Video transcript

Dick and Dom's Absolute Genius: Archimedes

Dick: Ah. You join me in the bath where today we go inside one of the greatest scientific minds this world has ever seen. He was famous for coming up with a genius idea whilst in the bath.

Not only was he a fantastic mathematician and engineer, but his genius machines are still being used today.

Dom: He did all of this over 2,000 years ago.

Dick: Why are you in my bath?

Dom: I, I don't know.

Dick: Ladies and gentlemen, we give you... Archimedes!

Archimedes: Why are you in his bath, Dom?

Narration: Archimedes was a Greek guy with a great beard, born a ridiculously long time ago, around the year 287BC.

Archimedes was a genius when it came to maths, physics and engineering. He was so clever he was hired to solve tricky problems by the king of Syracuse.

He came up with brilliant theories about why objects float. And he built amazing machines to help defend the king's city against attack!

Dick: You might know the story of Archimedes being in a bath and coming up with a fantastic idea that helped him solve a problem that had been puzzling him for ages.

Dom: He was so excited about solving this problem that he jumped out of the bath - nudey - shouting out, "Eureka, Eureka!"

Dick: In Greek that means, "I've got it! I've got it!"

Dom: But what exactly had he got?

Dick: If only Fran, our genius scientist, was here to tell us more.

Fran: So, Archimedes was working on a problem that he'd been set by the king, cos the king didn't know whether his crown was made of pure gold or not.

Dom: So it was at that moment in the bath that Archimedes solved the problem?

Fran: Yeah.

Dick: But why did he get so excited about that?

Fran: Well the thing is his solution didn't just allow him to work out whether crowns were made of pure gold or not, it allowed him to figure out why things float and why things sink.

And that is much more useful. Come with me.

Dom: I mean, we're not complaining or anything, Fran, but what's all this got to do with Archimedes?

Fran: He knew that different materials could weigh the same, but you get different amounts of material for that same weight.

Dom: So what you're saying is, basically, you get some light and fluffy marshmallows, you get loads of them for 100 grams?

Fran: Yeah.

Dick: Ah, but only a few Aniseed Balls?

Fran: Exactly! And Archimedes figured out that the more of a material you get for that certain weight, the more likely it is to float.

If you don't believe me, let's try it.

Dick and Dom: Ah! Sinkage! Sinkage, yes. So? Floating! Eureka! Eureka!

Archimedes: I'll say

Narration: Until Archimedes came along more than 2,000 years ago, building a ship that would float well was always a trial and error operation.

Dom: There's no doubt, you know, Archimedes was a really clever bloke.

Dick: Look, there's something else here. "He set to catch the full rays of the sun at noon." He's saying here that he set fire to boats

Narration: 2,000 years ago, Archimedes made a special heat ray to defend his city walls against attack from Roman ships.

By cleverly positioning mirrors, Archimedes caught the sun's rays and concentrated them to make one amazingly-hot heat ray.

Fran: I've actually got a specially shaped mirror here for you.

Dom: What can we set on fire?

Fran: I don't know.

Dick: Ah, Just like Archimedes did.

Dom: What.

Dick: Let's set fire to a boat

Dom: Where are you going to find a big red boat?

Dick: There

Fran: Right in you come. Pop your safety specs on... because what we've got here is a heat lamp.

And we're going to use this along with this other mirror as our artificial sun.

Dom: So that's kind of like your sun. And this is the reflector which is going to be generating the heat, etc? Yes?

Fran: Yeah.

Dom: But we can't exactly set fire to a boat in here, can we?

Fran: Well, no, that's why I've got two other things to show you.

Firstly this stuff - fuse wire - and that we can ignite in here. But then that will take the flame outside where we can light the boat a safe distance

And I've also got this stuff.

Dick: What, cotton wool?

Dom: No, no, this is flash wool. You know, you remember me using this stuff as a magician.

It just bursts into flames and disappears.

Go on, ready...

Dick: That's my BBC pass!

Dom: All right

Narration: 'Now, don't copy this at home. 'We're doing this as a controlled experiment, 'but setting fire to stuff in your back garden is a no-no.'

Dick and Dom: In three, two, one, go.

Dom: There she goes. Slowly and steadily to the boat down there. What's in the boat?

Dick: I'll tell you what's in the boat. A nice combustible bag of tricks.

Dom: This is finally it... 'Or is it?'

That boat's absolutely fine. Failed experiment. No bangs, flashes. Whooshes.

Dick: F-F-F-Fire! - F-F-F-Fire!

Dom: Eureka! We've done it!

Dick: Archimedes... you are an absolute genius.