ROZZY READERS

Inventory and Monitoring Program Manager:
Apostle Islands National Lakeshore

Section 1:
The Inventory and Monitoring Program

Inventory and Monitoring Program

A group of people who gather and analyze information on national parks in the United States to make sure that the natural resources such as the plants, animals, and ecosystems are healthy.

Inventory & Monitoring Program Manager

A person who oversees the program and employees that take inventory and monitor the National Parks. They are in charge of planning, managing, implementing, and coordinating all aspects of the program.

Monitoring

The repeated observation and measurement of specific park natural resources in order to better understand their condition.

Inventory

A collection of information about what natural resources, e.g., plants, animals, rock formations, or water bodies, exist in the parks.

ROZZY
LEARNING COMPANY

Learn: Inventory & Monitoring Program

The National Park Service is responsible for protecting National Parks throughout the United States.

There are 423 national park sites in the United States. These sites are protected by the United States government and are meant to be used for the enjoyment and education of citizens. Some of these are parks are large areas of land, like Yosemite. Other parks are important historical monuments or places like the Harriet Tubman Underground Railroad Museum.

The National Park Service protects the artifacts, animals, and natural resources that live within the parks. One way that the government makes sure that the parks are protected is through the Inventory and Monitoring Program.
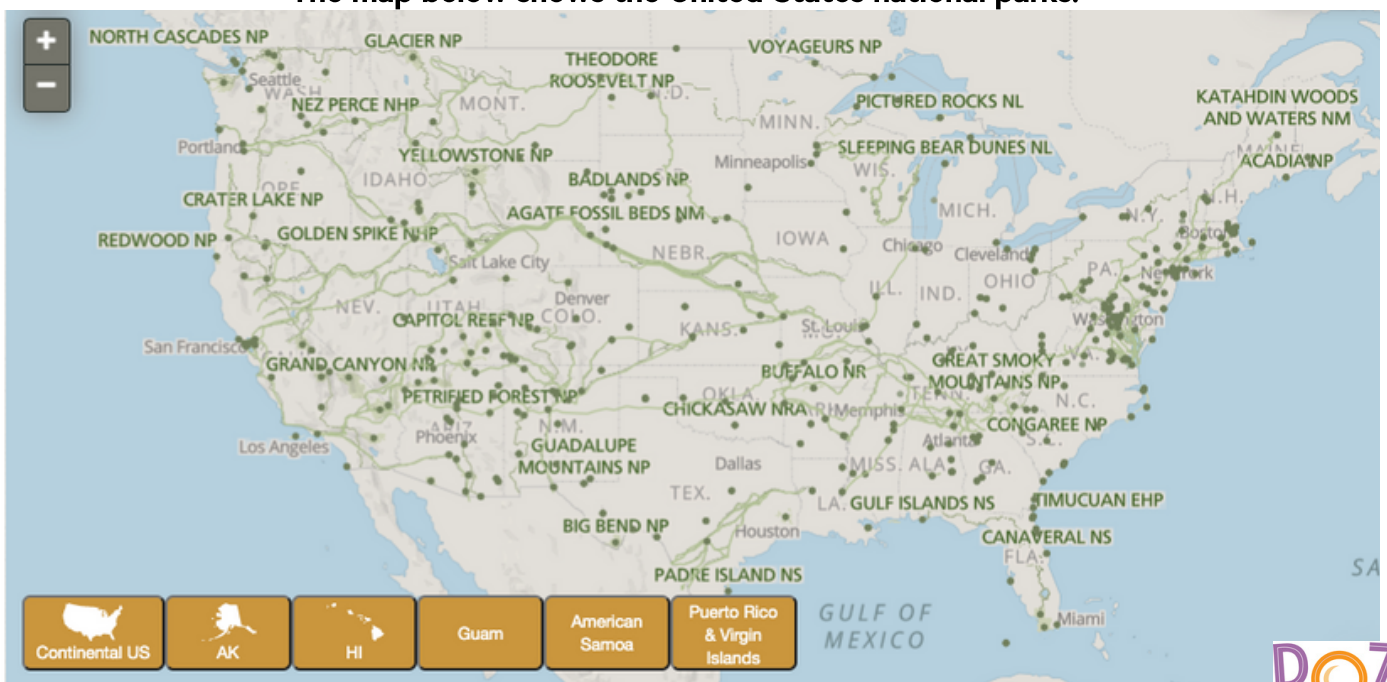

Yosemite National Park located in California

**Harriet Tubman Underground Railroad Visitor Center in Maryland**

The map below shows the United States national parks.

Learn: Inventory & Monitoring Program

Across the country, more than 280 parks with significant natural resources have been grouped into 32 "networks." Network boundaries are based on geography and the natural resource characteristics parks have in common. Parks within each of the networks work together to plan, design, and conduct inventories and long-term monitoring.

The Inventory and Monitoring Program gathers and analyzes information on specific park natural resources, such as the plants, animals, and ecosystems, that can indicate the overall biological health of parks.
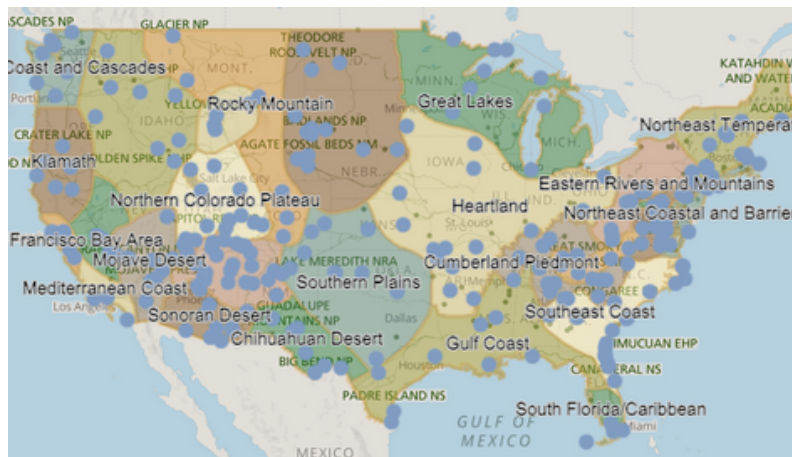
The different colored areas on this map represent the 32 "networks" in the Inventory and Monitoring Program.

Inventories are a collection of information about what natural resources (e.g., plants, animals, rock formations, or water bodies) exist in the parks. Inventories also include information on where those resources are and how they are doing.

Monitoring is the repeated observation and measurement of specific park natural resources in order to better understand their condition. Monitoring allows us to detect changes, identify any potential problems in the early stages, and measure success.

Inventories help us understand the range of natural resources in and around parks, and monitoring helps us understand how these resources are doing over the long term.

The information we collect helps parks make science-based management decisions that help us preserve America's special parks.

Career Highlight:
Inventory & Monitoring Program Manager

Inventory and monitoring managers oversee the inventory and monitoring program. They are in charge of planning, managing, implementing, and coordinating all aspects of the program.

Responsibilities Include:
- Be the program leader and make sure it is running efficiently.
- Identify program needs and develop work plans and schedules, cost estimates, and funding proposals.
- Collect, organize, and make data available about the park.

Education:
Those who work as Inventory and Monitoring Program Managers typically receive science degrees in topics such as wildlife ecology, biology, natural resources, environmental conservation, or wildlife sciences.

Content Check: Inventory & Monitoring Program

Answer the questions below using complete sentences.

1. What is the main purpose of the Inventory and Monitoring Program? Why is it important?

2. How many different "networks" of parks are there in the United States, and how are they separated?

3. What is the job of an Inventory and Monitoring Manager?

Learn: Apostle Islands National Lakeshore

LOCATION:

The Apostle Islands National Lakeshore is located in far northwestern Wisconsin, off the Bayfield Peninsula in Lake Superior. The Apostle Islands National Lakeshore is made of 21 islands and a 12-mile segment along the shore of Wisconsin's north coast. The shorelines have eroded into interesting cliff formations, including sea caves and ice caves.

HISTORY:

In the past, the area was home to the Ojibwe people. Later on, the area became a major fur-trading center, followed by extensive logging, brownstone quarrying, farming, commercial fishing, and tourism. Several lighthouse stations were built among the islands to guide boats in the shipping industry. Lighthouse stations were built during the latter half of the 19th century and have, in some cases, helped protect some vegetation landscape from logging.
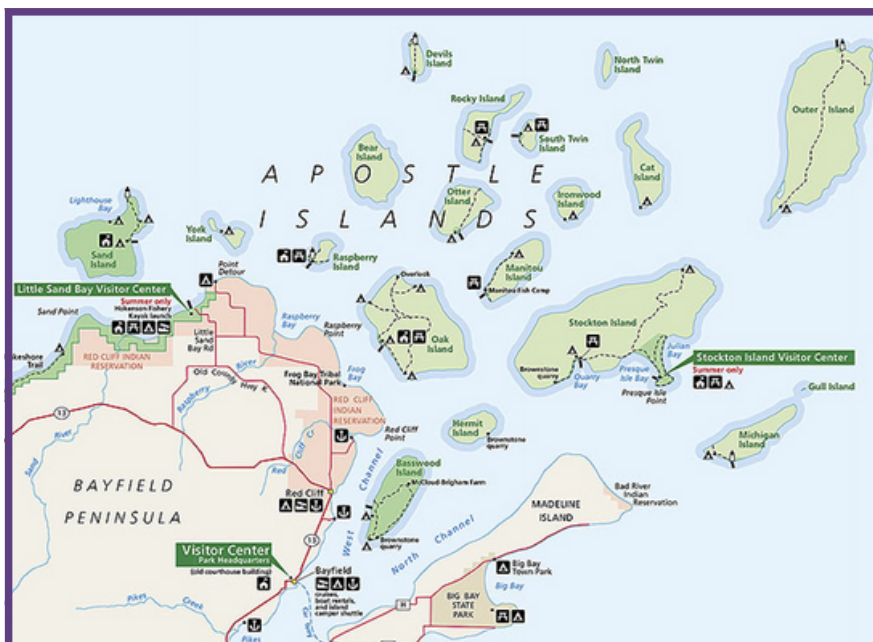
Learn: Apostle Islands National Lakeshore

ANIMALS:

The islands' wildlife includes a diverse population of nesting and migratory birds and a variety of mammals, amphibians, and fish. Game species include whitetail deer, black bear, snowshoe hare, waterfowl, woodcock, and ruffed grouse. Other fur-bearers include the red fox, coyote, beaver, and otter. Small mammals are an important component of the lakeshore's terrestrial fauna and include shrews, mice, voles, red squirrels, and chipmunks. Some common mainland species do not occur on the islands, including raccoons, skunks, porcupines, gray squirrels, chipmunks, and woodchucks.

PLANTS:

Trees such as red pine, white pine, yellow and white birch, balsam fir, white cedar, birch, and aspen are present on the islands. Over 800 plant species occur within the lakeshore.

TODAY:

Today, many people visit the park to camp, hike, and enjoy the outdoors. The six historic light stations in the park, built to aid navigation on the Great Lakes, are popular tourist spots. The islands offer various water-based recreational opportunities such as sailing, power boating, sea kayaking, fishing, and scuba diving.

Content Check:
Apostle Islands National Lakeshore

Answer the questions below using complete sentences.

1. Where is the Apostle Islands National Lakeshore located?

2. Name at least two trees and two animals that can be found in the Apostle Islands National Lakeshore.

3. There are many reasons people visit the Apostle Islands National Lakeshore. Which activity mentioned in the article would you most like to do if you were to visit?

Section 3:
Math Practice-Finding Percentages

You are working as Inventory and Monitoring Program Director at the Apostle Islands National Lakeshore. Every year you take an inventory of the trees located on one of the small islands to see if there are any changes. Use the data you collected below to help you answer the questions.

Last Year

Maple-Yellow Birch	20
Great Lakes White Pine	16
Northern Red Oak	20
Jack Pine	11
Balsam Fir	19
Black Ash	15

How many trees were inventoried in total: _____

What percentage of the trees were Black Ash? _____

What percentage of the trees were Jack Pine? _____

This Year

Maple-Yellow Birch	30
Great Lakes White Pine	18
Northern Red Oak	27
Jack Pine	9
Balsam Fir	25
Black Ash	20

How many trees were inventoried in total: _____

What percentage of the trees were Balsam Fir? _____

What percentage of the trees were Great Lakes White Pine? _____

Section 4:

ELA Practice-Support a Claim Using Logical Reasoning and Relevant Data
Note: The data used in this activity is fictional.

Imagine that you are the director of the Inventory and Monitoring Program of a national park in the United States.

Five years ago a company bought land near the park and built a production plant. They stated that the production plant would cause no harm to the national park. The government allowed the production plant to be built but stated that if it were to cause any harm to the park it must be shut down.

There is a government meeting coming up to discuss the park. You have gathered enough information to prove that the production plant is causing harm to the park and therefore should be shut down. You will use the data collected by the Inventory and Monitoring Program to help you write a speech to give at the meeting. Your speech will explain how the data proves that the park is being harmed by the production plant.

Begin by reading the data collected by the Inventory and Monitoring Program. Then, use the data to answer the question located in the purple box on each page.

Fish Species

The production plant was built in 2016.

Each year the Inventory and Monitoring Program counts how many fish species live in the lake in your park. The table below shows how many different species were in the lake each year.

Is there a difference in the number of fish species living in the lake before the production plant was built compared to after?

Year	Fish Species
2020	2
2019	4
2018	5
2017	6
2016	6
2015	10
2014	9
2013	10
2012	9
2011	9

ROZZY
LEARNING COMPANY

Support a Claim Using Logical Reasoning and Relevant Data

AQI

Remember: the production plant was built in 2016.

Air quality is measured with the Air Quality Index, or AQI. The AQI works like a thermometer that runs from 0 to 500 degrees. However, instead of showing changes in the temperature, the AQI is a way of showing changes in the amount of pollution in the air. You track the AQI in the park every day and then find the daily average for the year.

Chart A on the right shows the AQI daily average for the last ten years.

Chart B shows the air quality ranges.

Chart A

Year	AQI
2020	155
2019	130
2018	100
2017	87
2016	65
2015	18
2014	20
2013	18
2012	20
2011	25

Chart B

The Air Quality Index	
Index Values	**AQI Category**
0 - 50	Good
51 - 100	Moderate
101 – 150	Unhealthy for Sensitive Groups
151 – 200	Unhealthy
201 – 300	Very Unhealthy
301 –500	Hazardous

Are there differences in the air quality in the years before the plant was built compared to after the plant was built? Explain your answer.

Support a Claim Using Logical Reasoning and Relevant Data

Bear Health

Remember: The production plant was built in 2016.

The park is home to many brown bears. The Inventory and Monitoring Program uses GPS to track four of them to make sure that they are healthy and are not being impacted negatively by humans. For example, disturbances to their home could affect the amount of food available for brown bears.

Each year, before the bears go into hibernation, the program checks the weight and health of each bear. The charts to the right show each bear's weight in pounds. The bear's health is rated using a 1-3 scale shown below:

    1-Poor: Bear is unhealthy and may need help to get better
    2-Average: Health is normal
    3-Perfect: Health is perfect

Bear 1: Teddy

Year	Weight	Health
2020	350	1
2018	400	1
2016	470	1
2014	492	2
2012	491	2
2010	485	2

Bear 2: Grizzly

Year	Weight	Health
2020	258	1
2018	300	1
2016	340	1
2014	370	3
2012	365	3
2010	368	3

Bear 3: Buttercup

Year	Weight	Health
2020	320	1
2018	380	1
2016	400	2
2014	439	3
2012	431	3
2010	438	3

Bear 4: Fuzzy

Year	Weight	Health
2020	290	1
2018	320	1
2016	355	2
2014	401	3
2012	400	2
2010	396	2

Are there differences in the bears' weights and health in the years before the plant was built compared to after the plant was built? Explain your answer.

Support a Claim Using Logical Reasoning and Relevant Data

Using the data you just analyzed, you will write a speech to convince the voters to vote to remove the plant that is located next to the park. Read your speech requirements before you begin writing your speech.

Your speech must:
- Use a formal tone
- Use complete sentences and correct grammar
- Be at least 10-12 sentences long

Your speech must contain the following:
- Introduction of yourself and your stance
  - You must state your name and your role (Director of the Inventory and Monitoring Program)
- At least two ways that the production plant has negatively impacted the park.
  - You must use the data from above to support your claims.
- A concluding statement
  - Remind the voters why they should vote to shut down the production plant.

Support a Claim Using Logical Reasoning and Relevant Data

Write each part of your speech in the boxes below. Make sure your speech fits all the requirements.

Introduction: Introduction of yourself and your stance. You must state your name and your role (Director of the Inventory and Monitoring Program).

Body: Explain at least two ways that the production plant has negatively impacted the national park. You must use the data from above to support your claims.

Concluding Statement: Remind listeners one last time about the negative ways that the production plant has impacted the park and ask them to help you get the production plant closed.

ROZZY
LEARNING COMPANY