EXHIBIT EXPLORATION GUIDE

Grade 8

Students: Please fill out this worksheet as you explore our exhibit halls.

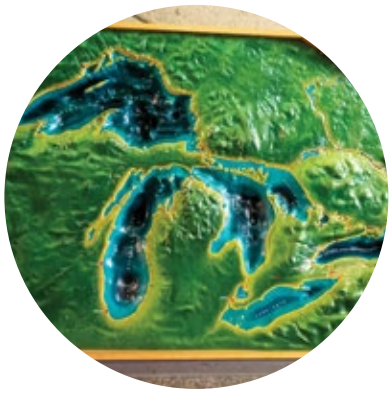
LEVEL 6

Forest Lane

Section A

Map of the Great Lakes

Topic: Water Systems



A1. Find the map of the Great Lakes and examine each lake closely. Which lake do you think has the coldest water? Provide at least two reasons to support your hypothesis.

LEVEL 6

Cohon Family Nature Escape

Outdoor area, open seasonally

Section B

Watershed Management

Topic: Water Systems

A watershed is a region of land that catches precipitation, such as rain or snow, that drains or seeps into a specific body of water. Every body of water has a watershed. In fact, you're standing in one now!

B1. Look around for evidence of watershed management. List materials that you think can be used to help manage the water flow.

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Section B (cont.)

B2. The Science Centre is located in a river valley. What is the name of the river?

B3. Check out the map of the watershed where this river is located. Can you find the source of the river system on the map?

B4. Find the grate near the map. Why was this grate installed? Do you think it has a positive or negative impact on the urban forest?

LEVEL 6

Science Arcade

Section C

Giant Lever

Topic: Systems in Action

C1. Stand on the lever. Walk very slowly away from the load and past the fulcrum (the pivot point), which is marked with an arrow in the accompanying photo. Once the lever begins to pivot downward, stop walking. Where did you stop on the lever? Mark the spot on the photo.

Section C (cont.)

C2. Put on a backpack or have a friend stand on the lever with you to create a heavier load. This will increase your downward force. Try the experiment again and mark the result on the photo.

C3. Did the total amount of work change when you created a heavier load? Remember:

Work = Force x Displacement (W = F x d)

Hint: Consider the relationship between the force you created as the load and your distance from the floor when the lever began to tip.

C4. If the fixed load on the lever was increased, where would you need to stand to lift the lever: closer to the fulcrum, or farther from it?

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Section D

Fulcrum and Leverage

Topic: Systems in Action

A

B

C

Based on what you learned in Section C, predict the answers to the following questions. Record your predictions first, then test each weight to see if you were correct. Remember, it's OK if your prediction is incorrect!

D1. Which weight will take the most force to lift? Prediction _____ Test _____

D2. Which weight will take the least force to lift? Prediction _____ Test _____

D3. Which lever will move your hand the farthest? Prediction _____ Test _____

D4. Which lever will move the weight the farthest? Prediction _____ Test _____

D5. Were your predictions correct? How could you apply what you learned from these tests in real life?

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LEVEL 6

The AstraZeneca Human Edge

Section E

Living Liquid

Topic: Cells

E1. Sketch a red blood cell and a white blood cell in the boxes below. What percentage of your blood is made up of each cell type?

Red Blood Cell

_____% of Human Blood

White Blood Cell

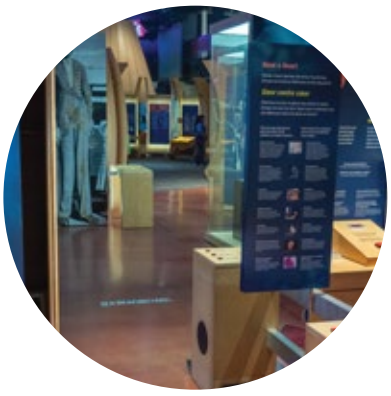
_____% of Human Blood

E2. A cell's nucleus contains DNA. Mature red blood cells do not have a nucleus. Can you guess how this would be helpful to the function of a red blood cell? Note: You won't find the answer in the exhibit. If you are unsure, ask a staff member or look it up online.

Section F

Have a Heart

Topic: Cells



Find the large mirror labelled Have a Heart. Work with a friend to observe both the average heart and the athlete's heart, then discuss your observations.

F1. Can you spot the differences between the average heart and the athlete's?

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Section F (cont.)

F2. Why do you think the athlete's heart is different?

Section G

Immunity Mirror

Topic: Human Health and Body Systems

G1. Stand on the marked area on the floor. Press the "Without Vaccine" button. What happens when a virus that you have not been vaccinated against enters your body? List two types of immune system cells that respond to a viral infection, and explain the roles they play.

G2. Press the "With Vaccine" button. What happens when a virus that you have been vaccinated against enters your body? How does this differ from the above scenario?

EXHIBIT EXPLORATION GUIDE

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LEVEL 6

Weston Family Innovation Centre

Section H

Warka Tower

Topic: Water Systems

H1. What is the purpose of this tower? How does the structure of the tower relate to its intended function? Use a sketch to explain your answer.

H2. Try pushing the red buttons on the diorama. What happens?

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