Jan 17 2026

Science Fair

Topics:

- Mini car powered by natural electrolytes
- Salt on soil makes soil less healthy over time
- Mushroom and milkweed can clean up oil spills ✓
- Microplastics in laundry detergent
- Does darker soil make a diffrence

Jan 21 2026

~~Topic~~: We have to talk to Sra. Fenske and see which idea she thinks is most likely to go to the science fair?

Does the material + detergent make cloths release more or less microplastics?

Sra. Fensk write here

Mushrooms & milkweed can clean up oil spills. ♡

Topics: Phone cases releasing microplastic

If you wash plastic tuperware does it release micro plastics into the water.

jan 22 2026

Week ★ 2 ★

Narrow our topic:
A good project should have a focussed question.

Designing a good topic:

- List a few questions ☑
- Can you measure something to help answere one of the questions ☑

Is your question a yes or no question?
If yes use these questions to help expand.

Questions

How does ___ affect ___?
How does ___ compare to ___?
How does ___ determine ___?
Under what conditions does ___ cause ___?

Voting....!

1. Mini car powered by natural electrolytes.
2. Salt on soil makes soil less healthy.
3. Can mushrooms & milkweed clean up oil spills?
4. Do different laundry detergent's make cloths release micro plastics.
5. Does darker soil make a difference?
6. If you touch a plastic phone case does it releas microplastics?
7. If you wash plastic tupperware does it release micro plastics?

1.
2.
3.
4.
5.
6.
7.

Sra. Fenske Harlin Gala's Mom Blake Sawyer's dad

Sra. Styles

Jan 23 2026

☆Making the Question!☆

Topic: Can mushrooms & Milkweed clean up oil spills?

How does using mushroom versus using milkweed affect cleaning oil spills?

How does using mushrooms compare to using Milkweed when cleaning oil spills?

Under what conditions does mushroom and milkweed cause oil to be absorbed? ✓

What does milkweed and mushrooms contain that could possibly absorb oil?

Why did we choose this project?

We chose this project because, we wanted to find an eco-friendly alternative to using toxic materials and/or unhealthy and unnatural materials to clean oil spills; so we can ~~keep~~ make our oceans a tiny bit cleaner, and eventually 100% oil free.

Jan 26 2026

How does the environment affect the ability of mushroom and milkweed fibers cause oil to be absorbed.

Why? Oil is harmful to ecosystems. Some plants and mushrooms can absorb oil. (I looked this up and it's called bioremedation!!)

Variable (ideas)

Indipendant variables
- ~~WATER temperature (cold, room temp, warm)~~
- Saltwater (we could get from a fish place..?) vs. ☆ freshwater ✓
- ~~oil type (vegetable vs. motor oil)~~
- Time (5min vs. 15 min vs. 30 min) ☆! ✓
Put more ideas ≥

Dependant Variable
Amount of oil absorbed...? ✓

Controlled Variable
- Same amount of oil ✓
- Same amount of mushroom + milkweed ✓
- Same container —

- Same way of measuring

☆ Materials ☆

First up which mushrooms are the best for absorbing oil?

Oyster mushrooms (read here)

What is mycoremediation? (And more about Oyster mushrooms)

"Mycoremediation is the process of using mushrooms to remediate damaged and contaminated landscapes. There are a few notable species that are very good at this. For example Oyster mushrooms are great at breaking down hydrocarbons (oil, gas, diesel), This↗ is exactly what we need.

I got this information on Heartwoodmushrooms.ca

We can learn a ton about our project (mushrooms) on here.

What do oyster mushrooms have ~~to~~ that could clean oil?

Oyster mushrooms can release enzymes that break down oil.

Enzymes: A ~~protein~~ specialized protein produced by living cells that speed up chemical reactions.

Pronoused: En-zy-~~mes~~ m's

*What does milk weed contain to absorb oil?

Milkweed seed's have little hollow hairs that could act as straws to suck up the oil.

But were do we find these materials?

Mushrooms:

- Instacart
- Grocery stores

Milkweed:

- Local greenhouse, nurseries
- Grocery stores (would be hard to find milkweed)

01/27/26

What is used to clean oil spills?

- Booms: Floating barriers to contain spreading of oil on water's surface. ~~Machines work like~~
- Skimmers: Sent out to remove oil from waters surface, they work like vaccumes sucking oil but not water
- Sorbents: Absorb oil ~~water~~ but not water
- Biormediation: ~~Micron~~ Microorganisms breaking down oil into less harmful substanse...

e.t.c...

(## Most of these are machenes)

☆ Possible question: Does using milkweed and mushrooms in different orders change how much oil is removed from water?

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01/28/26

How many oil spills are there in ~~the~~ one year?

Answere:
Worldwide: In 2025, there were 6 recorded oil spills from tankers world wide involving more than 7 tonnes of oil. This included 3 large spills (over 700 tonnes) and 3 medium spills (7-700 tonnes)

How does oil spills affect marene life?

Answere: Oil spills can harm marene life by physically coating animals, destroying insulation, (leading to hypotheria in birds/mammals) and making movement and flight harder. Toxic parts can cause internal organ damage, and even death through ingestion or inhalation, affecting everything from plankton and fish to seabirds and whales. Destroying coastal habitats like marshes and kelp beds. Younger life stages (eggs, larvae) and species that dwell on the surface are often most vulnerable, with long-term impacts disrupting entire food webs.

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Questions:

- How does using mushroom compare to using milkweed to clean oil?
- How does using both materials seperatly compare to using them together?

Does using mushroom and milkweed in different orders effect the oil in different ways?

- How does using these natural materials compare to sponges and paper towel?

~~what can oil do~~

What does oil do to mushroom and milk weed?

- How much oil can one mushroom or milkweed seed hold? And how much would it take to clean 100 gallons?

If

1. You must identify your INDIPENDANT variable. This is the thing that you change.

2. Dependant variable is what we measure.

3. Controlled variable is what always stays the same.

☆Week 3☆

02/03/26

Questions for the proposal. ☆♡

1. What is your project question?

2. Purpose:

The current methods of cleaning oil spills have been known to cause significant damage and effects on enviorment, while the intention to reduce damage caused by oil the clean up techniques can introduce there own toxicity and even destroy habitats, we belive that using mushroom and milkweed could introduce new techniques ~~to clean~~ that dont cause as much harm to the enviorment it's trying to help.

3. Summary
We are going to create a eco-friendly

1. Purpose/Question

The purpose of this project is to find out if mushrooms and milkweed can help clean up oil spills.(in water)

Question:
Can mushrooms and milkweed absorb or break down oil, and can they be used to help clean large oil spills?

2 Background research.
Oil spills are very harmful to oceans, lakes, rivers and animals. + what we already wrote.

3. We wish to create an eco friendly raft that is able to: float, clean up oil, and yet, not cause any more problems for the ocean it's trying to help. We believe that using mushrooms (oyster) and milkweed as the main components that will absorb oil, will help us Do it.

4. We want to conduct this experiment because we ~~Believe~~ know that oil spills are a big problem in todays world. Fungi is already used to clean large ~~Scale~~ scale oil spills, but we wish to create a new method using mushrooms and milkweed

fibers in an eco friendly clean up device.

5. What do you hope to learn about?

~~I~~ We hope to learn about enviormental sciences ~~and~~ and understand there causes, consequences and if we can create a better tool that ~~just as eo~~ cleans up the same amount of oil but doesnt harm the enviorment.

6. Real world aplication; + 7. Why should The CYSF consider our project.

The current methods of cleaning oil spills cause additional harm to the environment; while they clean the oil, they can release ~~chech chemical dispersants~~ toxicity. Some of the methods include using chemical dispersants which break oil into small droplets and use waves to force it out. But the chemicals can leave residue in the ocean. We want to create a floating oil cleanup device, based off the following devices:
sorbent booms • absorbent pods • Oleo spunges.
But we wish to make it non-harmful to the environment

Variables 2/6/26

Independent:

- ~~Water~~ temperature
- ~~Time~~ Time ✓
- Amount of oil spread

Dependent:

- Amount of oil absorbed ✓

Controlled:

- Amount of mushrooms and milk weed
- Amount of cocoa powder
- Amount of oil
- Amount of salt
- Container size

Hypothesis:

~~Sawyer: My prediction is that~~

09/02/26

Research question ideas:

- Why could oyster mushrooms soak up oil? ☑
- Why could milkweed clean oil? ☑
- How much mushrooms + milkweed would it take to clean 1 leter of oil / how much oil can 1 mushroom or 1 peice of floss absorb?
- Were are oil spills most common?
- How do the current methods of oil cleaning
- Does the shape of the structure effect the amount of oil absorbed? How does the oil absorption capacity of an oyster-mushroom and milkweed fibers compare to the absorption of a household sponge.

Absorption Comparison

Decomposition / Bioremediation focus -> Do oyster mushrooms & milkweed fibers help decompose absorbed oil more effectively over time than sponges or solidifiers?

Absorption rate

Retention / Drip loss

Material properties

Durability

How does water temperature affect the oil absorption of each material?

How does the type of oil influence the absorption capacity?

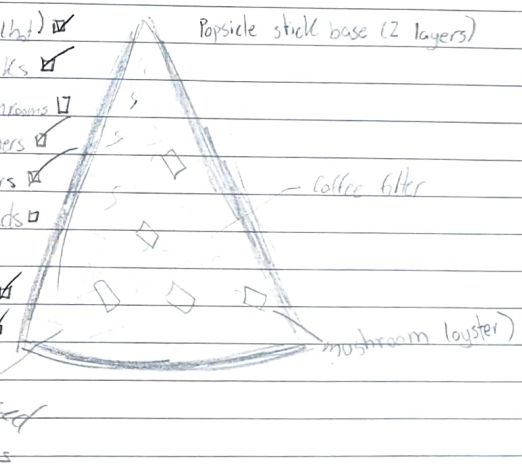
11/02/26

Week 4

Experimental design ☆

Materials

- Hot glue gun ☑
- Glue stick (hot) ☑
- Popsicle sticks ☑
- Oyster Mushrooms ☑
- Milkweed Fibers ☑
- Coffee Filters ☑
- Sorbent Pads ☐
- Sponges ☐
- Saltwater ☑
- Freshwater ☑



Note: research about eco friendly and/or non-harmful to the environment, material that can float.*

Research if mushrooms absorb more when cut or full

MATERIALS:

- [x] Popsicle sticks
- [ ] Oyster mushrooms
- [x] Milkweed floss
- [x] Hot glue
- [x] Coffee filter
- [x] Salt (something to float)
- [x] Hot glue sticks
- [ ] Sorbent pads
- [ ] Sponges
- [x] Saltwater
- [x] Freshwater
- [x] Vegetable oil
- [x] Cocoa Powder

~~Hot Glue Gun~~

~~Hot Glue Fillers~~

- [ ] Corks

For Eco-Glue:

- [x] Vinegar
- [ ] Gelatin powder

- [x] Hot Glue
- [x] Hot Glue Fillers

Hypothesis

Feb 15th 2026

Our hypothesis is that we will be able to create an eco friendly device to clean up oil, but we think that each mushroom ~~cut~~ and each 1 inch of milkweed floss will only be able to absorb a small amount. We think that if people use it to clean oil spills they will need large amounts of each material. We ~~don't~~ think that bioremediation will take place and hopefully decompose of the oil that was absorbed by both the milkweed floss and oyster mushrooms. We think that our eco-raft will absorb/decompose more oil in salt water, because of salt water's density, because it will keep the oil on the surface and therefor make it easier to clean up.

Our hypothesis is that the sponges will work the worst because it absorbs oil ~~and~~ water, therefor it will get full faster. It is also the most basic ~~out~~ and is meant to clean up household spills. We think the sorbent pads will work best because they have been ~~modified~~ modified to specifically clean oil because of there effective filtering and hydrophobic and lipophilic properties. We think that

our device will take the longest to absorb most effective at decomposing the oil instead of just desposing of it aswell as being most eco-freindly of all the materials we are testing.

Resorses and Credit

Feb 16 + (2024)

Websites/Videos:

Make your own all natural glue - glass, paper, fabric, ceramic, wood - It sticks it all! (MissusWhoDoesStuff)
fungi.com/blogs/articals/the-petroleum-problem?
What is bioremediation? (Microbiology Society)
Oyster Mushroom - Mycoremeditation (Enchanted Nature tours)

Books: 100 things about saving the planet. (# Page 16)

People:
Sra. Fenske, Harlyn Smith (classmate), Jill Scott (parent), Blake Pavicic (classmate), Sra. Styles, Greg Marshall (parent), Erin Marshall (parent), Kathleen,

Feb 16 2026

Planned Procedure

#1. We will build ~~three~~ two bases; three popsicle stick in the shape of a triangle, held together by Glue. In one it will be held together by gelatin and vinegar glue, and the other by hot glue.

#2. We will then glue three corks (one for each popsicle stick, to act as a flotation device.

#3. After creating the base we will glue a coffee filter as a place to rest the mushrooms and milkweed.

#4. Then we plan to glue whole oyster mushrooms on the coffee filter and make tiney holes to place the milkweed fibers inside.

#5. After we will fill ~~two~~ 6 medium sized containers with water; 3 with fresh water and 3 with salt water, 2 for each device we are testing. We will add salt to make saltwater.

Feb 16 2026

#6. After we will ~~create~~ take the vegetable oil and mix it with cocoa powder to create our oil. We chose this because the vegetable oil acts as the oil, and the cocoa powder makes it denser, more visible and darker.

~~#7~~ *#1 (the actual first step; Creating the eco-friendly oil)*

#7. If the containers are 100ml we would add 20-30ml of oil to the top. (or more depending on the size of the tuppenware.

#8. Put the devices (sponge, sorbent pads, *Sea Sweep) in the salt water first and see how long it takes to absorb the oil and/or compare: 15 mins, 1 hour, 1 week. (We will put on ~~a stop clock~~ a timer, and take photos at every time mark.)

#9. We will compare all of the data.

Our eco-device

Bioremediation:

"Bioremediation is the process of using microorganisms to remove or degrade pollutants from the ~~enviorm~~ environment."

-Microbiology society

~~Myco~~ Mycormediation:

"The fungi absorbs the oil, so the fungi is producing enzymes peroxidases that break carbon hydrogen bonds, these are the same bonds that hold hydrogen carbons together."

-Enchanted Nature Tours

☆Hypothesis☆

Our hypothesis is that out of all the three objects we are testing, sponges will work the worst because ~~there~~ it was made to clean house hold messes and to scrub more then absorb, we think the ~~sorbent~~ pads will absorb quickest, but they are ment to be thrown out after use there for it is not eco-freindly we believe our device will take longest to absorb but it will be able to use mycormediation and decompose the oil.

P.S. We believe that all the devices will work better in salt water, because the salt makes oil float and therefor easier to absorb from the surface

University of Calgary Students.

~~Kathleen~~, Spencer, Kathy

Kathy: Biology and plants. Specificialy honeybee evolution. Prefers mondays, also an hour ahead. Can make wednesday work also. Works in Saskatchewan.
Spencer: Doctoral research. Specifically gut bacteria research, emune cell development. Reduce ~~desease~~ influence.
Better to work on wednesday. Can make mondays work if nessesary.

Asigned to us: ~~Kathy~~ Kathleen

Schedule: Meet at 12:00pm on mondays. Friday is a day for questions + extra work.

Experiment (*Feb. 22-29)

* Main start for the expiriment, could last 1 week *
* Remember to take photos!!

- 1,100 ml of water
- 2.5 tbl spoons of sea sat

- We started by labeling all the containers by the device (sponge, sorbent pads, sea-sweep) and the type of water.

- We then poted 1,100 ml of water in the 2,200 ml containers. we researched the ratio of salt to sea water if the ocean were 1,100 ml and the answere was 2.5 tbl spoon of sea salt (roughly 3.5% of the ocean).
- we poted salt into 3 of the containers, labled sea salt and stired.

- Next we let the sea salt rest and disolve.

- After we began to mix the oil and cocoa powder.

- We mixed two teaspoons of canola oil and 1/4 teaspoon of cocoa powder per tupperware.

- Once we poored the oil into the water, the droplets appeared dark brown but then began to expand.

Next we put the sponges and sorbent pads in, this is what happened:

Devices	oil amount 15 mins	oil amount 1 hour	1 week
1 Sponges + Saltwater			
2 Sponges + Freshwater			
3 Sorbent Pads + Saltwater			
4 Sorbent Pads + Freshwater			

1. Worked well but soaked up water aswill And made rest of water murky and left drop's on top

2. The sponges in fresh water didn't absorb a lot of oil and left oil all over the top of the water.

3. The sorbent pads and salt water absorbed most of the oil but left tiny drops.

4. The sorbent pads and freshwater absorbed the top of the oil spill but the majority sunk to the bottom.

- Now we rinsed the four containers and re added the saltwater and freshwater.

- ~~For~~ Now we will fill the containers with a bit of oil.

- ~~For th~~ Now, that we will leave the devices for 1 week, we added 6 teaspoons of canola oil and 2 1/4 teaspoons of cocoa powder, so that we can see ~~if~~ if the devices can clean more oil, if given more time.

SeaSweep (15 min, 1 hour, 1 week)

- We started by ~~to~~ creating seaSweep by Making a base out of three popsicle sticks We then hotglued one coffee filter to the base, After we glued another 3 popsicle sticks on to secure the coffe filters in place.

* Research

Mycelium: Mycelium can be the fuzzy, white, green or black mass growing on moldy food, blue cheese or salumi, but in the wild it's a network of thin fungal strands called hyphae. Mycelium has a similar function in the roots of plants.

key.org/read-and-watch/fung-hidden-dimension

Set backs: In the beggining we were planning on making natural glue instead of hot glue, but we were worried that the glue might dissolve if we left it in water for a week, ~~so we~~ yet we don't want to use hot glue; so we settled on: we make the base stick with hot glue, and stick the plants on with the natural glue.

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Seasweep Part 2

- Next we glued three corks to the bottom for floating

- We then made our natural glue out of gelitan powder and apple cidre vinger

- Then we used our home made glue to glue the milkweed to the bottom of the device.

- After we cut of chunks of the mycelium and glued it to the corners of the bottom.

- We then tested it in the fresh water and salt water

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Part 2 (second round)

Experiment #1 15 min salt + fresh.

Device + Fresh: Before: 0.90oz After: 1.06oz
Device + Salt: Before: 0.88oz After: 1.16 oz
Sponge + Fresh: Before: 0.14oz After: 0.
Sponge + Salt: Before: 0.14 oz After: 0.
Sorbent Pads + Fresh: Before: 0.25oz After: 0.80oz
Sorbent Pads + Salt: Before: 0.25 oz After: 0.90 oz

Experiment #2 1 hour salt + fresh.

Device + Fresh: Before 0.89 oz After: 1.11 oz
Device + Salt: Before: 0.90 oz After: 1.21 oz
Sponge + Fresh: Before: 0.14 oz After: 0.35 oz
Sponge + Salt: Before: 0.14 oz After: 0.42 oz
Sorbent pads + fresh: Before: 0.25 oz After: 0.75 oz
Sorbent pads + salt: Before: 0.25 oz After: 0.78 oz

Experiment #3 1 week salt + fresh

Device + Fresh: Before: 0.89 oz After: 2.28 oz
Device + Salt: Before: 0.97 oz After: 2.32 oz
Sponge + Fresh: Before: 0.14 oz After: 1.26 oz
Sponge + Salt: Before: 0.14 oz After: 1.29 oz
Sorbent pads + Fresh: Before: 0.50 oz After: 1.72 oz
Sorbent pads + Salt: Before: 0.50 oz After: 1.71 oz

Experiment #4 All oil:

Device: Before: 0.90 oz After: 1.45 oz
Sorbent Pads: Before: 0.50 oz After: 3.63 oz
Sponges: Before: 0.14 oz After: 1.09 oz
Milkweed Fibers: Before: 0.02 oz After: 2.22 oz
Mycelium: Before 0.43 oz After: 3.25 oz

Observation's

~~Result~~'s Week long:

Sponge's:

Salt water: brown water, tiney bubbles, tiney chunks of cocoa powder
Weight: 1.34 oz

Fresh water: Water turned brown, small glass like bubble surfaced on top, chunks of cocoa powder spread around container
Weight: 1.2 oz

Sea sweep:

Fresh water: Created paper-like substance on top, fell apart (not completly), grew green mold, brown water
Weight:

Salt water: Created paper-like substance on top, brown water, grew black mold
Weight: 2.37