



MINNESOTA ZOO®

ENVIRONMENTAL STUDIES TREK

A SELF-GUIDED TOUR FOR UPPER LEVEL ENVIRONMENTAL STUDIES STUDENTS

WELCOME TO THE ENVIRONMENTAL STUDIES TREK

This TREK was developed for upper level Environmental Studies students. Topics covered include habitats, environment, human impact, and climate. There are questions for each trail at the Zoo (note: the Wells Fargo Family Farm is closed November-March). If you need assistance in locating something Zoo staff and volunteers can help.

We are meeting together at the Minnesota Zoo for _____.
(lunch or program)

Meet at _____ at _____.
(location) (time)


The bus will be leaving at _____.
(time)

Meet at _____ before we depart.
(location)

Other reminders:



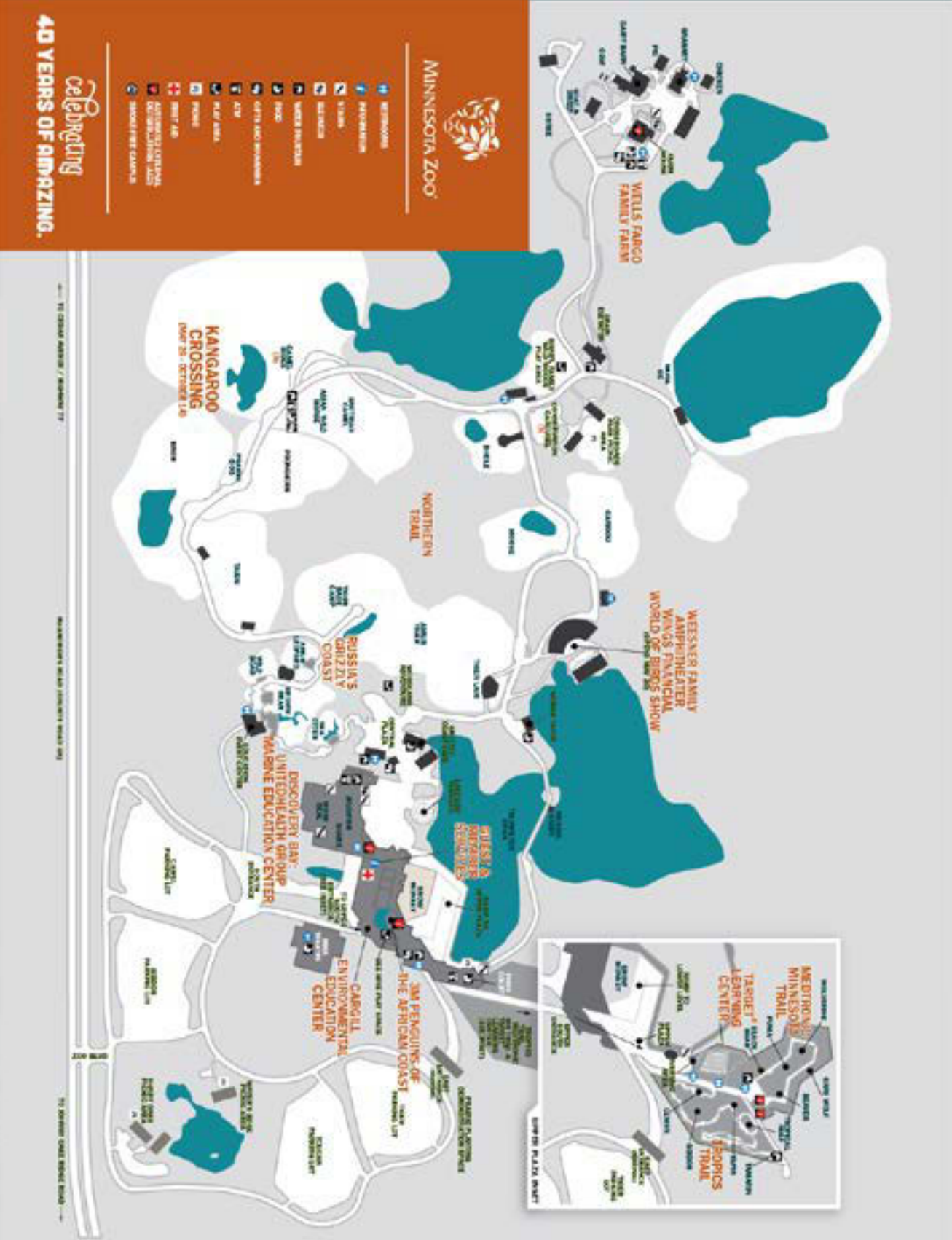
MINNESOTA ZOO MAP



MINNESOTA ZOO

Celebrating
40 YEARS OF BIRDFIZING.

- WATERBODIES
- INFORMATION
- STROLLING
- BICYCLING
- MAPS AND DIRECTIONS
- PLAY
- PET AREA
- PHONE
- FIRST AID
- ACCESSIBILITY: VISUAL, HEARING, AND PHYSICAL
- SPECIAL EVENTS



WELLS FARGO FAMILY FARM

WEESENER FAMILY AMPHITHEATER
WINGS FINANCIAL WORLD OF BIRDS SHOW

KANGAROO CROSSING
MAY 28 - OCTOBER 18

RUSSIAN'S CHIZ ZIV'S COAST

DISCOVERY BAY: UNITEDHEALTH GROUP WILDLIFE EDUCATION CENTER

CARROLL ENVIRONMENTAL EDUCATION CENTER

SAM PENGUINS OF THE AFRICAN COAST

MEADOWS MINNESOTA TRAIL

TARGET LEARNING CENTER

ISOPHICS TRAIL

TO CHERRY AVENUE / HIGHWAY 77

MINNESOTA ZOO

TO JOHNSON COUNTY WISCONSIN ROAD

DISCOVERY BAY

WELCOME TO THE OCEAN

Directions: Look for the answers to the following questions on the graphics in the Great Hall of Discovery Bay and be sure to answer each question thoroughly.

Activity Stop: Shark Reef

1. Crevalle jacks and Horse-eye jacks are indicators of what in their environment?
2. What reproductive strategy do Goliath groupers use?
3. Explain where and why shark fin soup is desirable in some cultures. What are the environmental impacts of this practice?
4. What reproductive strategy do sharks use?
5. Define bycatch and explain its impact on sea turtles.

Activity Stop: Hawaiian Monk Seal Habitat

6. What human activities have threatened monk seal populations?

DISCOVERY BAY

WELCOME TO THE OCEAN

Activity Stop: Our Oceans, Our Choices

7. Describe the habitat and organisms found in tide pools.
8. Describe the environmental impact of shrimp farming.
9. Find the “Planet Ocean” graphic. Describe why all of the following ocean factors are important:

Planet Ocean

Our ocean makes our planet unique. The earth is the only known planet with liquid water, which covers 72 percent of the surface. We've renamed this expanse of saltwater as smaller seas and five oceans—Arctic, Atlantic, Indian, Pacific and Southern. The reality is that there is only one World Ocean. It's rich in resources and beauty, it functions as the heart of our climate system, and it's our responsibility to protect it.

Similar to how your heart circulates blood and regulates your body temperature, the ocean controls the circulation of heat and moisture throughout the climate system. The ocean guides the earth's temperature by moving heat and moisture via currents and winds. A healthy ocean also can stabilize the earth's temperature by absorbing the sun's heat and moving it elsewhere within the climate system.

Arctic Ocean

Atlantic Ocean

Pacific Ocean

Indian Ocean

Southern Ocean

Currents

Waves

Tides

Chemistry

Depth

DISCOVERY BAY

WELCOME TO THE OCEAN

10. Explain how fishing and fisheries contribute to the Triple Bottom Line (be sure to explain both positive and negative impacts of fisheries).

11. Using the series of posters explaining the “Heart of the Climate System.”

A. Explain how oceans are related to climate regulation.

B. Describe the importance of coastal ecosystems.

C. Give an example of the impact of a warming ocean on plants and animals.

D. Explain the impact of ocean acidification and global warming on sensitive animals like corals.

DISCOVERY BAY

WELCOME TO THE OCEAN

12. Visit the “Fish Smart Diner” and select two different options (OR visit seafoodwatch.org and choose two options from different lists). Compare and contrast the environmental impacts of each seafood you selected.

Fish selected:	Fish Selected:
List the environmental impact of this fish.	List the environmental impact of this fish.

RUSSIA'S GRIZZLY COAST AND THE NORTHERN TRAIL

Directions: Look for the answers to the following questions on the graphics along Russia's Grizzly Coast and the Northern Trail and be sure to answer each question thoroughly.

Activity Stop: Sea Otters

13. Define keystone species and explain why otters are a keystone species in their ecosystem.

Activity Stop: Mammoth Dig

14. Describe the climate of the tundra and some of the plants and animals you find there.

Activity Stop: Conservation Cabin

15. Inside the cabin by the Amur leopard, describe the **three** major threats to species in Russia's Grizzly Coast and at least one action being taken to protect threatened species.

RUSSIA'S GRIZZLY COAST AND THE NORTHERN TRAIL

Activity Stop: Prairie Dogs

16. Explain how prairie dogs help improve soil health.

Activity Stop: Moose

17. List and define the three factors contributing to Minnesota moose decline.



- 1.
- 2.
- 3.

TROPICS TRAIL AND MINNESOTA TRAIL

Directions: Look for the answers to the following questions on the graphics along Tropics Trail and the Minnesota Trail and be sure to answer each question thoroughly.

Activity Stop: Africa

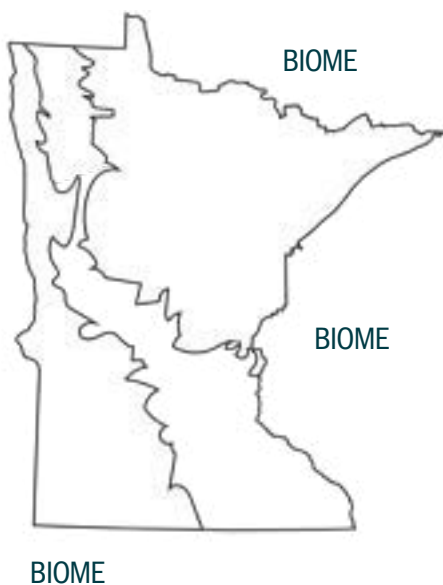
18. Define the term “biodiversity hotspot” and explain the location of the majority of these hotspots.

19. What are the issues facing the fig tree and how can you help?

20. Explain the environmental impact of palm oil on the rainforest.

Activity Stop: Minnesota

21. Label the three biomes found in Minnesota.



TROPICS TRAIL AND MINNESOTA TRAIL

22. Summarize the ecosystem services provided by wetlands.

23. List at least three invasive species and describe their impact on native species.

Invasive Species:	Invasive Species:	Invasive Species:
List its environmental impact	List its environmental impact	List its environmental impact

WELLS FARGO FAMILY FARM (SEASONAL TRAIL)

Directions: Look for the answers to the following questions on the graphics at the Wells Fargo Family Farm and be sure to answer each question thoroughly.

24. Visit the time line of agriculture in the building behind the farm house and record the events for the following dates:

A. 1862:

B. 1896:

C. 1933-1939:

D. 1938:

E. 1945:

F. 1970:

G. 1980's:

H. 1983:

I. 1986:

J. 1993:

K. 1996: