Outtakes #2: Crash Course Physics

Crash Course: Physics
https://youtube.com/watch?v=8vApHy0CDE4
https://nerdfighteria.info/v/8vApHy0CDE4

Shini: Heat engines like the steam engine turn thermal energy into mechanical work, and they do it in repri.... blalalalalh.

[Intro]

If there's no heat transfer between systems at [ahl]... at [oal] That's called thermal equilibrium. At [aol]. At [ahl]. At [ooal]!
Oh my god..

Rip the pear off the table and then s... separate the pieces

Say you know a gas' temerature is 300 Kelvin and the mass of each molecule is 5.3 x 10 to the minus 26 kilograms [deep breath]

I'm gonna make a joke.
[people behind camera groan]
I'm gonna.. Insert some personality
[All laugh]

And in many cases, a real gas is close enough to an ideal gas, so that the sumps... the sumptions... [laughs]

The first is called Boyles' law, and it says, that as you increase pressure aleleleh

All three of these laws can become - [sniffs]... Okay... [laughs]

All four properties of a gas including how much gas you have. [Shini giggles, Nick laughs] Outtake opportunity.

It also meant a loss of... [giggles] a lot of sense. No, it didn't.

These changes in length and volume work in a very similar way to the changes in length and volume from stress and strain, that we talked about in our episode on statics [deep breath] [all laugh] Was that obvious?

Heat flow depends on physical contact between moleclu... colelele... which transfer the kinetic energy upon each other... [laughs] Ah...

For a long time scientists described [laughs] sorry [sighs]

So that's how heat affects phase... leleh...

Your body loses heat in all kinds of ways [Nick mumbles] Your body. Not mine. I'm freezing here. Your body.

[deep breath]

So logical...

But meanwhile your refri-- refrigeratah... [laughs] Can we say fridge? I mean...

But meanwhile your fridge is putting out heat as it worksss... to keep itself cold inside...

But all of them are equally likely... Oh. Sorry. [laughs] Oh no, don't use it, don't use it, don't use it...

That's you!

But if I had to pick the biggest game-changing human technology it would probably. My voice just dropped. Did you notice that? It's weird.

[Breathes] Breeeeeeeeathe...

Can I do that again? I'm running out of breath.

Can I do that one more time?

Can I do that again?

Can I do that again?

I - sorry, just one more time for luck.

Can we, we just do it again?

If a toy isn't up to pa - lalala

That was hard. [Off camera: Yeah] I think no matter how many times I wouldn't have got it.

Where it's released...

Which also makes the volume expand and the temp - pressure decrease.

The ideal gas law includes the three - sorry, three is not done like that. The ideal gas law -

Gonna have all these kids running around America with really strange accents.

Creating an imbalance that wants to be returned to imuhhhhh, sorry.

Scary.

And why life could possibly survive or have survived. No.

A process that is known as sublimation if it goes from solid to gas, into - [all laugh] Oooho, it's 'cause it's right in the end and I'm like - (from the back: I know, the tension mounts) Yeah.

Nick: Yah
Shini: The equation - gotta get back into it. [they laugh] You don't know what's been happening since the camera's been off. Alright? You're just coming into this going, "Why are they laughing like mad people?"
Ncik: There's a whole story.
Shini: There's a whole story.