

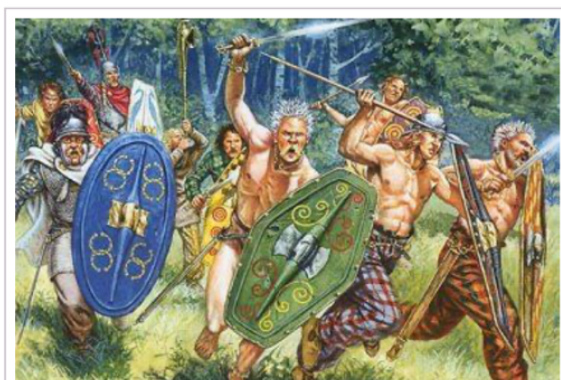
The Celtic Chemist



🛡️ The Celts: Dirty Barbarians... or Cleanest Chemists in Europe?

You know, the Romans and Greeks *loved* calling the Celts “dirty, filthy barbarians.” But let’s take a closer look at that, shall we? 🤔

- 💙 1. Naked warriors covered in blue paint - Yes — Celtic warriors (both men and women) sometimes fought **naked**, swirling with blue woad designs.



Celtic Raiders, Mostly Clothed

But that wasn’t because they were dirty... It was **intimidation psychology** AND **body-art chemistry**. (And honestly — imagine the confidence! 😊)

- 🔪 2. They kept enemies’ heads as souvenirs

True — they did take heads. But this wasn’t “filthy.”

It was **ritual, respect**, and a bit of “please don’t invade us again.” (Still gross... but not unhygienic! 😊)

- 💛 3. They peed on wounds to clean them

Yes — they really did. And guess what? They weren’t being disgusting... They were being **scientific**!

- 💧 Urea kills bacteria
- 💧 It cleans wounds
- 💧 Ammonia helps prevent infection

So, the Celts were doing **first-aid chemistry** long before hospitals existed.

🧼 And now... the twist!

After battle, my brave Celtic warrior Aiden and his warrior band come home covered in:

- woad paint 💙
- blood ❤️
- mud 🤎
- sweat 💧
- and a little medicinal pee 💛

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Before they can feast or party... They need a **GOOD WASH!**

But here's the best bit: 🧴 The Celts were washing with SOAP long before the Romans even knew what soap was!

Romans scrubbed themselves with **oil and sand**. Oil. And. Sand. That's not bathing — that's a **marinade**. 🤔

So, tell me again... Who were the real dirty animals?! 😊

🔥 From Fire and Fat to Foam

In the Chemistry and the Celts show one of my Celtic chemists makes their own soap using the **melt-and-pour process** — a modern and safe way to recreate what the Celts were doing thousands of years ago!

Long ago, when **wood ash** (rich in **potassium carbonate**) mixed with **animal fat**, something magical happened — **saponification**.



✨ When the Celts leached wood ash with water, they made a weak **lye** containing **potassium hydroxide (KOH)** — a stronger alkali than potassium carbonate.

💧 This alkali reacted with animal fats to create **soap**, which lifts dirt and grease away when mixed with water.

🔥 Lye today is often sodium hydroxide (NaOH), but the Celts used **potassium-based lye**, giving them a softer, creamier soap than modern caustic soda soaps.

They may not have written formulas, but they *knew* it worked. Their soap cleaned clothes, hair, and even made moustaches stand proudly before battle! 🧔✂️

🧼 Celtic Beauty and Hygiene

Pliny the Elder wrote that Celtic soap was used to “*redden their hair and make it stand upright.*”

Their soap was a **soft paste** made from fat and ashes, scented or coloured with:

- Chamomile 🌼
- Rosemary 🌿
- Woad 💙

Soap wasn't just cleaning — it was **style, pride, and status**.

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The Science Behind the Suds

In the Celtic cauldron:

- **Fat/oil** = long molecules called fatty acids
- **Wood ash** = potassium carbonate → potassium hydroxide when leached

Heat them together and you get

 **soap** +  **glycerol**

That's exactly how modern solid and liquid soaps are made! 

Soap-Making, Celtic Style

When soap is made on stage with me, my Celtic Chemist followed in ancient footsteps! 



They:

1. Used a **melt-and-pour** base
2. Added **honey** 
3. Decorated with **coloured crushed rock and herbal oils** 

 **Science link:** Soap molecules have two ends — one loves water, one loves grease.

When you rinse, they **grab the dirt** and it is washed away with the **water**.

That's **emulsification** and **polarity** — powerful chemistry hidden in a humble bar of soap.

So next time you lather up...

You're bringing a little **Celtic chemistry to life!**  

What Do “Emulsification” and *Polarity* Actually Mean?

Polar and Non-Polar — Why Oil and Water Don't Get On

Water is a **polar** liquid — its molecules have tiny areas of positive and negative charge.

Oils and greases are **non-polar** — their molecules have no charged areas at all.

Because of this, polar water and non-polar oil simply don't mix.

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Enter Soap – A Molecule with Two Personalities

Soap molecules are brilliantly designed with two very different ends:

- **A hydrophilic (water-loving) head** — this end is ionic and *polar*, so it mixes well with water.
- **A hydrophobic (water-hating) tail** — this long carbon chain is *non-polar*, so it mixes well with oil and grease.

This special structure allows soap to link water and grease — two substances that normally avoid each other.

How Soap Actually Lifts Dirt — Micelles!

When soap meets oily dirt, millions of soap molecules surround each droplet. Their hydrophobic tails bury themselves in the grease, while the hydrophilic heads stick out into the water.

These tiny clusters are called **micelles**.

Once trapped inside micelles, the oily dirt becomes suspended in water — a process called **emulsification** — which allows it to be rinsed away. Soapy water looks cloudy because these micelles scatter the light!

That's emulsification and the science of polar vs non-polar chemistry — powerful Celtic chemistry hidden in a humble bar of soap.

So next time you lather up...

You're bringing a little Celtic chemistry to life! 🧪✨



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