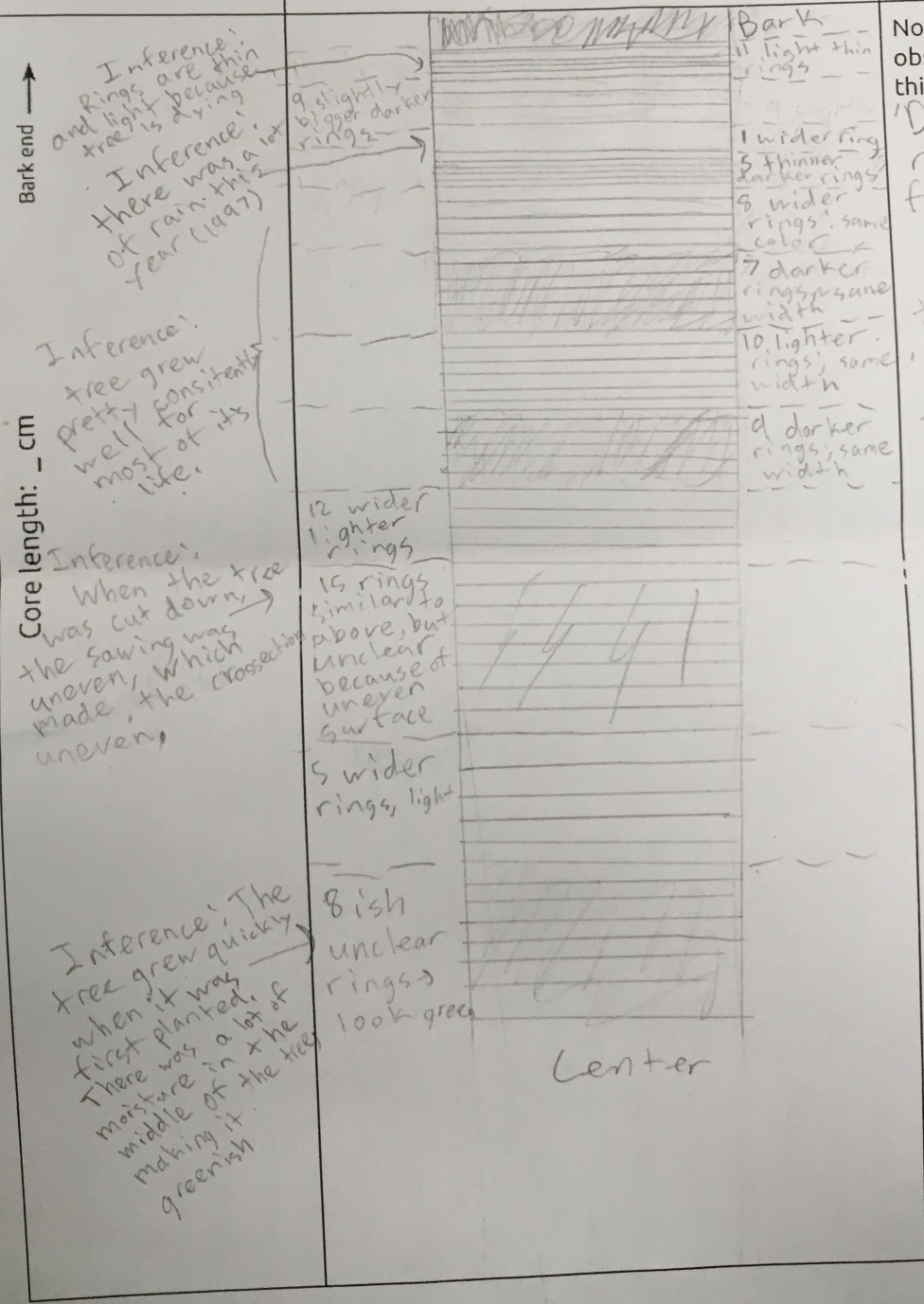
college ruled

composition

Daria Plotz Lab
Notebook 8th Grade
2017/2018

Tree Core Observations Sheet

Your Name: Daria	Location: Heath School	Species of Tree: Oak (trunk)
Collection Date: June 26th 2017	Latitude and Longitude: 42.3279155 N, -71.1479731 W	
Photo of Core:	Drawing of Core:	Estimate of Tree Age: 1900



Notes and other observations about this tree:

- Different ring counts from different points on trunk
- looks like 2 trunks
- surface uneven because of sawing

B) A tree has 5 main parts: the outer bark, which protects the tree; the inner bark (phloem), which moves food through the tree; the cambium, which is the part of the tree that is alive and growing; the sapwood (xylem), which moves water around the tree; and the heartwood, which is the dead, strong core of the tree.
Trees grow from the spring until the end of the summer. If a tree is infested with insects, doesn´t get enough water, is shaded by another tree or some buildings, or was burned by a fire for a growing season, then the ring of growth for that year would be narrow while if a tree gets all the resources it needs in a growing season, then it will grow wide rings for a year. The type of tree also affects the rate of growth; short-lived trees like willows will grow faster than long-living trees like oaks. The shape of the ring can be affected by wind expose and branches on the tree as well.

C) See entry titled ¨Tree Core Observations Sheet¨ for drawing and inferences.
Story: This tree started growing in 1917, and the tree had pretty consistent access to the sunlight and water it needed while it had accelerated growth of a sapling for its first 13 years of life, as well as for the rest of the 40 year period from 1917-1957. Then, in 1957, another tree was planted next to this tree that started to take away water from the tree. The tree was able to manage the lack of water and grew pretty consistently, if a little less per year, for the next 36 years until 1991. For the next 5 years, until 1996, there was a bug infestation, which limited the tree's growth. Luckily, in 1996, the bugs were treated, so that, along with a lot of rain, contributed to a good year of growth in 1997. The rain went back to its normal amounts for the next 9 years, until 2006, so the growth was reasonable, but not great. Then, in 2006, the tree got a disease, and it started dying, contributing to very thin rings. It was finally cut down 11 years later, in 2017.

My Photo Log for Hillside Pond Investigation

9/27

Album Title: "Hillside Pond Investigation"

Time:	Location:	What/Why:
10:06	A	To show what we are try to draw (plot) on Ava's phone
11:05-11:07	A	series to see plot so we can later identify the plants
11:14	A	Show sticks and leaves at base of pond (3)
12:11	A	Erosion for sediment core above pond (2)
12:11	A	Stuff around pond
11:08	A	5 photos to show bark of big tree
11:08	A	Leaves of one of split small trees
11:08	A	Tree base of one of small split trees
11:08	A	Trunk of three small trees (2)
11:08	A	Tree and leaves of small tree
11:08	A	Base of tree with broken base
11:08-09	A	Ground cover of leaves (4)
11:09	A	Cluster of skinny trees with some leafy plant (3)
11:09	A	Branch of tree not in quad over gro

Location Coordinates:

A (Our plot: 42° 13' 4" N 71° 5' 6" W

Field Trip Notes 9/28

Plot Coordinates: 42° 13' 4" N 71° 5' 6" W
Weather Conditions:
- Time: 9:47am
- Date: 9/28
- Temp: 75°F
- Humidity: 62%
- Precipitation: None
- Nice, with a slight breeze

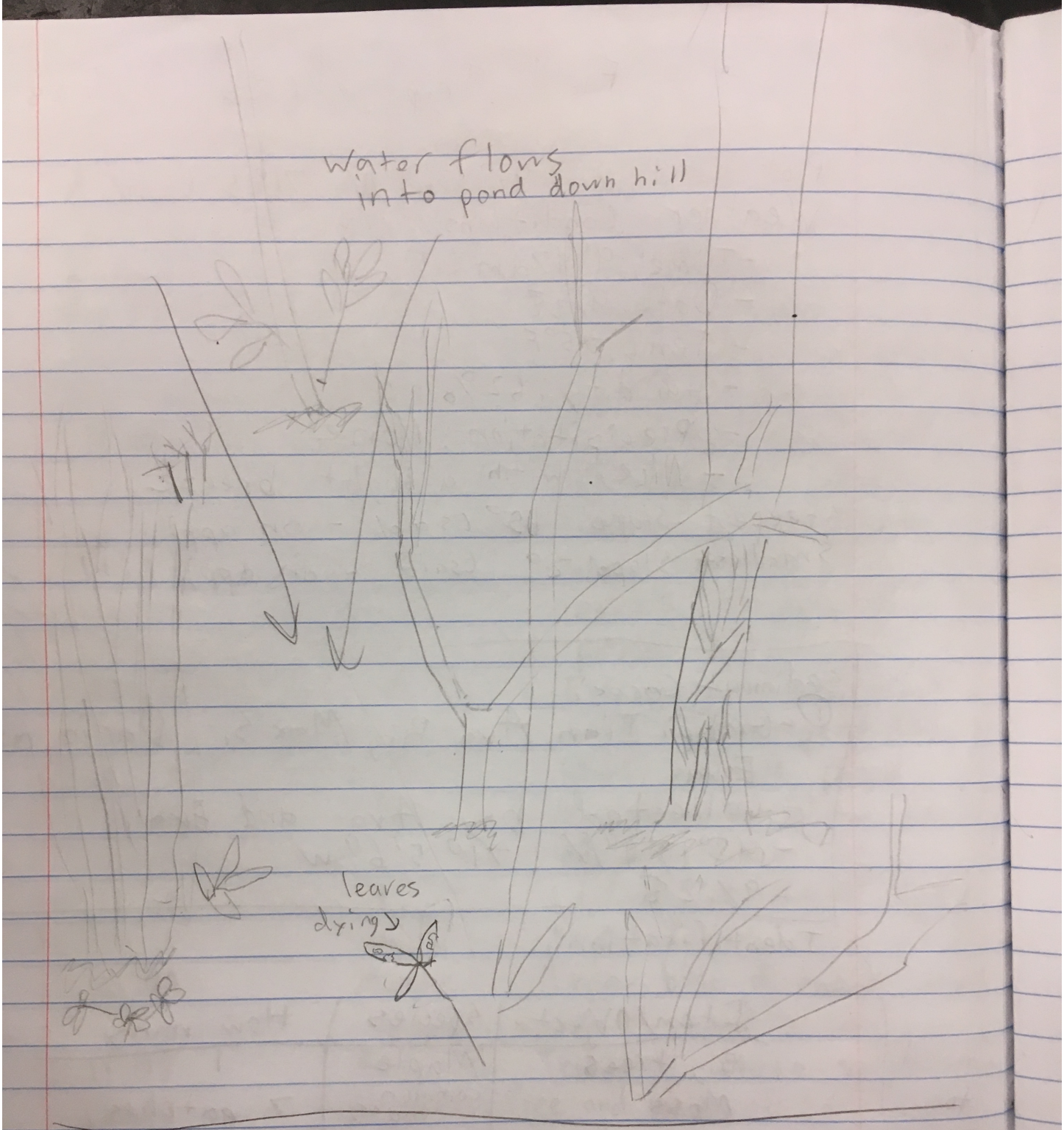
steepest slope: 15° (said - on app)
smallest slope: 2° (said - on app)

Sediment Cores:
① - Group: Tian, Ava R., Max S., Daria and Eva
- Collected by Ava and Eva
- 42° 13' 4" N 71° 5' 6" W
- 9/28

Identification:

Item/Object	Species	How many
Big trees	Maple	1
Moss	common moss	7 patches
Frogs		2
Vines	Maybe hawthorn	3 big bushes
small trees	Elms?	5

need to organize



Observations:

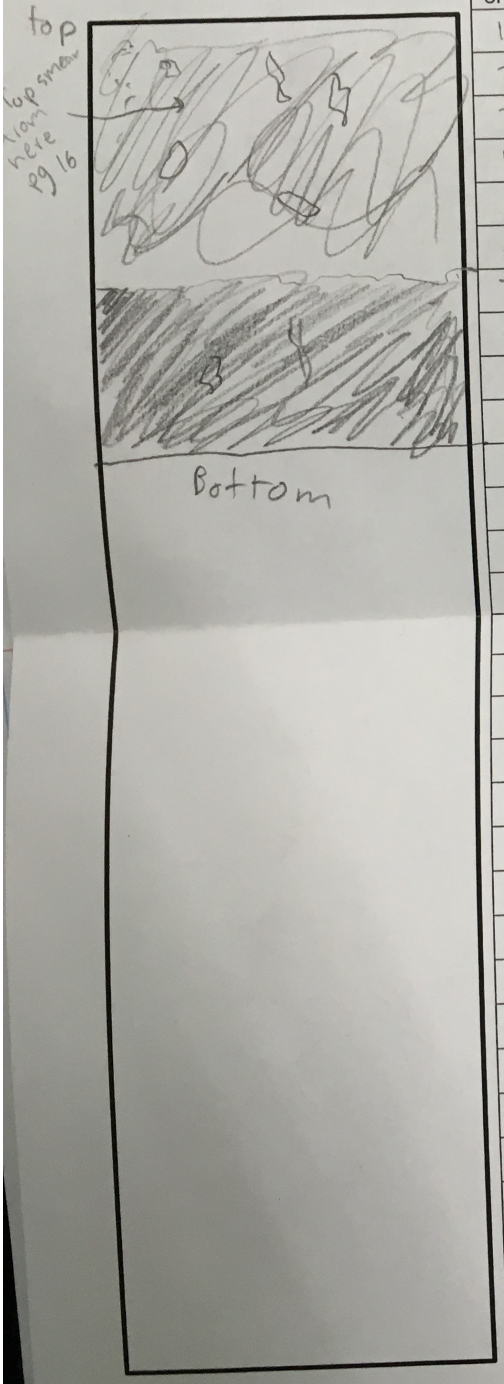
- Ground covered with dead leaves, moss, and sticks, along with dirt
- Ground squishy near pond
- No flowers, pretty shady ing
- Lots of tall skiny trees + 1 bigger one

Biodiversity Census

10/3

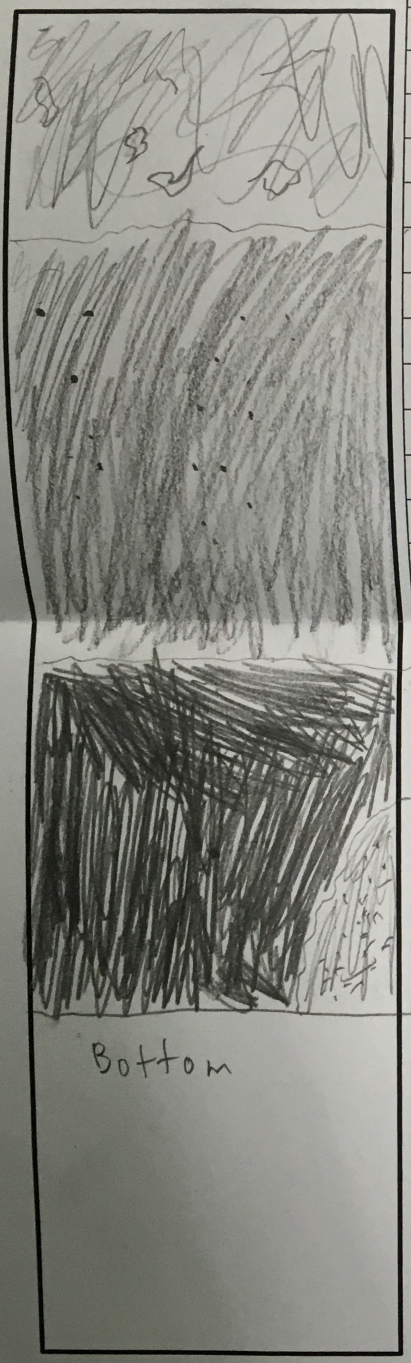
- 6 trees (5 thin, 1 larger)
- 1 frog
- 2 pine saplings
- 3 vines with thorns, possibly hawthorn
- Big tree = maple
- 5 young elms (American)
- Moss around bottom of all trees (common moss)
- ~ 10 saplings of unknown variety
- Leaf from thin tree in notebook (other leaves from small trees look same) fell out of book
- Maple about 25' tall
- Elms 5'-10' tall
- Pine sapling about 1' tall

Date: 9/28	Name: Daria		
Sample Location: Hillside Pond		Latitude: 42.2180347	Longitude: -71.0863565
Core Length: 10cm			



cm	Color	Texture	Observations
1	Black; 7.5YR 2.5/1	Clumpy with lots of leaves; light ish, chunky peat	• Looks similar to other layer; like peat • lots of little pieces of leaves and twigs • surface of both layers uneven
2			
3			
4			
5			
6			
7	Reddish, black; 10R 2.5/1	Dark and fine with a few leaves; silty peat	• Looks like peat • Little piece of plastic at bottom of core
8			
9			
10			

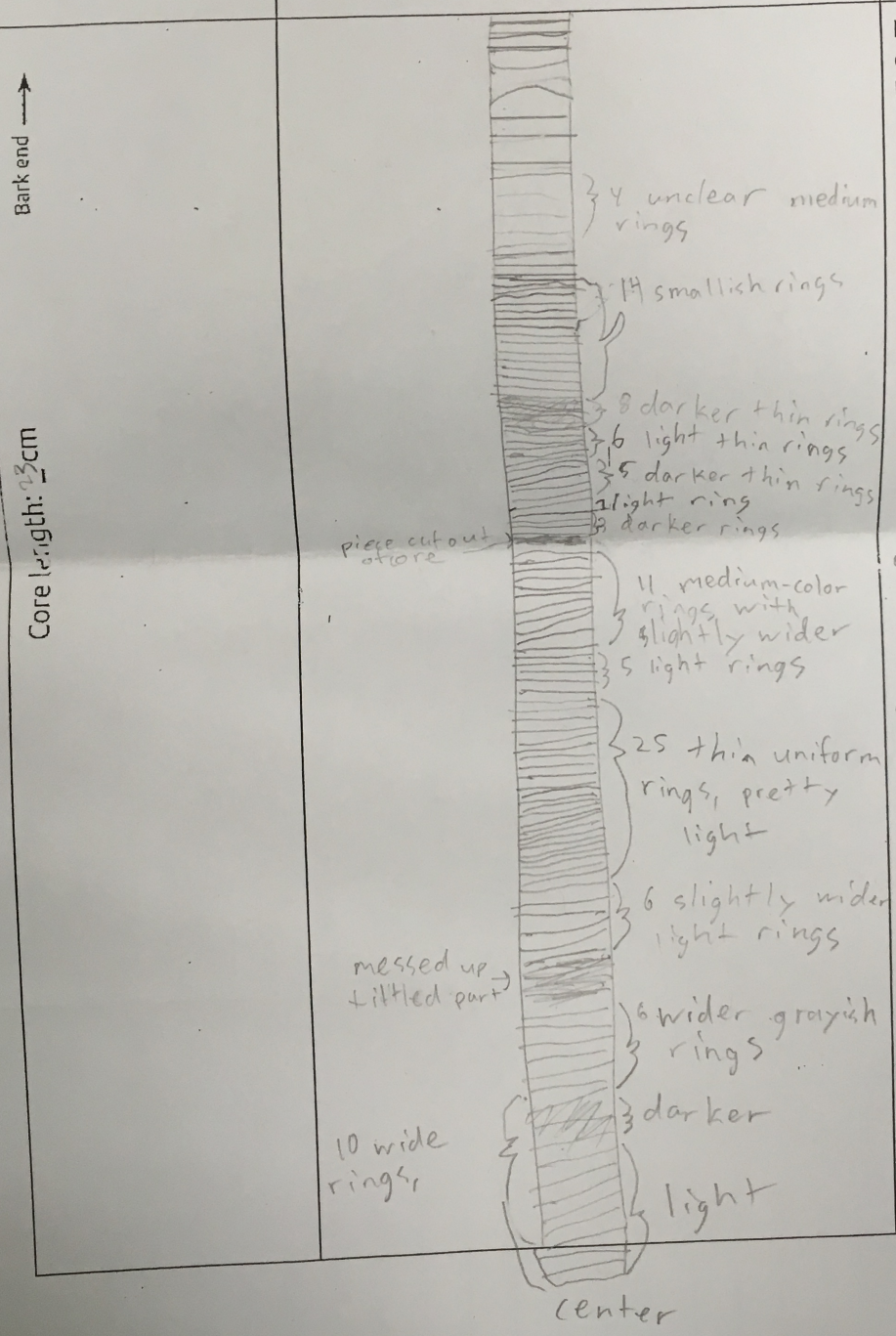
Date: 9/28	Name: Daria		
Sample Location: Hillside Pond		Latitude: 42° 13' 8" N	Longitude: 71° 5' 11" W
Core Length: 23 cm			



cm	Color	Texture	Observations
1	5YR 2.5/1 Black	Peat,	Has lots of little pieces of grass and leaves
2			
3			
4			
5			
6	2.5Y 2.5/1 Black	silty with little pieces of rock	• Darker than layer above • Surface uneven • Pretty small particles
7			
8			
9			
10			
11			
12			
13			
14			
15			
16	10YR 2/1 Black	Very fine and silty; very dark; few rocks	• Darkest of layers • Only a few tiny bits of rock
17			
18			
19			
20			
21	Black	little pieces of rock; pretty silty	• Particles are fine, but with lots of little rocks • mix of sand and silt
22	7.5YR 2.5/1		
23			

Tree Core Observations Sheet

Your Name: Daria Collection Date: 9/28	Location: Hillside Pond Latitude and Longitude: 42° 13' 7" N 71° 51' 2" W	Species of Tree: Oak
Photo of Core:	Drawing of Core:	Estimate of Tree Age: 116



Notes and other observations about this tree:

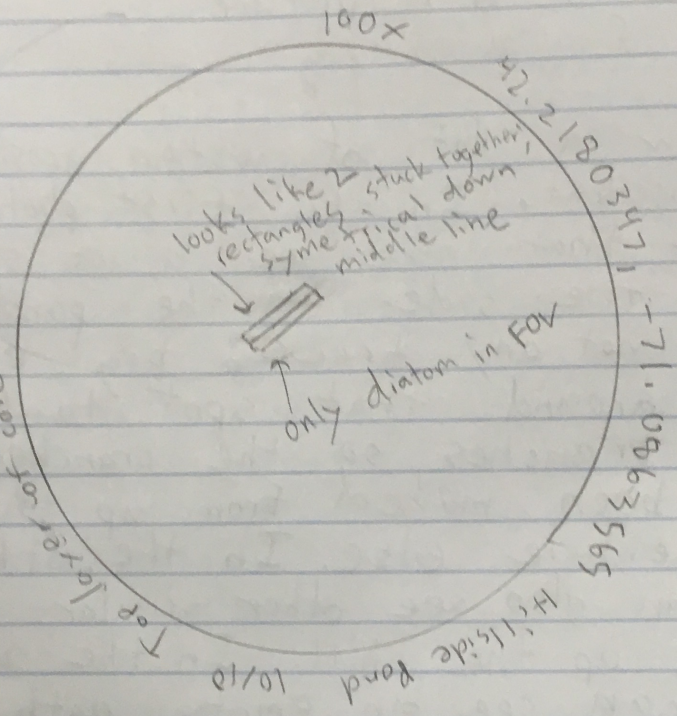
- Broken and wet near center
- Lots of growth at bark and center ends, but not in center
- A couple of the pieces near center are water damaged so it is hard to see rings

Evidence of Erosion 10/5

see Pg. 17 for pictures

We saw a lot of water erosion in our quadrat. In the first photo, you can see that there are a lot of branches around the side of the pond. There were not any trees big enough right around that spot to have those branches, so the branches must have been moved from up the hill or somewhere else. In the other photos you can also see other similar branches further up the hill. In the 2nd photo, you can see an empty path with branches on each side where water presumably flowed down the hill. The 3rd photo shows other branches that were moved around by erosion as well.

Diatom Observations 10/10



In this sample, there were very few diatoms. This is a drawing of one of the few diatoms we had

Evidence: The diatom is symetrical and looks like 2 congruent rectangles next to eachother.
Species Guess: Genkalia similis.
Reasoning: I think it is Genkalia similis because they have similar shape. Though the picture on the website shows rounded corners, the pictures from the website are way more zoomed in than our microscopes, so the diatom I am trying to identify might actually have rounded corners, and we just can't see them. I also spent a lot of time on the website, and I couldn't find any symetrical diatoms with right angle corners. Genkalia similis was the best match I found

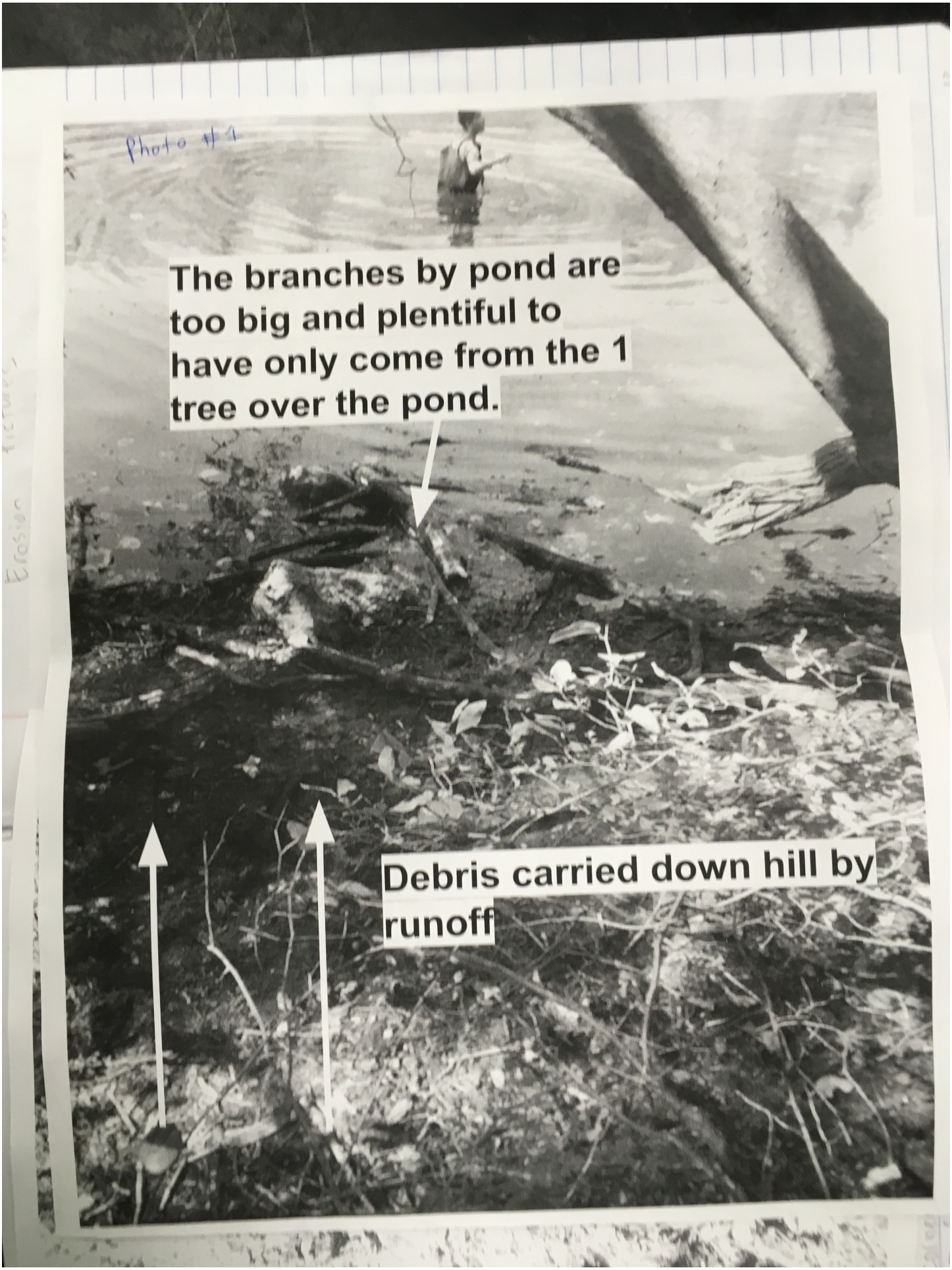
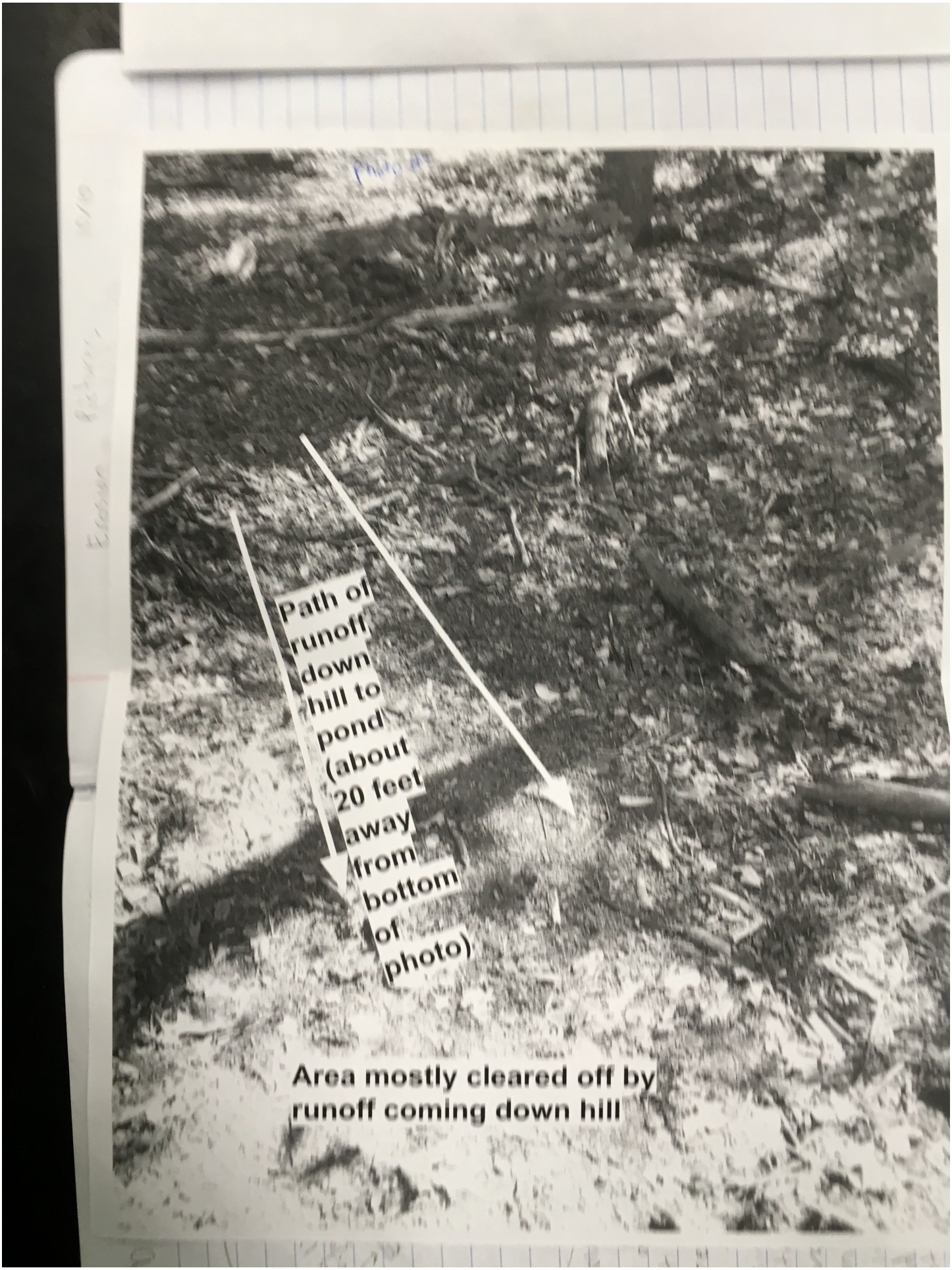


Photo #1
The branches by pond are too big and plentiful to have only come from the 1 tree over the pond.
Debris carried down hill by runoff


Path of runoff down hill to pond (about 20 feet away from bottom of photo)
Area mostly cleared off by runoff coming down hill

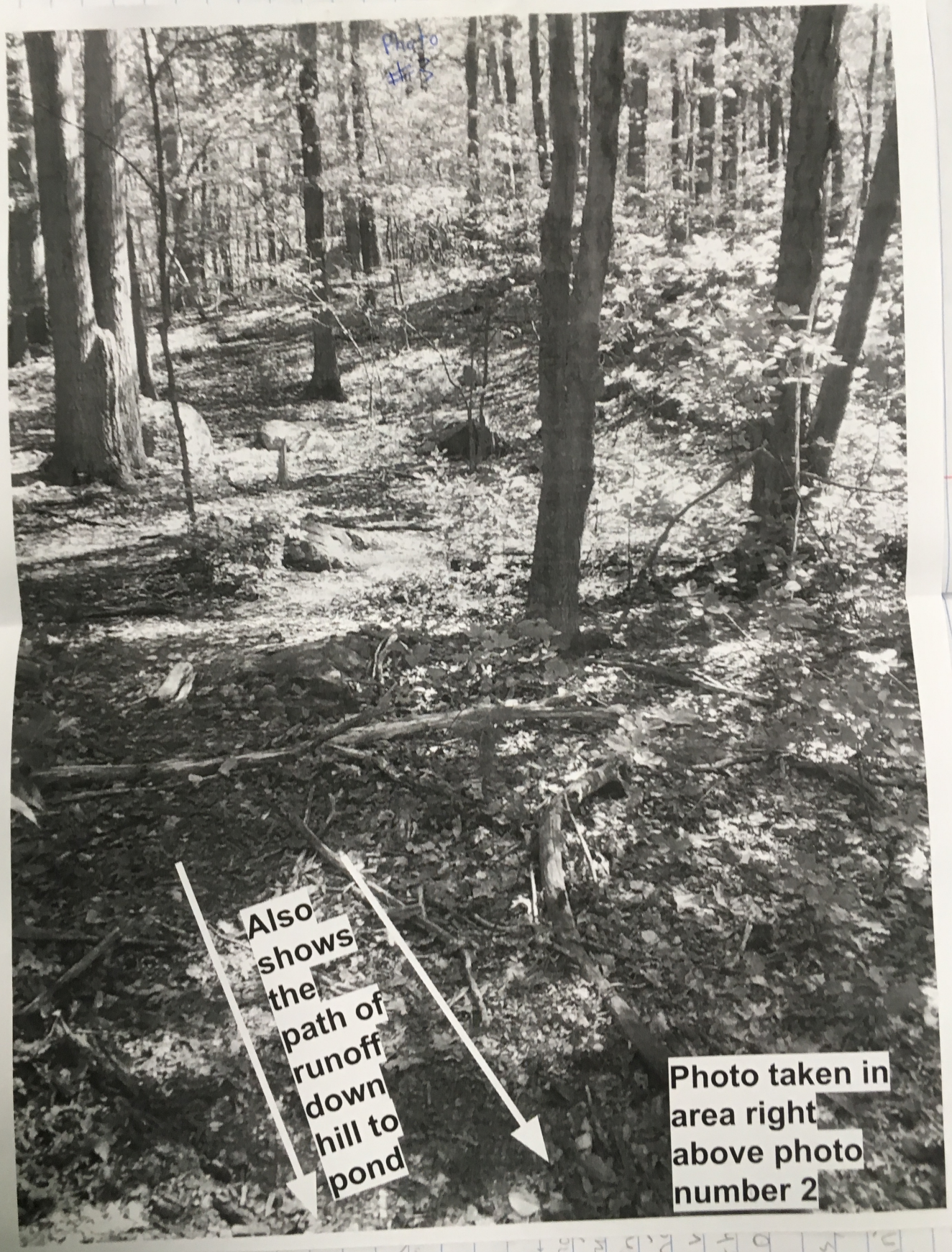


Photo #3
Also shows the path of runoff down hill to pond
Photo taken in area right above photo number 2

10/12

All About Diatoms

4) Diatoms help scientists identify the characteristics of a body of water because different diatoms only exist in certain conditions. There are many types of diatoms, and they are very particular about their environment.

4) Diatoms photosynthisize, producing 20-40% of Earth's oxygen.

10) Diatoms can be used to learn about the past because their silica walls don't decompose. Scientists can use what they know about diatoms now to study the leftover walls of dead diatoms in lake sediment and to learn about the past

5) Most diatoms are microscopic and can be seen using light and electron microscopes

1) Diatoms are a type of algae with see-through cell walls made of silica, the main part of glass

7) Some diatoms live attached to plants + rocks, and they adapt to connect to plants and rocks.

2) Diatoms are common in almost all habitats that have water. Different species of diatoms live in different conditions, so diatoms can be used to sort habitats

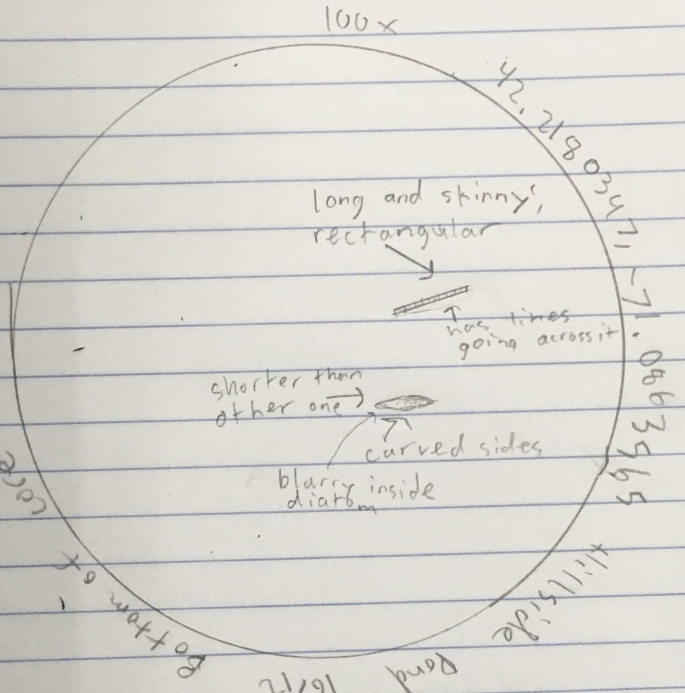
3) Diatoms are protists, and there are tens of thousands or even millions of species. Scientists don't know for sure because they are still trying to define what a species of diatom is, and they are still finding new diatoms

6) Diatoms live in habits with water. Some live in plankton and others live in colonies to prevent sinking

8) Some diatoms also grow stalks to prevent floating away and to get nutrients from the water

10/12

Diatom Observations D2



- not a lot of diatoms in this sample either
- 2 diatoms look to be different species
Curved diatom guess: Cymbella turgidula
Guess for species of long rectangular diatom: Synedra famelica