: "Kangaroos are native to Australia, which means they come from there and can't be found anywhere else in the wild."



INVASIVE

Invasive means something that comes from somewhere else and takes over a new place where it doesn't belong. Example: An invasive plant is like a bully that comes to the playground from another school and takes over all the swings, not leaving any for the other kids who were there first.



ECOSYSTEM

An ecosystem is a community of living and non-living things that work together to survive in a particular environment. Example: The ocean is an ecosystem that includes fish, seaweed, sharks, coral, rocks, and water.



DESIGN PROCESS

The design process is a series of steps that designers follow to solve problems and create solutions, which involves asking questions, exploring ideas, creating a model, explaining ideas, and analyzing the situation. For example, if you want to design a new toy, you would start by asking questions like, "What kind of toy do I want to make?" and then explore ideas by sketching different designs and creating a model out of clay or other materials. Once you have a prototype, you would explain your ideas to others and get feedback, then analyze the situation to see if any improvements can be made before finalizing the design.



DECOMPOSERS

Decomposers are tiny organisms that break down dead plants and animals into smaller pieces so that they can be reused by other living things. For example, worms and fungi are decomposers that help turn fallen leaves into nutrients for plants to grow.

DEPTH OF KNOWLEDGE QUESTIONS

What did the group of friends discover while exploring their school playground?

What is an invasive species, and why are they harmful to an ecosystem?

What is the design process, and how did the kids use it to come up with a plan for removing the invasive species?

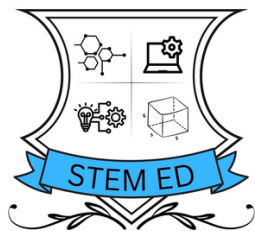
Why did the kids decide to focus on preventing the invasive reptiles from reproducing and spreading instead of just capturing and relocating them?

How do invasive species affect the food chain and the balance of an ecosystem?

What strategies can be used to control the spread of invasive species and prevent their negative impacts on an ecosystem?

How can the introduction of a new species into an ecosystem affect the survival of native species?

CREDITS



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The following materials utilized the National Institute for STEM Education NCST approach and were intended to align with the content covered in the National Certification for STEM Teachers.

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