Traits in Different Habitats

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NGSS: 3-LS4-3

Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all.

Clarification Statement:
Examples of evidence could include needs and characteristics of the organisms and habitats involved. The organisms and their habitat make up a system in which the parts depend on each other.

Go here for more information:
http://ngss.nsta.org/DisplayStandard.aspx?view=topic&id=12

Cross Cutting Concepts:

Patterns
Students may notice patterns in animal traits for survival. For example many animals in cold climates have blubber or thick fur coats to keep warm. Many animals that eat meat have sharp teeth.

Structure and Function
Animal's body structure is evolved in such a way to help them maximize survival in their particular habitat.

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What do Plants and Animals Need to Survive?

Discuss as a class!

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To Survive, Plants and Animals Need:

Food!

Water!

To Stay Cool or Warm!

Safety!

To Reproduce!

Openclipart.org: Fruits: Frankes; Water: Bibbleycheese; Girl: nlyl; Man in sun: hefedute; Elephants: TatsuoUeda; Warning :kg

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What happens to animals and plants if you put them in different habitats?

Let’s find out!

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Could traits that help animals in one habitat could *hurt* them in another habitat?

Discuss as a class!
Think of examples to support your answer.

Openclipart.org: beach: rg1024 (cropped); desert: hatso (cropped); Sun: bobby520; Snowy landscape: netalloy

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This girl is wearing a warm jacket. Will the jacket help her or hurt her in the snow?

Openclipart.org: Snowy landscape: netalloy; girl: spevi

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What about at a hot beach?

Openslipart.org: beach: rg1024 (cropped); girl: spevi; Sun: bobby520

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This goldfish swims nicely underwater

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What would happen if it got stranded on land?

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The thick blubber of the walrus helps keep it warm in cold environments

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What would happen to the walrus if it lived in the hot desert?

Openslipart.org cactus: notKlaatu; Sun: bobby520;

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A leopard blends in well to tall grasses – this helps it hunt

By original by Lukas Kaffer (Super.lukas); crops and changes by JD - Image:Great male Leopard in South Afrika.JPG, CC BY-SA 3.0, https://commons.wikimedia.org/w/index.php?curid=2650050

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Would a leopard camouflage well in a snowy environment?

Openclipart.org – Leopard by GDJ, snowy background by netalloy

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No! A leopard would be easily spotted by potential prey in the snow

Openclipart.org – Leopard by GDJ, snowy background by netalloy

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Which habitat better hides the leopard?

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This cactus stores water and does well in a dry environment

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In a wet environment, this cactus would take TOO MUCH water and die

Openslipart.org water drops: lukeb: ;skull and crossbones: SOlvera ; clouds: barnheartowl

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However, often species CAN survive in a new habitat, if it's similar enough to their old habitat

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Animals' traits can help or hurt them depending on the environment!

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Think of other animals and where they live

What if these animals lived in a different habitat?

Discuss with your partner

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Stop here or continue for examples of species that did well in new environments.

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The wattleneck softshell turtle was brought to Hawaii from China in 1850

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This turtle has thrived in Hawaii

Map of the main islands of Hawaii. UTM Zone 4N. Data sources: Natural Earth, Hawaii State GIS Program, USGS map "Hawaii's Volcanoes Revealed".
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Sometimes animals do *too* well in a new environment

Burmese Python!

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Burmese Pythons were originally found in Southern and Southeast Asia

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Buremese Pythons were thought to escape a Florida zoo in 1992 during Hurricane Andrew. Oh no!

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Their traits are well suited for the Florida Everglades. They are an *invasive species* in Florida

They eat a lot and have threatened local animal populations, like birds, rabbits and foxes

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