

Dec 1, 2023

Brainstorm

~~Brainstorm~~

- How does technology use, effect our sleep?
- How can weather effect mood?
- How does alzheimers effect the human brain?
- How does sleep help brain development?
- How can chemo-therapy damage the Human body?
- How does high blood pressure correspond with heart and kidney functions?
- How does age effect peripheral vision?
- How does pH levels with hair products correspond with hair damage?

Topics that interest me

- Cancer
- Human Body
- Diseases
- Hair
- Sleep
- Technology

Dec 7, 2023

Hypothesis

- I hypothesize that the higher the pH level within the hair products, the more hair damage it can cause. Due to the hair product acid levels causes the cuticles within our hair ~~also~~ known as the cuticles surrounding the scalp will slowly start to peel eventually causing the strength of the hair to get damaged.

Prediction

- If the pH level within a hair product is higher than the outcome may cause the hair to damage more.

Variables

Controlled - pH strip brand, amount of hair product used

Dependant - pH levels

Independent - Brand of hair products

Research

↳ Acids cause the cuticle hairs to begin to wither (die)

1 Dec 20, 2023

Scientific Method

- First, research what pH levels correspond to
- Next, research about why hair product brands mostly use acids within their hair products
- After, researching how acids impact / co-relate with hair damage
- ↗° Researching how the amount of acidity ~~with~~ can cause more or less hair damage
- ↘° See how acid levels within the hair product cause the hair, scalp and roots get damaged
- Test, different hair products / brands to see their pH levels
- Dilute the products with water and test again
- Create table to keep track
- Conclusion, Next steps

1 Jan 1, 2024 /

What is pH levels?

- pH levels or scale is used to see how acidic an object is
- The scale is from 0 very acidic to 14 most basic
- Water falls at 7 meaning neutral

How is pH measured?

- An easy way to measure pH levels are with pH strips
 - ↳ Made from litmus paper
- When the pH strip is touched to a certain substance it will change colours to show how strong of an acid or base the substance is.
 - ↳ Red means acidic
 - ↳ Blue means basic

Jan 2, 2024

Background Research

Why would hair ^{products} use acid within products?

- Help to restore your hair's natural acidity, which allows it to hold onto hair dye more efficiently

- Citric acid is more commonly used to bring the pH levels down, which improves the hair's appearance and manageability by reducing frizz

Jan 6, 2024

Research

How do Acids cause a negative affect on hair

- Cause Cuticle Hairs to raise
- Causes the hair to be more fragile

(Add pic of normal vs. Damage hair)
(Hair Cuticle Anatomy)

More commonly
used within
shampoos

Conditioners seem to
close up these cuticles
Occasionally

Jan 8th 2024

Alkali Hair product (Why?)

Hair Products
also have
alkaline

- Allow the Cuticles to rise to absorb more of the products going into hair

Hair Damage?

- Hair peel
- Skin dry
- ~~is~~ shift in pH levels (natural within the hair)

↳ Cause dry hair

Jan ~~10th~~ ^{15th} 2024

How Alkaline vs. Acid

More worse?

More damage?

Alkaline

↳ More Rougher the hair
Commonly found in Dry scalp Shampoos

Acid

↳ More hair loss

Raised and weak cuticles

Hair Natural pH

3.5 to 4.5

Acidic

Hair cuticles seems to be Problem

Jan 28 2024

Make Table

pH level	Hair Frizz	Dull Hair	Hair loss	Split ends
4	✓	✓	✓	✓
5	✓	X	✓ ✓	X
6	✓	X	✓	X
7	X	✓	X	✓
8	✓	✓	X	✓
9	✓	✓	X	✓

Jan 29 2024

Conclude the table

- pH of H_2O is the worst to use within the
hours

Adding more info to table

Weaker Cuticles

4 = Yes 5 = Yes 6 = Yes 7 = Yes

8 = No 9 = ~~No~~ Yes

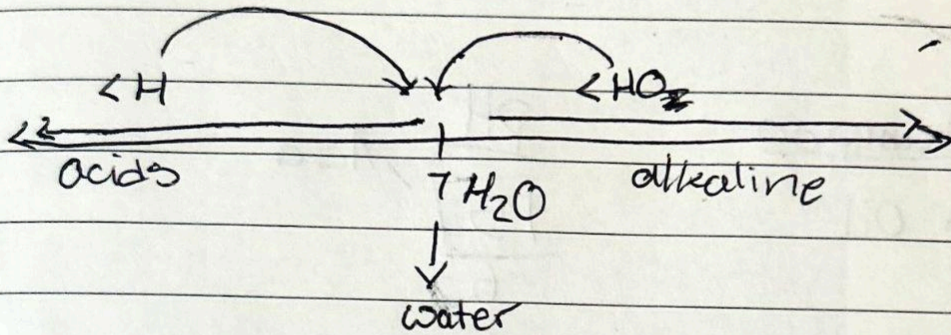
↳ To acidic for hair

1 Feb 4th 2024

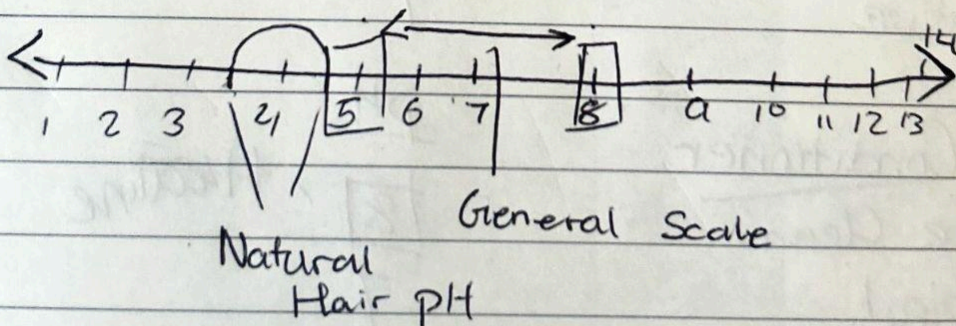
How do the numbers within the scale tend to rise and drop?

Acid = More hydrogen
Alkaline = More hydroxide

pH scale



So if the more hydroxide within the substance then the more damage



if shampoo $8 - 5 = 3$ Better conditioner

Get equation closer to
4.5 OR 3.5

Feb 11th 2024

Experiment

Observations

When a Shampoo or Conditioner is used within the wigs that have a lower pH
↳ Hair seems more rough

Data:

<u>Shampoo</u>	<u>pH</u>	
Argan Oil	5	Acid
Dove	6	
Biotique	6	
Patanjali	8	Alkaline
Slikk	8	
Native	7	

<u>Conditioner</u>	<u>pH</u>	
Live Clean	8	Alkaline
Clairol	7	
L'oreal	6.5	
Argan Oil	6	Acid
Biotique	6	

Feb 12th

ms
that
order

Brand of Hair Product

pH level

Live Clean Fresh Water hydrating Conditioner (water base)

pH of 7

Clairol: Natural Instincts Brilliant Shine Conditioner

pH of 5.5

L'oréal Paris: Casting Crème Gloss

pH of 6.5

Argan Oil Hydrating Conditioner by Marc Antony

pH of 6

Biotique : Bio Soya Protein Conditioner

pH of 5

Conditioners

Brand of Hair Product

Argan Oil Hydrating Shampoo by Marc Antony

Dove: Anti-Dandruff Shampoo + Conditioner

Biotique : Bio Soya Protein Shampoo

oil
water.
2:1

pH level

pH of 5

pH of 6

pH of 5.5

describe
hair

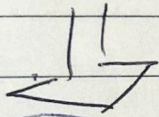
Feb 13 2024

Conclusion

↳ Oil base = Good > Alkalines = Bad
2 in 1 & 3 in 1 = Bad Acids = Good

Math equation for Balance

Hypothesis was wrong about Acids
Alkalines are better



Make Bigger
when putting into
slideshow

Feb 27

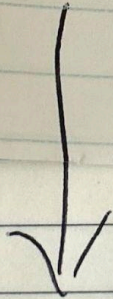
Fair Logbook

Feb 27, 2024

logarithmic scale: $10\times$ the other number

pH of 10 is $10\times$ a pH of 11

pH of " is $10\times$ than a pH of 10



Add new

to script

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