

1

00:00:00,000 --> 00:00:11,360

On this episode of MythBusters, a television exclusive as Adam and Jamie sing for a world

2

00:00:11,360 --> 00:00:12,360

first.

3

00:00:12,360 --> 00:00:14,720

I had a nightmare like this once.

4

00:00:14,720 --> 00:00:18,920

Can the human voice really shatter glass?

5

00:00:18,920 --> 00:00:21,840

The build team go green.

6

00:00:21,840 --> 00:00:25,720

They're testing the proverb, a rolling stone gathers no moss.

7

00:00:25,720 --> 00:00:28,000

That is beautiful.

8

00:00:28,000 --> 00:00:35,800

It's the longest experiment in MythBusters history and sparks will fly in a DIY engineering

9

00:00:35,800 --> 00:00:39,480

special.

10

00:00:39,480 --> 00:00:45,360

Can the humble vacuum cleaner be transformed into a jet engine?

11

00:00:45,360 --> 00:00:49,800

Who are the MythBusters?

12

00:00:49,800 --> 00:00:51,120

Adam Savage.

13

00:00:51,120 --> 00:00:54,040

I reject your reality and substitute my own.

14

00:00:54,040 --> 00:00:55,040

And Jamie Heineman.

15

00:00:55,040 --> 00:00:56,280

I kind of like it in here.

16

00:00:56,280 --> 00:00:57,520

It's private.

17

00:00:57,520 --> 00:01:01,440

Between them more than 30 years special effects experience.

18

00:01:01,440 --> 00:01:03,560

That was intense.

19

00:01:03,560 --> 00:01:07,440

They don't just tell the myths.

20

00:01:07,440 --> 00:01:10,640

They put them to the test.

21

00:01:10,640 --> 00:01:23,760

Are you done yet?

22

00:01:23,760 --> 00:01:26,160

I'm ready to stop anytime you want to start talking.

23

00:01:26,160 --> 00:01:30,200

This is the classic story about the opera singer who is capable of breaking a wine

24

00:01:30,200 --> 00:01:34,480

glass using only her voice and achieving exactly the right tone.

25

00:01:34,480 --> 00:01:38,600

So we've got an audio myth on our hands and that means only one stop.

26

00:01:38,600 --> 00:01:42,000

Our friends at Meyer Sound need to be called in to investigate.

27

00:01:42,000 --> 00:01:44,080

I think they're almost honorary MythBusters now.

28

00:01:44,080 --> 00:01:45,840

They've helped us on so many.

29

00:01:45,840 --> 00:01:49,120

Roger Schwenke is Meyer's MythBuster in chief.

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00:01:49,120 --> 00:01:52,280

He's already busted two urban legends.

31

00:01:52,400 --> 00:01:57,320

Duck Quack's do echo.

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00:01:57,320 --> 00:02:02,600

And thankfully there's no such thing as the infamous brown note.

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00:02:02,600 --> 00:02:07,000

Everyone's got to try this.

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00:02:07,000 --> 00:02:11,920

Now Meyer's mission is to find out whether sound waves can be strong enough to shatter

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00:02:11,920 --> 00:02:16,680

crystal glass.

36

00:02:16,680 --> 00:02:20,880

Everyone's heard of this musical myth but is it truly possible?

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00:02:20,880 --> 00:02:26,240

Well if anyone knows, it's Meyer's sound.

38

00:02:26,240 --> 00:02:32,080

So Roger, have you heard the myth about the opera singer that's able to break a wine glass

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00:02:32,080 --> 00:02:33,080

with her voice?

40

00:02:33,080 --> 00:02:35,920

I've heard that myth and uh...

41

00:02:35,920 --> 00:02:36,920

What do you think?

42

00:02:36,920 --> 00:02:38,200

I'd like to think that it's true.

43

00:02:38,200 --> 00:02:42,080

I think it'd be really impressive if we could break a wine glass with sound so I'm really

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00:02:42,080 --> 00:02:44,200

eager to try it.

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00:02:44,200 --> 00:02:46,040

Eager to try breaking stuff?

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00:02:46,040 --> 00:02:48,760

No wonder this guy's an honorary MythBuster.

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00:02:48,760 --> 00:02:55,640

And already he's got a glass-smashing plan that's all to do with resonance.

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00:02:55,640 --> 00:03:00,120

So first I want to bring a glass over and we'll measure it and see what its resonant

49

00:03:00,120 --> 00:03:04,600

frequency is and then we'll play that frequency back through the speaker and see if we can

50

00:03:04,600 --> 00:03:05,600

break it.

51

00:03:05,600 --> 00:03:09,920

So the theory is that the tone you hear when you hit it is the same tone that will potentially

52

00:03:09,920 --> 00:03:10,920

break it.

53

00:03:10,920 --> 00:03:11,920

Correct.

54

00:03:11,920 --> 00:03:15,800

A crystal glass has a natural resonance.

55

00:03:15,800 --> 00:03:22,080

This is the frequency at which it most efficiently turns sound waves into physical movement.

56

00:03:22,080 --> 00:03:30,160

Play a glass its own resonant frequency but loud and it may move so much that it explodes.

57

00:03:30,160 --> 00:03:32,280

Is this a good distance here?

58

00:03:32,280 --> 00:03:38,120

Uh... yeah that's fine.

59

00:03:38,120 --> 00:03:45,560

They're using lead crystal as it's the most efficient at transforming sound into motion.

60

00:03:45,560 --> 00:03:53,760

This lowest peak here is the fundamental frequency and I'm reading off here 562 hertz so that's

61

00:03:53,760 --> 00:03:55,680

where we should start.

62

00:03:55,680 --> 00:04:03,800

With the computer primed to belt out a pure 562 hertz tone it's mythbusting time.

63

00:04:03,800 --> 00:04:09,080

So this is MythBuster's wine glass breaking test number one.

64

00:04:09,080 --> 00:04:12,880

Simply playing a tone through the speaker to the glass.

65

00:04:12,880 --> 00:04:16,680

I'm really sorry.

66

00:04:16,680 --> 00:04:23,720

I need to actually plug that speaker into something.

67

00:04:23,720 --> 00:04:26,120

Details, details.

68

00:04:26,120 --> 00:04:28,960

Even the Meyer MythBuster can make mistakes.

69

00:04:28,960 --> 00:04:38,440

Let's try that again.

70

00:04:38,440 --> 00:04:40,240

Nothing.

71

00:04:40,240 --> 00:04:46,520

But in opera it's not over till the fat lady sings and Rogers had a harmonious idea.

72

00:04:46,520 --> 00:04:52,320

When you listen to the glass it has many harmonics above the fundamental frequency and so maybe

73

00:04:52,320 --> 00:04:57,120

it's not the fundamental that breaks it maybe we need to produce one of those harmonics.

74

00:04:57,120 --> 00:05:03,520

Up to now Rogers just been playing the fundamental frequency but there are also many other equally

75

00:05:03,520 --> 00:05:08,280

spaced smaller peaks, the harmonics.

76

00:05:08,280 --> 00:05:14,440

So this time the computer set to blast out the full harmonic sound, an exact match of

77

00:05:14,440 --> 00:05:16,560

the glass.

78

00:05:16,560 --> 00:05:26,400

Adam also throws a straw into the mix to help see if the glass is moving at all.

79

00:05:26,400 --> 00:05:29,120

Adam's straw dances.

80

00:05:29,120 --> 00:05:32,400

This glass really is vibrating.

81

00:05:32,400 --> 00:05:36,640

Just check out the high speed.

82

00:05:36,640 --> 00:05:42,240

The glass is as wobbly as jello but not wobbly enough to implode.

83

00:05:42,240 --> 00:05:46,480

To the MythBusters it's just mystifying.

84

00:05:46,480 --> 00:05:49,720

So that can be busted right there.

85

00:05:49,720 --> 00:05:51,960

I don't know that we've exhausted all the possibilities.

86

00:05:51,960 --> 00:05:55,720

Yeah there's something we're missing here because it's really aggressively moving that

87

00:05:55,720 --> 00:05:56,720

glass.

88

00:05:56,720 --> 00:06:00,160

The question is why isn't it breaking the glass?

89

00:06:00,160 --> 00:06:05,440

That is indeed the question and while Adam and Jamie ponder the answer the build team

90

00:06:05,440 --> 00:06:12,440

are cracking on with another myth.

91

00:06:12,440 --> 00:06:17,720

The MythBusters build team are having a barrel of laughs.

92

00:06:17,720 --> 00:06:23,600

They're getting started on the longest experiment in MythBusters history.

93

00:06:23,600 --> 00:06:30,200

They'll need their green fingers as they once again take on conventional wisdom.

94

00:06:30,200 --> 00:06:35,400

Exciting.

95

00:06:35,400 --> 00:06:38,160

Finding a needle in a haystack was actually pretty fun.

96

00:06:38,160 --> 00:06:39,160

What do you think?

97

00:06:39,160 --> 00:06:43,280

Should we do more proverbs and sayings like that?

98

00:06:43,280 --> 00:06:45,800

Finding the needle in a haystack was fun?

99

00:06:45,800 --> 00:06:50,480

Jamie's forgotten that testing that proverb was one of the toughest myth busting days

100

00:06:50,480 --> 00:06:55,040

ever but it's clearly not put them off.

101

00:06:55,040 --> 00:06:58,760

What about the one a rolling stone gathers no moss?

102

00:06:58,760 --> 00:07:00,880

Or does it?

103

00:07:00,880 --> 00:07:04,600

You know I honestly can say I've never thought about it but that would be interesting to

104

00:07:04,600 --> 00:07:05,600

find out.

105

00:07:05,600 --> 00:07:06,600

Should be possible to do.

106

00:07:06,600 --> 00:07:10,240

Alright well I want to get going on this one because I want to bust this proverb wide

107

00:07:10,240 --> 00:07:12,240

open.

108

00:07:12,240 --> 00:07:23,640

First stop for this myth is the Moss Store, also known as the forest.

109

00:07:23,640 --> 00:07:28,680

It seems like the build team have found their man, Brent Mishler, a moss professor.

110

00:07:28,680 --> 00:07:32,920

Well I'm into moss for various reasons and I would be into them even if they weren't

111

00:07:32,920 --> 00:07:36,320

important in the ecosystem but as it happens they are.

112

00:07:36,320 --> 00:07:38,720

This guy really is Dr. Moss.

113

00:07:38,720 --> 00:07:44,160

So there's a lot of moss here, can we just grab this and put it on a rock?

114

00:07:44,160 --> 00:07:48,040

Well probably this would not be the best choice because these are not the same species that

115

00:07:48,040 --> 00:07:51,520

grow on the rock here.

116

00:07:51,520 --> 00:07:55,200

They're barking up the wrong tree with this moss.

117

00:07:55,200 --> 00:08:01,160

Our herb hunters need some rock moss and they're leaving no stone unturned.

118

00:08:01,160 --> 00:08:02,160

Seems pretty strong.

119

00:08:02,400 --> 00:08:04,400

It doesn't break up in your hands.

120

00:08:04,400 --> 00:08:08,240

Yeah that would be a fine one to try.

121

00:08:08,240 --> 00:08:10,000

So how do we get the moss going now?

122

00:08:10,000 --> 00:08:11,000

What do we do next?

123

00:08:11,000 --> 00:08:13,440

I think we'll probably try buttermilk.

124

00:08:13,440 --> 00:08:17,560

Maybe about equal parts of buttermilk and moss and grind it up in a coffee grinder.

125

00:08:17,560 --> 00:08:23,560

Then you can kind of coat the rocks in it and coat the run in it.

126

00:08:23,560 --> 00:08:25,640

Is Dr. Moss serious?

127

00:08:25,640 --> 00:08:30,880

Buttermilk and moss sounds more like a Californian protein shake.

128

00:08:31,080 --> 00:08:33,680

Moss collecting step one accomplished.

129

00:08:37,280 --> 00:08:40,880

Step two means it's time to shop till you rock.

130

00:08:40,880 --> 00:08:46,040

You've heard the people say a rolling stone gathers no moss.

131

00:08:46,040 --> 00:08:47,040

Sure.

132

00:08:47,040 --> 00:08:48,440

Well we're trying to prove that.

133

00:08:48,440 --> 00:08:49,880

Great, well how can I help you?

134

00:08:49,880 --> 00:08:52,240

We have a lot of rocks to select from.

135

00:08:52,240 --> 00:08:54,160

Ain't that the truth?

136

00:08:54,160 --> 00:08:59,600

This place has more rocks than a Flintstones fill.

137

00:08:59,600 --> 00:09:05,520

After much rocky reflection the rolling stones are selected and chopped up into identical

138

00:09:05,520 --> 00:09:07,520

easy to roll cylinders.

139

00:09:07,520 --> 00:09:13,520

Finally, Tori and Scotty can get some satisfaction.

140

00:09:19,560 --> 00:09:24,480

The build team are proverb busting as they test whether a rolling stone really gathers

141

00:09:24,480 --> 00:09:25,960

no moss.

142

00:09:26,720 --> 00:09:28,040

Their shopping list?

143

00:09:28,040 --> 00:09:29,040

Moss.

144

00:09:29,040 --> 00:09:30,040

Check.

145

00:09:30,040 --> 00:09:31,040

Stones.

146

00:09:31,040 --> 00:09:32,040

Check.

147

00:09:33,040 --> 00:09:36,680

Stage three means building the rolling device.

148

00:09:36,680 --> 00:09:40,720

The tricky part is going to be getting rocks to roll continuously for months.

149

00:09:40,720 --> 00:09:43,680

We're going to have to build some kind of rig that does that.

150

00:09:43,680 --> 00:09:47,560

Yeah, you'll have to make something that also withstands the environment because obviously

151

00:09:47,560 --> 00:09:50,160

there has to be moisture and irrigation in there.

152

00:09:50,160 --> 00:09:52,840

Well it'll be a nice simple experiment.

153

00:09:52,840 --> 00:09:55,880

Something will set up, let it run, see what happens.

154

00:09:56,000 --> 00:09:58,240

Simple sounds good.

155

00:09:58,240 --> 00:10:02,880

The plan is to build an irrigated barrel which will be split in two.

156

00:10:02,880 --> 00:10:08,120

The control half will be stationary while the test half will turn.

157

00:10:08,120 --> 00:10:12,640

Within both halves there'll be three rocks each sitting in their own individual track

158

00:10:12,640 --> 00:10:13,800

way.

159

00:10:13,800 --> 00:10:15,800

Will any gather moss?

160

00:10:25,880 --> 00:10:30,960

It's starting to take shape.

161

00:10:30,960 --> 00:10:32,920

This is one of the drums.

162

00:10:32,920 --> 00:10:38,640

This here is one of the tracks inside the drum and this is where the rock is going to roll.

163

00:10:38,640 --> 00:10:40,400

This whole drum will be rolling.

164

00:10:40,400 --> 00:10:46,240

This will just stay at the bottom and just continue to roll and collect moss hopefully.

165

00:10:46,240 --> 00:10:54,280

While Tori tests the rolling rigs, Carrie shapes up to shape the stones.

166

00:10:54,920 --> 00:10:59,080

I'm roughing up this rock so we have one smooth, one rough.

167

00:10:59,080 --> 00:11:03,080

The rock guy reckons you get more moss on a roughed up stone.

168

00:11:03,080 --> 00:11:04,160

Sounds about right.

169

00:11:04,160 --> 00:11:09,640

A rough rock will have all sorts of nooks and crannies where moss could get a grip.

170

00:11:09,640 --> 00:11:12,320

Hey, look what I got from Jamie.

171

00:11:12,320 --> 00:11:17,400

As for the revolving rig, there's no need to reinvent the wheel because Jamie's come

172

00:11:17,400 --> 00:11:18,400

up trumps.

173

00:11:18,400 --> 00:11:21,400

Hey, look at that.

174

00:11:21,400 --> 00:11:23,960

That's as fast as it goes.

175

00:11:23,960 --> 00:11:27,560

Which is more than ample for this man.

176

00:11:27,560 --> 00:11:29,680

I think this is going to be perfect.

177

00:11:29,680 --> 00:11:32,720

Look at how much torque this thing has.

178

00:11:32,720 --> 00:11:35,720

At least enough to rotate these slackers.

179

00:11:35,720 --> 00:11:40,880

All right, team, let's go to work.

180

00:11:40,880 --> 00:11:49,000

While Scotty creates a stand for the spinning barrel, Carrie keeps roughing up those rocks.

181

00:11:49,040 --> 00:11:58,000

Tori adds some matting to keep the rolling tracks moist for the moss.

182

00:11:58,000 --> 00:12:03,000

Everything's coming together, lock, stock and barrel.

183

00:12:03,000 --> 00:12:10,240

Time to put it to the test.

184

00:12:10,240 --> 00:12:11,240

This is beautiful.

185

00:12:11,240 --> 00:12:13,680

It's like watching paint dry.

186

00:12:13,680 --> 00:12:15,520

It's way more exciting now.

187

00:12:15,520 --> 00:12:18,240

Yeah, it's a little bit more exciting than watching paint dry.

188

00:12:18,440 --> 00:12:20,440

Uh-oh, we got a sticker.

189

00:12:20,440 --> 00:12:25,560

Oh, that was close.

190

00:12:25,560 --> 00:12:27,760

We almost had a situation there.

191

00:12:27,760 --> 00:12:30,040

Hey, what's up, buddy?

192

00:12:30,040 --> 00:12:31,040

That is beautiful.

193

00:12:31,040 --> 00:12:33,600

Look at that.

194

00:12:33,600 --> 00:12:39,320

What if it turns out that all your stones gather some fungi or moss?

195

00:12:39,320 --> 00:12:43,680

Are you going to look towards the material that definitely does not gather moss when

196

00:12:43,680 --> 00:12:44,680

it rolls?

197

00:12:44,680 --> 00:12:46,880

Something naturally occurring that would never gather moss.

198

00:12:46,880 --> 00:12:48,880

Can we cross that bridge when we get to it?

199

00:12:48,880 --> 00:12:51,840

Because I really don't think we're going to get any moss on these.

200

00:12:51,840 --> 00:12:56,240

If there's one thing I've learned so far, it's the nothing I think ever has any bearing

201

00:12:56,240 --> 00:12:57,240

on the results.

202

00:12:57,240 --> 00:12:59,360

Well, guys, it looks really good.

203

00:12:59,360 --> 00:13:03,120

Have some fun rolling all those stones.

204

00:13:03,120 --> 00:13:08,920

At last, the build team put the final touches to the rolling rig.

205

00:13:08,920 --> 00:13:14,440

All that remains is to coat the stones in the buttermilk and moss batter.

206

00:13:14,440 --> 00:13:19,120

But are they doing it right?

207

00:13:19,120 --> 00:13:21,600

That was terrible.

208

00:13:21,600 --> 00:13:22,600

Oh, yeah.

209

00:13:22,600 --> 00:13:25,160

Who wants to taste it?

210

00:13:25,160 --> 00:13:26,360

Sorry.

211

00:13:26,360 --> 00:13:29,400

And how ground up is it?

212

00:13:29,400 --> 00:13:30,400

Not at all.

213

00:13:30,400 --> 00:13:32,600

It's just a soggy mess of moss.

214

00:13:32,600 --> 00:13:36,760

Tori opts for a more unusual kitchen tool, the hammer drill.

215

00:13:36,760 --> 00:13:38,200

Bring it up and hit your feet.

216

00:13:38,200 --> 00:13:44,120

If it's worth doing, it's worth overdoing.

217

00:13:44,120 --> 00:13:47,620

Even with the super stirrer, the moss stays together.

218

00:13:47,620 --> 00:13:50,320

This is not what the moss man instructed.

219

00:13:50,320 --> 00:13:52,480

He wanted it chopped fine.

220

00:13:52,480 --> 00:13:53,480

It's good enough.

221

00:13:53,480 --> 00:13:58,480

Equal parts of buttermilk and moss and grind it up in a coffee grinder.

222

00:13:58,480 --> 00:14:04,000

A hammer drill is no coffee grinder, but the team seems satisfied and begin the stone

223

00:14:04,000 --> 00:14:11,360

mirroring, or inoculation, to a scientist.

224

00:14:11,360 --> 00:14:16,080

Our rocks are well-geoded and we're putting them into the rig now.

225

00:14:16,080 --> 00:14:21,560

The team put a roughed up rock, a smooth rock, and a mossy rock from the forest in both the

226

00:14:21,560 --> 00:14:26,320

stationary control side and the revolving test side of the rig.

227

00:14:26,320 --> 00:14:28,800

All right, so now we wait.

228

00:14:28,800 --> 00:14:30,800

Now we wait.

229

00:14:30,800 --> 00:14:31,800

Exciting.

230

00:14:31,920 --> 00:14:42,000

Adam and Jamie are attempting to bust a myth of operatic proportions.

231

00:14:42,000 --> 00:14:47,240

They're trying to learn if a singer can shatter a wine glass with just their voice.

232

00:14:47,240 --> 00:14:51,240

You know, the interesting thing about this myth is while tons of people have claimed

233

00:14:51,240 --> 00:14:55,960

to be able to break glass with their voice, our researchers have yet to come up with a

234

00:14:55,960 --> 00:14:58,640

single confirmed case of it.

235

00:14:59,000 --> 00:15:03,160

You know, well the first one I know of was the famous opera singer Caruso, who claimed

236

00:15:03,160 --> 00:15:07,560

to have done it, but then after he died his wife said he actually didn't.

237

00:15:07,560 --> 00:15:12,760

Yeah, the famous advertisement for Memorex where Elefitz Gerald's voice shatters the

238

00:15:12,760 --> 00:15:14,760

glass.

239

00:15:14,760 --> 00:15:16,360

Believe it.

240

00:15:16,360 --> 00:15:21,240

Elefitz Gerald on Memorex cassette tape with MRX2 Oxide.

241

00:15:21,240 --> 00:15:25,120

Can Memorex shatter the glass?

242

00:15:25,120 --> 00:15:29,480

Well that seemed to work, but they did use amplification.

243

00:15:29,480 --> 00:15:34,080

If we get a singer breaking glass unassisted, I believe it's the very first time it's been

244

00:15:34,080 --> 00:15:35,640

confirmed on camera.

245

00:15:35,640 --> 00:15:38,640

A myth buster exclusive.

246

00:15:38,640 --> 00:15:44,280

Seems Adam's forgetting that so far they've broken nothing, but Meyer's sound may just

247

00:15:44,280 --> 00:15:51,200

have unlocked the glass breaking secret and the key, a board with a two inch hole through

248

00:15:51,200 --> 00:15:53,400

it.

249

00:15:53,400 --> 00:15:54,400

But how's that going to help?

250

00:15:54,680 --> 00:15:59,160

It's going to change the directionality, it's going to change the distribution of pressure

251

00:15:59,160 --> 00:16:07,280

in the near field, so it's going to cause an awful lot of different acoustical phenomenon.

252

00:16:07,280 --> 00:16:11,760

Roger's confident that this holy board is going to do the trick.

253

00:16:11,760 --> 00:16:14,280

Okay, everyone ready?

254

00:16:14,280 --> 00:16:15,960

Ready when you are.

255

00:16:15,960 --> 00:16:18,240

Three, two, one.

256

00:16:18,240 --> 00:16:21,720

Oh there you go.

257

00:16:21,720 --> 00:16:23,440

Okay, that's kind of unexpected.

258

00:16:24,440 --> 00:16:25,440

They've cracked it.

259

00:16:25,440 --> 00:16:30,840

The two inch hole does the job and proves that sound can break glass.

260

00:16:30,840 --> 00:16:35,560

Next, they need to find a singer brave enough to try.

261

00:16:35,560 --> 00:16:37,280

It's so endlessly entertaining.

262

00:16:37,280 --> 00:16:44,480

I'd pay to see this.

263

00:16:44,480 --> 00:16:50,440

The myth busters are testing whether the human voice can break glass and for Adam and Jamie,

264

00:16:50,440 --> 00:16:59,920

it's time to stop its sound school.

265

00:16:59,920 --> 00:17:05,160

We're here in the Castro district of San Francisco and we're about to test whether we can break

266

00:17:05,160 --> 00:17:08,800

a wine glass using a human voice.

267

00:17:08,800 --> 00:17:14,280

This myth needs vocal power, but forget opera singers, Adam and Jamie have gone for full

268

00:17:14,280 --> 00:17:15,280

power.

269

00:17:15,280 --> 00:17:21,000

The power of rock singer Jamie Vendera.

270

00:17:21,000 --> 00:17:22,000

Hi Jamie.

271

00:17:22,000 --> 00:17:23,000

Hi Jamie.

272

00:17:23,000 --> 00:17:24,000

I'm Jamie.

273

00:17:24,000 --> 00:17:25,000

I'm Jamie.

274

00:17:25,000 --> 00:17:26,000

Good to meet you.

275

00:17:26,000 --> 00:17:27,000

Good to meet you.

276

00:17:27,000 --> 00:17:31,960

So Jamie, have you heard the story that it's possible to break a wine glass with a human

277

00:17:31,960 --> 00:17:32,960

voice?

278

00:17:32,960 --> 00:17:33,960

Actually, I have.

279

00:17:33,960 --> 00:17:38,880

One of my vocal teachers, a man named Jim Gillette from a band called Nitro, has done

280

00:17:38,880 --> 00:17:40,800

it for years back in the 80s.

281

00:17:40,800 --> 00:17:45,120

So I know it can be done.

282

00:17:45,120 --> 00:17:51,000

Nitro claimed to be the fastest, loudest and highest sound of the late 80s.

283

00:17:51,000 --> 00:17:53,760

And who would disagree?

284

00:17:53,760 --> 00:17:59,080

Jamie Vendera reckons that Nitro used to break glasses through amplification before every

285

00:17:59,080 --> 00:18:04,920

concert.

286

00:18:04,920 --> 00:18:10,960

Before anyone tries to sing unassisted, it's time to put Nitro and Ella Fitzgerald to the

287

00:18:10,960 --> 00:18:11,960

test.

288

00:18:11,960 --> 00:18:16,920

Can singing through speakers break glass?

289

00:18:16,920 --> 00:18:20,280

I've got to protect the mighty Whirlitzer.

290

00:18:20,280 --> 00:18:24,040

The Whirlitzer here is one of the most famous features of the Castro Theater and the guy

291

00:18:24,040 --> 00:18:25,040

that plays it.

292

00:18:25,040 --> 00:18:30,320

I think it would be bad if he got glass shards in the tips of his fingers.

293

00:18:30,320 --> 00:18:38,880

As the curtain call draws nearer, Jamie Vendera concentrates on finding the perfect glass.

294

00:18:38,880 --> 00:18:40,400

Some of these are a little more dead than the others.

295

00:18:40,400 --> 00:18:43,200

If you flick it, you'll hear how that rings.

296

00:18:43,200 --> 00:18:45,800

I mean, it sounds almost like the ring has a kind of curved.

297

00:18:45,800 --> 00:18:46,800

Exactly.

298

00:18:46,800 --> 00:18:48,840

That's what you're looking for.

299

00:18:48,840 --> 00:18:54,120

Just like at Meyer Sound, there'll be the speaker, the mysterious board with hole, and

300

00:18:54,120 --> 00:18:55,480

then the glass.

301

00:18:55,480 --> 00:19:01,720

It's time for our heavy metal maestro to step up to the mic.

302

00:19:01,720 --> 00:19:07,600

Can you hear that okay, Jamie?

303

00:19:07,600 --> 00:19:12,080

Bingo.

304

00:19:12,080 --> 00:19:16,040

Yeah!

305

00:19:16,040 --> 00:19:18,600

Is it supposed to be that easy?

306

00:19:18,600 --> 00:19:24,200

So the practice professional can use amplification to break glass.

307

00:19:24,200 --> 00:19:29,320

But how about an amateur voice like say, Adam and Jamie's?

308

00:19:29,320 --> 00:19:32,160

I can't wait to try it.

309

00:19:32,520 --> 00:19:37,880

Before they let rip, the build team are plotting a DIY disaster.

310

00:19:37,880 --> 00:19:44,320

The trustworthy vacuum cleaner.

311

00:19:44,320 --> 00:19:47,000

Every home should have one, right?

312

00:19:47,000 --> 00:19:49,520

You want to see if you can get a fire going here?

313

00:19:49,520 --> 00:19:51,480

Well, maybe not.

314

00:19:51,480 --> 00:19:56,280

After all, this myth is about the guy whose vac turned into a jet engine, and the build

315

00:19:56,280 --> 00:20:06,280

team are going to put this to the test.

316

00:20:06,280 --> 00:20:09,040

Guy was cleaning his pool, and he heard a huge explosion.

317

00:20:09,040 --> 00:20:12,240

So he went to his neighbor's house to find out what had happened, and it turned out that

318

00:20:12,240 --> 00:20:17,640

this guy was using a shop vac to try to get the sediment off the bottom of a gas tank

319

00:20:17,640 --> 00:20:18,840

from his boat.

320

00:20:18,840 --> 00:20:22,720

And when it started to fume, it went through the shop vac, and basically turned it into

321

00:20:22,720 --> 00:20:24,160

a turbine engine.

322

00:20:24,160 --> 00:20:25,440

So what's your plan?

323

00:20:25,440 --> 00:20:28,760

Scotty and I are going to go get a shop vac, and we're going to try to suck up some gasoline

324

00:20:28,760 --> 00:20:29,760

and see what happens.

325

00:20:29,760 --> 00:20:35,680

We're going to go clean the pool, and if we hear any big explosions, we're coming ready.

326

00:20:35,680 --> 00:20:39,640

Can a vacuum cleaner really transform into a jet engine?

327

00:20:39,640 --> 00:20:43,480

The girls of all they need to test this dangerous myth.

328

00:20:43,480 --> 00:20:49,400

One tank of gas, and one shop vac.

329

00:20:49,400 --> 00:20:55,960

For our first experiment, we have our shop vac hooked up to our gas can, and the gas

330

00:20:55,960 --> 00:20:59,840

can just has a tiny bit of gas in there, so we're just going to get fumes with this first

331

00:20:59,840 --> 00:21:00,840

one.

332

00:21:00,840 --> 00:21:04,560

But it's the fumes that are the most flammable part.

333

00:21:04,560 --> 00:21:08,200

So let's get this a really running go.

334

00:21:08,200 --> 00:21:10,400

Let's give it a good five minutes before we shut it off.

335

00:21:10,400 --> 00:21:11,400

All right.

336

00:21:11,400 --> 00:21:14,520

If it doesn't go in five minutes, it ain't going to go.

337

00:21:14,520 --> 00:21:18,240

Three, two, one.

338

00:21:18,760 --> 00:21:27,120

As Scotty said, if it doesn't go in five minutes, it ain't going to go.

339

00:21:27,120 --> 00:21:29,840

This myth may not last much longer.

340

00:21:29,840 --> 00:21:35,640

Oh, there must be something to this myth because the warning label to avoid personal injury

341

00:21:35,640 --> 00:21:40,480

or property damage, do not pick up flammable, combustible, or hot materials.

342

00:21:40,480 --> 00:21:41,760

There's got to be some truth to this.

343

00:21:41,760 --> 00:21:43,280

It's got to blow up somewhere.

344

00:21:43,280 --> 00:21:45,040

You'd think so.

345

00:21:45,040 --> 00:21:47,800

But right now, it just ain't sparking.

346

00:21:47,840 --> 00:21:52,200

If it's going to mutate into a jet engine, it'll need some encouragement.

347

00:21:52,200 --> 00:21:58,160

I haven't actually taken a vacuum cleaner apart before, but this one, the motor where

348

00:21:58,160 --> 00:22:03,480

the brushes would be, is isolated from the tank and from any kind of air fumes that would

349

00:22:03,480 --> 00:22:05,160

be inside the tank.

350

00:22:05,160 --> 00:22:09,560

So any sparking will happen in a place where the fumes can't get to.

351

00:22:09,560 --> 00:22:13,520

Scotty reckons that all new vaks have this safety feature.

352

00:22:13,520 --> 00:22:16,960

Maybe it's only older models that are likely to explode.

353

00:22:16,960 --> 00:22:22,960

I guess we can wrap this one up because it's pretty much busted as far as the new vacuums

354

00:22:22,960 --> 00:22:23,960

go.

355

00:22:23,960 --> 00:22:24,960

Highly unlikely, anyway.

356

00:22:31,960 --> 00:22:33,480

What the hell was that?

357

00:22:33,480 --> 00:22:34,480

That was sparks.

358

00:22:34,480 --> 00:22:36,480

What was it doing?

359

00:22:36,480 --> 00:22:37,480

Oh.

360

00:22:37,480 --> 00:22:38,480

Chopped through the wires.

361

00:22:38,480 --> 00:22:39,480

Well, maybe that's how we got them.

362

00:22:39,480 --> 00:22:40,480

That'll do it every time.

363

00:22:41,440 --> 00:22:46,440

This could be just one of those Mythbusters Eureka moments.

364

00:22:50,440 --> 00:22:52,240

Scotty, I think that was a happy mistake.

365

00:22:52,240 --> 00:22:56,040

I think we can actually throw a little likely into our unlikely scenario.

366

00:22:56,040 --> 00:22:58,440

What if the vacuum cleaner was shorting out?

367

00:22:58,440 --> 00:22:59,440

It's a possibility.

368

00:22:59,440 --> 00:23:02,000

It would definitely make sparks.

369

00:23:02,000 --> 00:23:07,240

But even with the horrible home wiring job, the fumes still won't be able to get to where

370

00:23:07,240 --> 00:23:08,240

the spark is.

371

00:23:09,000 --> 00:23:10,000

I want to bang.

372

00:23:10,000 --> 00:23:15,000

Let's make the optimal, most beautiful conditions for this thing to blow up.

373

00:23:15,000 --> 00:23:20,000

That means drilling a hole that will allow the fumes to get to the spark.

374

00:23:20,000 --> 00:23:25,000

If Scotty's right that the shop-backed design has changed, then this still is testing our

375

00:23:25,000 --> 00:23:26,000

myth.

376

00:23:26,000 --> 00:23:31,000

This time, the bill team have gone all out for an explosion.

377

00:23:31,000 --> 00:23:34,000

Gas directly in the vacuum.

378

00:23:34,760 --> 00:23:39,760

A homemade short circuit and some air vents leading to the sparks.

379

00:23:39,760 --> 00:23:46,760

This goes against all health and safety rules, but these guys are trained professionals.

380

00:23:46,760 --> 00:23:48,760

Don't try this one at home.

381

00:23:48,760 --> 00:23:53,760

Three, two, one.

382

00:23:53,760 --> 00:23:59,760

Despite their best efforts, a jet engine this isn't.

383

00:24:00,520 --> 00:24:07,520

For a confused and disconsolate Scotty, it's back to the drawing board.

384

00:24:11,120 --> 00:24:18,120

Scotty and I tried everything with the shop-backed to try to make a turbine engine.

385

00:24:18,640 --> 00:24:24,640

What we basically figured out is that the airflow is completely isolated from the motor.

386

00:24:24,640 --> 00:24:26,560

On purpose, I would imagine.

387

00:24:26,560 --> 00:24:27,560

Does that end?

388

00:24:27,560 --> 00:24:28,560

Is it busted?

389

00:24:28,560 --> 00:24:29,560

Well, we're not sure yet.

390

00:24:29,560 --> 00:24:31,160

The design and the motors have changed.

391

00:24:31,160 --> 00:24:34,720

So I'm probably going to go visit your nemesis down at the vacuum shop.

392

00:24:34,720 --> 00:24:38,720

My guideline when you're there is just keep your lips away from the spinning things.

393

00:24:38,720 --> 00:24:42,720

One spitting twice shy.

394

00:24:42,720 --> 00:24:49,720

Rarely is that proverb used in the context of vacuum cleaners.

395

00:24:49,720 --> 00:24:52,720

Are you Peter?

396

00:24:52,720 --> 00:24:53,720

Yes, I am.

397

00:24:53,720 --> 00:24:54,720

I'm Tori.

398

00:24:54,720 --> 00:24:55,720

Tori, glad to meet you.

399

00:24:55,720 --> 00:24:56,720

Good to meet you.

400

00:24:56,720 --> 00:24:59,720

I'm glad that you took care of him and maybe you can help me out.

401

00:24:59,720 --> 00:25:03,720

Well, if it's to do with vacuum cleaners, I probably could help you out here.

402

00:25:03,720 --> 00:25:06,840

Well, we're trying to do, I don't know if you've ever heard of the myth, the exploding

403

00:25:06,840 --> 00:25:11,760

vacuum cleaner where somebody was actually vacuuming up gasoline and a spark from the

404

00:25:11,760 --> 00:25:16,960

motor caused the whole vacuum cleaner to explode and he went rocketing around the shop.

405

00:25:16,960 --> 00:25:21,960

Oh yeah, if you've got papers and you've got spark, you've got a fire going.

406

00:25:21,960 --> 00:25:22,960

Excellent.

407

00:25:22,960 --> 00:25:25,960

You want to see if you can get a fire going here?

408

00:25:25,960 --> 00:25:26,960

What?

409

00:25:26,960 --> 00:25:27,960

Right here in the store?

410

00:25:27,960 --> 00:25:30,960

Wait, you got a fire extinguisher in case?

411

00:25:30,960 --> 00:25:34,960

Oh, I got fire extinguishers all over the store.

412

00:25:34,960 --> 00:25:35,960

Okay.

413

00:25:35,960 --> 00:25:36,960

Need some help?

414

00:25:36,960 --> 00:25:38,960

I have a little bit more spark.

415

00:25:38,960 --> 00:25:40,960

There we go.

416

00:25:40,960 --> 00:25:44,840

Shop vac plus fumes can equal fire.

417

00:25:44,840 --> 00:25:46,320

This myth ain't busted yet.

418

00:25:46,320 --> 00:25:50,480

That's what I was saying, you get those fumes going and a little spark, you get something

419

00:25:50,480 --> 00:25:51,980

burning.

420

00:25:51,980 --> 00:25:58,020

Armed with the knowledge that vacuum cleaners can burst into flame, Tori next needs to turn

421

00:25:58,020 --> 00:26:00,020

one into a jet engine.

422

00:26:00,020 --> 00:26:06,660

You guys have a good day.

423

00:26:06,660 --> 00:26:12,340

Flaming vacuum cleaners, Tori's testing the myth that the everyday vac can mutate into

424

00:26:12,340 --> 00:26:13,340

a jet engine.

425

00:26:13,340 --> 00:26:16,980

You got some good fire.

426

00:26:16,980 --> 00:26:19,180

So Tori, you got any results yet on this one?

427

00:26:19,180 --> 00:26:22,940

Well, what we were trying to do is to see if an older version of a vacuum motor would

428

00:26:22,940 --> 00:26:28,980

ignite gasoline and the guy at the shop pretty much demonstrated that in an extreme way.

429

00:26:28,980 --> 00:26:33,900

So we've proven that it can light the gasoline, but in no way was it a jet engine.

430

00:26:33,900 --> 00:26:35,740

Well, you know what that means.

431

00:26:35,740 --> 00:26:36,820

I think I do.

432

00:26:36,820 --> 00:26:40,660

This being myth busters, we have to see if there's any way that we can actually create

433

00:26:40,660 --> 00:26:42,940

a jet engine out of vacuum cleaner parts.

434

00:26:42,940 --> 00:26:44,300

You must have read my resume.

435

00:26:44,300 --> 00:26:46,340

I'm the man for your job.

436

00:26:46,340 --> 00:26:51,100

The build team recreated the circumstances of this myth and got nowhere.

437

00:26:51,100 --> 00:26:54,660

So now Tori needs to replicate its results.

438

00:26:54,660 --> 00:26:59,660

Hard core thrust.

439

00:26:59,660 --> 00:27:05,340

The engine sucks air in at the front with a fan, in this case the vac motor.

440

00:27:05,340 --> 00:27:09,060

This air is compressed, then mixed with fuel and lit.

441

00:27:09,060 --> 00:27:13,900

The burning gases blast out backwards and cause thrust.

442

00:27:13,900 --> 00:27:20,220

And for this project, vac parts alone aren't quite enough.

443

00:27:20,220 --> 00:27:26,500

While an engine carry limbers up, Tori's been shopping for jet engine parts in, of all places,

444

00:27:26,500 --> 00:27:27,900

the restaurant district.

445

00:27:27,900 --> 00:27:31,260

I found this, this could be, you know, this is going to be for the flame holder here.

446

00:27:31,260 --> 00:27:32,260

That is perfect.

447

00:27:32,260 --> 00:27:34,620

In the combustion area.

448

00:27:34,620 --> 00:27:39,580

I got this portable stove and what I'll do is I'll use the propane ring for the combustion

449

00:27:39,580 --> 00:27:40,580

area.

450

00:27:40,580 --> 00:27:41,580

There's also an electric igniter in here.

451

00:27:41,580 --> 00:27:42,580

Oh, perfect.

452

00:27:42,580 --> 00:27:44,260

I love this.

453

00:27:44,260 --> 00:27:48,900

This is exactly what they have at NASA.

454

00:27:48,900 --> 00:27:54,420

Of course NASA used theirs to build rockets, while Tori's got to build a jet engine.

455

00:27:54,420 --> 00:28:00,580

It's going to be one small step for him and probably an even smaller step for mankind.

456

00:28:00,580 --> 00:28:07,260

Oh, look what I found.

457

00:28:07,260 --> 00:28:08,660

This is my, this is my engine.

458

00:28:08,660 --> 00:28:10,340

This is my jet engine.

459

00:28:10,340 --> 00:28:12,340

The final ingredients ready.

460

00:28:12,340 --> 00:28:20,140

It's time to get this thing cooking.

461

00:28:20,140 --> 00:28:25,860

Flame catcher.

462

00:28:25,860 --> 00:28:30,100

The vacuum cleaner and household parts are clicking into place.

463

00:28:30,100 --> 00:28:32,820

That just leads the fuel injection system.

464

00:28:32,820 --> 00:28:35,020

That's a jet engine.

465

00:28:35,020 --> 00:28:40,180

Not really.

466

00:28:40,500 --> 00:28:44,940

Tori's worried that the vacuum fan will simply snuff out the flame.

467

00:28:44,940 --> 00:28:49,420

I'm going to hook up this motor, see how much wind gets blown through the tube and see if

468

00:28:49,420 --> 00:28:52,100

that's enough to blow it out.

469

00:28:52,100 --> 00:28:56,180

With the vacuum off and the gas running, let's light that fire.

470

00:28:56,180 --> 00:28:59,300

Mythbusters style.

471

00:28:59,300 --> 00:29:03,340

We have ignition.

472

00:29:03,340 --> 00:29:06,900

So on with the VAC.

473

00:29:06,900 --> 00:29:08,500

And it's out.

474

00:29:08,500 --> 00:29:10,380

Tori's fears are confirmed.

475

00:29:10,380 --> 00:29:13,020

The VAC blows out the flame.

476

00:29:13,020 --> 00:29:17,500

So that is not going to work.

477

00:29:17,500 --> 00:29:18,500

Plan B.

478

00:29:18,500 --> 00:29:19,660

Do you have a plan B?

479

00:29:19,660 --> 00:29:20,660

Absolutely not.

480

00:29:20,660 --> 00:29:22,380

Don't be modest.

481

00:29:22,380 --> 00:29:27,340

All good mythbusters have a plan B.

482

00:29:27,340 --> 00:29:31,180

And in this case, it's build your own propane stove.

483

00:29:31,180 --> 00:29:33,420

Build it bigger and better.

484

00:29:33,420 --> 00:29:34,420

Or at least try.

485

00:29:35,420 --> 00:29:39,180

I don't know, there's going to be a lot of engineers out there looking at me going,

486

00:29:39,180 --> 00:29:40,940

what the hell is he doing?

487

00:29:40,940 --> 00:29:51,020

And I'm asking myself that on a moment by moment basis, what the hell am I doing?

488

00:29:51,020 --> 00:29:52,940

Great balls of fire.

489

00:29:52,940 --> 00:30:03,340

Could this just be enough to turn a shop vac into a jet engine?

490

00:30:03,340 --> 00:30:05,580

In the myth can a singer break glass?

491

00:30:05,580 --> 00:30:11,060

The mythbusters are about to see if even their amateur voices can blast through speakers

492

00:30:11,060 --> 00:30:17,180

and smash crystal.

493

00:30:17,180 --> 00:30:21,260

Before they break out in song, first they need some training.

494

00:30:21,260 --> 00:30:24,940

I can't do all that, I'm smiling.

495

00:30:24,940 --> 00:30:28,980

And believe it or not, this is lesson number one.

496

00:30:28,980 --> 00:30:29,980

Lip bubbles.

497

00:30:29,980 --> 00:30:30,980

Just do that.

498

00:30:30,980 --> 00:30:31,980

Like that?

499

00:30:31,980 --> 00:30:32,980

Yes, several times.

500

00:30:32,980 --> 00:30:39,260

I don't know if I can do that all.

501

00:30:39,260 --> 00:30:43,060

You can't make lip bubbles with a stash?

502

00:30:43,060 --> 00:30:46,180

Fortunately for Jamie, there's another technique.

503

00:30:46,180 --> 00:30:52,220

Make a smiley face and you go.

504

00:30:52,220 --> 00:30:56,220

So it's like falsetto and you start real low and you get louder and louder on the same

505

00:30:56,220 --> 00:30:57,220

pitch.

506

00:30:57,220 --> 00:31:01,460

Real soft.

507

00:31:01,460 --> 00:31:02,460

Like a woman.

508

00:31:02,460 --> 00:31:07,100

You want to try a glass?

509

00:31:07,100 --> 00:31:08,100

I'm dying to try a glass.

510

00:31:08,100 --> 00:31:10,500

I want to see Jamie do it first.

511

00:31:10,500 --> 00:31:12,900

Everyone quiet for a second while I give Jamie the tone.

512

00:31:12,900 --> 00:31:14,900

This is Jamie Heineman.

513

00:31:14,900 --> 00:31:16,340

You know he has a perfect pitch.

514

00:31:16,340 --> 00:31:22,500

And he's going to need it to break this glass.

515

00:31:22,500 --> 00:31:30,500

I had a nightmare like this once.

516

00:31:30,500 --> 00:31:36,620

Well I'm moving the straw around pretty good.

517

00:31:36,620 --> 00:31:42,100

Sure enough the straw is dancing but no shards fly.

518

00:31:42,100 --> 00:31:44,140

Maybe the teacher's got some top tips.

519

00:31:44,140 --> 00:31:45,980

Jamie, what am I doing wrong?

520

00:31:45,980 --> 00:31:50,460

You've got to shave your mustache.

521

00:31:50,580 --> 00:31:53,740

When you see that straw shaking, stop it.

522

00:31:53,740 --> 00:31:56,860

It ain't like jumping from a seed to a sea sharp like normal people do.

523

00:31:56,860 --> 00:32:00,780

You've got to slide slowly up or slowly down.

524

00:32:00,780 --> 00:32:10,780

You're just a hear away from a guy.

525

00:32:10,780 --> 00:32:15,100

If at first you don't succeed, try try again.

526

00:32:15,100 --> 00:32:22,620

So please, not too many times.

527

00:32:22,620 --> 00:32:25,300

Releasing the awesome power of the Heineman.

528

00:32:25,300 --> 00:32:26,300

Well you try.

529

00:32:26,300 --> 00:32:27,300

Okay.

530

00:32:27,300 --> 00:32:31,260

It seems that Jamie's got the power but not the pitch.

531

00:32:31,260 --> 00:32:32,700

He's an octave too low.

532

00:32:32,700 --> 00:32:34,820

Will you go tap the glass for me?

533

00:32:34,820 --> 00:32:35,820

Okay.

534

00:32:35,820 --> 00:32:36,820

Maybe Adam will be on song.

535

00:32:36,820 --> 00:32:41,820

Will you tap the glass for me?

536

00:32:41,820 --> 00:32:52,220

Adam is also just too deep for this crystal.

537

00:32:52,220 --> 00:32:55,900

No I don't think I have the tone right.

538

00:32:55,900 --> 00:32:58,340

There you go.

539

00:32:58,340 --> 00:32:59,340

Alright.

540

00:32:59,340 --> 00:33:00,340

Push down with your stomach.

541

00:33:00,340 --> 00:33:01,340

Breathe in with your belly.

542

00:33:01,340 --> 00:33:08,620

Take the sphincter.

543

00:33:08,620 --> 00:33:10,340

It started to jump right there just now.

544

00:33:10,340 --> 00:33:11,340

Alright.

545

00:33:11,340 --> 00:33:12,340

There you go.

546

00:33:12,340 --> 00:33:13,340

I did it.

547

00:33:13,340 --> 00:33:14,340

Wow.

548

00:33:14,340 --> 00:33:15,340

There you go.

549

00:33:15,340 --> 00:33:16,340

That was great.

550

00:33:16,340 --> 00:33:17,340

I graduated.

551

00:33:17,340 --> 00:33:18,340

You're now a full vocalist.

552

00:33:18,340 --> 00:33:19,340

Oh that's incredible.

553

00:33:19,340 --> 00:33:34,540

Through amplification, Adam has proved that even an untrained voice can sing the correct

554

00:33:34,540 --> 00:33:38,220

tone to break glass.

555

00:33:38,220 --> 00:33:39,220

No more kids.

556

00:33:39,220 --> 00:33:43,420

No experiment is valid unless it's repeatable so I'm going to try this again.

557

00:33:43,420 --> 00:33:46,220

All in the name of science of course.

558

00:33:46,220 --> 00:34:00,900

I'm trying the master's techniques.

559

00:34:00,900 --> 00:34:01,900

Another success.

560

00:34:01,900 --> 00:34:18,100

Now to prepare for that global exclusive, unamplified glass breaking.

561

00:34:18,100 --> 00:34:24,740

The build team have rolled back to the stone age to see if a rolling stone gathers no moss.

562

00:34:24,740 --> 00:34:29,420

Their circular rig has been turning for four weeks to test this traditional proverb.

563

00:34:29,420 --> 00:34:31,820

But what does it actually mean?

564

00:34:31,820 --> 00:34:34,340

Let's check the word on the street.

565

00:34:34,340 --> 00:34:37,020

A rolling stone gathers no moss.

566

00:34:37,020 --> 00:34:43,340

I think that means that if you keep on going, you don't collect a lot of junk.

567

00:34:43,340 --> 00:34:44,340

I guess it would depend.

568

00:34:44,340 --> 00:34:47,380

It's kind of like a coffee table on wheels gathers no dust.

569

00:34:47,380 --> 00:34:51,940

As long as you keep moving around, you don't have to worry about getting tied down, committed,

570

00:34:51,940 --> 00:34:52,940

obligated.

571

00:34:52,940 --> 00:34:58,580

If you keep on the move, you don't get slimy and unattractive.

572

00:34:58,580 --> 00:35:02,940

If you're asking if I think that moss would grow on a stone that is continually moving,

573

00:35:02,940 --> 00:35:04,540

I don't think so.

574

00:35:04,540 --> 00:35:06,540

Don't think so, huh?

575

00:35:06,540 --> 00:35:09,700

Well after four weeks, let's check on the progress.

576

00:35:09,700 --> 00:35:12,900

It looks almost like in these little cracks.

577

00:35:12,900 --> 00:35:13,900

Could that be growing?

578

00:35:13,900 --> 00:35:14,900

You know what?

579

00:35:14,900 --> 00:35:17,180

It's somewhat stuck there.

580

00:35:17,180 --> 00:35:18,180

That could be growing.

581

00:35:18,180 --> 00:35:19,180

I don't know.

582

00:35:19,180 --> 00:35:20,180

I don't think so.

583

00:35:20,180 --> 00:35:21,660

Couldn't this be gathered moss?

584

00:35:21,660 --> 00:35:25,100

Well then that's where you have to ask the question, what is gathering?

585

00:35:25,100 --> 00:35:28,700

Does it mean does it just stick to it or does it actually grow on it?

586

00:35:28,700 --> 00:35:31,180

Tari philosophizing again.

587

00:35:31,180 --> 00:35:36,100

Up to now, the test has inferred that to gather moss means to grow it.

588

00:35:36,100 --> 00:35:39,700

But what if it means just to snag some?

589

00:35:39,700 --> 00:35:41,900

That needs a whole new test.

590

00:35:41,900 --> 00:35:46,980

Something like rolling a stone down a mossy hill.

591

00:35:46,980 --> 00:35:50,660

After we roll our stones down a little mossy patch, we've got a little magnifying glass

592

00:35:50,660 --> 00:35:54,300

and we're going to search the rocks to see if we can find any little traces of moss left

593

00:35:54,300 --> 00:35:59,860

in our stone because the tiniest little trace will prove or disprove this proverb.

594

00:35:59,860 --> 00:36:08,100

That's the plan, to make a mountain out of a moss hill.

595

00:36:08,100 --> 00:36:09,940

Nice fall in there.

596

00:36:09,940 --> 00:36:14,820

Kari's rolling down both the smooth rocks and the ones she's roughing up to see if

597

00:36:14,820 --> 00:36:18,660

any will collect some moss on their short mossy migration.

598

00:36:18,660 --> 00:36:22,420

Think we can get better.

599

00:36:22,420 --> 00:36:23,420

And the results?

600

00:36:24,220 --> 00:36:26,420

There's definitely some moss on this one.

601

00:36:26,420 --> 00:36:29,300

It ain't much, but it's definitely moss.

602

00:36:29,300 --> 00:36:32,420

I have a feeling that if this rock stayed stationary and didn't roll again, that the

603

00:36:32,420 --> 00:36:35,820

moss could probably grow because it grows so wild out here.

604

00:36:35,820 --> 00:36:39,420

To gather or to grow, that is the question.

605

00:36:39,420 --> 00:36:46,900

Tumble a rock over moss and it sure picks some up, but will a rolling rock grow moss?

606

00:36:46,900 --> 00:36:51,500

Back to the workshop, where not everything is rolling smoothly.

607

00:36:52,500 --> 00:36:55,700

Well, we've been rolling our stones for six weeks now.

608

00:36:55,700 --> 00:36:56,700

What do we got?

609

00:36:56,700 --> 00:36:59,700

Well, remember when you said it was going to be a simple experiment?

610

00:36:59,700 --> 00:37:01,700

Yes, I do.

611

00:37:01,700 --> 00:37:03,700

Surprisingly enough, we messed it up.

612

00:37:03,700 --> 00:37:04,700

What'd you do?

613

00:37:04,700 --> 00:37:10,020

Well, supposedly the moss expert seems to think that we didn't chop the moss up fine

614

00:37:10,020 --> 00:37:11,020

enough.

615

00:37:11,020 --> 00:37:13,380

The stationary rocks are control nothing.

616

00:37:13,380 --> 00:37:15,580

We have not grown any moss whatsoever.

617

00:37:15,580 --> 00:37:19,980

But we do have a rock that already had moss growing on it, and that moss is growing great.

618

00:37:19,980 --> 00:37:23,020

So at least we've proven that we have a moss-friendly environment.

619

00:37:23,020 --> 00:37:26,460

I thought this was going to be an easy, simple experiment.

620

00:37:26,460 --> 00:37:27,460

And you screwed it up.

621

00:37:27,460 --> 00:37:31,540

Well, let's go out and get some fresh moss and chop it up properly this time.

622

00:37:31,540 --> 00:37:32,540

Let's get this going.

623

00:37:32,540 --> 00:37:36,860

I don't want to lose any more sleep over this, so do it right.

624

00:37:36,860 --> 00:37:40,860

Six weeks wasted by poor moss mangling.

625

00:37:40,860 --> 00:37:44,020

This time the fresh moss is minced in a blender.

626

00:37:44,020 --> 00:37:48,860

Much better than Tori's hammer drill.

627

00:37:48,860 --> 00:37:53,500

This moss milkshake is much more like a smoothie.

628

00:37:53,500 --> 00:38:01,340

The batter is painted on the rolling rocks, the control rocks, and on the lanes.

629

00:38:01,340 --> 00:38:06,300

Everything's back on track, and the stones start their pilgrimage once again.

630

00:38:06,300 --> 00:38:13,140

Now, we sit and wait for a long, long, long time.

631

00:38:13,140 --> 00:38:17,700

In fact, the Mythbusters wait for over six months.

632

00:38:18,020 --> 00:38:21,980

The rolling rig spins right through the spring.

633

00:38:21,980 --> 00:38:26,660

It's still wheeling during the height of summer, and as the nights lengthen and the autumn

634

00:38:26,660 --> 00:38:32,220

chill returns, the stones are still rolling along.

635

00:38:32,220 --> 00:38:37,660

It's the longest experiment in Mythbusters history.

636

00:38:37,660 --> 00:38:43,220

We've been working on this story for a little over six months, and we've finally, possibly,

637

00:38:43,260 --> 00:38:49,660

I think we have some tiny little results that can answer the question, will a rolling stone gather moss?

638

00:38:49,660 --> 00:38:55,660

Okay, guys, well, you broke this down into two separate stories, and the first one is,

639

00:38:55,660 --> 00:38:59,420

will a rolling stone actually gather or collect moss?

640

00:38:59,420 --> 00:39:02,220

You guys went out to a hill and rolled a rock down the hill.

641

00:39:02,220 --> 00:39:03,220

What are the results?

642

00:39:03,220 --> 00:39:06,380

Well, actually, the rolling stone did gather moss.

643

00:39:06,380 --> 00:39:11,380

The second part that these guys tested was, will it actually grow moss?

644

00:39:11,380 --> 00:39:16,900

Will a rolling stone that has gathered some moss actually allow the moss to grow?

645

00:39:16,900 --> 00:39:22,780

Time to unload both barrels and collect some results, starting with the rocks that didn't

646

00:39:22,780 --> 00:39:23,940

move an inch.

647

00:39:23,940 --> 00:39:27,220

Oh, that's actually growing pretty well.

648

00:39:27,220 --> 00:39:28,220

Wow.

649

00:39:28,220 --> 00:39:29,220

Yeah.

650

00:39:29,220 --> 00:39:32,300

All the stationary rocks grow moss.

651

00:39:32,300 --> 00:39:37,340

So the rig was at least a moss-friendly barrel, but of course the Myth is about the rolling

652

00:39:37,340 --> 00:39:38,340

stones.

653

00:39:38,340 --> 00:39:41,060

Very gentle.

654

00:39:41,060 --> 00:39:44,940

This one's been rolling for six months, over a hundred miles.

655

00:39:44,940 --> 00:39:48,660

It's a long hill.

656

00:39:48,660 --> 00:39:50,660

Do you see any moss?

657

00:39:50,660 --> 00:39:53,340

Moss is so far from the ground.

658

00:39:53,340 --> 00:39:55,940

I don't see any.

659

00:39:55,940 --> 00:40:02,420

And it's the same for all three rolling rocks, not a trace of moss.

660

00:40:02,420 --> 00:40:04,540

So, you guys, what do we tell the viewers?

661

00:40:04,540 --> 00:40:08,420

I mean, is this proverb something that we can still use in the modern world?

662

00:40:08,420 --> 00:40:13,380

For me, there's no question about it, that the spirit of this myth is involving growing

663

00:40:13,380 --> 00:40:14,380

of moss.

664

00:40:14,380 --> 00:40:18,380

It's not like, yeah, okay, so you can roll a stone down a hill and there can be little

665

00:40:18,380 --> 00:40:22,620

bits of moss that get stuck to it for an instant until they fall off.

666

00:40:22,620 --> 00:40:23,900

That's not what the myth is about.

667

00:40:23,900 --> 00:40:24,900

I totally agree.

668

00:40:24,900 --> 00:40:28,420

And so I would say this proverb gets the Mythbuster seal of approval.

669

00:40:28,420 --> 00:40:31,300

A rolling stone does not gather any moss.

670

00:40:31,300 --> 00:40:32,300

That's the spirit.

671

00:40:32,300 --> 00:40:33,300

Yes.

672

00:40:33,300 --> 00:40:34,300

So it's...

673

00:40:34,300 --> 00:40:35,300

Current.

674

00:40:35,300 --> 00:40:36,300

Okay.

675

00:40:36,300 --> 00:40:44,820

The cherished vacuum cleaner.

676

00:40:44,820 --> 00:40:50,540

Loved and loathed by housewives and husbands for almost a hundred years.

677

00:40:50,540 --> 00:41:01,940

But can this household chore turn into something altogether more explosive?

678

00:41:01,940 --> 00:41:08,740

Can a vacuum cleaner be turned into a jet engine?

679

00:41:08,740 --> 00:41:11,460

You know, like all great myths, this one has an element of truth.

680

00:41:11,460 --> 00:41:14,940

Well, our research has actually turned up at least three cases that might have been

681

00:41:14,940 --> 00:41:15,940

its inspiration.

682

00:41:15,940 --> 00:41:21,380

I've got one from 1992, a guy trying to clean up a swimming pool water acetone mixed with

683

00:41:21,380 --> 00:41:25,420

a shop vac, got an explosion and he suffered burns on 70% of his body.

684

00:41:25,420 --> 00:41:30,060

And then in 93, there was a guy cleaning a propane tank on a train and he said it off,

685

00:41:30,060 --> 00:41:31,060

he died.

686

00:41:31,060 --> 00:41:32,060

What do you think?

687

00:41:32,060 --> 00:41:36,220

The myth that big bad things are going to happen if you use shop vac around explosive

688

00:41:36,220 --> 00:41:37,220

fuels?

689

00:41:37,220 --> 00:41:39,980

It will file it under operator error.

690

00:41:39,980 --> 00:41:43,780

Let's hope that they've told this to our resident pyromaniac.

691

00:41:43,780 --> 00:41:49,780

Tari's been on a mission to build a jet engine out of vac parts and household items.

692

00:41:49,780 --> 00:41:55,100

With the fuel injection sorted and a cone in place to accelerate the burning gases, it's

693

00:41:55,100 --> 00:41:57,900

almost time for a lift off.

694

00:41:57,900 --> 00:42:00,300

Okay, it's ready to go.

695

00:42:00,300 --> 00:42:01,300

I have it all sealed up.

696

00:42:01,300 --> 00:42:02,300

A little nervous.

697

00:42:02,300 --> 00:42:07,300

I think it might explode, but that's kind of cool too, right?

698

00:42:07,300 --> 00:42:13,340

All right, all I have to do next is hang it and we'll fill it with gas and then ignite

699

00:42:13,340 --> 00:42:16,340

it.

700

00:42:16,340 --> 00:42:21,820

Look at that.

701

00:42:21,820 --> 00:42:27,620

Okay, this is good.

702

00:42:27,620 --> 00:42:33,260

For once, the term not exactly rocket science couldn't be more wrong.

703

00:42:33,260 --> 00:42:42,140

I'm going to go fill the engine with gas and then let's light this puppy.

704

00:42:42,140 --> 00:42:46,140

T minus 10 seconds.

705

00:42:46,140 --> 00:42:47,140

Which one's the igniter?

706

00:42:47,140 --> 00:42:48,140

This one.

707

00:42:48,140 --> 00:42:49,140

Okay.

708

00:42:49,140 --> 00:42:54,820

Houston, we have a problem.

709

00:42:54,820 --> 00:42:56,980

No, see it's not lighting.

710

00:42:57,100 --> 00:43:03,180

I'm going to pull the igniter out of the center and just stick it at the back exhaust so it'll

711

00:43:03,180 --> 00:43:05,260

just ignite from there.

712

00:43:05,260 --> 00:43:10,340

With the igniter directly in the gas stream, it's back to mission control.

713

00:43:10,340 --> 00:43:14,540

Here we go.

714

00:43:14,540 --> 00:43:16,540

And ignition.

715

00:43:16,540 --> 00:43:21,020

Uh-oh.

716

00:43:21,020 --> 00:43:25,020

Why is it we always have this problem?

717

00:43:25,060 --> 00:43:28,020

It's sparking, but not igniting the gas.

718

00:43:28,020 --> 00:43:29,980

I'm going to light it.

719

00:43:29,980 --> 00:43:31,820

We'll stick it on the C-stand.

720

00:43:31,820 --> 00:43:35,540

I'll ignite it and just we'll have an open flame at the end of the exhaust because I

721

00:43:35,540 --> 00:43:37,900

don't know why it's not working now.

722

00:43:37,900 --> 00:43:39,900

Okay.

723

00:43:39,900 --> 00:43:41,900

Now that's got to work.

724

00:43:41,900 --> 00:43:43,900

Here we go.

725

00:43:43,900 --> 00:43:45,900

Gas on.

726

00:43:45,900 --> 00:43:52,900

All right, here we go.

727

00:43:52,900 --> 00:43:59,900

It's moving and it's on fire.

728

00:43:59,900 --> 00:44:05,900

Well, it didn't really jet across the room.

729

00:44:05,900 --> 00:44:08,780

Well, it was chained to the ceiling.

730

00:44:08,780 --> 00:44:12,380

The high speed shows that the flame igniter did the trick.

731

00:44:12,380 --> 00:44:14,900

Finally, the gas is lit.

732

00:44:14,900 --> 00:44:17,900

But this isn't just a burning fireball.

733

00:44:17,900 --> 00:44:21,900

Watch what happens when Tauri's going to be on fire.

734

00:44:21,900 --> 00:44:25,900

What happens when Tauri switches on the vacuum?

735

00:44:25,900 --> 00:44:31,900

Now, just for a second, there's a hint of thrust.

736

00:44:31,900 --> 00:44:35,900

No mission to Mars, but not bad for this rocket intern.

737

00:44:35,900 --> 00:44:39,900

Well, that was a cool flamethrower, not much of a jet engine.

738

00:44:39,900 --> 00:44:44,900

Yeah, and the whole concept of a vacuum cleaner being a jet engine is all wrong.

739

00:44:44,900 --> 00:44:47,900

It goes against the principles that make jet engines.

740

00:44:47,900 --> 00:44:49,900

Vacuum cleaners create vacuums.

741

00:44:49,900 --> 00:44:50,900

That's low pressure.

742

00:44:50,900 --> 00:44:54,900

A jet engine works by creating more pressure, which completes the combustion.

743

00:44:54,900 --> 00:44:56,900

So it's just not practical.

744

00:44:56,900 --> 00:44:58,900

So, shot back jet engine, totally busted?

745

00:44:58,900 --> 00:44:59,900

Totally.

746

00:44:59,900 --> 00:45:00,900

Good.

747

00:45:00,900 --> 00:45:01,900

Well, I feel better now.

748

00:45:01,900 --> 00:45:02,900

Nice try, though.

749

00:45:02,900 --> 00:45:03,900

Thanks.

750

00:45:08,900 --> 00:45:11,900

Breaking a glass through amplification is simple.

751

00:45:11,900 --> 00:45:16,900

Now for the real test, as voice coach Vendera prepares to rock on.

752

00:45:16,900 --> 00:45:24,900

For a world first, could he become the first person in history to break a glass using his voice alone?

753

00:45:24,900 --> 00:45:25,900

110%.

754

00:45:25,900 --> 00:45:27,900

I know I can do it.

755

00:45:27,900 --> 00:45:29,900

I don't have any doubt.

756

00:45:29,900 --> 00:45:32,900

I mean, if we get this, this is like, that's huge.

757

00:45:32,900 --> 00:45:34,900

No one's ever caught this sort of thing on videotape before.

758

00:45:34,900 --> 00:45:39,900

No one has a confirmed report, and if our researchers can't find it, I mean, nobody can.

759

00:45:39,900 --> 00:45:42,900

Oh, I'm so psyched about this, I can't even tell you.

760

00:45:43,900 --> 00:45:48,900

Time to go myth-busting and maybe make some history.

761

00:45:48,900 --> 00:45:52,900

Good job, they stocked up on crystal.

762

00:46:10,900 --> 00:46:14,900

Good job, they stocked up on crystal.

763

00:46:19,900 --> 00:46:24,900

12 glasses later, still no joy.

764

00:46:27,900 --> 00:46:33,900

Despite Jamie's confidence, it's beginning to look like this myth may just be busted.

765

00:46:33,900 --> 00:46:44,900

Vendera's got the tone, but not the power.

766

00:46:44,900 --> 00:46:48,900

The straw's jumping, but the glass is rock-solid.

767

00:46:54,900 --> 00:47:02,900

Well, Jamie Vendera's going to take a little break, so I'm going to continue the ongoing prices of making a fool out of myself and try it myself.

768

00:47:02,900 --> 00:47:07,900

Let's not forget that Adam did break two with the amplifier.

769

00:47:12,900 --> 00:47:16,900

But this is a much tougher task.

770

00:47:23,900 --> 00:47:29,900

Like, the best-case scenario is the glass shatters in my face. How do you think that makes me feel?

771

00:47:30,900 --> 00:47:34,900

Not sure he's got too much to worry about there.

772

00:47:38,900 --> 00:47:44,900

I don't know if I can do it. Not surprisingly, I don't think I can do it.

773

00:47:44,900 --> 00:47:49,900

Show's over for Adam, but Jamie Vendera's back for his encore.

774

00:48:00,900 --> 00:48:03,900

Woo!

775

00:48:05,900 --> 00:48:07,900

Jamie Vendera, dude!

776

00:48:07,900 --> 00:48:10,900

That is a first on television.

777

00:48:10,900 --> 00:48:13,900

A myth busters exclusive.

778

00:48:13,900 --> 00:48:20,900

556 Hertz, 105 decibels, and 20 attempts makes for a world first.

779

00:48:20,900 --> 00:48:28,900

History's been made, and it's been captured on high speed, so there's really no need to try this one at home.

780

00:48:29,900 --> 00:48:36,900

Well, that's it. We proved that there is a tone that you can use to match the resonant frequency of glass in order to shatter it.

781

00:48:36,900 --> 00:48:45,900

And most importantly of all, we proved for the first time that an unassisted human voice can actually generate that tone and shatter a glass.

782

00:48:45,900 --> 00:48:46,900

I'm amazed by that.

783

00:48:46,900 --> 00:48:47,900

You ready?

784

00:48:47,900 --> 00:48:48,900

That's another one busted, right?

785

00:48:48,900 --> 00:48:51,900

No, it's not busted. It's confirmed, but we can still smash these.

786

00:48:51,900 --> 00:48:52,900

Okay.

787

00:48:54,900 --> 00:48:56,900

I win.

788

00:49:29,900 --> 00:49:30,900

Thank you.