Science Fair Logbook

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WCS gr.5

Entries:

December 14, 2024

Events:

- Decided on Topic / Carnivorous Plants
- Started to look further into Carnivorous Plants

December 19, 2024

Events:

- Started to collect lots of research, like what types of carnivorous plants and how they each catch their prey

- Decided on what types to put on trifold

December 23, 2024

Events:

- Researched Venus Flytraps
- Researched Pitcher Plants

December 29, 2024

Events:

- Finished Venus Flytraps research
- Added more information about pitcher plants
- Nearly done Pitcher Plants

January 1, 2025

Events:

- Started to work on Waterwheel Plants in Snap traps
- Finished Pitcher Plants in Pitfall Traps
- Started Cobra Lily in Pitfall Traps
- Started Bladderwort in Suction Traps

January 8, 2025

Events:

- Got halfway through Waterwheel Plants, Cobra Lilies, and Bladderwort
- Made actual powerpoint and started to fill it in

January 9, 2025

Events:

- Managed to finish Waterwheel and Bladderwort, nearly done Cobra Lily
- Filled in Waterwheel and Bladderwort information into the actual powerpoint

January 13, 2025

Events:

- Finished Cobra Lily
- Put it into the actual powerpoint
- Started Sundews and Butterworts

January 15, 2025

Events:

- Picked up trifold from office
- Had trouble carrying it to Anya’s car

January 16, 2025

Events:

- Midway through Sundews and Butterworts
- Started to work on the ‘How Can Carnivorous Plants be helpful?’ part

January 18, 2025

Events:

- Finished Sundews and Butterworts
- Put the information onto the actual powerpoint
- Done the plant research!
- Continued to work on the ‘How Can Carnivorous Plants be helpful?’ part

January 20, 2025

Events:

- Continued to work on the ‘How Can Carnivorous Plants be helpful?’ part
- Started to edit the actual powerpoint

January 22, 2025

Events:

- Nearly done the ‘How Can Carnivorous Plants be helpful?’ part
- Continued to edit the actual powerpoint

January 24, 2025

Events:

- Finished the ‘How Can Carnivorous Plants be helpful?’ part
- Put it on the actual powerpoint
- Edited the ‘How Can Carnivorous Plants be helpful?’ part

January 27, 2025

Events:

- Finished editing the powerpoint

January 29, 2025

Events:

- Began to work on the papers that was supposed to be on the trifold

January 30, 2025

Events:

- Taped on a few of the pages of the trifold papers
- Thought it was ugly
- Ripped of the papers
- Started again on a new document

February 2, 2025

Events:

- Went to the Nose Hill Library together
- Made a completely new document

February 3, 2025

Events:

- Got the document printed out in color
- Taped everything to the trifold
- Thought it looked okay
- Started to work on the logbook and fill out the forms

February 4, 2025

Events:

- Filled out the forms

February 5, 2025

Events:

- Brought trifold to school & Logbook to school

February 7, 2025

Events:

- Did school science fair

Planned Timeline:

- By November 15, 2024, decide on topic
- November 30, 2024, decide on what info to put on both trifold and powerpoint
- December 15, 2024, start to add info
- Start Powerpoint January 10, 2025
- Finish research on January 25, 2025
- Finish Powerpoint February 1, 2025 and start working on trifold
- Start Logbook February 1, 2025
- Finish Logbook February 3, 2025
- Finish Trifold on February 3, 2025

Ideas:

- Draw pictures of plants by ourselves
- Add how carnivorous plants can eat invasive species
- Add lots of visual stuff
- Add fun facts about carnivorous plants

Background Research:

Venus Flytraps:

- If swallowed, Venus Flytraps can cause negative effects on the body, such as vomiting and nausea.
- If a Venus Flytrap closes its mouth on something that triggers its hairs, it will first sense if it is moving. If it is not squirming around, the Venus Flytrap will spit the bug back out.
- Venus Flytraps eat many kinds of bugs, but they mainly eat ants.
- Venus Flytraps rarely trap their pollinators.
- Once it is Fall, they “sleep” by not doing anything!

Pitcher Plants

- Some Pitcher Plants are so big they can eat rats, mice, and even some frogs.
- Pitcher plants will use the nutrients from their prey to provide nitrogen and phosphorus.
- The Plant is also called the “Frog Britches” and the Huntsman's Cup.
- Some pitcher plants actually smell!
- Once their prey is inside the trap, they can’t escape due to the slippery walls and the downward pointing hairs.

Waterwheel Plants:

- Waterwheel Plants can have 5-9 long tentacles with traps stuck at the very end of the vines.
- Waterwheel plants float just below the water surface.
- Waterwheel Plants eat underwater mites and insects.
- Waterwheel plants can also eat small fish and tadpoles.
- The waterwheel plant is actually endangered in many countries, such as the UK and Germany.
- Waterwheel plants, in the right conditions, can actually double their size in 13 days!

Cobra Lilies:

- Cobra lilies are called Cobra lilies because they look very similar to cobras.
- Cobra lilies can live 2,000 meters above sea level!
- The cobra lily is also known as the Californian Pitcher Plant.
- Some cobra lilies can actually be poisonous and have negative effects depending on how much was swallowed.

Bladderworts

- Other names for the bladderwort include: The Canada puccoon, the Bloodwort, the Redroot, and the Red Puccoon.
- Bladderworts can suck in their prey in less than a millisecond!
- One single bladderwort plant can have hundreds of tiny sucking sacks.
- Bladderwort plants can actually be made into a tea which can be used to treat kidney or bladder infection.
- The juice of the Bladderwort can also be drunk because of its rich mineral content.

Sundews

- The reason why sundews are called sundews is because the nectar on the hairs of the sundew look like dewdrops.
- The nectar on sundews are as strong as glue!
- People eat dried sundew for various breathing problems, such as bronchitis, asthma, and whooping cough.
- Sundews can kill a trapped insect in 15 minutes, but it will take them a few weeks to digest.
- Sundews can cause mild skin irritation.

Butterwort:

- A long time ago, people thought that rubbing butterwort leaves against cows' udders would protect them from evil.
- Butterworts are pollinated by either long tongued bees or butterflies.
- Even though butterwort has been used to make a fermented milk dish in Norway, the plant hasn't actually been eaten itself.
- Butterworts mainly trap bugs with wide wing surfaces.
- The butterwort's generic name, Pinguicula, means fat or little greasy one. This is because of the buttery texture of the carnivorous leaves and how greasy they look.

How each type of plant works:

Snap Traps: Snap traps are plants with tiny little leaf jaws with trigger hairs that when touched, will immediately snap shut on their prey!

Pitfall Traps: Pitfall traps are plants with little jug-shaped traps filled with digestive enzymes. When a plant is lured by the sweet smell of nectar to the trap, the insect will fall in and get eaten by the digestive enzymes.

Suction Traps: Suction traps are underwater plants that have tiny hollow sacs called ‘bladders’. When a mite or insect swims up to the bladder and touches the trigger hairs, a small door will open on the bladder and a jet of water will wash the

bug in to digest with digestive enzymes.

Flypaper Traps: Flypaper traps are plants with leaves or vines that are covered with a sticky substance stronger than glue! When an insect lands on the plant, it will be stuck fast to the flypaper trap. Then, the plant will let out digestive enzymes to digest the insect.

Venus Flytrap Research:

Venus Flytraps are carnivorous plants that grow between 6-12 inches tall and 6-8 inches wide. Venus Flytraps look like green vines growing out of the soil. On each of these vines are leafy jaws that look like clams. These special snap traps can snap and eat their prey with their many jaws. They can grow in poor soil because the plant can absorb nutrients from the bugs and mites it eats. They actually prefer to grow in sandy areas that are acidic! Venus Flytraps can live up to 20 years in the wild. They have traps that look like jaws and can attract bugs with a red substance that makes them look like a flower, and its sweet, fruity smell. Once an insect comes and lands on the surface, they will touch the

trigger hairs located on the red part of the plant. Once these hairs are touched 2-3 times, these tiny bristles will signal to the plant to shut the trap. These traps can actually close in half a second! It is impossible for an insect to escape after the trap shuts because of its interlocking bristles that close the gap. After the trap closes, it will release digestive enzymes to digest it. Venus Flytraps will also eat ants, beetles, grasshoppers, flying insects, and spiders. In order to reproduce, they will grow small flowers on a tall stem that carry seeds.

Waterwheel Plant Research:

Waterwheel traps are carnivorous snap traps that prey on small underwater organisms! They eat insects such as mosquito larvae. They live in Europe, Asia, Africa, and Australia. Waterwheel plants grow underwater in lakes, rivers, swamps, ditches, wetlands, and other suitable places where there is soft, acidic waters with low nutrient levels. In the wild, Waterwheel plants will typically live up to 2-3 years. They will also typically grow up to 6 to 11 centimeters (2.4 to 4.3 inches). These plants are like spheres with stumpy vines sticking out of it, and on these vines they have little traps that are very similar to the traps on Venus Flytraps. When an underwater mite or insect swims past them,

they will brush against the trigger hairs on a waterwheel plant, which are located all around the traps. These special trigger hairs will signal to the plant to shut the trap. The trap will immediately shut, and the Waterwheel plant will let out digestive enzymes to digest its prey. These plants will reproduce by growing flowers above the water surface that carry seeds.

Pitcher Plant Research:

Pitcher plants are Pitfall traps that prey on insects and small animals. They live in Madagascar, Southeast Asia, Australia and a few other regions. Pitcher plants grow in bogs, swamps, wet meadows, and savannas with acidic, water-saturated soils. Wild Pitcher plants can live up to 50 years and over! These pitfall traps can also grow from 6 inches to 36 inches, depending on the variety. Pitcher plants can come in all kinds of colors, such as red, purple, white, green, yellow, and copper. Pitcher Plants look like ferns with broad leaves. Some leaves will taper to a small, thin stem, and a trap hangs from the stem. A pitcher plant's traps look like small pitchers, which is also where they get their name from. These

special vessel-shaped traps are filled with digestive liquids. The lip of the trap has sweet-smelling nectar on it, which attracts insects. When an insect comes to drink the sweet nectar, they will fall into the trap due to the slippery rim and drown in the digestive enzymes. After they fall in, the plant will digest and absorb nutrients from the bug. Some pitcher plants also have a leaf lid to put on the opening of the trap so the insect doesn't escape. Pitcher plants can reproduce through two different ways. The first way is that the pitcher plant will produce flowers that are pollinated by insects, and turn into seed pods. These seed pods will eventually release the seeds to grow into new pitcher plants. The second way is that a new plant will grow from the underground roots of the parent plant. This method produces genetically identical

offspring and allows the plant to spread in its habitat.

Cobra Lily Research:

Cobra lilies look and imitate a cobra in looks. Their body is shaped like a cobra and even has a small red “tongue”! Cobra lilies live in the northern mountains of California and the Oregon coast. You can find them in boggy areas or streambanks with cold waters fed from the mountains. Cobra Lilies will typically live up to several years in the wild, and they will grow from 6-24 inches tall. Cobra lilies will feast on insects and other small animals. These plants lure prey by its small nectar glands

embedded on its small red “tongue”. When an insect flies by, it will smell the sweet scent of nectar and fly straight onto the little red tongue. The insect will get confused where the nectar is and then it will walk up the red “tongue” and through a small opening just above the red “tongue” to find the nectar. Inside the trap, there are small translucent patches that represent windows. The true exit will then be concealed. Then, the bug will get confused and eventually it will slip and fall directly into the trap where it will get eaten. Strangely, Cobra lilies don’t have digestive enzymes. Instead, they rely on bacteria to break down its prey so that they can digest it. Cobra lilies will also grow flowers to attract pollinators to pollinate them, too. These flowers will produce seed pods for reproduction.

Bladderwort Research:

Bladderworts are suction traps that prey on underwater mites. They can be found in lakes, streams and waterlogged soil across various regions. Bladderwort plants can live up to several years in the wild and can grow up to 1-3 feet tall! Bladderwort plants look like innocent little flowers floating on the water until you look underwater. The plant has vines that have more vines on it, and these second vines have the traps also known as bladders. The bladders will have trigger hairs that will signal to the plant if touched to trap the insect. The bladders have tiny little “doors” so that if the plant signals to open its door, a fast stream of water will suck its prey in really fast! The

plant will then use enzymes or bacteria to break down and digest the bug. After 15-30 minutes, it will reopen and eat more bugs until it weakens and needs to be replaced. They can reproduce through parts of the parent plant such as the stem. Then, they will grow into new bladderwort plants. They can also produce seeds from the flowers. This allows the plant to quickly colonize the bodies of waters it lives in.

Sundew Research:

Sundews are carnivorous plants that prey on insects and small animals. They live in tropical climates, such as bogs, fens, swamps, marshes. They are mostly found in Australia. Sundews can actually live in

the wild for 50 years, and they can grow up to 10 inches (25 centimeters). Sundews have skinny leaves covered in hairs. On these hairs is a sticky substance that will stick and trap insects. When an insect flies by, they will brush one of the petals. After they touch it, the bug is now stuck. Not long after that, the plant will start to curl its tentacle-like leaf around its prey. Then, the plant will release digestive enzymes to eat the trapped bug. Sundews reproduce by parts that have fallen off like leaf cuttings. This allows it to live better in suitable environments.

Butterwort Research:

Butterworts are flypaper traps that prey on insects! They live in North America, Greenland, and Peru. Butterworts live in acidic areas that are wet all year round, moist rocks and in pockets of soil on limestone rocks. Butterworts can live up to several years and grow 1-18 inches in height, depending on the variety. Butterwort look like small, purple flowers with long stems. Protruding from the stem are several fat tentacles that look like starfish legs. Each of these tentacles are covered in a sticky substance used to trap their prey. Once a bug wanders onto a tentacle and gets stuck, the plant will release digestive enzymes to digest the bug. Butterwort plants can reproduce through two ways. The first way is that they will produce seed pods through flowers. The seed pods will then develop into new butterwort plants. The second way is by losing their

carnivorous leaves and growing non-carnivorous leaves in their place. When these non-carnivorous leaves are placed in soil, they will grow into new butterwort plants.

How Carnivorous Plants are helpful:

First Problem: There are many house pests, such as flies and mosquitoes. Many carnivorous plants, such as Venus Flytraps, can eat these house pests.

Second Problem: There are many different invasive species in many different habitats. Carnivorous Plants can help balance out the ecosystem by eating these Invasive

bugs.

Third Problem: Insects and other small animals destroy crops, which could damage global economics, which wouldn't be good. Carnivorous plants can eat these insects and small rodents that damage crops.

List of Topics That Interest Us:

- **Carnivorous Plants**

  Question: How are Carnivorous Plants helpful to the ecosystem?
  Purpose: Find a use for carnivorous plants and help the world

- **Germ Development**

Question: How many germs build up

when food is on the floor for separate periods of time? Purpose: See how fast germs develop to be safe when eating

- **Re-growing Limbs**

Question: How do animals regrow limbs? Purpose: To help future scientists study the science behind regrowing limbs and for future stuff about humans

- **Taste**

Question: How does Taste affect us? Purpose: See how taste affects what we think of something, etc

- **Best design of airplane to fly better**

Question: What is the best design of an airplane to make it fly better? Purpose:

To improve airplanes

- **Music played to food**

Question: Does Music affect how food tastes? Purpose: to make food taste better

- **Food dropped on the floor**

Question: How many germs develop on a piece of food when you drop it on the ground for certain periods of time? Purpose: Know how many seconds food should be on the ground for it to be still edible

- **Recycling Plastic**

Question: How can we recycle plastic in an eco-friendly and sustainable way? Purpose: to help with landfills and global warming

- **Rain Evaporation**

Question: How fast does rain evaporate in different light levels? Purpose: Help with humidity

Why We Chose Carnivorous Plants As Our Topic:

We have a Venus Flytrap and Pitcher Plant at home. We thought it would be interesting to look deeper into the topic of Carnivorous Plants and how they are beneficial.

Citations:

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