



Science Notebook

Name

Grade

5/6 intermediate

SOLAR

Hands on Science

SYSTEM



Vocabulary-in own words!!

neutral buoyancy- equal density to the liquid around it.

density- mass over volume

electrolyte- anything that can conduct electricity

electrode- metal that transfers energy, and helps with chemical reactions

Force: Push or Pull

Balanced Force: ^{at least} two equal forces acting against each other resulting in no change.

Unbalanced Force: ^{at least} two forces that are not equal resulting in a change of motion.

Date	Entry	Page
	Looking at my Partner	1
	Comparing Our Bodies	2
	Matching Our Heights	3
	Matching Our Arms + Legs A	4
	Matching Our Arms + Legs B	5
	Matching Long Objects	6
	The Very Big Umbrella	7-9
	Big Umbrella Problem	10
	Measuring Different obj.	11
	Things I know about Measuring	12
	Predicting and Measuring withifix cubes	13
	Measuring Your Teacher	14
	Measuring objects longer than one measuring strip	15
	The Long Measuring Tool	16-20

Record Sheet 4-B

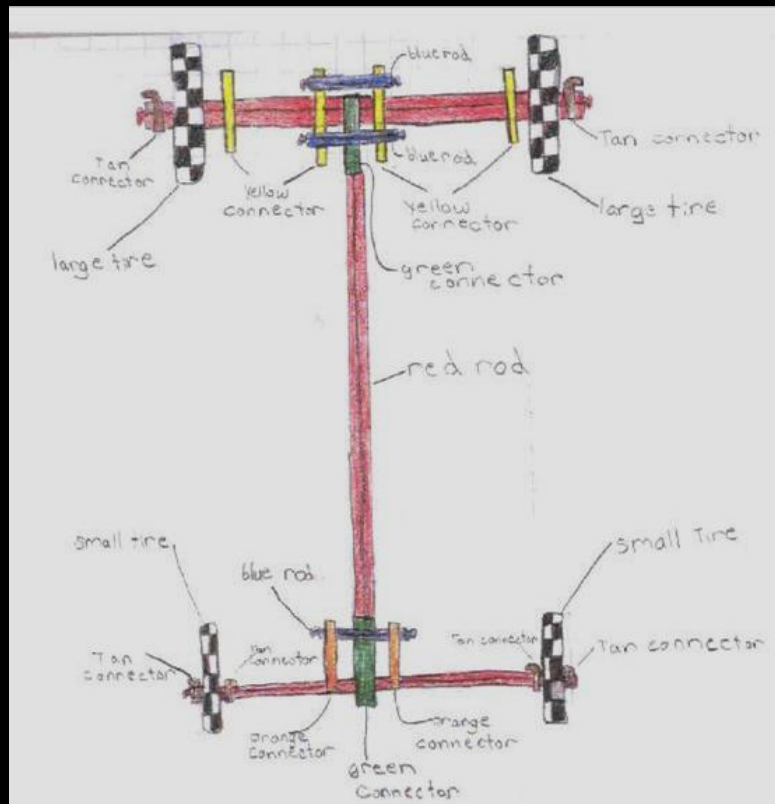
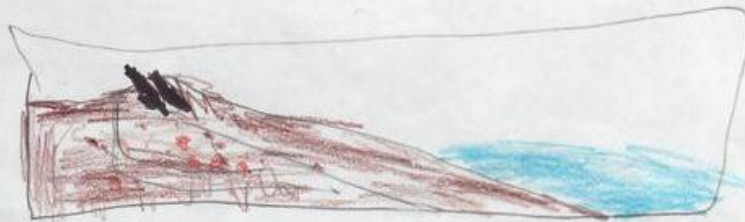
Name Rafael

Date 10-27-03

Woodland Picture



in some parts.



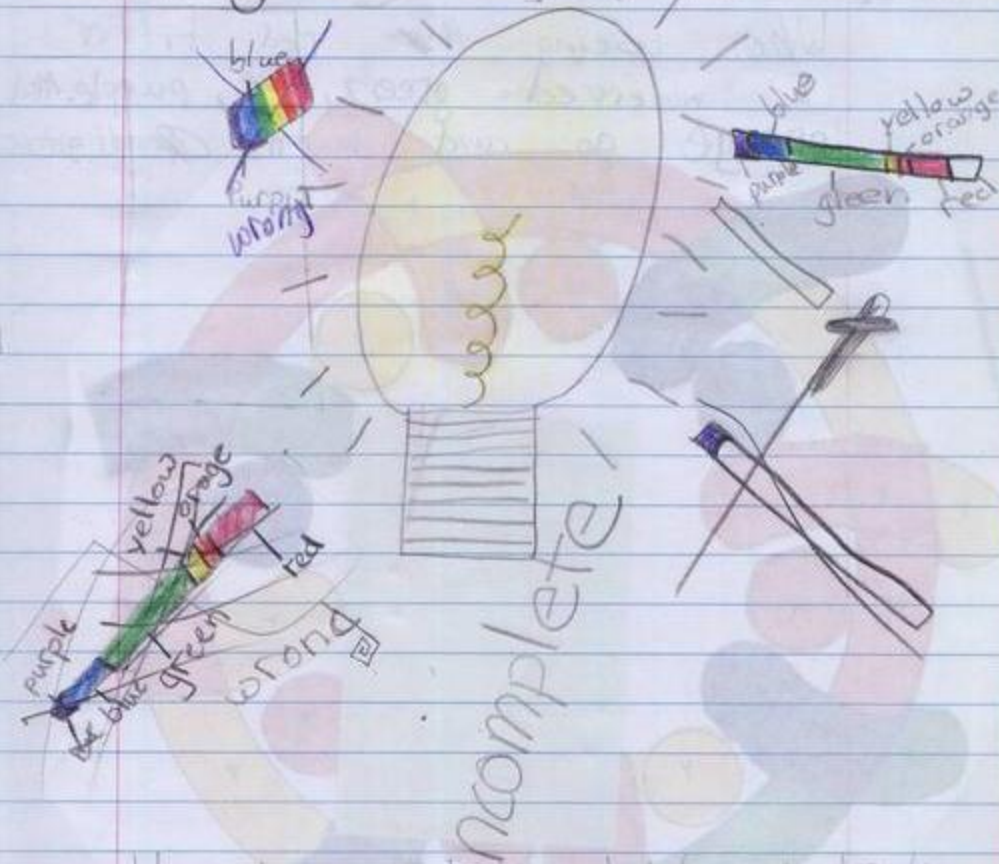
EXP. NUMBER	EXPERIMENT SUBJECT	DATE	14
	CEM LAB	1/28/05	
NAME	VICTORIA LEDESMA	LAB PARTNER	Randy & Sergio
		LABORATORY NO.	COURSE & SECTION NO.

6. The dividing cell part of the cell theory that all living things are made of cells. (We can determine that this is a plant cell because it has a cell wall and animal cells don't have cell walls.)

2. Onion skin cells are about 225µm. Onion are a bulb, so they grow underground and don't need chloroplasts because chloroplasts function with sunlight. Onion cells are larger than the bacteria.

1. 450 = Each bacteria cell is about 9µm. No, we didn't distinguish any internal structures in the bacteria. No, we didn't see any structures for movement on these sausage-link bacteria.

Light



We have white light and took a diffraction grating glasses with took apart light to decode the colors that combine to make white light.

Stored Food Energy

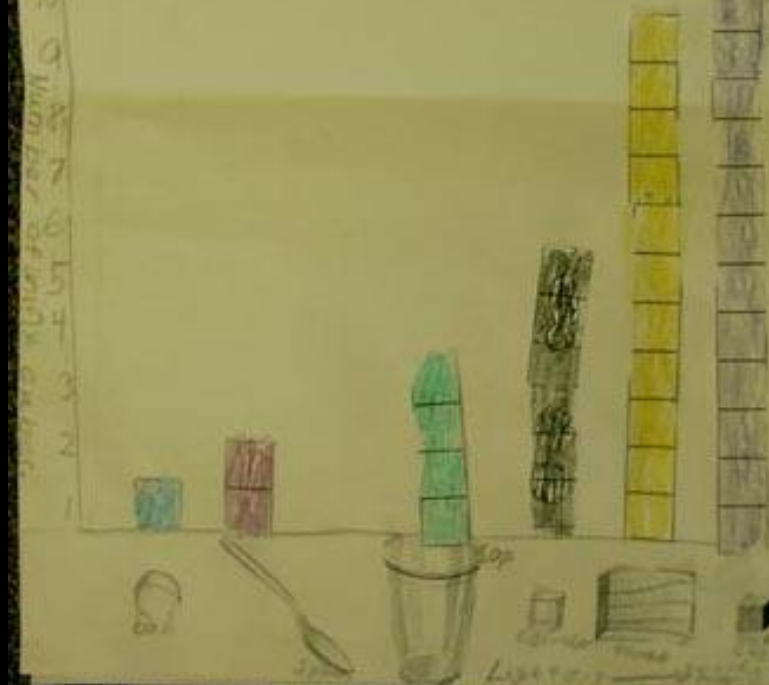
Food 	Grams Per Serving	Calories Per Serving	Calories per Gram	CALORIES Per 100 GRAMS	Picture
Cereal Bar	37g	140	$140 \div 37 = 3.78$	$3.78 \times 100 = 378$	
Tuna Fish	56g	60	1.07	107	
Ravioli in Tomato in Meat Sauce	244g	240	.98	98	
Tomato Sauce	62g	15	.24	24	
Chili Cheese Fritos	28g	160	5.71	571	
MONTEREY JACK CHEESE	28g	100	3.57	357	
Fanta Orange POP	227.4g	160	0.7	70	



I planted Sunflower.

0 in.	1 in.	1 in.	2 in.	3 in.
				
Date	Date	Date	Date	Date
18-5	21-5	24-5	24-5	26-5

Weighing
six
Objects
by Amanda



Focus Question: How do landforms affect the direction and flow of water?

Hills and Rock



Conductors and Insulators.

19

Lesson 7

10/12/06

PREDICTION

Before experiment!!!!!!

After experiment

Item:	Light On:	Light Off:	Result
1. Golf Tee			Off *
2. Plastic Straw			Off *
3. Brass Screw			ON *
4. Paper Clip			ON *
5. Aluminum Screen			ON *
6. Chalk			Off *
7. Pencil			Off *
8. Brass Fastener			ON *
9. Nail			ON *
10. Marble			Off *
11. Pipe Cleaner			ON *
12. Aluminum wire			ON *
13. Copper wire			ON *
14. Plastic Screen			Off *



Conductor: material that allow electricity to pass through them.

1. copper

2.

3.



Insulator: material that Do not allow electricity to pass through them. 1. plastic 2. chalk 3. marble

	Mass (g)	Length (cm)	Width (cm)	Height (cm)	Volume (cm ³)	Density
Smuckers Bar	60.3g	10.5 cm	3cm	2cm	63cm ³	0.958 0.96g/cm ³
3 Musketeers Bar	63.3g	12 cm	3cm	1.8cm	64.8cm ³	0.98g/cm ³

Heenex = 1.2g

61.5 - 61.2 = 60.3g

Smuckers = 61.5g

3. M. = 64.6g

64.6 - 1.2 = 63.3g

Class predictions

Smuckers

3. Musk

Float Sink NB

Float Sink NB

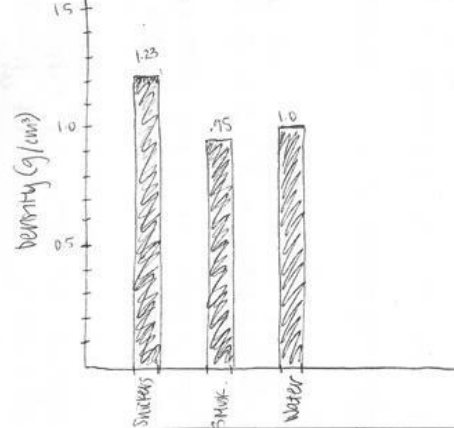
7

Avg Density:

Smuckers: 1.23 g/cm³

3. Musk: 0.95 g/cm³

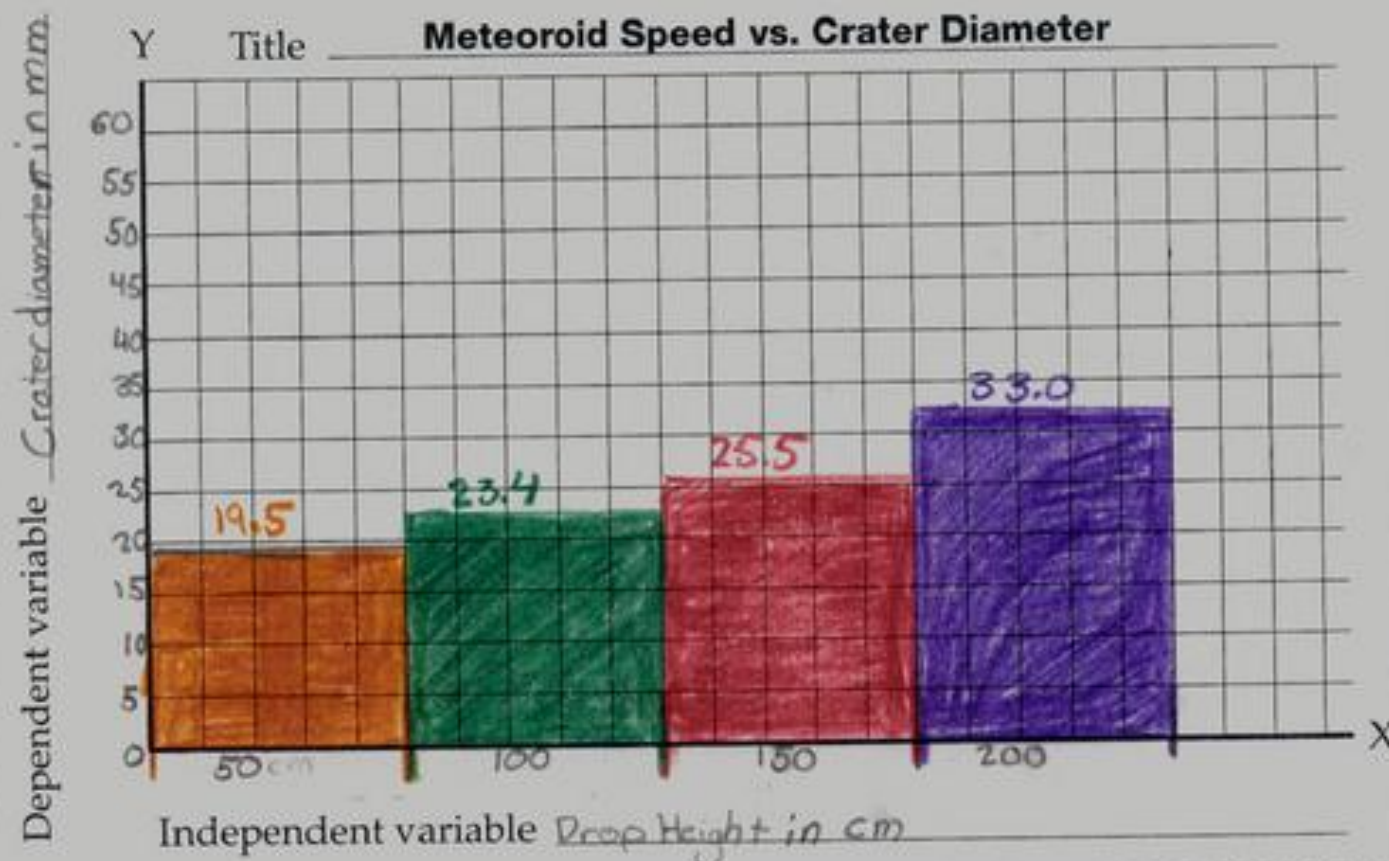
Density of Candy Bar relative to water



Smuckers = Sink
3 Musk = NB

3 Musk - a little bit of it was up above water but most was below

CRATER-DIAMETER AND RAY-LENGTH GRAPHS



My Kiley bean plant
I observed my plant is fast.
I noticed that my plant is growing.
It reminds me of a tree
because it's long and a flower.
I am curious to know how the
tree.

12-207 1045 9m
my snail pulled 4 washers.
I noticed a snail never
went in its shell. Also
it was very fast for a
snail. I am curious about
how many more
washers can my snail
pull. It surprised me
that it never stopped
pulling the washers. Also
never got tired as
they pulled the
washers.

12

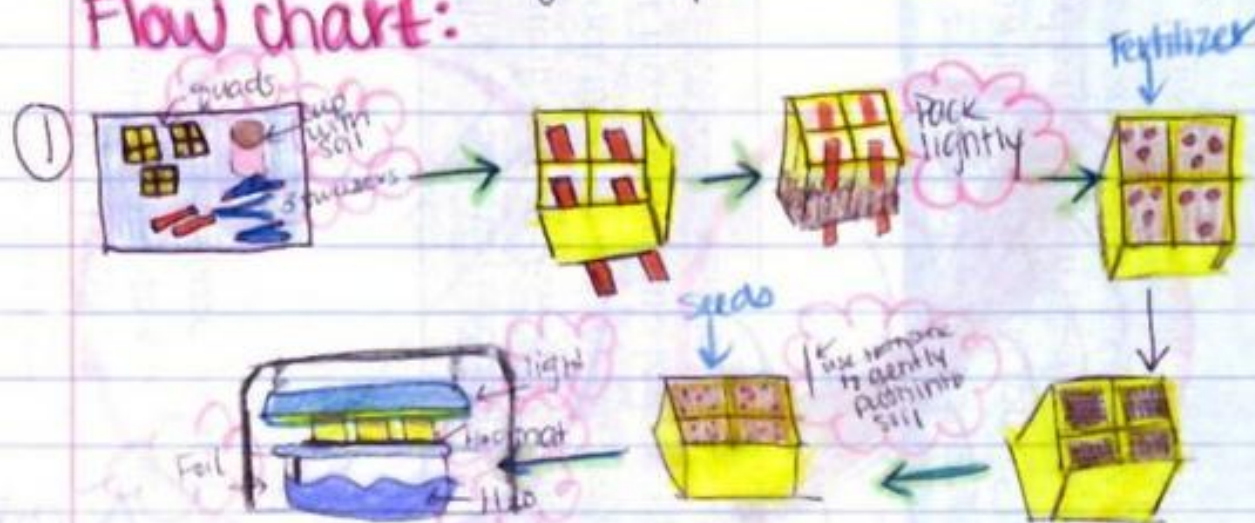
Wisconsin Fast Plants

10/10/04

Procedure:

1. Gather materials
2. Put cloth strip ^(wick) 1/2 way in & 1/2 way out of the quad
3. Fill each quad 1/2 way with soil, then lightly pack
4. Place 3 pcs of fertilizer & bury slightly
5. Fill rest of each quad with soil, pack lightly
6. Put 5 seeds in @ quad - push into soil w/ toothpick

Flow chart:



Prediction

I think sound cannot travel through solids because if you put your ear to your desk you can hear it very clearly and in the classroom next to us if you put your ear to the wall you can hear the teacher teaching.

Lesson 4
10/17/06

- Batteries and a house light bulb:
 - An experiment!

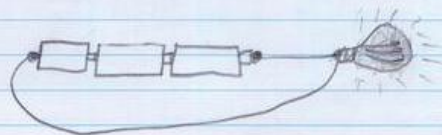
• Question: ① Will "D" cell batteries light up a house light?

② How many will it take.

• Hypothesis: (what i think will happen):
- I think it will take all 24 batteries!

• The Experiment: We will start with one "D" cell battery, a 60 watt bulb, and two five foot long wires. We will add more batteries until it lights up.

picture:



• Results: the results were that when we had 10 batteries it started to glow, and we put all the batteries together and the little battery ran out of power.

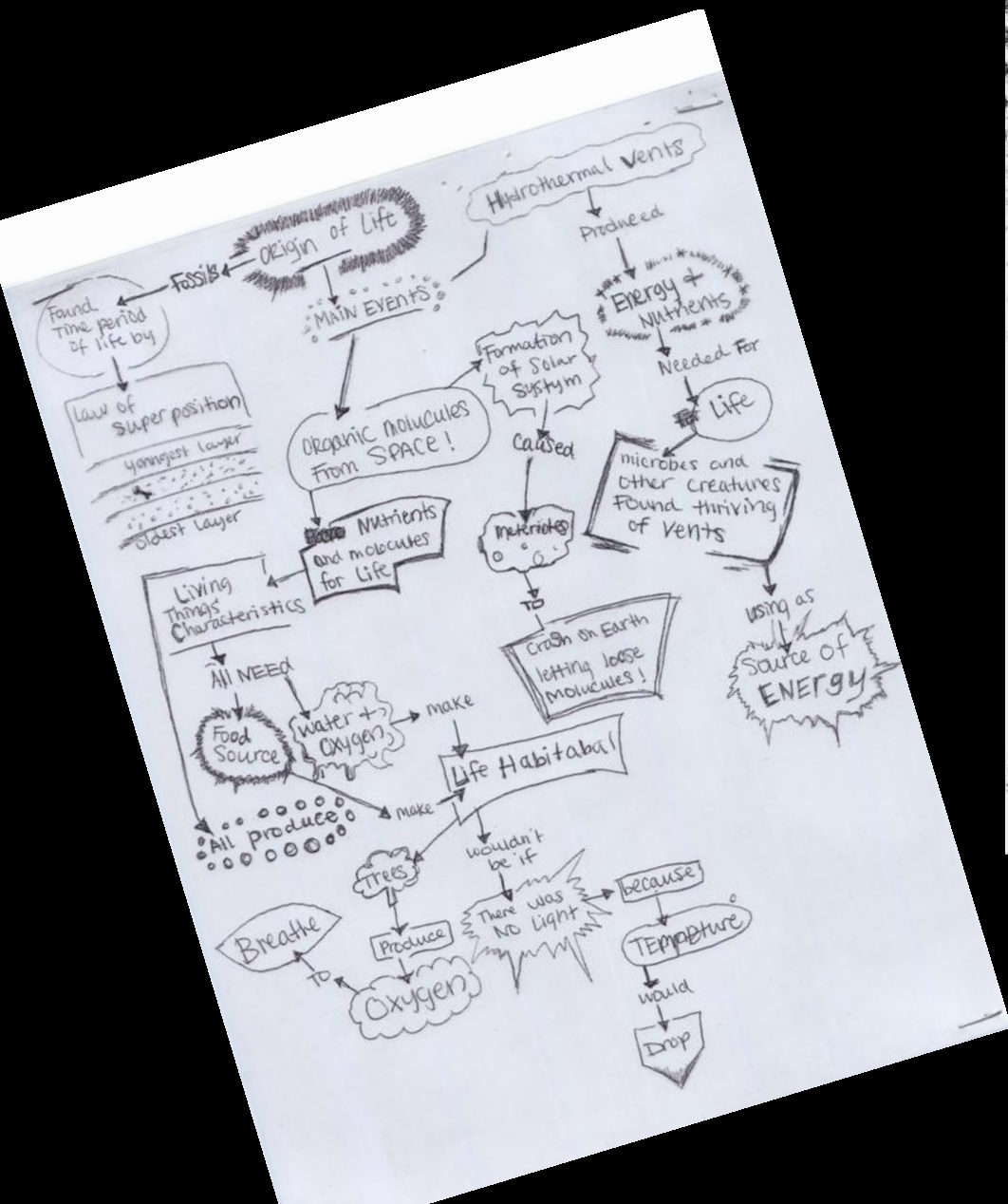
During a heavy rainstorm, what do you think would happen to the soil on a steep hill? Why do you think this would happen?

Claim

Believe that if there was a heavy rainstorm on a steep hill, the soil will go down the hill.

Evidence

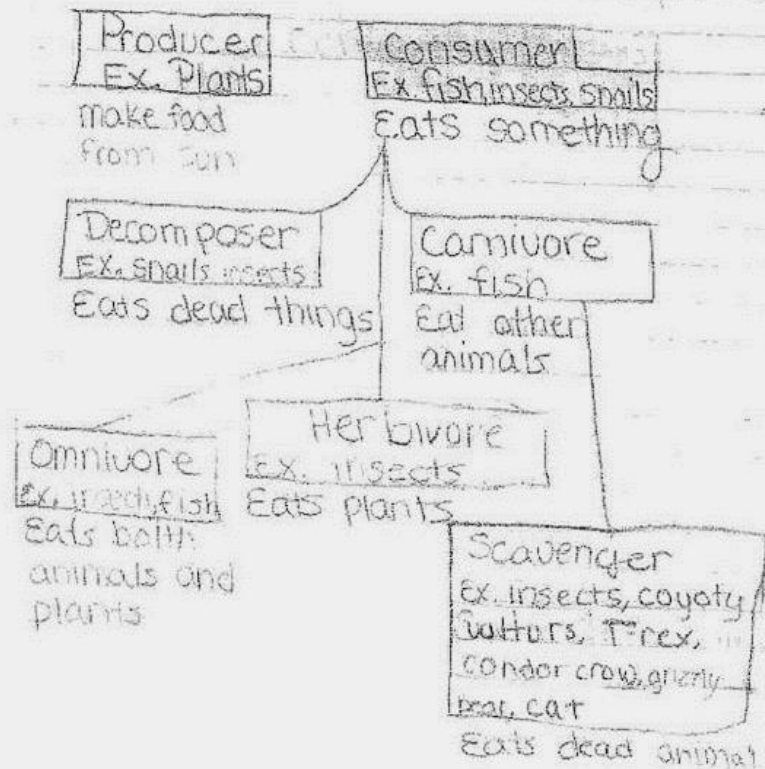
My evidence is that in our stream table our soil moved when we added water.



10/18

(1) What is a food chain?

(2) What are members of an ecosystem?



(14)

11-8-07

Eating - Compare & Contrast

Caterpillar & Butterfly

compare

- both eat plants
- stand to eat
- consume food
- both eliminate food
- use food for growing and energy

Caterpillar

- bites & chews
- mouth + jaw to chew
- food is solid
- eats leaves
- crawls to food

Butterfly

- sucks / sips
- use proboscis to suck
- food is liquid
- eats nectar
- flies to food



7. An average human being used about 500 kg of oxygen per year in an extremely complex series of reaction, one of which is $C_6H_{12}O_6 + O_2 \rightarrow CO_2 + H_2O$.

(a) Balance the above equation.
 $C_6H_{12}O_6 + 6O_2 \rightarrow 6CO_2 + 6H_2O$

(b) How many moles of oxygen are contained in 500 kg of oxygen?
 $500,000 \text{ g } O_2 \div 32 \text{ g } O_2 = 15,625 \text{ moles } O_2$

(c) If an acre of grassland produces 1,000 kg of oxygen per year, how many people (considering oxygen requirements alone) can one acre of grassland support?

7) a) $C_6H_{12}O_6 + 6O_2 \rightarrow 6CO_2 + 6H_2O$
 b) = moles O_2
 $500,000 \text{ g } O_2 \div 32 \text{ g } O_2 = 15,625 \text{ moles } O_2$
 10/2) convert kg $\rightarrow$ g?
 $500,000 \text{ g}$

8. When a mole of aluminum metal is burned to Al_2O_3 , 200 kcal of heat are given off.

(a) Write the balanced equation for this reaction, including the energy term as part of the equation.
 $2Al + \frac{3}{2}O_2 \rightarrow Al_2O_3 + 200 \text{ kcal}$

(b) Is this reaction exothermic or endothermic?
 exothermic

(c) If 100 grams of aluminum are completely burned, how much energy will be produced?
 $100 \text{ g } Al \div 27 \text{ g } Al = 3.7 \text{ moles } Al$
 $3.7 \text{ moles } Al \times 200 \text{ kcal} = 740 \text{ kcal}$

(d) If 100 grams of aluminum are completely burned, how much energy will be produced?

c) $100 \text{ g } O_2$
 $500 \text{ kg } O_2$
 $= 2 \text{ people supported on 1 acre of grassland}$

9. Metallic sodium is obtained cheaply by the electrolysis of molten sodium chloride ($NaCl$). For each mole of sodium produced, 98 kilocalories of electrical energy are needed.

(a) Write the balanced equation for this reaction, including the energy term as part of the equation.
 $2NaCl \rightarrow 2Na + Cl_2$

(b) Is this reaction endothermic or exothermic?
 endothermic

(c) Write the balanced equation for the reaction of sodium with chlorine gas. Include the energy term as part of the equation and indicate whether the reaction is exothermic or endothermic.
 $2Na + Cl_2 \rightarrow 2NaCl + 475 \text{ kcal}$

(d) How much energy would be produced by the reaction of 11.5 grams of sodium with an excess of chlorine gas?

8) a) $4Al + 3O_2 \rightarrow 2Al_2O_3 + 800 \text{ kcal}$
 1 mole = 200 kcal
 $4Al = 800 \text{ kcal}$
 b) exothermic - b/c it gives off heat (+ doesn't take heat)

10. Methane, the main constituent of natural gas, has the formula CH_4 , and a molar heat of combustion of 89,080 calories.

(a) Write the balanced equation for the burning of 1 mole of methane, including the energy term as part of the equation.
 $CH_4 + 2O_2 \rightarrow CO_2 + 2H_2O + 89,080 \text{ cal}$

(b) How many kilocalories of heat will be given off by the burning of 1.00 kg of hydrogen.

c) $100 \text{ g } Al \left(\frac{1 \text{ mole}}{27 \text{ g}} \right) \times 200 \text{ kcal} = 740.74 \text{ kcal}$
 electric energy needed.
 heat/light given off

9) 1 mole $Na \rightarrow 98 \text{ kcal}$
 a) $Na(m) + Cl \rightarrow NaCl + 98 \text{ kcal}$

b) endothermic
 c) exothermic

d) $11.5 \text{ g } \left(\frac{1 \text{ mole}}{23 \text{ g}} \right) \times 98 \text{ kcal} = 49 \text{ kcal}$
 10) $CH_4 = \text{molar heat comb of } 89,080 \text{ calories}$

a) $CH_4 + 2O_2 \rightarrow CO_2 + 2H_2O + 18,000 \text{ cal}$

b) $4H + C + 2O_2 \rightarrow CO_2 + 2H_2O + 273.2 \text{ kcal}$

c) $1.00 \text{ kg } \left(\frac{1 \text{ mole}}{1 \text{ g}} \right) \times 273.2 \text{ kcal} = 273,200 \text{ kcal}$
 (4 moles of H)

$\rightarrow \frac{10,000 \text{ g } O_2}{3,000 \text{ g } O_2} = 3.33 \text{ acres}$



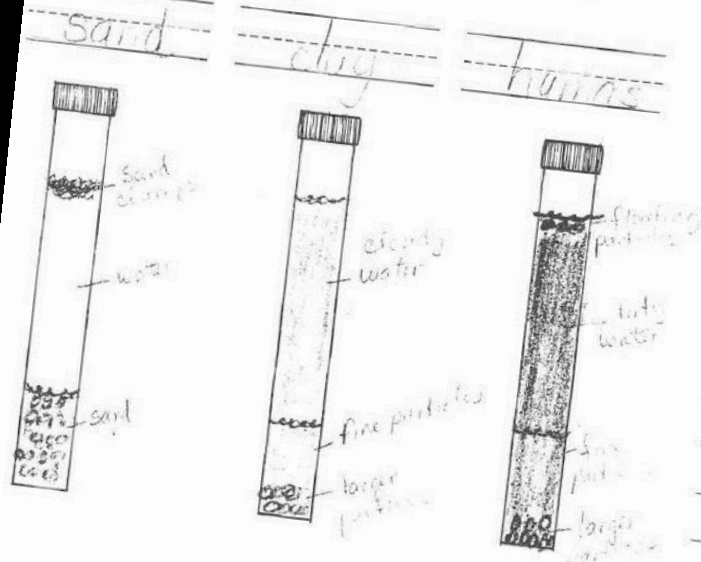
Name _____

Date: _____

8-25

Settling—After I Wait a Few Days

How the tubes look like this:



Movie Notes

- * There are storms everywhere but Antarctica.
- * Tornadoes can shift very fast and they ruin tons of homes and lives.
- * A tornado came down in Kansas and took down everything.
- * A tornado was 300/400 feet wide.
- * A funnel was 600/700 feet wide.
- * They kill many of things and houses and lives.
- * It sucks in air then goes upwards inside of the funnel.
- *

9-9

Geothermal ?'s

Syn. 1.) What would you predict about the future of geothermal energy?

Eva. 2.) In your opinion, what is the most important thing geothermal energy is used for?

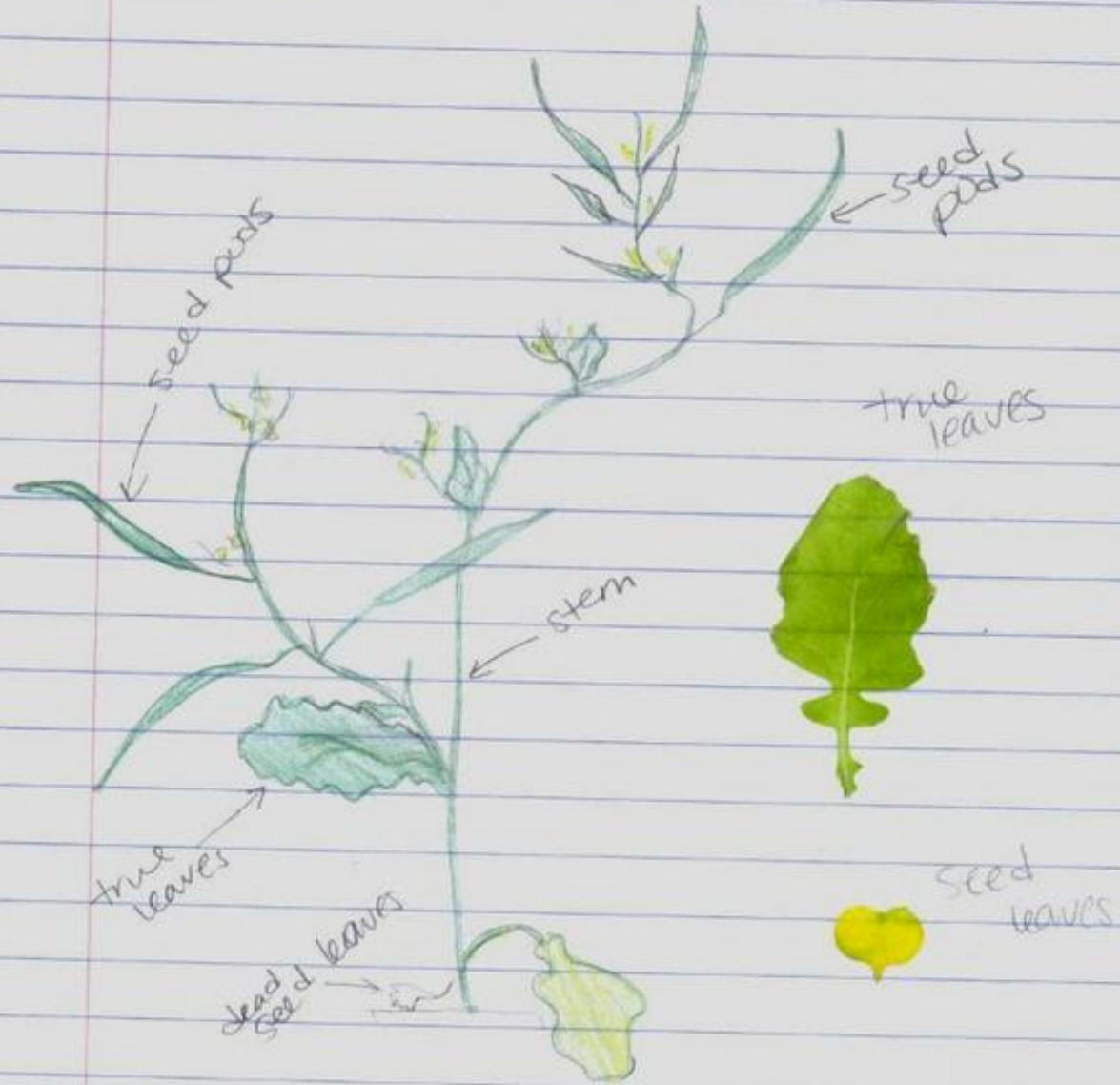
Eva. 3.) Do you think geothermal energy is endless? Why?

Ana. 4.) Would you rather heat your house with gas, or heat from a geothermal hot-spring. Discuss the trade-offs.

Syn. 5.) Can you think of any other ways geothermal energy could be used?

11/7/06

Wisconsin Fast Plant Observation Sketch of my Plant





10-13-04

Adding vinegar and Iodine

I observed that the baking soda and baking powder Both fizzed when we added vinegar.

there is starch in this paper.

I noticed the baking powder and cornstarch both turned black when we added iodine.

To our great surprise the baking powder turned black and fizzed when we added iodine. We know this now is because the iodine was mixed with water and when we looked at the ingredients of baking powder we see it has corn starch in it!

Cabbage Juice:

acid

neutral



0 1 2 3 4 5 6 7 8 9 10 11 12

Movie Notes

- * There are storms everywhere but Antarctica.
- * Tornadoes can shift very fast and they ruin tons of homes and lives.
- * A tornado came down in Kansas and took down everything.
- * A tornado was 300/400 feet wide.
- * A funnel was 600/700 feet wide.
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- *

9-9

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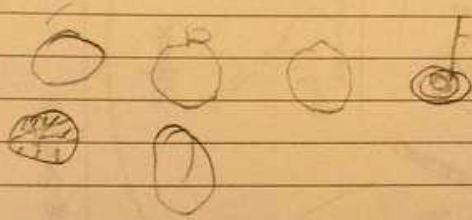
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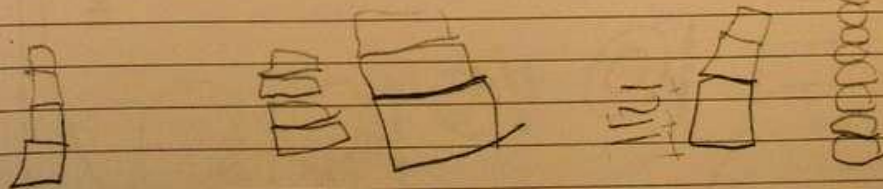
Syn: 5.) Can you think of any other ways geothermal energy could be used?

Focus Question: 3

- What is the difference between things that roll and things that stack?
- things that roll are usually round.

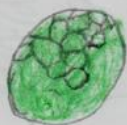


things that stack are usually flat



26

02-11-08



I know the ball is a solid
 because if you rolls it, it would go
 and go if it was a liquid it would go every
 it stays in its shape.
 stays vs shape.

2/8

I observed that when you bring two
 or more magnets together they either
 repel each other or attract each other.
 I also noticed that if you put two
 or more magnets on a pencil with the
 magnets on a certain side they float.
 Therefore I think that the force of
 magnetism can go through some objects.
 I was surprised that our tiny little magnet
 stuck to each other through my $1\frac{1}{2}$ cm thick
 desk

10/20/05 * ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ Solar Ovens

Solar Ovens; the difficulty of building an oven out of a card board box is a little stressful. How so? There's a reason why heating appliances are made of metal; it absorbs and retains its heat much faster than a simple cardboard material.



Is there a way that heat can be pushed from the outer box and focused for the stove, I know that water magnifies Sun waves up to 100x, can this be used. Mirrors also do this, but would this be an oven?

Turning
Can Converting

Type 1

