

let's talk 
science
partnership program

**Forest & Lake Ecosystems in
Ontario**

Agenda

let's talk 
science

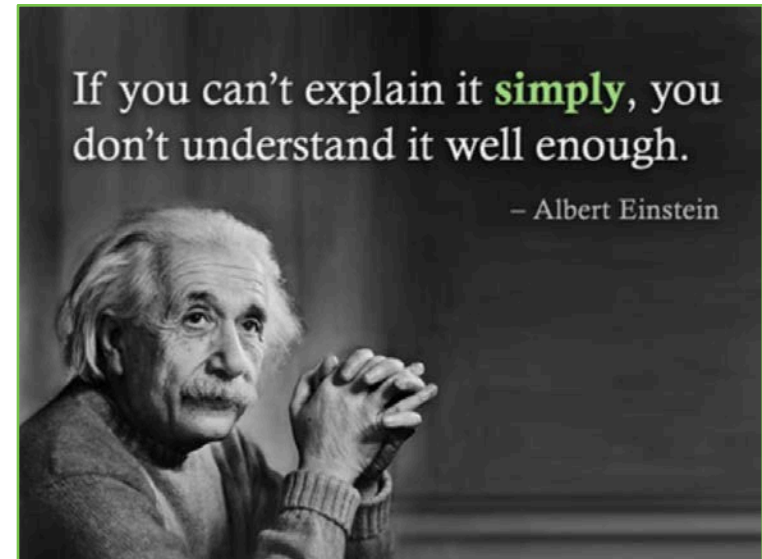
- Introduction
- Basic Needs of Life
- Life Web Activity
- Acid Rain!
- Acid Rain & Metals Demo
- Testing Rainwater
- Guilty or Innocent?



Introduction

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- What do scientists do?
- Where are they?
- What is a biologist?
Ecologist?
- How does this type of science affect you?



Basic Needs of Life

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- What do living things need to survive?



Basic Needs of Life

let's talk Science

- What do living things need to survive?

Oxygen



Food

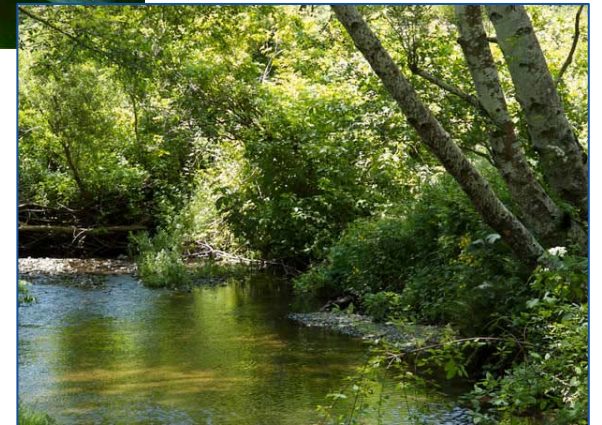
Habitat



Water



Shelter



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A Healthy Ecosystem...

- Needs **abiotic** and **biotic** factors.



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A Healthy Ecosystem...

- Needs **abiotic** and **biotic** factors.

- **Abiotic:** are non-living factors.

- Soil
- Air
- Water
- Nutrients



- **Biotic:** are living factors.

- Plants
- Animals
- Fungi
- Micro-organisms



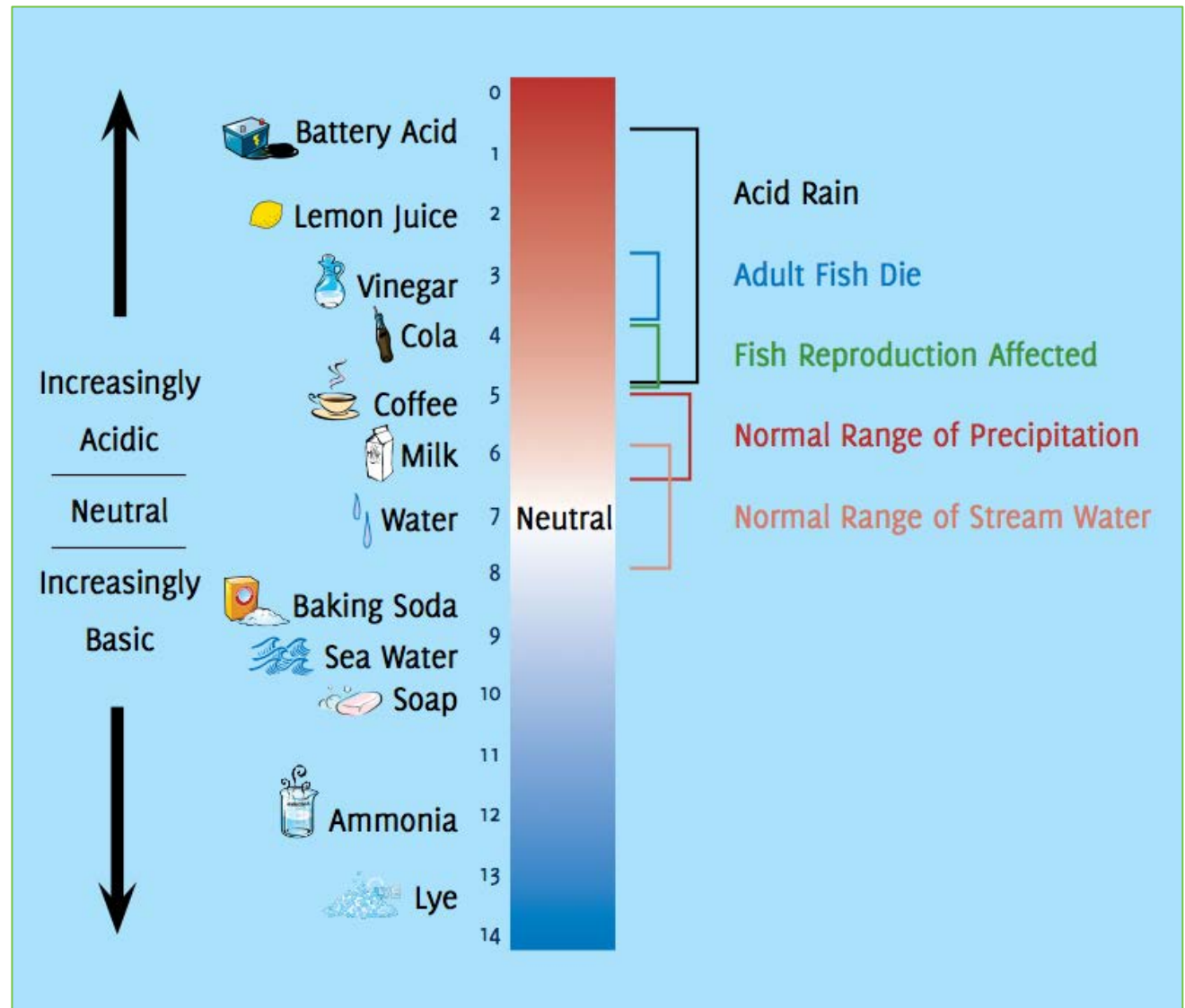
Life Web Activity

- Everyone gets a card from the LTS leaders.
- When you get it, hold onto the string and pass it to someone else whose card is related to yours.



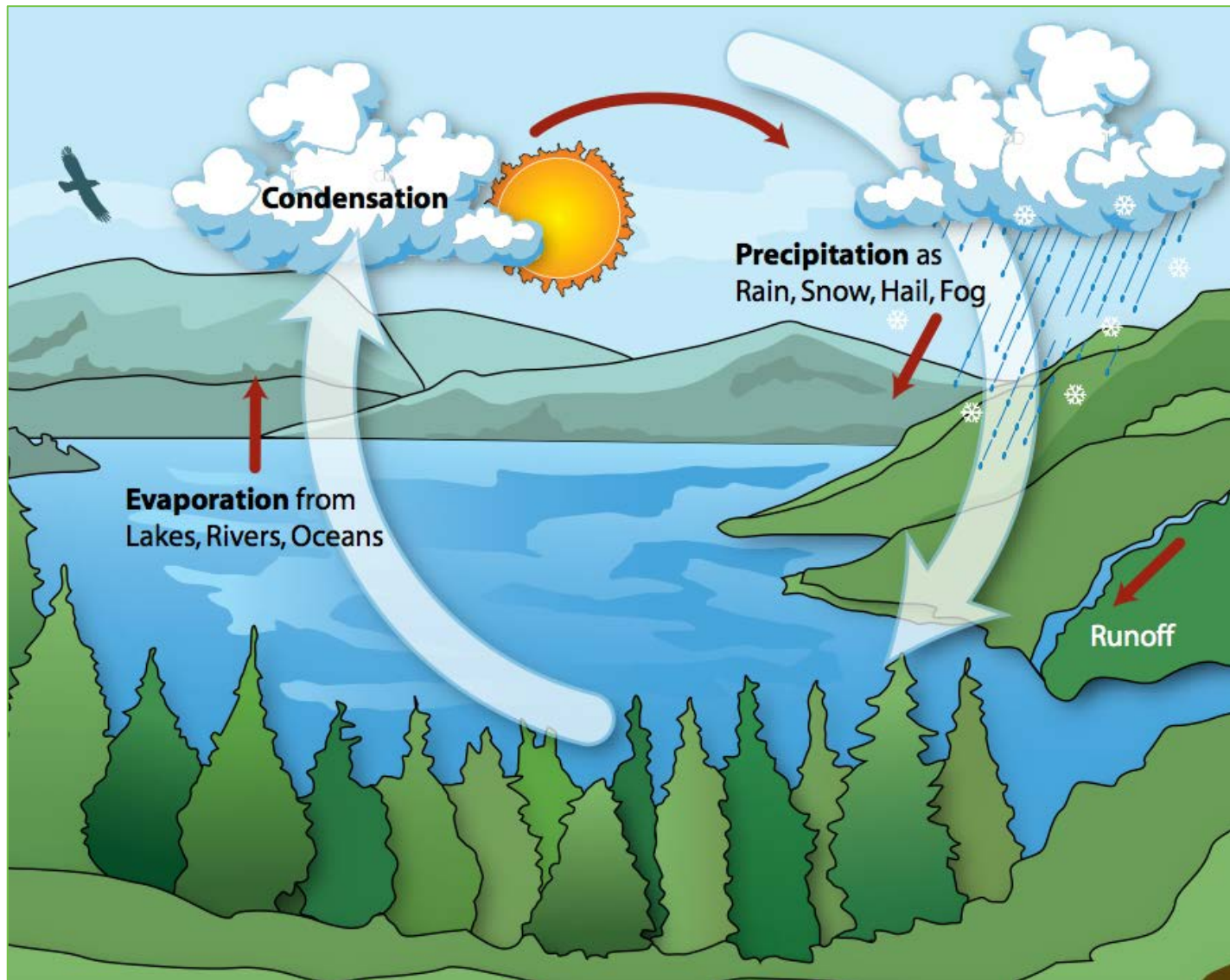
Acid Rain!

- ...is rain that is more acidic than it should be.
- **Acidic**
- **Basic**
- **Neutral**

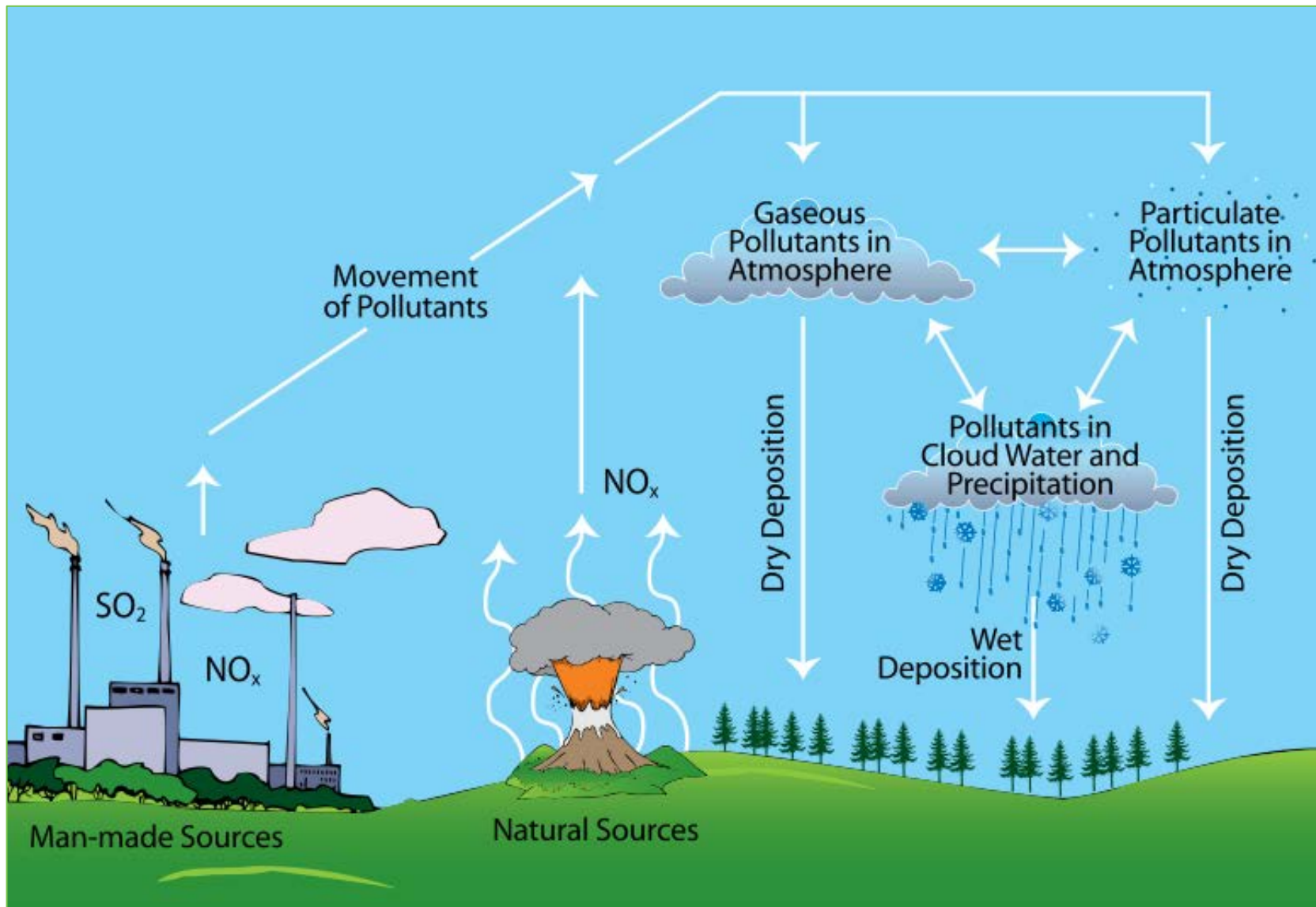


Hydrologic Cycle

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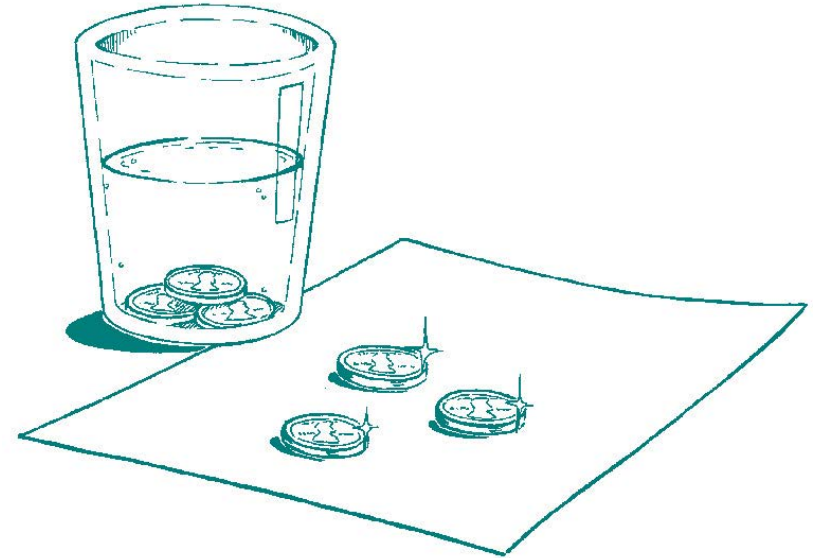


Acid Rain Sources



Acid Rain & Metals

- Penny Demo!
- Come up and see what a penny looks like after it has been sitting in vinegar for a few days...



Acid Rain & Metals

- Strong acids eat away at stone, metal, paint...












Acid Rain & Forests

- Damages plants, which are **primary producers!**
- Dissolves calcium in soil and leaves.
- Washes nutrients away!
- Aluminum release.
- Causes haze.



Acid Rain & Ponds, Lakes and Streams

	pH 6.5	pH 6.0	pH 5.5	pH 5.0	pH 4.5	pH 4.0
Trout 						
Bass 						
Perch 						
Frogs 						
Salamanders 						
Clams 						
Crayfish 						
Snails 						
Mayfly 						

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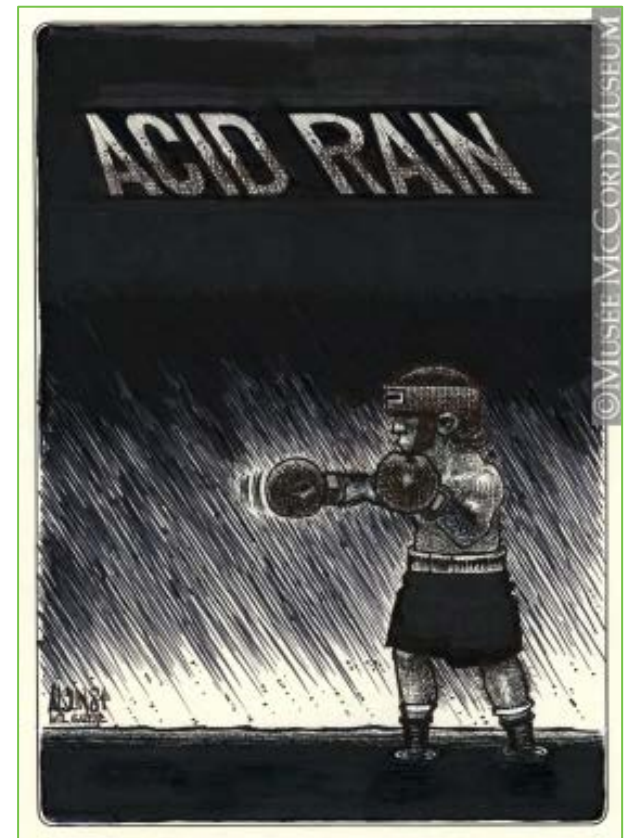
Testing Kingston Rain

- Find a partner or two!
- Grab a **pipette** and put some rainwater in a **beaker**.
- Dip the **litmus paper**, into your beaker of rainwater and determine the pH using the colour legend.



What Can Be Done...

- Capping & Monitoring.
- Alternative ways of producing energy.
- Conserve electricity.
 - ENERGY STAR®'s “Change a Light” program.
- Transportation.
- Turn down your thermostat!
- Recycle.



Relevant Fields

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- Marine Biology
- Fisheries
- Markets and Restaurants
- Lumber
- Parks: Ontario/Canada
- Tourism
- Recreational



Extras

- How well do you know your local forests and lakes?
- *Who did it?*
Mystery Game



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Thanks for having us!