

1

00:00:00,000 --> 00:00:02,500

Do not try what you're about to see at home.

2

00:00:02,500 --> 00:00:08,000

We consult with experts, we take every precaution and we have years of experience in dangerous situations.

3

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

On this episode of Myth Busters,

4

00:00:13,000 --> 00:00:17,000

we've got a classic collection of iconic conundrums.

5

00:00:18,000 --> 00:00:20,000

I think we killed Captain Kirk!

6

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

First, Jamie and Adam answer the age-old Western question,

7

00:00:25,000 --> 00:00:27,000

can you light a match with a bullet?

8

00:00:27,000 --> 00:00:28,000

Punch in!

9

00:00:28,000 --> 00:00:33,000

Then, can you really safely dip your digits into searing hot molten metal?

10

00:00:34,000 --> 00:00:36,000

Is this the first terminator you've ever cooked?

11

00:00:36,000 --> 00:00:38,000

And in a Camp Frank classic,

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00:00:38,000 --> 00:00:40,000

Got my jammies and I'm ready to go to work.

13

00:00:40,000 --> 00:00:43,000

Will a wet hand lead to a bedwetting?

14

00:00:43,000 --> 00:00:46,000

I don't think he's involuntarily urinating yet.

15

00:00:46,000 --> 00:00:48,000

Then Grant Jesse and Tori,

16

00:00:48,000 --> 00:00:50,000

Holy crap, tackle the nauseating,

17

00:00:50,000 --> 00:00:54,000

tall tail of the earwax candle.

18

00:00:54,000 --> 00:00:55,000

It's very much.

19

00:00:55,000 --> 00:00:56,000

And finally,

20

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

Yes, yes!

21

00:00:58,000 --> 00:01:03,000

Can you blow away a Star Trek baddie with a bamboo bazooka?

22

00:01:08,000 --> 00:01:10,000

Who are the Myth Busters?

23

00:01:11,000 --> 00:01:12,000

Adam Savage.

24

00:01:12,000 --> 00:01:13,000

That's science.

25

00:01:13,000 --> 00:01:14,000

And Jamie Heineman.

26

00:01:14,000 --> 00:01:17,000

Things are going to start to get a little crazy in here.

27

00:01:18,000 --> 00:01:22,000

Between them more than 30 years of special effects experience,

28

00:01:22,000 --> 00:01:23,000

Joining them,

29

00:01:23,000 --> 00:01:25,000

Carrie Byron.

30

00:01:26,000 --> 00:01:27,000

Brent Imaher.

31

00:01:27,000 --> 00:01:28,000

It's lethal people.

32

00:01:28,000 --> 00:01:30,000

Tori Bellaci.

33

00:01:30,000 --> 00:01:33,000

And featuring Jesse Combs.

34

00:01:33,000 --> 00:01:34,000

That was awesome!

35

00:01:35,000 --> 00:01:37,000

They don't just tell the Myths.

36

00:01:38,000 --> 00:01:39,000

Are you ready?

37

00:01:39,000 --> 00:01:40,000

I'm ready.

38

00:01:40,000 --> 00:01:42,000

They put them to the test.

39

00:01:53,000 --> 00:01:55,000

So you're trying to tell me you're nuts, right?

40

00:01:55,000 --> 00:01:59,000

No, simply that this coconut is the perfect symbol for what this episode is all about.

41

00:01:59,000 --> 00:02:00,000

How so?

42

00:02:00,000 --> 00:02:03,000

In a nutshell, we get a lot of Myths that are too small to test.

43

00:02:03,000 --> 00:02:04,000

We call them Mini Myths, right?

44

00:02:04,000 --> 00:02:05,000

Yep.

45

00:02:05,000 --> 00:02:07,000

Until now, those Myths have been a tough nut to crack,

46

00:02:07,000 --> 00:02:09,000

but I think that we've nussed out a solution.

47

00:02:09,000 --> 00:02:13,000

And that is to throw as many Mini Myths into a single episode as possible.

48

00:02:13,000 --> 00:02:15,000

Specifically, this episode.

49

00:02:15,000 --> 00:02:16,000

How many?

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00:02:16,000 --> 00:02:17,000

Six.

51

00:02:17,000 --> 00:02:18,000

And I figured we'd begin with a classic,

52

00:02:18,000 --> 00:02:21,000

Can you mail a coconut without any packaging?

53

00:02:21,000 --> 00:02:23,000

I thought we'd start out by putting a stamp in our address on it,

54

00:02:23,000 --> 00:02:25,000

to see if it comes back to the shop by the end of the show.

55

00:02:25,000 --> 00:02:27,000

And you know, there's one I've always wanted to try,

56

00:02:27,000 --> 00:02:31,000

which is, can you light a strike anywhere match with a bullet?

57

00:02:31,000 --> 00:02:32,000

Well, let's get started.

58

00:02:33,000 --> 00:02:37,000

It's a match made in Mini Myth Fan Request Heaven.

59

00:02:37,000 --> 00:02:44,000

A single testable question that could be answered in one glorious afternoon down at the gun range.

60

00:02:44,000 --> 00:02:48,000

Through the magic of editing, allow me to demonstrate exactly what we hope to achieve today.

61

00:02:49,000 --> 00:02:50,000

Okay, I'm ready.

62

00:02:53,000 --> 00:02:54,000

Dude, don't move.

63

00:02:54,000 --> 00:02:55,000

I won't.

64

00:03:01,000 --> 00:03:03,000

That's what this story's all about.

65

00:03:05,000 --> 00:03:06,000

Can a bullet light a match?

66

00:03:06,000 --> 00:03:09,000

Well, when you get right down to it, it's all about friction.

67

00:03:09,000 --> 00:03:14,000

If this myth is true, we're going to be able to light this with this,

68

00:03:14,000 --> 00:03:18,000

while this is traveling at nearly 800 feet per second.

69

00:03:18,000 --> 00:03:23,000

The question is whether that bullet is able to cause enough friction when it raises that match

70

00:03:23,000 --> 00:03:27,000

to actually ignite it without blowing the head of the match off.

71

00:03:27,000 --> 00:03:31,000

I'll tell you, I'm not sure it's going to work, and it's not about the precision.

72

00:03:31,000 --> 00:03:33,000

That, I feel that we can solve.

73

00:03:33,000 --> 00:03:37,000

It's about the length of time this bullet will be in contact with this match,

74

00:03:37,000 --> 00:03:43,000

and whether that length of time is long enough to set the lighting chemical conflagration in motion.

75

00:03:44,000 --> 00:03:45,000

So the guys are ready.

76

00:03:45,000 --> 00:03:46,000

Gun is going hot.

77

00:03:47,000 --> 00:03:51,000

They have their 45 caliber gun with its large slow-moving slug,

78

00:03:51,000 --> 00:03:56,000

perfect for this experiment, aimed by a laser at the tip of the match.

79

00:03:56,000 --> 00:03:58,000

Firing in three.

80

00:03:58,000 --> 00:04:00,000

Surely this won't take long.

81

00:04:00,000 --> 00:04:01,000

One.

82

00:04:02,000 --> 00:04:04,000

Maybe it will.

83

00:04:04,000 --> 00:04:06,000

Not lit. Not even gone.

84

00:04:06,000 --> 00:04:07,000

Apparently it's too low.

85

00:04:10,000 --> 00:04:14,000

Despite Adam's pleasure at the quality of the high-speed shot,

86

00:04:15,000 --> 00:04:17,000

that is so pretty.

87

00:04:17,000 --> 00:04:22,000

It's so crisp you can see the reflection of the match head in the bullet.

88

00:04:23,000 --> 00:04:27,000

Even with laser-guided precision, they completely missed.

89

00:04:27,000 --> 00:04:32,000

So they're reverting to a more utilitarian method of marking the bullet's trajectory.

90

00:04:32,000 --> 00:04:33,000

Let's do it.

91

00:04:33,000 --> 00:04:35,000

Cardboard and trial and error.

92

00:04:35,000 --> 00:04:38,000

Three, two, one.

93

00:04:40,000 --> 00:04:41,000

Plenty of error.

94

00:04:41,000 --> 00:04:42,000

That's crazy high.

95

00:04:45,000 --> 00:04:46,000

Well, you shot the head right off.

96

00:04:46,000 --> 00:04:48,000

And plenty of trial.

97

00:04:50,000 --> 00:04:53,000

It missed it so close, but it's not touching it.

98

00:04:57,000 --> 00:05:00,000

Well, we're a few shots in and we have not gotten the match to light yet,

99

00:05:00,000 --> 00:05:02,000

but we're in the thick of it.

100

00:05:03,000 --> 00:05:04,000

So close.

101

00:05:05,000 --> 00:05:09,000

We knocked most of the red off the match without destroying it,

102

00:05:09,000 --> 00:05:12,000

so we're really, really close.

103

00:05:12,000 --> 00:05:16,000

We're trying to get this grazing action without destroying the match head,

104

00:05:16,000 --> 00:05:17,000

which we've already done.

105

00:05:19,000 --> 00:05:22,000

Too high. We want to just graze the very tip of it.

106

00:05:22,000 --> 00:05:25,000

I don't know. To get one to light may take another few shots.

107

00:05:25,000 --> 00:05:27,000

It may take another few hours.

108

00:05:29,000 --> 00:05:30,000

What do you think?

109

00:05:30,000 --> 00:05:31,000

I don't see no fire.

110

00:05:31,000 --> 00:05:36,000

No lit match, but a quick look at the high-speed confirms they are on target.

111

00:05:36,000 --> 00:05:39,000

Perfect. It's just knocking off a little bit of the white there.

112

00:05:39,000 --> 00:05:42,000

Just barely touched it. That's what's required.

113

00:05:42,000 --> 00:05:44,000

The bullet grazed the match head,

114

00:05:44,000 --> 00:05:48,000

but it didn't kickstart the chain of events that end in a lit match.

115

00:05:48,000 --> 00:05:49,000

This is how matches work.

116

00:05:49,000 --> 00:05:53,000

In the head of the match, you've got a fuel, which is a sulfur-based product.

117

00:05:53,000 --> 00:05:57,000

You've got an oxidizer, which is usually potassium chloride.

118

00:05:57,000 --> 00:06:01,000

And you've got glass powders all held together in a binder on the head of the match.

119

00:06:01,000 --> 00:06:06,000

The striker has glass powder, but it also has a small amount of red phosphorus.

120

00:06:06,000 --> 00:06:09,000

And when you strike the match on the striker,

121

00:06:09,000 --> 00:06:15,000

that glass-on-glass friction generates enough heat to convert the red phosphorus into white phosphorus,

122

00:06:15,000 --> 00:06:18,000

which happens to burst into flames when it's exposed to air.

123

00:06:18,000 --> 00:06:21,000

Now, in a strike-anywhere match like this one,

124

00:06:21,000 --> 00:06:24,000

all those same ingredients are on the head of the match.

125

00:06:24,000 --> 00:06:27,000

And so you can strike it on any abrasive surface.

126

00:06:27,000 --> 00:06:32,000

The same reaction occurs, generates heat, generates white phosphorus.

127

00:06:32,000 --> 00:06:34,000

You've got a lit match.

128

00:06:34,000 --> 00:06:39,000

And back on the range, despite feeling like they've got a busted myth on their hands,

129

00:06:39,000 --> 00:06:42,000

the guys lock and load for one last shot.

130

00:06:42,000 --> 00:06:45,000

Barring in three, two, one.

131

00:06:47,000 --> 00:06:50,000

Nice! Punch in!

132

00:06:50,000 --> 00:06:52,000

You asked for it, and we made it happen.

133

00:06:52,000 --> 00:06:55,000

Well, that's fully-murt. We did it.

134

00:06:55,000 --> 00:07:00,000

But keep in mind that it took us nine tries to make this happen.

135

00:07:00,000 --> 00:07:07,000

We had precision equipment, and the accuracy required was down to, you know, a thousandth of an inch or so.

136

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

That's great! That is so cool.

137

00:07:16,000 --> 00:07:18,000

Well, I was wrong again.

138

00:07:18,000 --> 00:07:25,000

This was fully able to light this when they were only in contact for a 12,000th of a second.

139

00:07:25,000 --> 00:07:29,000

It's mighty short, but it's mighty confirmed.

140

00:07:31,000 --> 00:07:37,000

Alright, quick hit myths from the fansite. What do we have?

141

00:07:37,000 --> 00:07:39,000

Well, the first one comes from the movie Shrek.

142

00:07:39,000 --> 00:07:40,000

Can doggies talk?

143

00:07:40,000 --> 00:07:41,000

No, that's confirmed.

144

00:07:41,000 --> 00:07:42,000

Can we hear the real one?

145

00:07:42,000 --> 00:07:47,000

Okay, well, in the movie, Shrek uses his own earwax to make a candle.

146

00:07:47,000 --> 00:07:48,000

Ugh, that's disgusting.

147

00:07:48,000 --> 00:07:50,000

I'm interested. Please go on.

148

00:07:50,000 --> 00:07:54,000

Okay, well, first we need to find out if earwax is flammable,

149

00:07:54,000 --> 00:07:57,000

and finally we need to collect lots and lots of it.

150

00:07:57,000 --> 00:07:59,000

I always wondered what was in my ears.

151

00:07:59,000 --> 00:08:01,000

You might want to get this checked out.

152

00:08:03,000 --> 00:08:07,000

It's a classic scene from the green screen.

153

00:08:07,000 --> 00:08:13,000

Shrek pulls enough wax from his ears to form a fully functional flammable candle.

154

00:08:13,000 --> 00:08:20,000

And to find out if this simple and nauseating concept is even possible, the team is brought in an expert.

155

00:08:20,000 --> 00:08:21,000

You ready to go for it?

156

00:08:21,000 --> 00:08:22,000

Oh, let's start digging.

157

00:08:22,000 --> 00:08:24,000

Digging? I thought we were cleaning.

158

00:08:24,000 --> 00:08:25,000

Well, that too.

159

00:08:25,000 --> 00:08:32,000

First up, Dr. Lustig is digging up a sample for a proof of concept flammability test.

160

00:08:32,000 --> 00:08:33,000

Holy crap.

161

00:08:33,000 --> 00:08:34,000

What'd you get?

162

00:08:34,000 --> 00:08:36,000

You got a little bit there, not too bad.

163

00:08:36,000 --> 00:08:41,000

With the sample secured, the team gathers ready to burn the evidence.

164

00:08:41,000 --> 00:08:42,000

So what do you guys think of the earwax?

165

00:08:42,000 --> 00:08:43,000

That came out of your ear?

166

00:08:43,000 --> 00:08:44,000

Yeah, pretty gross, huh?

167

00:08:44,000 --> 00:08:45,000

Let's burn it.

168

00:08:45,000 --> 00:08:47,000

Hang on a second there, Pyramaniac.

169

00:08:47,000 --> 00:08:50,000

Now, since this is about candles, I have something to say about it.

170

00:08:50,000 --> 00:08:52,000

Hang on a second there, Pyramaniac.

171

00:08:52,000 --> 00:08:57,000

Now, since this is about candles, I have some commercial candle wax to compare, as well as some beeswax.

172

00:08:57,000 --> 00:08:58,000

All right, this will be good.

173

00:08:58,000 --> 00:09:00,000

We'll see which one is more flammable.

174

00:09:00,000 --> 00:09:06,000

So the whole point of today's experiment is to find out if human earwax is in fact flammable.

175

00:09:06,000 --> 00:09:15,000

But not only that, to be able to compare it visually to the types of waxes that are found in commercial grade candles, namely paraffin or beeswax.

176

00:09:15,000 --> 00:09:16,000

Cool.

177

00:09:16,000 --> 00:09:17,000

All right.

178

00:09:17,000 --> 00:09:18,000

Should we move on to the earwax?

179

00:09:18,000 --> 00:09:19,000

All right.

180

00:09:19,000 --> 00:09:21,000

Ooh, it's sparking.

181

00:09:21,000 --> 00:09:23,000

Dude, that was in your ear.

182

00:09:23,000 --> 00:09:28,000

Paraffin and the beeswax burn normally, as I would have expected.

183

00:09:28,000 --> 00:09:33,000

The really astounding thing is how well the human earwax burn.

184

00:09:33,000 --> 00:09:37,000

And it's not like a slow burn, like the paraffin or the beeswax.

185

00:09:37,000 --> 00:09:40,000

Sort of a more aggressive burn with a crackling.

186

00:09:40,000 --> 00:09:41,000

It's like...

187

00:09:41,000 --> 00:09:43,000

Which I'm not exactly sure what that is.

188

00:09:43,000 --> 00:09:49,000

Maybe it's skin cells or little hairs, but very surprising that it burnt well.

189

00:09:49,000 --> 00:09:51,000

I think this looks good for a myth.

190

00:09:51,000 --> 00:09:57,000

That means they can move on to stage two, collecting enough earwax to make a candle.

191

00:09:57,000 --> 00:10:01,000

But what's immediately clear is it's going to take a while.

192

00:10:01,000 --> 00:10:02,000

You have clean ear canals.

193

00:10:02,000 --> 00:10:05,000

We are going to have to call in a lot of people, huh?

194

00:10:05,000 --> 00:10:06,000

We're going to need a lot of people.

195

00:10:06,000 --> 00:10:09,000

All right, everybody, come on in.

196

00:10:09,000 --> 00:10:12,000

Cue the usual suspects.

197

00:10:12,000 --> 00:10:15,000

The Mythbusters team in all its waxy...

198

00:10:15,000 --> 00:10:16,000

Victory.

199

00:10:16,000 --> 00:10:17,000

Oily...

200

00:10:17,000 --> 00:10:19,000

Wow!

201

00:10:19,000 --> 00:10:20,000

...Ary...

202

00:10:20,000 --> 00:10:21,000

Got it.

203

00:10:21,000 --> 00:10:22,000

All right, then.

204

00:10:22,000 --> 00:10:23,000

Happy to help.

205

00:10:23,000 --> 00:10:26,000

...and greasy-eared Glory.

206

00:10:26,000 --> 00:10:28,000

Can I take these off?

207

00:10:28,000 --> 00:10:29,000

Oh, yes.

208

00:10:29,000 --> 00:10:31,000

Otherwise, it'll be really hard.

209

00:10:31,000 --> 00:10:39,000

After plumbing the eerie depths of the last few team members, family members, and passersby,

210

00:10:39,000 --> 00:10:44,000

Dr. Lustig is finished, and the earwax candle making can begin.

211

00:10:44,000 --> 00:10:46,000

Next, Adam and Jamie...

212

00:10:46,000 --> 00:10:47,000

He's not sleeping.

213

00:10:47,000 --> 00:10:48,000

He's waiting.

214

00:10:48,000 --> 00:10:55,000

...dream up a solution to a classic camp prank.

215

00:10:55,000 --> 00:11:02,000

Next up is an actual prank.

216

00:11:02,000 --> 00:11:03,000

Let me start with a question.

217

00:11:03,000 --> 00:11:05,000

Have you ever gone to Sleepaway Camp?

218

00:11:05,000 --> 00:11:07,000

I was camp counselor for years.

219

00:11:07,000 --> 00:11:10,000

Okay, did you ever play pranks on the kids in your charge?

220

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

Of course.

221

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

In fact, that was a job requirement.

222

00:11:13,000 --> 00:11:19,000

Ever take a sleeping person's hand and dip it in a bowl of warm water to see if they'd wet themselves?

223

00:11:19,000 --> 00:11:22,000

Actually, no, but I have always wondered about that one.

224

00:11:22,000 --> 00:11:25,000

You're not going to have to wonder much longer because we're going to put it to the test.

225

00:11:25,000 --> 00:11:27,000

Well, all right, then.

226

00:11:27,000 --> 00:11:34,000

Aside from our sleeping human guinea pigs, the only piece of equipment the team requires for this test is this...

227

00:11:34,000 --> 00:11:37,000

Moisture activated voice alarm.

228

00:11:37,000 --> 00:11:41,000

So how is it that these shiny strips of metal are able to detect liquid?

229

00:11:41,000 --> 00:11:47,000

Well, when water crosses over two of these strips, it'll allow a minute amount of electrical current to pass through it.

230

00:11:47,000 --> 00:11:52,000

And this alarm right here is sensitive enough to detect that and start yelling at me...

231

00:11:52,000 --> 00:11:54,000

Oh my God, what the hell are you doing?

232

00:11:54,000 --> 00:11:56,000

...when it does.

233

00:11:56,000 --> 00:11:58,000

Next, the guys need a place to sleep.

234

00:11:58,000 --> 00:12:01,000

Got my jammies. I'm ready to go to work.

235

00:12:01,000 --> 00:12:09,000

And here, at the California Sleep Lab, in this bedroom with a view, they've got state-of-the-art monitoring equipment.

236

00:12:09,000 --> 00:12:15,000

This is a camp prank, a staple of camp pranks the world over for generations, I swear.

237

00:12:15,000 --> 00:12:20,000

And it is simply that if you take a sleeping person's hand and place it in a bowl of warm water,

238

00:12:20,000 --> 00:12:24,000

that person will involuntarily wet themselves in their bed.

239

00:12:24,000 --> 00:12:27,000

Oh my God, what the hell are you doing?

240

00:12:27,000 --> 00:12:29,000

Yeah, and that's where we come in.

241

00:12:29,000 --> 00:12:31,000

Alright, so we're gonna start your hookup now?

242

00:12:31,000 --> 00:12:32,000

Okay.

243

00:12:32,000 --> 00:12:38,000

We have come to the California Center for Sleep Disorders, and Jamie and I are each going to take turns being the test subject.

244

00:12:38,000 --> 00:12:42,000

One of us will fall asleep in this bed when we reach the correct phase of sleep.

245

00:12:42,000 --> 00:12:47,000

The other one will sneak in with a bowl of water and see if this is in fact true.

246

00:12:49,000 --> 00:12:51,000

Do I think this is gonna work?

247

00:12:51,000 --> 00:12:54,000

Well, in my case, not so much.

248

00:12:54,000 --> 00:13:00,000

As it happens, I'm a very light sleeper, and my suspicion is that if somebody comes in in the middle of the night

249

00:13:00,000 --> 00:13:05,000

and tries to mess with my hand, the other one's gonna hit him square on the face.

250

00:13:06,000 --> 00:13:10,000

And that is surely the key stumbling block for this myth.

251

00:13:10,000 --> 00:13:12,000

Is he sucking his thumb?

252

00:13:12,000 --> 00:13:20,000

Unless they are absolutely out for the count, getting the sleeper's hand into the water without waking them up will be tough.

253

00:13:20,000 --> 00:13:23,000

But that's where clinical director Michael Salemi comes in.

254

00:13:23,000 --> 00:13:26,000

His eyes are closed, but he's definitely not asleep.

255

00:13:26,000 --> 00:13:29,000

With all the electrodes on Jamie's head, what are we looking at there?

256

00:13:29,000 --> 00:13:33,000

These are his eyes right here, and we're looking at eye movements, and this is his EEG.

257

00:13:33,000 --> 00:13:39,000

So we're looking at his brainwave patterns here to see if there's any changes that would indicate that he's actually falling asleep.

258

00:13:39,000 --> 00:13:45,000

Basically, by monitoring the brain's electrical activity, we can tell how deep is Jamie's sleep.

259

00:13:45,000 --> 00:13:51,000

Stages one and two are light transitional stages that won't be ideal for this test.

260

00:13:51,000 --> 00:13:55,000

Stage three, also called slow wave sleep, is the goal.

261

00:13:55,000 --> 00:14:01,000

Here, brain activity is significantly reduced and the sleeper is less easily woken.

262

00:14:01,000 --> 00:14:04,000

But Jamie's playing hard to get.

263

00:14:04,000 --> 00:14:07,000

He's not sleeping. He's waiting.

264

00:14:08,000 --> 00:14:14,000

And Adam, geared up with night vision goggles, loses patience and goes in.

265

00:14:15,000 --> 00:14:17,000

Oh, you're totally awake.

266

00:14:17,000 --> 00:14:19,000

You've had like two hours, man.

267

00:14:19,000 --> 00:14:21,000

Sorry. Nice get up.

268

00:14:21,000 --> 00:14:24,000

Thank you. I think your time is up. I think it's my turn.

269

00:14:24,000 --> 00:14:29,000

So I was right about Jamie not sleeping. He was waiting, and he waited us out.

270

00:14:29,000 --> 00:14:32,000

He waited so long we had to throw him out as a test subject.

271

00:14:32,000 --> 00:14:35,000

I've always wanted the cyber hair extensions.

272

00:14:35,000 --> 00:14:38,000

And now it's my turn.

273

00:14:39,000 --> 00:14:42,000

As soon as Adam's down, he's out.

274

00:14:43,000 --> 00:14:46,000

And finally, things are looking up. Or are they?

275

00:14:46,000 --> 00:14:51,000

Although Adam dropped his sleep really quickly, he may not be a very good candidate for this either

276

00:14:51,000 --> 00:14:59,000

because Adam has sleep apnea, which means that he's struggling for air from time to time and it's waking him up.

277

00:15:00,000 --> 00:15:06,000

So he may not be able to get down into that deep sleep that we need him to be at to do this trick.

278

00:15:06,000 --> 00:15:12,000

But before the team runs out of patience, Adam finally descends into stage three sleep.

279

00:15:12,000 --> 00:15:14,000

However, there's another complication.

280

00:15:14,000 --> 00:15:18,000

Both of his hands are under his head, so I don't know what to do other than try it.

281

00:15:18,000 --> 00:15:21,000

If he doesn't wake up, maybe we'll get what we need.

282

00:15:24,000 --> 00:15:29,000

With Adam twisted awkwardly, Jamie manages to get Adam's hand over the bowl.

283

00:15:29,000 --> 00:15:34,000

But the best he can do is gently pour water over the hand until...

284

00:15:36,000 --> 00:15:39,000

Our camp-frag victim awakes.

285

00:15:39,000 --> 00:15:48,000

Alright then. So Adam, notice that your hand is wet. Is there anything else that's wet?

286

00:15:50,000 --> 00:15:51,000

No.

287

00:15:51,000 --> 00:15:52,000

It's all dry.

288

00:15:52,000 --> 00:15:53,000

Darn it.

289

00:15:53,000 --> 00:15:56,000

It's definitely not looking very good for this myth at this point.

290

00:15:56,000 --> 00:16:02,000

After the break, the team go into meltdown, melting down their earwax.

291

00:16:02,000 --> 00:16:03,000

That sucked.

292

00:16:03,000 --> 00:16:16,000

It's many myth mayhem, and the mythbusters want to know if, just like Shrek, you can make a candle out of earwax.

293

00:16:16,000 --> 00:16:23,000

Well, I mean, it's obvious we don't have enough earwax to melt it down into a big vat and dip the wick in like you would normally make candles.

294

00:16:23,000 --> 00:16:29,000

So why don't we try and melt that, lay it out, and roll it around a wick kind of like they do with those beeswax type of candles?

295

00:16:29,000 --> 00:16:30,000

It might work.

296

00:16:31,000 --> 00:16:34,000

I'm not really sure how this is going to work as a candle.

297

00:16:34,000 --> 00:16:38,000

Yeah, it's flammable, but it's not quite the same as regular wax.

298

00:16:38,000 --> 00:16:39,000

Alright, well, are you ready to melt?

299

00:16:39,000 --> 00:16:40,000

Yes.

300

00:16:40,000 --> 00:16:45,000

The bigger question for me is actually getting it into candle form.

301

00:16:45,000 --> 00:16:48,000

You look more like boogers than earwax, don't they?

302

00:16:48,000 --> 00:16:49,000

Yeah.

303

00:16:49,000 --> 00:16:51,000

Those with sensitive...

304

00:16:51,000 --> 00:16:53,000

Are you going to throw up?

305

00:16:53,000 --> 00:17:03,000

Not so steely stomachs might want to avert your eyes around about now.

306

00:17:05,000 --> 00:17:06,000

Why are we making this candle?

307

00:17:08,000 --> 00:17:09,000

Oh, it's gonna drop.

308

00:17:09,000 --> 00:17:12,000

Well, maybe if you just keep breathing it, you get used to it.

309

00:17:12,000 --> 00:17:13,000

Yeah, probably not.

310

00:17:14,000 --> 00:17:15,000

Alright, it looks pretty soft.

311

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

You want to like smash out a big...

312

00:17:23,000 --> 00:17:28,000

That sucked.

313

00:17:31,000 --> 00:17:33,000

Alright, here's your wick.

314

00:17:33,000 --> 00:17:36,000

You know what, making the candle was a lot harder than I thought it was going to be.

315

00:17:36,000 --> 00:17:39,000

Cool, it's like a little earwax taco.

316

00:17:39,000 --> 00:17:43,000

It's not like it's a pre-packaged material that you pull out and form into a shape of a candle.

317

00:17:43,000 --> 00:17:45,000

I mean, this is earwax you're talking about.

318

00:17:45,000 --> 00:17:47,000

It's actually working kind of.

319

00:17:47,000 --> 00:17:55,000

There's hair in there, there's skin cells, and to get it melted down into the shape of a candle was hard enough.

320

00:17:55,000 --> 00:17:56,000

Look at that!

321

00:17:56,000 --> 00:17:57,000

We got a candle.

322

00:17:57,000 --> 00:18:01,000

Well, almost, the final proof is in the lighting.

323

00:18:01,000 --> 00:18:05,000

Okay, so for our side-by-side comparison, we have...

324

00:18:05,000 --> 00:18:07,000

Oh, you're going to stick it on that cupcake?

325

00:18:07,000 --> 00:18:09,000

Birthday candle?

326

00:18:09,000 --> 00:18:11,000

Careful it doesn't fall apart.

327

00:18:11,000 --> 00:18:12,000

Oh.

328

00:18:13,000 --> 00:18:14,000

Alright.

329

00:18:14,000 --> 00:18:17,000

The earwax all together and the wick in it, personally,

330

00:18:17,000 --> 00:18:21,000

I don't think it's going to melt like a normal candle because when we tested it, it sparkled.

331

00:18:21,000 --> 00:18:22,000

Go.

332

00:18:22,000 --> 00:18:23,000

Okay.

333

00:18:23,000 --> 00:18:24,000

Okay.

334

00:18:24,000 --> 00:18:26,000

So it's either going to be like 4th of July or it's going to go completely out.

335

00:18:26,000 --> 00:18:29,000

It's lit like a candle, but we'll see if it lasts.

336

00:18:29,000 --> 00:18:33,000

Look how it's bubbling up right around, right around, and it's going down.

337

00:18:33,000 --> 00:18:36,000

Yep, it's burning up just like in our little sample test.

338

00:18:36,000 --> 00:18:39,000

It burns up and then that's it, it's done.

339

00:18:39,000 --> 00:18:40,000

I don't think it's going to last.

340

00:18:40,000 --> 00:18:41,000

Nope.

341

00:18:41,000 --> 00:18:44,000

It's going out, it's going out.

342

00:18:44,000 --> 00:18:46,000

Okay, 23 seconds.

343

00:18:46,000 --> 00:18:48,000

Not much of a candle at all.

344

00:18:48,000 --> 00:18:49,000

Nope.

345

00:18:49,000 --> 00:18:53,000

And that's down to the composition of candle wax as opposed to earwax.

346

00:18:53,000 --> 00:19:01,000

The long chain hydrocarbons in paraffin or beeswax melt and in liquid form get pulled up the wick

347

00:19:01,000 --> 00:19:04,000

where they burn in a slow, controlled fashion.

348

00:19:04,000 --> 00:19:10,000

Earwax, full of dead skin cells, hair, fatty acids and cholesterol, may be flammable,

349

00:19:10,000 --> 00:19:14,000

but critically it doesn't melt or burn consistently.

350

00:19:14,000 --> 00:19:16,000

Alright, it looks like this one's busted.

351

00:19:16,000 --> 00:19:17,000

Busted.

352

00:19:17,000 --> 00:19:18,000

Totally busted.

353

00:19:18,000 --> 00:19:21,000

Happy birthday!

354

00:19:40,000 --> 00:19:42,000

We got to sleep.

355

00:19:42,000 --> 00:19:44,000

We got him to where he needed to be.

356

00:19:44,000 --> 00:19:48,000

We got his hand in the bowl, but the best I could do was dribble water over it.

357

00:19:48,000 --> 00:19:50,000

We did not get full immersion.

358

00:19:50,000 --> 00:19:51,000

Nope.

359

00:19:51,000 --> 00:19:52,000

I'm so tired.

360

00:19:52,000 --> 00:19:59,000

So we've got one last chance and for that we're going to induct Matt, our runner,

361

00:19:59,000 --> 00:20:02,000

and we'll see whether we can get him to wet his bed.

362

00:20:02,000 --> 00:20:04,000

Yeah, let's make mama proud.

363

00:20:04,000 --> 00:20:07,000

Sweet dreams.

364

00:20:07,000 --> 00:20:11,000

And mere minutes after lights out, sweet dreams it is.

365

00:20:11,000 --> 00:20:12,000

There we go.

366

00:20:12,000 --> 00:20:14,000

I'm starting to spread out.

367

00:20:14,000 --> 00:20:17,000

Alright, let's get a bucket of water ready.

368

00:20:17,000 --> 00:20:19,000

Let this be a lesson to you kids.

369

00:20:19,000 --> 00:20:22,000

Less do you think working for MythBusters is all fun and games.

370

00:20:22,000 --> 00:20:26,000

Even the runners are not above getting humiliated on national television.

371

00:20:26,000 --> 00:20:31,000

This is perfect.

372

00:20:31,000 --> 00:20:34,000

Matt's hand is in the bowl.

373

00:20:34,000 --> 00:20:37,000

It's the ideal illustration of this man.

374

00:20:37,000 --> 00:20:42,000

I don't hear the alarm, so I don't think he's involuntarily hearing it again.

375

00:20:42,000 --> 00:20:48,000

Not yet, but after five minutes of hand and wrist immersion, this happens.

376

00:20:48,000 --> 00:20:51,000

Oh my god, what the hell are you doing?

377

00:20:51,000 --> 00:20:52,000

Oh my god!

378

00:20:52,000 --> 00:20:57,000

With the alarm going nuts and bedlam in the bedroom, it's not until the lights are switched

379

00:20:57,000 --> 00:21:00,000

on that the offending puddle can be examined.

380

00:21:00,000 --> 00:21:03,000

Dude, did you think you peed yourself?

381

00:21:03,000 --> 00:21:05,000

I don't think I did.

382

00:21:05,000 --> 00:21:07,000

Roll over and let's see what's going on.

383

00:21:07,000 --> 00:21:09,000

Looks like it could be a spell.

384

00:21:09,000 --> 00:21:13,000

Yeah, it's not from the source, unfortunately.

385

00:21:13,000 --> 00:21:16,000

How did he get that separate puddle over there?

386

00:21:16,000 --> 00:21:19,000

If Matt says it's not from the source, I'm going to go with him.

387

00:21:19,000 --> 00:21:22,000

Yeah, it looks like it is just on the side.

388

00:21:22,000 --> 00:21:26,000

I don't see wet pants overall.

389

00:21:26,000 --> 00:21:32,000

Well, if that is the case then it didn't work because his hand was full on in that water for like,

390

00:21:32,000 --> 00:21:34,000

five minutes or better.

391

00:21:34,000 --> 00:21:36,000

Did you even feel it?

392

00:21:36,000 --> 00:21:37,000

No.

393

00:21:37,000 --> 00:21:38,000

That's awesome.

394

00:21:38,000 --> 00:21:42,000

I really thought that we'd hit pay dirt with this myth when I heard this start screaming,

395

00:21:42,000 --> 00:21:43,000

but no.

396

00:21:43,000 --> 00:21:47,000

It's late in the middle of the night and after Matt's hand was in that bowl for five minutes,

397

00:21:47,000 --> 00:21:51,000

some of the water sloshed out and caused our alarm to go off.

398

00:21:51,000 --> 00:21:56,000

With all of this, I can't see that we can call this myth anything but busted.

399

00:22:02,000 --> 00:22:06,000

Our trio of Trekkies tackle a Star Trek tale and later,

400

00:22:06,000 --> 00:22:11,000

Jamie and Adam get a handle on a hair-raising hot pot of molten lead.

401

00:22:11,000 --> 00:22:15,000

And this little piggy, Mern, clean off.

402

00:22:16,000 --> 00:22:19,000

Do not try what we do on the show at home.

403

00:22:19,000 --> 00:22:21,000

We're what you call experts.

404

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

Stay safe.

405

00:22:25,000 --> 00:22:31,000

It's not quite a mini myth, but this Trekkie tall tale is too good to resist.

406

00:22:32,000 --> 00:22:36,000

I tell you what, I cannot believe how popular this next myth is.

407

00:22:36,000 --> 00:22:40,000

Yeah, fans have been requesting it for years and when I announced that we were doing this on the internet,

408

00:22:40,000 --> 00:22:42,000

the reaction was massive.

409

00:22:42,000 --> 00:22:44,000

You're talking about the Gorn episode of Star Trek.

410

00:22:44,000 --> 00:22:50,000

This is the episode of the classic Star Trek series where Captain Kirk battles a reptilian creature called the Gorn.

411

00:22:50,000 --> 00:22:53,000

Yeah, and right when you think Captain Kirk is about to get defeated,

412

00:22:53,000 --> 00:22:57,000

he devises a weapon using nothing but the things he finds on this alien planet.

413

00:22:57,000 --> 00:22:59,000

Doesn't he make his own gunpowder as well?

414

00:22:59,000 --> 00:23:01,000

Heck yeah, he's Captain Kirk.

415

00:23:01,000 --> 00:23:03,000

Let's get this going.

416

00:23:03,000 --> 00:23:05,000

Enterprise, three to beam up.

417

00:23:05,000 --> 00:23:07,000

You're getting reception?

418

00:23:07,000 --> 00:23:09,000

Yeah, mine's real.

419

00:23:12,000 --> 00:23:20,000

In a memorable Star Trek moment, a marooned Captain Kirk channels MacGyver and makes a bamboo bazooka.

420

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

Yes, yes.

421

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

What? What is it, Spock?

422

00:23:25,000 --> 00:23:27,000

An invention, yeoman.

423

00:23:27,000 --> 00:23:32,000

After scavenging the three basic ingredients of gunpowder and diamonds for ammunition,

424

00:23:32,000 --> 00:23:35,000

they would make formidable projectiles.

425

00:23:35,000 --> 00:23:38,000

Oh, we're from the Gorn.

426

00:23:38,000 --> 00:23:43,000

Kirk goes to work mixing his materials and constructing the cannon.

427

00:23:43,000 --> 00:23:45,000

Can he do it?

428

00:23:45,000 --> 00:23:48,000

If he has the time, yeoman.

429

00:23:48,000 --> 00:23:51,000

If he has the time.

430

00:23:51,000 --> 00:23:54,000

Of course he has the time. He's Kirk.

431

00:23:54,000 --> 00:23:56,000

But what about reality?

432

00:23:56,000 --> 00:24:03,000

Can you really make your own gunpowder and can you really make a bazooka out of bamboo?

433

00:24:03,000 --> 00:24:05,000

Now gunpowder is composed of three things.

434

00:24:05,000 --> 00:24:10,000

Potassium nitrate, charcoal and sulfur.

435

00:24:10,000 --> 00:24:14,000

Now on their own, each of these three things is non-explosive.

436

00:24:14,000 --> 00:24:19,000

But the question is whether you can combine them together without further refinement

437

00:24:19,000 --> 00:24:23,000

to create gunpowder capable of firing the projectile out of a cannon.

438

00:24:23,000 --> 00:24:27,000

So what we're going to do is we're going to make Captain Kirk black powder.

439

00:24:27,000 --> 00:24:31,000

We're going to take these elements, mix them up just like he does in the TV clip

440

00:24:31,000 --> 00:24:33,000

and compare it to regular black powder.

441

00:24:33,000 --> 00:24:37,000

Now the next big question of this myth is whether or not we can build a cannon out of bamboo

442

00:24:37,000 --> 00:24:39,000

that will withstand the explosion of gunpowder.

443

00:24:39,000 --> 00:24:43,000

So I'm going to have a stab at this while I leave the boys to their pyrotechnics.

444

00:24:43,000 --> 00:24:47,000

And our pair of pyromaniacs begin pyrotechnics 101

445

00:24:47,000 --> 00:24:52,000

with the assumption that Kirk knew the correct ratio of the three key ingredients

446

00:24:52,000 --> 00:24:54,000

and also liked their hero.

447

00:24:54,000 --> 00:24:56,000

Okay dude, Kirk or Picard?

448

00:24:56,000 --> 00:24:58,000

Are you kidding? Kirk.

449

00:24:58,000 --> 00:25:01,000

They're not using any tools to grind and mix the black powder.

450

00:25:01,000 --> 00:25:03,000

Just some rocks from the floor of the set.

451

00:25:03,000 --> 00:25:05,000

Mr. Spock or Lieutenant Commander Data?

452

00:25:05,000 --> 00:25:06,000

Spock.

453

00:25:06,000 --> 00:25:07,000

Did Han shoot first?

454

00:25:07,000 --> 00:25:08,000

Yes he did.

455

00:25:08,000 --> 00:25:11,000

So we've been at this for a good 15 minutes or so.

456

00:25:11,000 --> 00:25:13,000

It's starting to look like black powder.

457

00:25:13,000 --> 00:25:17,000

No longer than Kirk might have had while down on the planet.

458

00:25:17,000 --> 00:25:21,000

And now it's time to test our black powder formulas.

459

00:25:21,000 --> 00:25:24,000

First what we're going to do is let off some real black powder

460

00:25:24,000 --> 00:25:27,000

just to see what it's supposed to look like.

461

00:25:30,000 --> 00:25:31,000

Good.

462

00:25:31,000 --> 00:25:36,000

Then we're just going to try our own recipes and see what we got.

463

00:25:36,000 --> 00:25:39,000

So that's what the guys are aiming for.

464

00:25:39,000 --> 00:25:44,000

That's the kind of reaction Kirk achieved by hand mixing his gunpowder.

465

00:25:44,000 --> 00:25:48,000

And we're about to find out if that's possible.

466

00:25:48,000 --> 00:25:49,000

Hey.

467

00:25:49,000 --> 00:25:50,000

Hey.

468

00:25:50,000 --> 00:25:52,000

I was kind of doing something.

469

00:25:52,000 --> 00:25:54,000

It's a little something something.

470

00:25:54,000 --> 00:25:55,000

Yeah.

471

00:25:55,000 --> 00:25:59,000

Kind of burning like, it's like those snakes that you get a fourth of July.

472

00:25:59,000 --> 00:26:03,000

So no, we didn't get the big poof like a black powder on our first test.

473

00:26:03,000 --> 00:26:08,000

But I'm actually pleasantly surprised because I fully expected nothing to happen.

474

00:26:08,000 --> 00:26:09,000

No ignition.

475

00:26:09,000 --> 00:26:10,000

Wow.

476

00:26:10,000 --> 00:26:11,000

Look at that.

477

00:26:11,000 --> 00:26:12,000

That's a little better.

478

00:26:12,000 --> 00:26:15,000

But we did get ignition and it smelled like black powder.

479

00:26:15,000 --> 00:26:18,000

And furthermore we got these sparks.

480

00:26:19,000 --> 00:26:22,000

That actually means that we're on the right track.

481

00:26:22,000 --> 00:26:25,000

I think it's just a matter of time until we find the right ratio.

482

00:26:25,000 --> 00:26:30,000

While our budding kitchen chemists mix things up with a few new recipes,

483

00:26:30,000 --> 00:26:33,000

Jesse cooks up a bamboo can.

484

00:26:33,000 --> 00:26:36,000

Captain Kirk was put on this barren wasteland.

485

00:26:36,000 --> 00:26:40,000

He was very lucky to find a broken off piece of bamboo.

486

00:26:40,000 --> 00:26:42,000

One that is approximately the size that we've chosen here,

487

00:26:42,000 --> 00:26:44,000

which is about a six inch inside diameter.

488

00:26:44,000 --> 00:26:49,000

Well, the problem that we're having here is that a piece of bamboo didn't have these

489

00:26:49,000 --> 00:26:52,000

inner walls where it walks off all of these sections.

490

00:26:52,000 --> 00:26:55,000

So what I have to do is just get rid of those inner walls.

491

00:26:55,000 --> 00:26:59,000

The heat is on to find the perfect and mixed black powder formula.

492

00:26:59,000 --> 00:27:03,000

Now on this one I added more charcoal and more sulfur.

493

00:27:03,000 --> 00:27:07,000

After working their way through over 30 different formulations,

494

00:27:07,000 --> 00:27:13,000

the guys decide they found the best possible combination that could be made by hand.

495

00:27:14,000 --> 00:27:17,000

Hey, you know what? It's not too bad.

496

00:27:17,000 --> 00:27:21,000

I mean, I don't know if you'd be able to make it in 30 minutes during the heat of the battle,

497

00:27:21,000 --> 00:27:23,000

but I mean, so far it's looking good.

498

00:27:30,000 --> 00:27:33,000

You look like you're thinking of something pretty good.

499

00:27:33,000 --> 00:27:38,000

I am. There's a myth going around that you can stick your hand into molten lead and not get hurt.

500

00:27:39,000 --> 00:27:43,000

Molten metal. Pretty nasty stuff.

501

00:27:43,000 --> 00:27:45,000

Just look at these shots of a foundry.

502

00:27:45,000 --> 00:27:51,000

It would seem that if you touched any of that stuff with your hands, you'd be horribly, horribly burned.

503

00:27:51,000 --> 00:27:57,000

But maybe not so. See, there's a myth going around that if you take pure lead and you melt it,

504

00:27:57,000 --> 00:28:01,000

that you can dip your hand in it and not be burnt a horribly injured.

505

00:28:01,000 --> 00:28:05,000

I know. The trick is supposed to be that you wet your hand before doing it

506

00:28:05,000 --> 00:28:09,000

and it exploits what's known as the lead and frost effect.

507

00:28:10,000 --> 00:28:12,000

The lead and frost effect?

508

00:28:12,000 --> 00:28:15,000

Well, seeing as it's the scientific basis for the myth,

509

00:28:15,000 --> 00:28:20,000

Adam, with his hot steel ball and fish tank, is on demonstration duty.

510

00:28:23,000 --> 00:28:25,000

Wow, look at that!

511

00:28:26,000 --> 00:28:31,000

You can see a clear skin of, I guess, its steam around the whole thing.

512

00:28:32,000 --> 00:28:35,000

What you're seeing in this demonstration is known as the lead and frost effect.

513

00:28:35,000 --> 00:28:37,000

It's like an atmosphere.

514

00:28:37,000 --> 00:28:43,000

It's interesting because the steam that's created when you expose a hot surface to water

515

00:28:43,000 --> 00:28:45,000

is actually insulating that surface.

516

00:28:45,000 --> 00:28:53,000

And it makes sense because steam being a gas conducts heat less rapidly than the water itself does.

517

00:28:54,000 --> 00:28:55,000

And that's the key.

518

00:28:55,000 --> 00:28:59,000

When cool water is exposed to an extremely hot surface,

519

00:28:59,000 --> 00:29:03,000

a layer of water vapor, which is a relatively poor heat conductor,

520

00:29:03,000 --> 00:29:06,000

provides a thin protective barrier.

521

00:29:06,000 --> 00:29:10,000

So it's time to get cooking for this air-raising stunt.

522

00:29:11,000 --> 00:29:12,000

Is this me?

523

00:29:12,000 --> 00:29:15,000

With the one and only ingredient, lead.

524

00:29:16,000 --> 00:29:18,000

Is this the first terminator you've ever cooked?

525

00:29:18,000 --> 00:29:20,000

No, I've done this a lot before, actually.

526

00:29:20,000 --> 00:29:23,000

Every time I get a robot that's misbehaving.

527

00:29:24,000 --> 00:29:28,000

Problems you've got to keep them cooking, otherwise they reformulate and try and kill you.

528

00:29:29,000 --> 00:29:32,000

It's about 725 degrees.

529

00:29:32,000 --> 00:29:35,000

Well, that's about 100 degrees more than melting temperature.

530

00:29:35,000 --> 00:29:36,000

I think that's about right.

531

00:29:36,000 --> 00:29:37,000

Let's do it.

532

00:29:37,000 --> 00:29:39,000

Cue the stand-in digits.

533

00:29:40,000 --> 00:29:45,000

This meat is raw, and if it actually gets too hot, it's going to change color because it's cooking.

534

00:29:45,000 --> 00:29:48,000

If these finger-sized sausages sizzle,

535

00:29:48,000 --> 00:29:52,000

then Adam and Jamie won't be going anywhere near the hot pot.

536

00:29:54,000 --> 00:29:56,000

Oh, no, that seems to be a problem, doesn't it?

537

00:29:56,000 --> 00:29:59,000

A very slight change of color.

538

00:29:59,000 --> 00:30:03,000

But also, lead stuck, I wouldn't want that to happen to my finger.

539

00:30:03,000 --> 00:30:04,000

No.

540

00:30:04,000 --> 00:30:10,000

While not burnt by the standards of any backyard barbecue, the sausage is being cooked.

541

00:30:10,000 --> 00:30:12,000

But they're not giving up yet.

542

00:30:12,000 --> 00:30:14,000

My hair's breath over 800.

543

00:30:15,000 --> 00:30:21,000

In order to avoid burning their stand-in digits, they're going to raise the temperature and try again.

544

00:30:22,000 --> 00:30:28,000

Coming up, the team beamed down to the bomb range and blast off with a bamboo bazooka.

545

00:30:28,000 --> 00:30:30,000

I will be highly impressed if this actually works.

546

00:30:38,000 --> 00:30:39,000

That worked pretty well.

547

00:30:39,000 --> 00:30:41,000

Yeah, we're a story.

548

00:30:44,000 --> 00:30:45,000

Gosh, dang it.

549

00:30:45,000 --> 00:30:47,000

This is the fourth time this week.

550

00:30:47,000 --> 00:30:49,000

We used to get a new service provider.

551

00:30:49,000 --> 00:30:50,000

Right?

552

00:30:50,000 --> 00:30:56,000

Our intrepid trio of Trekkies are tackling the tall tale of the Gorn Cannon.

553

00:30:57,000 --> 00:31:00,000

They want to know, can you hand-mix black powder?

554

00:31:00,000 --> 00:31:04,000

Can you really build a bazooka out of bamboo?

555

00:31:04,000 --> 00:31:09,000

And can the cannon fire with enough force to take down the Gorn?

556

00:31:11,000 --> 00:31:13,000

We're working with three different elements here.

557

00:31:13,000 --> 00:31:17,000

So the chances of everything working together, I'm thinking slim to none.

558

00:31:17,000 --> 00:31:19,000

The gunpowder looks promising.

559

00:31:19,000 --> 00:31:21,000

The bamboo, I think, is going to completely fail.

560

00:31:21,000 --> 00:31:24,000

And then the Gorn actually being hit by diamonds.

561

00:31:24,000 --> 00:31:25,000

Not so much.

562

00:31:25,000 --> 00:31:27,000

Hey, nice vine you got there.

563

00:31:27,000 --> 00:31:30,000

Yeah, you know, it's amazing how it grows in three-courts here on this planet.

564

00:31:30,000 --> 00:31:37,000

In the episode, Captain Kirk takes the vine and wraps it around the bamboo bazooka at the combustion chamber.

565

00:31:37,000 --> 00:31:39,000

I guess that's the strengthening or something.

566

00:31:39,000 --> 00:31:42,000

Alright, we have to tighten this.

567

00:31:43,000 --> 00:31:46,000

Alright, that's time for the secret sauce.

568

00:31:47,000 --> 00:31:49,000

Our own formulation of black powder.

569

00:31:49,000 --> 00:31:52,000

After 33 formulations, this is the most potent.

570

00:31:52,000 --> 00:31:57,000

And just to remind you, this is using only the chemicals that Kirk had on the planet,

571

00:31:57,000 --> 00:32:00,000

which were potassium nitrate, sulfur, and charcoal.

572

00:32:00,000 --> 00:32:04,000

And speaking of James Tiberius Kirk, here he is.

573

00:32:04,000 --> 00:32:06,000

Alright, buddy, it's time.

574

00:32:06,000 --> 00:32:08,000

Or at least his stunt double.

575

00:32:08,000 --> 00:32:10,000

You know why I was wearing the red shirt, don't you?

576

00:32:10,000 --> 00:32:11,000

Why?

577

00:32:11,000 --> 00:32:15,000

Every Star Trek fan knows, if you've been down to a plant in a red shirt, you're not going to back.

578

00:32:15,000 --> 00:32:17,000

Perfect.

579

00:32:19,000 --> 00:32:22,000

We are about to test our bamboo bazooka.

580

00:32:22,000 --> 00:32:26,000

Is it going to be strong enough to withstand an explosion from our homemade black powder?

581

00:32:26,000 --> 00:32:30,000

Forehand, I measured out an amount. Two handfuls, which Kirk put in.

582

00:32:30,000 --> 00:32:32,000

And that's what this cup is.

583

00:32:32,000 --> 00:32:37,000

And is that explosion going to be strong enough to launch our projectiles into the gourd to take him down?

584

00:32:37,000 --> 00:32:40,000

Okay, load it up with the diamonds.

585

00:32:40,000 --> 00:32:43,000

Where's this whole thing? Just going to explode into splinters.

586

00:32:43,000 --> 00:32:46,000

I will be highly impressed that this actually works.

587

00:32:46,000 --> 00:32:48,000

We are about to find out.

588

00:32:48,000 --> 00:32:52,000

Alright, this is Gorn Cannon, just like in the episode.

589

00:32:52,000 --> 00:32:54,000

Here we go.

590

00:32:54,000 --> 00:32:56,000

Kiss your butt to buy it, Gorn!

591

00:32:56,000 --> 00:32:58,000

Ha ha ha ha!

592

00:32:58,000 --> 00:33:00,000

It's quite endearing, really.

593

00:33:00,000 --> 00:33:03,000

Grantantory's beaming faces full of anticipation.

594

00:33:03,000 --> 00:33:06,000

Childhood dreams about to be realized.

595

00:33:08,000 --> 00:33:10,000

That was interesting.

596

00:33:10,000 --> 00:33:14,000

But unfortunately, all that hope has gone up in smoke.

597

00:33:14,000 --> 00:33:17,000

I was hoping for like a shit and wah!

598

00:33:17,000 --> 00:33:19,000

This is so underwhelming.

599

00:33:19,000 --> 00:33:21,000

I'm sorry, guys.

600

00:33:21,000 --> 00:33:26,000

It appears the homemade black powder doesn't burn fast or aggressively enough.

601

00:33:26,000 --> 00:33:30,000

The energy is simply dissipating rather than exploding.

602

00:33:30,000 --> 00:33:33,000

I'm not going to lie, I'm a little disappointed.

603

00:33:33,000 --> 00:33:35,000

All I can indeed is smoke profusely.

604

00:33:35,000 --> 00:33:39,000

But I don't think necessarily that it was the gunpowder.

605

00:33:39,000 --> 00:33:41,000

It was a gunpowder that we lost containment.

606

00:33:41,000 --> 00:33:42,000

I don't know.

607

00:33:42,000 --> 00:33:47,000

All I know is that people have been making gunpowder this way for centuries with the exact same recipe.

608

00:33:47,000 --> 00:33:49,000

Careful, it might still be hot.

609

00:33:49,000 --> 00:33:51,000

Maybe we should try this in the real cannon and see if it even works.

610

00:33:51,000 --> 00:33:52,000

I agree.

611

00:33:52,000 --> 00:33:53,000

Alright.

612

00:33:53,000 --> 00:33:56,000

So our Trekkie Trio isn't giving up yet.

613

00:33:56,000 --> 00:34:01,000

To confirm its Kirk's gunpowder recipe that's failing and not the bamboo cannon,

614

00:34:01,000 --> 00:34:06,000

the team is switching in some hardware that they know works.

615

00:34:06,000 --> 00:34:11,000

So, I'm going to give it another shot, put it in a proper cannon and see how well that does.

616

00:34:11,000 --> 00:34:12,000

Look at him.

617

00:34:12,000 --> 00:34:14,000

He's laughing at us.

618

00:34:14,000 --> 00:34:19,000

Here's where we stand so far.

619

00:34:19,000 --> 00:34:21,000

Behind me is a bucket of molten lead.

620

00:34:21,000 --> 00:34:28,000

Into which we have already stuck a couple of breakfast sausages and watched them get lead stuck to them and watch them get burnt.

621

00:34:28,000 --> 00:34:34,000

We're not ready to put our hands in there yet, but we hear that if we get the lead, 200 degrees over its melting point.

622

00:34:34,000 --> 00:34:35,000

Great.

623

00:34:35,000 --> 00:34:36,000

That's 850.

624

00:34:36,000 --> 00:34:37,000

Let's try it.

625

00:34:37,000 --> 00:34:38,000

It'll stop sticking.

626

00:34:38,000 --> 00:34:41,000

Here's that finger, bucket of water.

627

00:34:41,000 --> 00:34:43,000

Shake it off.

628

00:34:43,000 --> 00:34:46,000

Into the lead.

629

00:34:46,000 --> 00:34:50,000

And it looks pretty much perfect and it's still cold.

630

00:34:50,000 --> 00:34:51,000

Yeah.

631

00:34:51,000 --> 00:34:55,000

So 850 degrees Fahrenheit is the magic number.

632

00:34:55,000 --> 00:35:00,000

The sausage comes through unscathed, which leaves just one question.

633

00:35:00,000 --> 00:35:01,000

I'm game.

634

00:35:01,000 --> 00:35:02,000

You game?

635

00:35:02,000 --> 00:35:04,000

I picture people yelling at their TV.

636

00:35:04,000 --> 00:35:05,000

Go on, do it.

637

00:35:05,000 --> 00:35:06,000

You go on.

638

00:35:06,000 --> 00:35:07,000

Try it.

639

00:35:07,000 --> 00:35:08,000

Ha.

640

00:35:08,000 --> 00:35:09,000

Yeah.

641

00:35:09,000 --> 00:35:10,000

All right.

642

00:35:10,000 --> 00:35:11,000

We're about to go for it.

643

00:35:11,000 --> 00:35:16,000

We're about to dip our hands into molten metal and we've got plenty of evidence saying that this is safe.

644

00:35:16,000 --> 00:35:21,000

It's clear from our experimentation that the conditions to do it safely are actually pretty precise.

645

00:35:21,000 --> 00:35:23,000

I think we've got them.

646

00:35:23,000 --> 00:35:26,000

I think it's going to be okay.

647

00:35:26,000 --> 00:35:31,000

And this little piggy burned clean off.

648

00:35:31,000 --> 00:35:39,000

Despite the sausage-based evidence, clearly a sentence never before used, there is still a healthy amount of trepidation.

649

00:35:39,000 --> 00:35:52,000

Remember, the lead is at around 450 degrees Celsius, which puts this stunt firmly in the don't try at home category.

650

00:35:52,000 --> 00:35:54,000

Nothing.

651

00:35:54,000 --> 00:35:56,000

Now I just went about that deep.

652

00:35:56,000 --> 00:35:57,000

Yeah.

653

00:35:57,000 --> 00:35:58,000

You want to go a little deeper?

654

00:35:58,000 --> 00:36:00,000

My little finger is just fine.

655

00:36:00,000 --> 00:36:03,000

Of course, I only went in about that deep.

656

00:36:03,000 --> 00:36:07,000

I was being a little careful.

657

00:36:07,000 --> 00:36:08,000

I didn't feel a thing.

658

00:36:08,000 --> 00:36:11,000

It felt kind of warm and pleasant, actually.

659

00:36:11,000 --> 00:36:12,000

Go for it.

660

00:36:12,000 --> 00:36:16,000

At a repeat performance with an index finger yields the same result.

661

00:36:16,000 --> 00:36:20,000

Now that one, it went in pretty good and no problem.

662

00:36:20,000 --> 00:36:21,000

No problem?

663

00:36:21,000 --> 00:36:22,000

No problem.

664

00:36:22,000 --> 00:36:23,000

I guess this is my turn.

665

00:36:23,000 --> 00:36:30,000

Adam has had the luxury of using Jamie as a human guinea pig, so naturally he has to up the ante.

666

00:36:30,000 --> 00:36:33,000

He's going for four fingers.

667

00:36:33,000 --> 00:36:35,000

Here we go, ladies and gentlemen.

668

00:36:35,000 --> 00:36:40,000

One human hand in molten metal.

669

00:36:40,000 --> 00:36:43,000

Ho ho ho ho ho ho ho.

670

00:36:43,000 --> 00:36:44,000

That's freaky.

671

00:36:44,000 --> 00:36:46,000

You can feel the water boiling against your fingers.

672

00:36:46,000 --> 00:36:48,000

You can feel that right there.

673

00:36:48,000 --> 00:36:52,000

And that pretty much puts this lead mini-myth to bed.

674

00:36:52,000 --> 00:36:57,000

So Jamie and I just successfully dipped our hands into a pot of molten metal.

675

00:36:57,000 --> 00:36:58,000

No lie.

676

00:36:58,000 --> 00:37:01,000

The lead and cross effect is no myth.

677

00:37:01,000 --> 00:37:02,000

It protected us.

678

00:37:02,000 --> 00:37:04,000

Well, I'm unharmed.

679

00:37:04,000 --> 00:37:05,000

You?

680

00:37:05,000 --> 00:37:06,000

I'm fine.

681

00:37:06,000 --> 00:37:07,000

That's all we needed.

682

00:37:07,000 --> 00:37:08,000

That's a myth confirmed.

683

00:37:08,000 --> 00:37:09,000

Yup.

684

00:37:22,000 --> 00:37:26,000

We just tested our Gorn cannon.

685

00:37:26,000 --> 00:37:28,000

It was so underwhelming.

686

00:37:28,000 --> 00:37:31,000

We were left with nothing but a big smoke stack.

687

00:37:31,000 --> 00:37:34,000

I mean, I guess if you wanted to smoke the Gorn to death, you might have a chance.

688

00:37:34,000 --> 00:37:38,000

But as far as the cannon going off, it was nothing close to it.

689

00:37:38,000 --> 00:37:40,000

But that doesn't mean we're going to give up yet.

690

00:37:40,000 --> 00:37:42,000

We have a few more tests before we call this one busted.

691

00:37:42,000 --> 00:37:44,000

So I got the cannon out.

692

00:37:44,000 --> 00:37:47,000

This way we could test our homemade black powder to see whether or not it's even working.

693

00:37:47,000 --> 00:37:49,000

We've used this cannon a lot.

694

00:37:49,000 --> 00:37:50,000

We know it works.

695

00:37:50,000 --> 00:37:53,000

I mean, we used it on prison escape.

696

00:37:53,000 --> 00:37:55,000

And we used it on cheese cannon.

697

00:37:55,000 --> 00:37:58,000

It's like so hard right through the sink.

698

00:37:58,000 --> 00:38:00,000

So we know the cannon works.

699

00:38:00,000 --> 00:38:04,000

What we're trying to find out is does our homemade gunpowder work?

700

00:38:04,000 --> 00:38:08,000

So this test is focusing on the homemade black powder.

701

00:38:08,000 --> 00:38:12,000

And once again, the team use the same amount as Captain Kirk.

702

00:38:12,000 --> 00:38:14,000

You have two handfuls of gunpowder.

703

00:38:14,000 --> 00:38:16,000

Don't set this cannonball out.

704

00:38:16,000 --> 00:38:19,000

If you got, if you got.

705

00:38:20,000 --> 00:38:23,000

Let's try that again from a safe distance.

706

00:38:23,000 --> 00:38:27,000

You know, if two handfuls of homemade gunpowder doesn't launch this ball out,

707

00:38:27,000 --> 00:38:29,000

we might have to switch to normal gunpowder.

708

00:38:29,000 --> 00:38:32,000

All right, fuse is going in.

709

00:38:38,000 --> 00:38:41,000

Look at that. The cannonball actually ended up behind the cannon.

710

00:38:41,000 --> 00:38:46,000

Yep. And it clearly demonstrates that although you can hand mix the raw ingredients of black powder

711

00:38:46,000 --> 00:38:51,000

to get an energetic product, you won't get an explosive result

712

00:38:51,000 --> 00:38:55,000

without more accurate refinement and measurement techniques.

713

00:38:55,000 --> 00:38:59,000

Even as a hardcore Star Trek fan, I think you're going to have to concede

714

00:38:59,000 --> 00:39:03,000

that black powder made in two hours from the surface of the planet with no tools.

715

00:39:03,000 --> 00:39:05,000

Just doesn't cut it.

716

00:39:05,000 --> 00:39:07,000

All right, but we still have to test this bamboo cannon.

717

00:39:07,000 --> 00:39:11,000

So I say let's pretend like he was able to make commercial gray black powder.

718

00:39:11,000 --> 00:39:15,000

Let's take the same amount, load up our cannon and see what happens.

719

00:39:15,000 --> 00:39:18,000

Yeah, this is getting good now.

720

00:39:18,000 --> 00:39:20,000

Easy. Don't go too hard.

721

00:39:20,000 --> 00:39:23,000

But even in this impossible best case scenario,

722

00:39:23,000 --> 00:39:27,000

Tori has his doubts the bamboo cannon can.

723

00:39:27,000 --> 00:39:32,000

I think the weakest link in our bamboo bazooka is the fact that we're using the natural membrane

724

00:39:32,000 --> 00:39:35,000

of the bamboo as the backing of our cannon.

725

00:39:35,000 --> 00:39:38,000

I mean, that is going to be taking the full force of the black powder.

726

00:39:38,000 --> 00:39:41,000

I just don't think it's strong enough to withstand that force.

727

00:39:42,000 --> 00:39:46,000

Run! Run!

728

00:39:50,000 --> 00:39:53,000

I think we killed Captain Kurt from the garden.

729

00:39:53,000 --> 00:39:55,000

Yeah, the garden is still standing.

730

00:39:55,000 --> 00:39:57,000

It totally blew out the back of the cannon.

731

00:39:57,000 --> 00:39:59,000

How cool was that?

732

00:39:59,000 --> 00:40:04,000

Look, it's obvious the bamboo was not strong enough to withstand the explosion of the black powder.

733

00:40:04,000 --> 00:40:06,000

Right out the back, cracked it all the way up.

734

00:40:06,000 --> 00:40:08,000

Yeah, but it looks like it did in the episode.

735

00:40:08,000 --> 00:40:10,000

Yeah, but I mean, look at Captain Kurt.

736

00:40:10,000 --> 00:40:12,000

He does not look like he did in the episode.

737

00:40:12,000 --> 00:40:14,000

This guy probably would have died.

738

00:40:14,000 --> 00:40:17,000

And the gorn escaped without a scratch.

739

00:40:17,000 --> 00:40:18,000

Or did he?

740

00:40:18,000 --> 00:40:20,000

He looks pretty healthy from this angle.

741

00:40:20,000 --> 00:40:22,000

Yeah, he's still standing.

742

00:40:22,000 --> 00:40:24,000

But wait a minute, look at that. That looks like a hit.

743

00:40:24,000 --> 00:40:25,000

No.

744

00:40:25,000 --> 00:40:26,000

Yeah?

745

00:40:26,000 --> 00:40:27,000

Look at this!

746

00:40:27,000 --> 00:40:29,000

Dude, it's everywhere he is!

747

00:40:29,000 --> 00:40:31,000

He actually got crystals from flying back.

748

00:40:31,000 --> 00:40:32,000

Yeah!

749

00:40:34,000 --> 00:40:36,000

You know what? I mean, this one's still looking busted.

750

00:40:36,000 --> 00:40:41,000

Because it's like the person shooting the cannon is going to sustain way more damage than the person getting shot at.

751

00:40:41,000 --> 00:40:43,000

Well, how can we make it better though?

752

00:40:43,000 --> 00:40:46,000

Well, we could always replicate the result.

753

00:40:46,000 --> 00:40:49,000

Alright, but so far as this goes, this one's busted.

754

00:40:49,000 --> 00:40:50,000

Totally busted.

755

00:40:50,000 --> 00:40:51,000

Alright.

756

00:40:51,000 --> 00:40:56,000

Okay, so the mythical gorn cannon is busted in more ways than one.

757

00:40:56,000 --> 00:41:00,000

But is there any way Kurt could have made a cannon out of bamboo?

758

00:41:00,000 --> 00:41:03,000

The weak link was the membrane in the bamboo itself.

759

00:41:03,000 --> 00:41:08,000

So what we've done is we've taken three-quarter inch plywood, plugged it, put it still right across,

760

00:41:08,000 --> 00:41:12,000

and then we're going to put some polyurethane sealer in there to help fill all those cracks.

761

00:41:12,000 --> 00:41:15,000

And hopefully the explosion is going to go out the front end of the cannon

762

00:41:15,000 --> 00:41:19,000

and shoot all those crystals at the gorn the way we want it to.

763

00:41:23,000 --> 00:41:25,000

You know what? I don't care.

764

00:41:25,000 --> 00:41:29,000

Captain Kirk wasn't able to make homemade black powder on the planet.

765

00:41:29,000 --> 00:41:31,000

I don't care if this myth is busted.

766

00:41:31,000 --> 00:41:34,000

We're reenacting the gorn episode and you know what?

767

00:41:34,000 --> 00:41:36,000

I'm happy.

768

00:41:36,000 --> 00:41:38,000

I probably should get out of here now.

769

00:41:43,000 --> 00:41:45,000

Oh!

770

00:41:45,000 --> 00:41:46,000

Woo!

771

00:41:46,000 --> 00:41:47,000

Yeah!

772

00:41:47,000 --> 00:41:49,000

Hey, that was good!

773

00:41:49,000 --> 00:41:53,000

I think we took out both the gorn and captain Kirk.

774

00:41:55,000 --> 00:41:59,000

Finally, the team gets its gorn and hits the bullseye.

775

00:42:00,000 --> 00:42:03,000

Shot to the head, the chest, the stomach.

776

00:42:03,000 --> 00:42:05,000

And to the groin!

777

00:42:06,000 --> 00:42:12,000

But despite this brief moment of satisfaction and Kirk's cult hero status,

778

00:42:12,000 --> 00:42:15,000

there really was only one reason for this myth.

779

00:42:15,000 --> 00:42:20,000

As sad as I am to say, since this is my favorite episode of Star Trek, this one is busted.

780

00:42:20,000 --> 00:42:23,000

I mean, you cannot make homemade black powder strong enough to launch the projectiles.

781

00:42:23,000 --> 00:42:28,000

And even if you could, the bamboo would not be strong enough to contain the explosion.

782

00:42:28,000 --> 00:42:33,000

I mean, giving it the best possible chances using the immersion grade black powder and reinforcing the bamboo.

783

00:42:33,000 --> 00:42:36,000

Our bamboo bazooka still exploded, killing captain Kirk.

784

00:42:36,000 --> 00:42:39,000

I mean, any way you look at it, this is a bad idea.

785

00:42:39,000 --> 00:42:42,000

I mean, you're better off giving it to the goring and let him shoot you.

786

00:42:46,000 --> 00:42:49,000

You guys want to walk? I don't want to walk.

787

00:42:49,000 --> 00:42:51,000

Scotty, beam us out of here.

788

00:42:51,000 --> 00:42:54,000

You know what? You might want to use yours, Grant. I'm not getting a signal.

789

00:42:55,000 --> 00:42:58,000

Enterprise, four to beam up.

790

00:43:05,000 --> 00:43:06,000

Has anyone seen Jamie?

791

00:43:06,000 --> 00:43:09,000

You're right. Got the mail.

792

00:43:09,000 --> 00:43:14,000

Bill, Bill, Bill, coconut.

793

00:43:14,000 --> 00:43:18,000

Coconut? Dude, our coconut came back. Do you know what this means?

794

00:43:18,000 --> 00:43:19,000

What?

795

00:43:19,000 --> 00:43:21,000

This means myth confer.

796

00:43:21,000 --> 00:43:24,000

It also means we're going to get a lot of coconuts in the mail.

797

00:43:24,000 --> 00:43:27,000

Oh, you're right. Nuts.