

JACK LONDON STATE HISTORIC PARK



This extended learning assignment is based on Next Generation Science Standards for middle school but can be adapted for other grades.



BACKGROUND FOR TEACHERS AND PARENTS

NGSS Disciplinary Core Ideas addressed
LS2.A: Interdependent Relationships in Ecosystems ETS1.B: Developing Possible Solutions
NGSS Science and Engineering practices addressed:
<ul style="list-style-type: none">• Developing and Using Models• Develop a model to describe phenomena• Constructing Explanations and Designing Solutions

LESSON THEME: As humans work to create more cooperative relationships with the natural world, it is important to make sure we are sharing habitat, resources, and space adequately with Nature.

LESSON GOAL: The primary goal is to use wilderness corridors to connect all major green spaces (parks, open spaces) in an urban/suburban area to surrounding wilderness areas, to increase access to a larger resource base for wild animals. This can be adjusted for towns and cities that are significantly far away from wilderness areas by asking students to connect together just the green spaces within their town or city.

LESSON DESCRIPTION: This lesson looks at the intersection between the modern human world and the wilderness. Students must first consider the needs of wild animals (food, water, shelter, and space) and how we humans are impacting their access to these critical resources with our urban and suburban infrastructures. Students will then be asked to imagine a system of wilderness corridors throughout their own town or city that could help to connect green spaces and wilderness areas together, thereby increasing safety and access to natural resources for these wild animals.

1. Students acquire a map of their city or town and identify all the “green spaces” that currently exist (parks, wilderness areas, large empty lots, etc.).
2. Then they brainstorm viable ways to connect these green spaces together to create a wilderness highway system for animals to travel without having to cross any streets or encounter any obstacles like fences, buildings, roads, etc.
3. As students encounter design challenges and obstacles, they should take note of them and identify possible solutions around them (i.e. add additional parks to connect corridors that may seem too long; create tunnels where bridges may not make sense, re-route to take advantage of areas that offer less traffic and more quiet, run past natural food and water sources, etc.)

LESSON DELIVERABLES: Students will create a general map of their town or city with a detailed drawing of their wilderness highway (corridor) system. They should also include a written description of their system explaining why they feel that it is the optimal route for animals to travel, as well as addressing a few of the major challenges they encountered and how they worked to overcome them. As an extension, have the students think about how these new wilderness corridors will impact their city or town. What challenges and benefits would arise from having such a change to the infrastructure? How would it impact local climate and quality of life?

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Wild Highways

Create and animal super-highway system in your city or town



THE PURPOSE - As humans work to create more cooperative relationships with the natural world, it is important to make sure we are sharing habitat, resources, and space adequately with Nature.

THE PROBLEM - Habitat fragmentation is one way that humans have made it harder for wild animals to survive and thrive. As we have built communities, towns and cities over time, we have chopped up and divided wilderness habitats into smaller, isolated patches. Each “patch” has a limited number of natural resources available to support wild animal populations. Animals need a lot natural space to roam in order to meet their critical needs for food, shelter, water, space, and ability to find mates.



YOUR CHALLENGE – Consider your town or city. Most are landscapes of buildings, industrial structures, and parks that are connected through a complex system of busy roads and highways. Included are many walls, fences, road traffic, and other obstacles. Now imagine you are a wild animal trying to cross this city to get to a wilderness area on the other side that holds much of the food you and your herd need to survive the season. How successful would your journey be?



Is there a way to help wild animals safely cross your town or city? Can we share the space?

Along with the regular road and highway systems, could there be a system of natural roads, or “wilderness corridors,” that could help wild animals move around more safely? This is your challenge!

Your task is to re-draw your town or city to include a system of wilderness highways that connect the various “green spaces” already there (including parks, opens fields, empty lots, etc.). Can you then connect this system to nearby wilderness areas? To make it work, you must first consider the needs of wild animals (food, water, shelter, and space) and how the animals in your local ecosystem

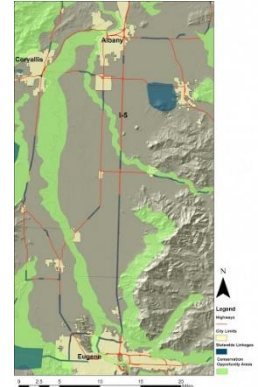
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like to travel (what time of day, do they travel in herds, alone, how will they find food and shelter from predators along the way, etc.).

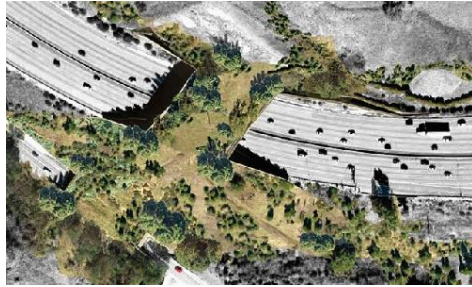
STEP 1 - Download, purchase, or draw a map of your city or town. Then identify all major “green spaces” that currently exist (parks, wilderness areas, large empty lots, etc.).

STEP 2 - Brainstorm possible ways to connect these green spaces together so that animals can travel to them without having to cross any streets or deal any obstacles like fences, buildings, roads, etc. Look at the pictures above for ideas. You don’t want to have to change your town’s infrastructure very much to do it; for example, you shouldn’t tear down buildings or re-route major roads, etc. If you need to add new parks or green spaces in areas that make sense, you can. It should mostly work with your town’s layout the way it exists today.

STEP 3 - You will be writing a description of your wild corridor system and your process for creating it - so make sure to take notes on any design



Example of map with wilderness corridors.



challenges and obstacles you encounter and how you deal with them. For example, do you need to add a new park to connect corridors that seem too long? Should you put a tunnel where a bridge may not work? Maybe you need to re-route your path to take advantage of areas that offer less traffic and more quiet space. These are just a couple of things to keep in mind.

SOME SEARCH WORDS TO HELP WITH YOUR RESEARCH

wilderness corridors	habitat fragmentation	small island effect
urban sprawl	biodiversity	migration
resource distribution and carrying capacity	habitat loss and climate change	urban forestry

QUESTIONS TO ASK YOURSELF

What animals might be using my corridor system?

What should my corridors have in them to support traveling animals? Does that change throughout the year?

Does my system design increase access to natural resources for these wild animals?

How might this new system affect the population sizes of the species using it?

Would this change the number of animals we see in our town and parks? How?

How would this increase in green space affect our city or town in the long run? Are there any benefits or challenges?

This assignment is a fun thought experiment so be as creative as you want. Just be sure you are addressing all the needs of the animals and the local habitat.

Good Luck!