

1

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

Don't try what you're about to see at home.

2

00:00:30,000 --> 00:00:32,000

Here's some Mythbuster madness.

3

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

Huge dramatic music.

4

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

Then envious of the candy and soda success,

5

00:00:36,000 --> 00:00:43,000

they go all out to find their very own magic combo of homemade mayhem.

6

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

And on top of all that,

7

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

Carrie Grant and Tari take on the tall tale

8

00:00:48,000 --> 00:00:53,000

that a postage stamp can cause a helicopter to spiral out of control.

9

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

Are we nuts?

10

00:00:54,000 --> 00:00:59,000

If we're wrong about this, we're gonna have a really bad day.

11

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

Who are the Mythbusters?

12

00:01:02,000 --> 00:01:03,000

Adam Savage

13

00:01:03,000 --> 00:01:05,000

I'm making a rocket out of meat.

14

00:01:05,000 --> 00:01:07,000

And Jamie Heineman

15

00:01:07,000 --> 00:01:09,000

I'm so excited.

16

00:01:09,000 --> 00:01:13,000

Between them more than 30 years of special effects experience.

17

00:01:13,000 --> 00:01:15,000

That's what I'm talking about.

18

00:01:15,000 --> 00:01:16,000

Joining them,

19

00:01:16,000 --> 00:01:17,000

Carrie Byron

20

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

I'm a piñata.

21

00:01:18,000 --> 00:01:20,000

Grant Imahara

22

00:01:20,000 --> 00:01:22,000

Don't say anything.

23

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

And Tari Belleggi

24

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

Oh yeah, totally.

25

00:01:25,000 --> 00:01:27,000

They don't just tell the myths.

26

00:01:28,000 --> 00:01:31,000

They put them to the test.

27

00:01:37,000 --> 00:01:41,000

First up, the Mythbusters are going to have a blast.

28

00:01:41,000 --> 00:01:45,000

Alright guys, I've got a fun little experiment for you to try out.

29

00:01:45,000 --> 00:01:48,000

I was just doing this photo shoot with FHM,

30

00:01:48,000 --> 00:01:51,000

and it seems to coincide with an internet phenomena

31

00:01:51,000 --> 00:01:53,000

of people taking two liter bottles of soda

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

and dropping two candies into it

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00:01:55,000 --> 00:01:57,000

for boom, big explosive.

34

00:01:57,000 --> 00:01:58,000

Oh yeah, I've seen that.

35

00:01:58,000 --> 00:01:59,000

It's all over the net.

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

It creates some kind of geyser

37

00:02:01,000 --> 00:02:03,000

that comes out the end of the soda bottle, right?

38

00:02:03,000 --> 00:02:06,000

Yeah, and every time I've seen it on the web

39

00:02:06,000 --> 00:02:07,000

or on television,

40

00:02:07,000 --> 00:02:10,000

they've trot out an expert to tell us why it happens.

41

00:02:10,000 --> 00:02:13,000

And all of their explanations are amazingly different.

42

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

None of them agree with each other.

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00:02:15,000 --> 00:02:19,000

So we're not going to test whether or not this occurs.

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

No, we know that it occurs.

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00:02:20,000 --> 00:02:22,000

We're going to have to check out

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00:02:22,000 --> 00:02:25,000

whether these various explanations are correct though.

47

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

And which one is correct, if any?

48

00:02:27,000 --> 00:02:28,000

Okay.

49

00:02:28,000 --> 00:02:32,000

It's a craze that was kicked off by our very own bubbly Mythbuster.

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00:02:32,000 --> 00:02:35,000

Add some Mentos to some Diet Coke,

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00:02:35,000 --> 00:02:38,000

and you get a cascade of swell proportions.

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00:02:41,000 --> 00:02:44,000

But it's these guys, the Epee Birds from Buckfield, Maine,

53

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

that up the ante using 101 bottles of Diet Coke,

54

00:02:48,000 --> 00:02:50,000

523 Mentos,

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00:02:50,000 --> 00:02:54,000

and the sort of choreography normally only seen in Vegas,

56

00:02:54,000 --> 00:02:57,000

they made the ultimate fizzy fountain.

57

00:02:57,000 --> 00:03:00,000

Apparently all I have to do is that,

58

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

whoop, and drop them in.

59

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

Are you ready?

60

00:03:04,000 --> 00:03:06,000

I've never tried this before.

61

00:03:08,000 --> 00:03:09,000

Wow!

62

00:03:13,000 --> 00:03:17,000

That was like 10 feet!

63

00:03:18,000 --> 00:03:20,000

The four Mentos are dropped in,

64

00:03:20,000 --> 00:03:23,000

and then, as reliably as all faithful,

65

00:03:23,000 --> 00:03:25,000

the guys are erupts.

66

00:03:25,000 --> 00:03:27,000

That is cool.

67

00:03:27,000 --> 00:03:30,000

I think we're going to have to try that a whole bunch more times.

68

00:03:30,000 --> 00:03:32,000

It's a ton of fun,

69

00:03:32,000 --> 00:03:37,000

but the Mythbuster's mission is to find out exactly what's going on inside that bottle.

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00:03:37,000 --> 00:03:39,000

Hey, look at that!

71

00:03:39,000 --> 00:03:41,000

Well, amid the chaos,

72

00:03:41,000 --> 00:03:46,000

it's clear that this foamy fountain has something to do with the cola's fizziness.

73

00:03:46,000 --> 00:03:48,000

And to find out more,

74

00:03:48,000 --> 00:03:50,000

it's over to our resident fountain of knowledge.

75

00:03:50,000 --> 00:03:54,000

The gas component of this soda is CO₂,

76

00:03:54,000 --> 00:03:58,000

and we want to know what role it plays in this cascading effect

77

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

that we see when we drop these candies in.

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

So, the one way that I know of to figure this out

79

00:04:05,000 --> 00:04:08,000

is to actually remove the gas,

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00:04:08,000 --> 00:04:14,000

and we should be able to do that by just agitating the soda until it fills up this balloon.

81

00:04:14,000 --> 00:04:17,000

And then once we've removed all of the gas,

82

00:04:17,000 --> 00:04:20,000

if we drop the candy in and we don't get any reaction,

83

00:04:20,000 --> 00:04:22,000

we'll know that it was because of the gas.

84

00:04:22,000 --> 00:04:24,000

Let's see what the candy does now.

85

00:04:25,000 --> 00:04:27,000

Not a thing.

86

00:04:27,000 --> 00:04:28,000

Not a thing.

87

00:04:28,000 --> 00:04:30,000

No CO2, no foam.

88

00:04:30,000 --> 00:04:35,000

So, carbonation is the first crucial ingredient on the cascade checklist,

89

00:04:35,000 --> 00:04:39,000

but surely there's more to this Mentos Mayhem.

90

00:04:39,000 --> 00:04:40,000

What's up?

91

00:04:40,000 --> 00:04:46,000

Well, we need to determine what else other than CO2 is at play here.

92

00:04:46,000 --> 00:04:47,000

If anything.

93

00:04:47,000 --> 00:04:48,000

If anything.

94

00:04:48,000 --> 00:04:51,000

So, this is playing soda water,

95

00:04:51,000 --> 00:04:54,000

and all it's got in it other than water is CO₂.

96

00:04:54,000 --> 00:04:55,000

Well, and this is the diet cola,

97

00:04:55,000 --> 00:04:57,000

and it's got the whole bunch of other stuff.

98

00:04:57,000 --> 00:04:59,000

So, if CO2 is the only factor,

99

00:04:59,000 --> 00:05:01,000

these two things should spur at the same height.

100

00:05:01,000 --> 00:05:02,000

Yeah.

101

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

Alright, let's try them out.

102

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

Ready?

103

00:05:06,000 --> 00:05:07,000

Two, one.

104

00:05:11,000 --> 00:05:13,000

Well, that's pretty clear.

105

00:05:13,000 --> 00:05:14,000

That's pretty clear.

106

00:05:14,000 --> 00:05:17,000

The diet cola, there's definitely something more going on

107

00:05:17,000 --> 00:05:19,000

than just the content of CO₂ and the candy.

108

00:05:19,000 --> 00:05:23,000

Because the diet cola went like five or six times as high as the soda water.

109

00:05:23,000 --> 00:05:27,000

So, CO₂ is not the only culprit in the cola cascade.

110

00:05:27,000 --> 00:05:29,000

The plot thickens.

111

00:05:33,000 --> 00:05:35,000

And now, Tari, Carrie and Grant

112

00:05:35,000 --> 00:05:38,000

are going to stamp their authority on another myth.

113

00:05:38,000 --> 00:05:41,000

We're hanging out in a hangar with a helicopter,

114

00:05:41,000 --> 00:05:44,000

a bunch of stamps in the Oakland Police Department.

115

00:05:44,000 --> 00:05:45,000

What are we doing here?

116

00:05:45,000 --> 00:05:48,000

Well, we actually just got this myth off our fan site,

117

00:05:48,000 --> 00:05:51,000

and what they say is that a simple postage stamp

118

00:05:51,000 --> 00:05:53,000

stuck on a rotary blade of a helicopter

119

00:05:53,000 --> 00:05:56,000

will unbalance the helicopter and cause it to crash.

120

00:05:58,000 --> 00:06:00,000

So, according to our wonderful fans,

121

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

if you stick a regular postage stamp

122

00:06:02,000 --> 00:06:04,000

on the rotors of a helicopter,

123

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

it can set off the finally balanced blade so much

124

00:06:07,000 --> 00:06:11,000

that the result is some airmail carnage.

125

00:06:13,000 --> 00:06:14,000

Sounds like a bunch of fun.

126

00:06:14,000 --> 00:06:16,000

We've got our stamps.

127

00:06:16,000 --> 00:06:18,000

We've got our helicopter. Let's go for it.

128

00:06:20,000 --> 00:06:22,000

I don't think they're going to let us use their chopper

129

00:06:22,000 --> 00:06:24,000

both for insurance and for safety reasons,

130

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

until we can show them that it's not going to hurt their chopper.

131

00:06:27,000 --> 00:06:31,000

So, I think we should probably start with some small scale testing.

132

00:06:31,000 --> 00:06:32,000

These things aren't cheap.

133

00:06:32,000 --> 00:06:33,000

No.

134

00:06:34,000 --> 00:06:37,000

So, before risking cash and cash in this,

135

00:06:37,000 --> 00:06:41,000

the team is first going to wreak postal pandemonium

136

00:06:41,000 --> 00:06:43,000

on something a little cheaper.

137

00:06:43,000 --> 00:06:45,000

I'll take that one and that one.

138

00:06:45,000 --> 00:06:47,000

Give us one of everything.

139

00:06:47,000 --> 00:06:49,000

Hovering around the \$2,000 mark,

140

00:06:49,000 --> 00:06:52,000

these remote control helis will be perfect

141

00:06:52,000 --> 00:06:54,000

to get this myth off the ground,

142

00:06:54,000 --> 00:06:57,000

provided that the team can learn how to fly them.

143

00:06:57,000 --> 00:06:59,000

How hard is it to fly these?

144

00:06:59,000 --> 00:07:01,000

We tell customers that you're guaranteed

145

00:07:01,000 --> 00:07:03,000

that you're going to crash.

146

00:07:03,000 --> 00:07:04,000

It's not.

147

00:07:04,000 --> 00:07:05,000

That's a good guarantee.

148

00:07:05,000 --> 00:07:06,000

Okay, great.

149

00:07:06,000 --> 00:07:09,000

Because crashing is guaranteed,

150

00:07:09,000 --> 00:07:11,000

they're going to hone their heli skills

151

00:07:11,000 --> 00:07:13,000

on this unbreakable trainer,

152

00:07:13,000 --> 00:07:15,000

which Paul makes look pretty easy.

153

00:07:18,000 --> 00:07:20,000

You are nimble with that thing.

154

00:07:20,000 --> 00:07:24,000

But unfortunately, the same can't be said for Grant.

155

00:07:25,000 --> 00:07:28,000

This heli's going belly up.

156

00:07:28,000 --> 00:07:30,000

Okay, give me another day and a half.

157

00:07:31,000 --> 00:07:33,000

Despite the hover bother,

158

00:07:33,000 --> 00:07:35,000

the team buys the trainer

159

00:07:35,000 --> 00:07:38,000

and a remote control version of the Oakland's Police Helicopter,

160

00:07:38,000 --> 00:07:42,000

which back at M5, Grant has to put together.

161

00:07:42,000 --> 00:07:46,000

This police chopper is an exact 1 7th scale model

162

00:07:46,000 --> 00:07:48,000

of its full-size counterpart.

163

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

So to test the stamp myth in miniature,

164

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

the team also needs some 1 7th scale stamps.

165

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

Okay, what we're going to do right now,

166

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

we have a scale and we're going to measure

167

00:08:01,000 --> 00:08:03,000

to see how much a postage stamp weighs.

168

00:08:03,000 --> 00:08:06,000

Because the whole myth is to see if, you know,

169

00:08:06,000 --> 00:08:09,000

the little bit of weight could unbalance the helicopter

170

00:08:09,000 --> 00:08:10,000

and cause it to crash.

171

00:08:10,000 --> 00:08:12,000

Our first saboteur.

172

00:08:12,000 --> 00:08:14,000

Yeah, this is the 45-cent stamp.

173

00:08:14,000 --> 00:08:16,000

We've got .15 grams.

174

00:08:16,000 --> 00:08:17,000

As well as the weigh-in,

175

00:08:17,000 --> 00:08:20,000

Carrie is also shrinking everything right down.

176

00:08:20,000 --> 00:08:24,000

This is about the size of 1 7th of this.

177

00:08:24,000 --> 00:08:27,000

So that'll be about the scaled version of the stamp

178

00:08:27,000 --> 00:08:29,000

that's going to go on our little helicopter.

179

00:08:29,000 --> 00:08:33,000

So now all they have to do is get the scale down chopper airborne.

180

00:08:33,000 --> 00:08:36,000

But that ain't going to be easy.

181

00:08:37,000 --> 00:08:41,000

Geez, this is a little harder than it looks.

182

00:08:41,000 --> 00:08:44,000

This is going to make small-scale experiments extremely hard

183

00:08:44,000 --> 00:08:47,000

if we can't even get the helicopter off the ground.

184

00:08:47,000 --> 00:08:48,000

Yeah.

185

00:08:48,000 --> 00:08:49,000

With Tori failing to fly,

186

00:08:49,000 --> 00:08:53,000

remote control expert Grant takes the reins.

187

00:08:53,000 --> 00:08:56,000

Look at the stance. I like the stance.

188

00:08:56,000 --> 00:08:59,000

But he's not accruing any flight time either.

189

00:08:59,000 --> 00:09:01,000

Mayday, mayday.

190

00:09:01,000 --> 00:09:04,000

With the model helicopter falling flat,

191

00:09:04,000 --> 00:09:07,000

this myth is struggling to even get off the ground.

192

00:09:08,000 --> 00:09:11,000

Later, the mythbusters trump the Cola Cascade

193

00:09:11,000 --> 00:09:14,000

with their very own household histrionics.

194

00:09:18,000 --> 00:09:22,000

But next, will there be airmail carnage with the heli stamp?

195

00:09:22,000 --> 00:09:24,000

I don't know if it's just my imagination,

196

00:09:24,000 --> 00:09:26,000

but it looks a little wobbly to me.

197

00:09:27,000 --> 00:09:31,000

This is the candy and soda sensation that's sweeping the nation.

198

00:09:31,000 --> 00:09:35,000

Inboxes across the world are gushing with these amazing

199

00:09:35,000 --> 00:09:38,000

choreographed fountains of froth.

200

00:09:40,000 --> 00:09:42,000

But Adam and Jamie are on a mission

201

00:09:42,000 --> 00:09:45,000

to determine the science behind the sizzle.

202

00:09:46,000 --> 00:09:48,000

Oh, that's a nice one. 10 feet.

203

00:09:48,000 --> 00:09:51,000

They've confirmed Diet Coke is the king of Cascades,

204

00:09:51,000 --> 00:09:55,000

and now Adam must find exactly which ingredients are at work.

205

00:09:55,000 --> 00:10:00,000

I've got Aspartame armed with the constituents of Diet Coke.

206

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

How's he going to use them?

207

00:10:02,000 --> 00:10:04,000

The soda water is our test bed.

208

00:10:04,000 --> 00:10:06,000

It's our basic unit of measurement here.

209

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

I will be adding each of these ingredients one at a time

210

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

to individual bottles of this and trying it out with the candy

211

00:10:12,000 --> 00:10:16,000

and seeing if I get a more vigorous response than just the soda water alone.

212

00:10:16,000 --> 00:10:20,000

If and when I do, I may find out that it's chemical D

213

00:10:20,000 --> 00:10:22,000

that provides the most vigorous response,

214

00:10:22,000 --> 00:10:24,000

and we can say, oh, there's your culprit.

215

00:10:24,000 --> 00:10:28,000

That's the plan, and first up is A for Aspartame,

216

00:10:28,000 --> 00:10:30,000

Diet Coke's artificial sweetener.

217

00:10:31,000 --> 00:10:34,000

Adam makes up a solution of the sugar substitute,

218

00:10:34,000 --> 00:10:39,000

adds it to the soda water, and gets ready to drop in a mentos.

219

00:10:40,000 --> 00:10:42,000

Remember, in their earlier test,

220

00:10:42,000 --> 00:10:45,000

soda water plus mentos equal three inches.

221

00:10:46,000 --> 00:10:49,000

So what will happen with the sweetener added?

222

00:10:49,000 --> 00:10:55,000

Sweet. The sweetener's made the cascade 20 times higher.

223

00:10:55,000 --> 00:10:57,000

That's interesting.

224

00:10:57,000 --> 00:11:00,000

That's a much more vigorous reaction than the soda water alone.

225

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

Aspartame is doing something to the water.

226

00:11:02,000 --> 00:11:05,000

But what about the other main ingredients?

227

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

First, the acids.

228

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

But neither the citric acid nor the phosphoric acid

229

00:11:10,000 --> 00:11:14,000

excite any alchemy, or for that matter, Adam.

230

00:11:15,000 --> 00:11:18,000

Total bupkus in terms of reaction.

231

00:11:18,000 --> 00:11:22,000

Then it's the preservative, potassium benzoate.

232

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

That in and of itself is a little bit of a reaction.

233

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

Let's see what happens when I add the candy.

234

00:11:28,000 --> 00:11:31,000

The preservative also enhances the cascade.

235

00:11:31,000 --> 00:11:34,000

It's almost an identical reaction to the Aspartame.

236

00:11:35,000 --> 00:11:37,000

Last up is the caffeine.

237

00:11:37,000 --> 00:11:40,000

This is a couple of tablespoons of caffeine in solution,

238

00:11:40,000 --> 00:11:42,000

pure powdered caffeine.

239

00:11:42,000 --> 00:11:44,000

This is probably enough to kill you.

240

00:11:44,000 --> 00:11:47,000

It's scary stuff when you start to increase the concentration.

241

00:11:49,000 --> 00:11:52,000

Again, the same kind of reaction.

242

00:11:52,000 --> 00:11:55,000

Caffeine, potassium benzoate, and Aspartame

243

00:11:55,000 --> 00:11:58,000

all had pretty much identical reactions.

244

00:11:58,000 --> 00:12:02,000

So Adam and Jamie have isolated the key active ingredients

245

00:12:02,000 --> 00:12:04,000

in the diet code.

246

00:12:04,000 --> 00:12:06,000

Next, they're going to find out what the mentors

247

00:12:06,000 --> 00:12:08,000

bring to the cascade carnival.

248

00:12:08,000 --> 00:12:12,000

Cary Grant and Tori are investigating a copter calamity.

249

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

Can posting a posted stamp on the precisely engineered

250

00:12:16,000 --> 00:12:18,000

rotor blades do this?

251

00:12:20,000 --> 00:12:22,000

This is a very expensive model,

252

00:12:22,000 --> 00:12:26,000

and people generally crash these the first time they fly them.

253

00:12:26,000 --> 00:12:28,000

And we actually want to get some good data from it.

254

00:12:28,000 --> 00:12:30,000

So we are going to do a little bit of a test

255

00:12:30,000 --> 00:12:32,000

and we're going to do a little bit of a test

256

00:12:32,000 --> 00:12:34,000

and we're going to do a little bit of a test

257

00:12:34,000 --> 00:12:36,000

and we're going to do a little bit of a test

258

00:12:36,000 --> 00:12:38,000

and we're going to get the data from it.

259

00:12:38,000 --> 00:12:40,000

So we are going to start these tests

260

00:12:40,000 --> 00:12:42,000

having this helicopter completely tethered down.

261

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

We've securely fastened the helicopter to the table.

262

00:12:47,000 --> 00:12:51,000

And the reason is that we want to actually see the blade deflection.

263

00:12:51,000 --> 00:12:53,000

We don't want the helicopter actually getting lift

264

00:12:53,000 --> 00:12:55,000

and moving all over the place.

265

00:12:55,000 --> 00:12:57,000

What we're interested in at this point

266

00:12:57,000 --> 00:13:00,000

is looking at how far that posted stamp

267

00:13:00,000 --> 00:13:03,000

will deflect the blade and what effect that has.

268

00:13:03,000 --> 00:13:07,000

And to see this, they've put a marked scale behind the chopper

269

00:13:07,000 --> 00:13:09,000

which when coupled with the high speed camera

270

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

will show them precisely how much wobble there is in the rotors.

271

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

Throttle.

272

00:13:15,000 --> 00:13:17,000

Ready? Go!

273

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

Okay, so this will be our baseline test.

274

00:13:23,000 --> 00:13:27,000

Just stock blades, no additional weight.

275

00:13:28,000 --> 00:13:30,000

Grant cranks the speed up to level 5

276

00:13:30,000 --> 00:13:33,000

and then cues the high speed camera.

277

00:13:33,000 --> 00:13:35,000

We're at speed, ready to capture.

278

00:13:35,000 --> 00:13:38,000

And sure enough, without any added weight

279

00:13:38,000 --> 00:13:40,000

the heli blades are in perfect balance.

280

00:13:40,000 --> 00:13:44,000

They're rotating exactly on the level of the blue line in the background.

281

00:13:44,000 --> 00:13:46,000

We just finished our baseline test.

282

00:13:46,000 --> 00:13:49,000

We saw that our blades are totally balanced.

283

00:13:49,000 --> 00:13:52,000

Now what we're going to do is put on a 1.7 scale

284

00:13:52,000 --> 00:13:54,000

posted stamp and see what happens.

285

00:13:54,000 --> 00:13:58,000

The stamp, like the model heli, is 1.7 normal size.

286

00:13:58,000 --> 00:14:01,000

That's just 0.02 grams.

287

00:14:01,000 --> 00:14:05,000

Will it really be enough to cause the chopper to become a dropper?

288

00:14:05,000 --> 00:14:07,000

Looks pretty good.

289

00:14:07,000 --> 00:14:10,000

The stamp doesn't look like it's having any effect.

290

00:14:10,000 --> 00:14:12,000

And the high speed agrees.

291

00:14:12,000 --> 00:14:16,000

With the stamp, the blades are just as balanced as they were without it.

292

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

So what does this mean for the myth?

293

00:14:19,000 --> 00:14:23,000

Based on our scale test with a scale posted stamp

294

00:14:23,000 --> 00:14:26,000

and the closest thing that we can get in scale

295

00:14:26,000 --> 00:14:30,000

to a real helicopter, this myth is looking busted.

296

00:14:30,000 --> 00:14:35,000

Later, Tori and Carrie put their lives on the line in a real chopper.

297

00:14:35,000 --> 00:14:37,000

Are we nuts?

298

00:14:37,000 --> 00:14:40,000

We got stamps on the top rotor and the tail rotor.

299

00:14:40,000 --> 00:14:45,000

But next, Adam and Jamie go nuclear with nucleation.

300

00:14:45,000 --> 00:14:47,000

How high did that go?

301

00:14:49,000 --> 00:14:53,000

Adam and Jamie are trying to figure out the theory behind the chaos

302

00:14:53,000 --> 00:14:56,000

when diet coke and Mentos meet.

303

00:14:56,000 --> 00:14:59,000

Our super sleuths have found the ingredients in the soda

304

00:14:59,000 --> 00:15:02,000

that cause the fountain to fraud.

305

00:15:02,000 --> 00:15:05,000

But what do the Mentos bring to the party?

306

00:15:05,000 --> 00:15:08,000

Adam has checked out the mint Mentos ingredients

307

00:15:08,000 --> 00:15:12,000

and he's narrowed down a suspect or two that may be of interest.

308

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

Gum Arabic and gelatin.

309

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

Let's pour in this gum Arabic and see if it makes the water want to release more CO₂ faster.

310

00:15:22,000 --> 00:15:24,000

And so it does.

311

00:15:24,000 --> 00:15:27,000

Look at that. I'd call that a reaction.

312

00:15:27,000 --> 00:15:32,000

Sure enough, both of the ingredients cause bubbles to burst forth.

313

00:15:32,000 --> 00:15:36,000

But there must be more to the Mentos magic than that.

314

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

The most common theory about what's going on in this reaction

315

00:15:39,000 --> 00:15:42,000

between the candy and the soda is what's called nucleation.

316

00:15:42,000 --> 00:15:46,000

Basically, the idea is that the surface of the candy

317

00:15:46,000 --> 00:15:49,000

is covered with microscopic pits

318

00:15:49,000 --> 00:15:52,000

and lots of more surface area than you can actually see.

319

00:15:52,000 --> 00:15:56,000

And each little pit, each little corner provides what's called a nucleation site

320

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

or a place where a carbon dioxide bubble can form and escape.

321

00:16:00,000 --> 00:16:04,000

Look at a Mentos close up and it's like the surface of the moon

322

00:16:04,000 --> 00:16:07,000

and that might be the candy key.

323

00:16:07,000 --> 00:16:11,000

Drop one in cola and every tiny crater provides a site

324

00:16:11,000 --> 00:16:14,000

where a CO₂ molecule can change to gas.

325

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

Because Mentos are so pitted, the theory is that millions of CO₂ bubbles

326

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

are formed in a very short space of time.

327

00:16:22,000 --> 00:16:28,000

And because the candy sinks and this rapid release of gas happens at the bottom of the cola,

328

00:16:28,000 --> 00:16:31,000

you get that famous fountain.

329

00:16:31,000 --> 00:16:36,000

To test this nucleation theory, they're going to start with a control.

330

00:16:36,000 --> 00:16:39,000

One regular mint Mentos dropped in soda water.

331

00:16:39,000 --> 00:16:43,000

And sure enough, it gets the bubbly party started.

332

00:16:43,000 --> 00:16:45,000

Now to do a comparison.

333

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

These two candies are made by the same manufacturer

334

00:16:48,000 --> 00:16:52,000

and as far as I'm aware, even using the same process.

335

00:16:52,000 --> 00:16:56,000

But the colored version of this actually has a glazing over it.

336

00:16:56,000 --> 00:17:01,000

It's a wax coating or a sealer that inhibits the nucleation process

337

00:17:01,000 --> 00:17:04,000

that the other one achieves quite readily.

338

00:17:04,000 --> 00:17:07,000

The shiniest surface should lower the nucleation sites,

339

00:17:07,000 --> 00:17:10,000

meaning less of an immediate eruption.

340

00:17:11,000 --> 00:17:15,000

That's not doing anything more than the wall of the plastic bottle itself.

341

00:17:15,000 --> 00:17:20,000

Sure enough, with the smooth Mentos, there ain't no whiz with the fizz,

342

00:17:20,000 --> 00:17:25,000

proving that nucleation is the prime mover on the active ingredient checklist.

343

00:17:25,000 --> 00:17:31,000

And with all the culprits exposed, the mythbusters can say they finally cracked the case

344

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

of the candy and cola cascade.

345

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

So you guys come up with anything? What causes the reaction?

346

00:17:36,000 --> 00:17:41,000

Yep, we sure did. And we also busted everything that we've seen in the media

347

00:17:41,000 --> 00:17:47,000

because not a single one of them came up with a complete explanation of what is going on with the soda.

348

00:17:47,000 --> 00:17:50,000

They all had a piece of the puzzle.

349

00:17:50,000 --> 00:17:54,000

In fact, it turns out that this combination of most of the explanations we've read.

350

00:17:54,000 --> 00:18:00,000

The primary initiator of the reaction is nucleation, the candy helping bubbles to form in the soda.

351

00:18:00,000 --> 00:18:04,000

But it turns out that the ingredients that make up the candy match perfectly

352

00:18:04,000 --> 00:18:07,000

are the ingredients that make up the soda to create what's called a cascade effect

353

00:18:07,000 --> 00:18:11,000

whereby the soda wants to let go of all of its CO2 instantaneously.

354

00:18:11,000 --> 00:18:13,000

And that's what makes the explosion happen.

355

00:18:14,000 --> 00:18:16,000

But the fun ain't done yet.

356

00:18:16,000 --> 00:18:19,000

In an attempt to put the power of the cascade to work,

357

00:18:19,000 --> 00:18:22,000

Jamie and Adam build a cola concept rocket.

358

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

Here's to a successful launch.

359

00:18:24,000 --> 00:18:25,000

You got it.

360

00:18:26,000 --> 00:18:32,000

The rotor blades of a helicopter, even a scaled down version,

361

00:18:32,000 --> 00:18:37,000

are so precisely balanced that apparently the weight of a single postage stamp

362

00:18:37,000 --> 00:18:41,000

is enough to render them catastrophically unstable.

363

00:18:43,000 --> 00:18:46,000

Tori, Carrie and Grant have been small scale testing.

364

00:18:46,000 --> 00:18:49,000

And at least on this helicopter, the myth is busted.

365

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

So now they want to know what it does take to get that down.

366

00:18:53,000 --> 00:18:57,000

They want to know what it does take to get that lethal instability.

367

00:18:59,000 --> 00:19:00,000

I say we destroy it.

368

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

This is why we can't have anything nice.

369

00:19:02,000 --> 00:19:09,000

And surely the weight of 8,000 stamps will be enough to wreak the helicopter havoc thereafter.

370

00:19:14,000 --> 00:19:15,000

Right there!

371

00:19:15,000 --> 00:19:18,000

Right there! That was it!

372

00:19:18,000 --> 00:19:20,000

That's what we're looking for.

373

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

Ain't that the truth?

374

00:19:22,000 --> 00:19:25,000

It was 8,000 more stamps than the myth.

375

00:19:25,000 --> 00:19:29,000

But at last the guys get the chopper disaster they wanted.

376

00:19:29,000 --> 00:19:32,000

But this myth is far from over.

377

00:19:32,000 --> 00:19:37,000

With the small scale copter in pieces, it's time to return to the hangar

378

00:19:37,000 --> 00:19:40,000

to test the myth on the real deal.

379

00:19:40,000 --> 00:19:45,000

So Rick, have you ever heard the myth that a postage stamp is enough to unbalance a helicopter,

380

00:19:45,000 --> 00:19:47,000

potentially crash it?

381

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

I have not heard that myth.

382

00:19:49,000 --> 00:19:55,000

I do know that the blade system is very sensitive to items on the rotors,

383

00:19:55,000 --> 00:19:59,000

which can include balloons, dust, paint.

384

00:19:59,000 --> 00:20:04,000

So it can affect the flight characteristics of the aircraft.

385

00:20:04,000 --> 00:20:10,000

If mere dust can unbalance this chopper, then a postage stamp might have an effect after all.

386

00:20:10,000 --> 00:20:15,000

To put this to the test, Flight Engineer Chad has rigged a series of sensors

387

00:20:15,000 --> 00:20:19,000

that can detect the tiniest changes in the balance of the blades.

388

00:20:19,000 --> 00:20:21,000

What are the sensors telling you?

389

00:20:21,000 --> 00:20:24,000

This up here is called a velocimeter.

390

00:20:24,000 --> 00:20:29,000

It's in a lateral position, so it's going to measure vibrations laterally.

391

00:20:29,000 --> 00:20:32,000

If the main rotor mass is doing this, it's going to feel this lateral vibration.

392

00:20:32,000 --> 00:20:35,000

And that's because of some imbalance in the blades.

393

00:20:35,000 --> 00:20:36,000

Correct.

394

00:20:36,000 --> 00:20:39,000

This is really the final test.

395

00:20:39,000 --> 00:20:41,000

You can't be having a real helicopter.

396

00:20:41,000 --> 00:20:45,000

What we're going to do is take a postage stamp and put it on the rotor blade

397

00:20:45,000 --> 00:20:52,000

and see if that is enough to send it out of balance and possibly cause a catastrophic crash.

398

00:20:52,000 --> 00:20:59,000

Still to come, Adam and Jamie shoot for the moon as they build a rocket powered by Diet Coke and Mentos.

399

00:20:59,000 --> 00:21:00,000

Here's to a successful launch.

400

00:21:00,000 --> 00:21:01,000

You got it.

401

00:21:01,000 --> 00:21:02,000

But next...

402

00:21:02,000 --> 00:21:04,000

Coming up on Midbock Yard!

403

00:21:04,000 --> 00:21:05,000

Get a postage stamp!

404

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

Take out a helicopter!

405

00:21:08,000 --> 00:21:11,000

Don't try what you're about to see at home.

406

00:21:15,000 --> 00:21:16,000

I'm going to try one of these.

407

00:21:16,000 --> 00:21:20,000

Adam and Jamie have been conjuring up some Diet Coke and Mentos magic.

408

00:21:20,000 --> 00:21:22,000

Three, two, one.

409

00:21:23,000 --> 00:21:24,000

Wow!

410

00:21:24,000 --> 00:21:29,000

They've carefully worked out exactly why these two products go ballistic.

411

00:21:29,000 --> 00:21:32,000

But now they want to launch onto a whole new level.

412

00:21:32,000 --> 00:21:35,000

You know, based on everything I'm seeing with what we've done so far,

413

00:21:35,000 --> 00:21:39,000

I think we could take this a step further and try and make a rocket out of this reaction.

414

00:21:39,000 --> 00:21:41,000

Rockets are always fun. Let's do it.

415

00:21:41,000 --> 00:21:44,000

Here goes big boom, simple rocket!

416

00:21:44,000 --> 00:21:48,000

Rockets and mythbusters go together like pizza and pepperoni.

417

00:21:48,000 --> 00:21:49,000

Ignition!

418

00:21:49,000 --> 00:21:51,000

The Confederate rocket was a blast.

419

00:21:52,000 --> 00:21:55,000

And the Salami missile was a sizzler.

420

00:21:55,000 --> 00:22:00,000

But now their challenge is to convert an upward fountain into downward thrust

421

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

with a rocket to build and nothing but Diet Coke, Mentos and a bunch of plumbing parts,

422

00:22:05,000 --> 00:22:07,000

the boys are in their element.

423

00:22:07,000 --> 00:22:12,000

So we've designed this rocket to take full advantage of this cascading effect.

424

00:22:12,000 --> 00:22:16,000

All of this energy being transmitted out of these bottles

425

00:22:16,000 --> 00:22:20,000

and straight down is what we're looking for with a very simple lightweight device.

426

00:22:20,000 --> 00:22:21,000

Dead simple.

427

00:22:21,000 --> 00:22:27,000

And as Jamie will demonstrate for us, the PVC tubing redirects the cola cascade

428

00:22:27,000 --> 00:22:30,000

from four bottles down through a central pipe.

429

00:22:33,000 --> 00:22:34,000

It all comes out there.

430

00:22:34,000 --> 00:22:39,000

But the clever part is a set of magnets holding the Mentos in the pipes

431

00:22:39,000 --> 00:22:41,000

until Adam and Jamie are ready for launch.

432

00:22:41,000 --> 00:22:46,000

And before you can say, National Aeronautics and Space Administration,

433

00:22:46,000 --> 00:22:48,000

it's T-minus five seconds.

434

00:22:48,000 --> 00:22:49,000

Just a successful launch.

435

00:22:49,000 --> 00:22:50,000

You got it.

436

00:22:50,000 --> 00:22:55,000

And three, two, one, fire!

437

00:22:55,000 --> 00:22:56,000

One.

438

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

At Houston, we have a problem.

439

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

That's not enough for a rocket.

440

00:23:09,000 --> 00:23:15,000

Unfortunately, there are leaks and the cola cascade doesn't produce enough thrust

441

00:23:15,000 --> 00:23:19,000

to lift the weight of the piping and four bottles of cola.

442

00:23:19,000 --> 00:23:21,000

So it's back to the drawing board.

443

00:23:22,000 --> 00:23:25,000

And while Jamie goes to work lightning the load,

444

00:23:25,000 --> 00:23:30,000

Adam, for reasons known only to himself, puts a bottle of Coke on the lathe.

445

00:23:30,000 --> 00:23:33,000

No prizes for guessing what happens next.

446

00:23:38,000 --> 00:23:41,000

Then that could happen, for instance.

447

00:23:43,000 --> 00:23:46,000

I'm thinking he won't want to tell Jamie about this one.

448

00:23:46,000 --> 00:23:50,000

The cola probably isn't one of the recommended lubricants for a lathe.

449

00:23:51,000 --> 00:23:52,000

Don't tell Jamie.

450

00:23:52,000 --> 00:23:55,000

Okay, this is a secret between us.

451

00:23:56,000 --> 00:24:01,000

Luckily for Adam, Jamie's been busy working on a nozzle for a sleeker one-bottle rocket.

452

00:24:01,000 --> 00:24:03,000

And now he's ready for a test.

453

00:24:04,000 --> 00:24:05,000

Okay, let's go for it.

454

00:24:05,000 --> 00:24:06,000

Here we go.

455

00:24:06,000 --> 00:24:08,000

Three, two, one.

456

00:24:12,000 --> 00:24:13,000

What are you smiling about?

457

00:24:13,000 --> 00:24:15,000

It's another launch failure.

458

00:24:15,000 --> 00:24:18,000

But the mythbusters aren't going to give up without a fight.

459

00:24:18,000 --> 00:24:19,000

Okay, ready?

460

00:24:19,000 --> 00:24:20,000

Everybody set?

461

00:24:20,000 --> 00:24:23,000

Three, two, one.

462

00:24:26,000 --> 00:24:33,000

With lift off falling flat, again, it looks as if the cola concept rocket has Adam and Jamie beaten.

463

00:24:33,000 --> 00:24:36,000

And desperation is setting in.

464

00:24:36,000 --> 00:24:44,000

They've been unable to overcome the fact that there's not enough thrust from the cola cascade

465

00:24:44,000 --> 00:24:47,000

to get the weight of the bottle and soda airborne.

466

00:24:47,000 --> 00:24:50,000

And Adam, for one, isn't taking defeat too well.

467

00:24:50,000 --> 00:24:55,000

It's time to change course before he completely loses the plot.

468

00:24:59,000 --> 00:25:00,000

Rocket's a failure.

469

00:25:01,000 --> 00:25:02,000

Let's go for height.

470

00:25:03,000 --> 00:25:09,000

So the next chapter in this crazy cascade escapade is a height challenge.

471

00:25:09,000 --> 00:25:15,000

Since Carrie kicked it all off and these guys, the EP birds, raised the stakes,

472

00:25:15,000 --> 00:25:19,000

the internet has been a buzz with Diet Coke and Mentos Mania.

473

00:25:19,000 --> 00:25:23,000

There's even an unofficial spout record of 18 feet.

474

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

In an attempt to top the record, Adam and Jamie are going head to head.

475

00:25:28,000 --> 00:25:29,000

I hate competitions.

476

00:25:30,000 --> 00:25:32,000

Yeah, when you lose.

477

00:25:33,000 --> 00:25:37,000

Adam's first with his attempted spurt into the record books

478

00:25:37,000 --> 00:25:42,000

and to increase the pressure of the fountain's flow, he's making a nozzle.

479

00:25:42,000 --> 00:25:46,000

Well, with a couple of extra minutes and a nice lathe and some aluminum,

480

00:25:46,000 --> 00:25:48,000

I did what any poi would make.

481

00:25:49,000 --> 00:25:52,000

What am I allowed to call it? A plasma sword?

482

00:25:52,000 --> 00:25:58,000

Except instead of a limited beam of pure plasma, it's soda.

483

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

Yeah.

484

00:26:02,000 --> 00:26:05,000

Not so much Yoda, but soda.

485

00:26:07,000 --> 00:26:12,000

Outside and Adam is all set to use the force of the cola cascade

486

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

to beat the world record of 18 feet.

487

00:26:15,000 --> 00:26:17,000

Three, two, one.

488

00:26:18,000 --> 00:26:19,000

Hey!

489

00:26:19,000 --> 00:26:20,000

23 feet.

490

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

It's a home run to start.

491

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

Next, Jamie steps up to the plate reluctantly.

492

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

They keep trying to get me to compete and I know I don't like it.

493

00:26:29,000 --> 00:26:34,000

Like Adam, Jamie simply uses a nozzle to give his spout more clout.

494

00:26:34,000 --> 00:26:38,000

The only problem I see with this thing is that I've got to get it on there really quickly

495

00:26:38,000 --> 00:26:41,000

or I'm going to get sprayed along with everybody else around here.

496

00:26:41,000 --> 00:26:43,000

So that's the trick.

497

00:26:43,000 --> 00:26:48,000

I've got to kind of like have three hands to operate this thing.

498

00:26:48,000 --> 00:26:52,000

That was sort of in this fire. The tube didn't load it straight down.

499

00:26:52,000 --> 00:26:58,000

Not a great start from the beret one, but a reload later, our mustachioed friend is back.

500

00:27:06,000 --> 00:27:10,000

Well, there you go. How high did that go?

501

00:27:10,000 --> 00:27:18,000

23 feet. It's an honorable draw, but the adrenaline of the competition has clearly gone to Jamie's head.

502

00:27:18,000 --> 00:27:25,000

With a mouthful of Mentos and Cola, it's not so much a gassy geyser as a gassy geyser.

503

00:27:29,000 --> 00:27:34,000

It's probably best that you don't try this at home.

504

00:27:37,000 --> 00:27:39,000

I don't want to see me do it again.

505

00:27:39,000 --> 00:27:50,000

Next, and the mythbusters are going to join forces and get some real hide on this puppy.

506

00:27:50,000 --> 00:27:55,000

And they must be confident because they extend the scale to 30 feet.

507

00:27:55,000 --> 00:27:58,000

And three, two, one.

508

00:27:59,000 --> 00:28:02,000

Oh my God.

509

00:28:02,000 --> 00:28:13,000

I actually could have held it. It blew it out of my hands for a second, so I think I can probably get another foot or two.

510

00:28:13,000 --> 00:28:15,000

You hit 29 feet.

511

00:28:15,000 --> 00:28:18,000

Well, I could probably make it 30 if you want to have another go.

512

00:28:18,000 --> 00:28:20,000

Another go? You betcha.

513

00:28:20,000 --> 00:28:22,000

Two, one.

514

00:28:22,000 --> 00:28:24,000

Oh! Two!

515

00:28:24,000 --> 00:28:34,000

They try various combinations of candies, salt, and the other enhancers they've unearthed over the course of their investigation.

516

00:28:34,000 --> 00:28:41,000

Before they get everything just right with Nucleation's sight-rich rock salt.

517

00:28:41,000 --> 00:28:43,000

Alright, we're ready up here.

518

00:28:48,000 --> 00:28:49,000

Dude!

519

00:28:49,000 --> 00:28:53,000

That went a full four feet above the meter.

520

00:28:53,000 --> 00:28:57,000

31, 34 feet, dude.

521

00:28:57,000 --> 00:28:59,000

That is not shabby.

522

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

34 feet. It's the new benchmark to beat.

523

00:29:03,000 --> 00:29:05,000

Let's call it a day.

524

00:29:05,000 --> 00:29:06,000

Alright.

525

00:29:06,000 --> 00:29:08,000

I think we've set a fine, high watermark.

526

00:29:08,000 --> 00:29:10,000

It's all with salt.

527

00:29:10,000 --> 00:29:19,000

Back with the Helly's Angels, and the team has posted a stamp on the blades of this chopper.

528

00:29:19,000 --> 00:29:25,000

And they're about to find out if it's enough to catastrophically unbalance the rotors.

529

00:29:25,000 --> 00:29:30,000

But with the Helly hovering happily, this myth is sinking fast.

530

00:29:30,000 --> 00:29:33,000

I think we might be busted here.

531

00:29:33,000 --> 00:29:36,000

The chopper has survived intact.

532

00:29:36,000 --> 00:29:39,000

So, did the stamp make any difference at all?

533

00:29:39,000 --> 00:29:42,000

So, Chad, what did the computer come up with?

534

00:29:42,000 --> 00:29:55,000

Well, with our first flight without the poster stamp applied, with my measurements, our hover lateral, which is the side-to-side motion, measured a 0.173 inches per second, or IPS.

535

00:29:55,000 --> 00:29:57,000

So that's no stamp.

536

00:29:57,000 --> 00:29:58,000

That is no stamp.

537

00:29:58,000 --> 00:29:59,000

Okay.

538

00:29:59,000 --> 00:30:04,000

With the application of the stamp, hover lateral was a 0.174.

539

00:30:04,000 --> 00:30:12,000

So it only changed 1,000 of an IPS, which is actually minuscule.

540

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

The stamp did next to nothing.

541

00:30:14,000 --> 00:30:17,000

It's looking like this myth should be returned to sender.

542

00:30:17,000 --> 00:30:21,000

But the team do want to try one last thing.

543

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

Now, for those of you out there who are helicopter enthusiasts, I know you've been thinking all through the show, they're only concentrating on the main rotor.

544

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

What about the tail boom?

545

00:30:31,000 --> 00:30:33,000

Well, today we're going to try the tail boom too.

546

00:30:33,000 --> 00:30:39,000

It's the twist in the tail, one stamp on the main rotor, and now one on the back one too.

547

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

And there's no hover test for this one.

548

00:30:41,000 --> 00:30:44,000

Instead, the team is going for broke.

549

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

Are we nuts?

550

00:30:45,000 --> 00:30:49,000

We got stamps on the top rotor and the tail rotor.

551

00:30:49,000 --> 00:30:55,000

Here's the thing, if we're wrong about this, we're going to have a really bad day.

552

00:30:55,000 --> 00:30:58,000

August 1, Roger, clear for takeoff on the go.

553

00:30:58,000 --> 00:31:01,000

They're up and away, and it's so far so good.

554

00:31:01,000 --> 00:31:08,000

Even with stamps on the main rotor and the tail boom, the chopper's flying straight as an arrow.

555

00:31:08,000 --> 00:31:09,000

Wait, are we going back?

556

00:31:09,000 --> 00:31:10,000

Yeah.

557

00:31:10,000 --> 00:31:12,000

I'm ready to go back.

558

00:31:16,000 --> 00:31:19,000

Oh, it's going to go for the slide right in.

559

00:31:19,000 --> 00:31:21,000

That is how you park it.

560

00:31:21,000 --> 00:31:22,000

Touchdown.

561

00:31:22,000 --> 00:31:29,000

The team is back in one piece, which means it's time to wrap up this postal caribou.

562

00:31:29,000 --> 00:31:32,000

Okay, Rick, well, we've been out in your helicopter today.

563

00:31:32,000 --> 00:31:34,000

We've run a bunch of tests.

564

00:31:34,000 --> 00:31:36,000

Post your stamp on a helicopter blade.

565

00:31:36,000 --> 00:31:37,000

What do you think?

566

00:31:37,000 --> 00:31:38,000

It had no effect.

567

00:31:38,000 --> 00:31:41,000

I felt no appreciable difference.

568

00:31:41,000 --> 00:31:42,000

Definitely busted.

569

00:31:42,000 --> 00:31:43,000

Definitely busted.

570

00:31:43,000 --> 00:31:48,000

But viewers keep sending in those stories, because that was a fun one.

571

00:31:48,000 --> 00:31:52,000

Coming right up, bubble, bubble, toil and trouble.

572

00:31:52,000 --> 00:31:58,000

Adam and Jamie concoct a witch's brew as they search for the next Diet Coke conventos phenomenon.

573

00:31:58,000 --> 00:32:01,000

That was like the beast dying at the end of the movie.

574

00:32:04,000 --> 00:32:06,000

So what do you want to do now?

575

00:32:06,000 --> 00:32:10,000

Well, I don't think we're done with candy and soda by a long shot.

576

00:32:10,000 --> 00:32:12,000

I mean, this thing is positively viral.

577

00:32:12,000 --> 00:32:14,000

It's everywhere.

578

00:32:14,000 --> 00:32:19,000

I think that what we could add to this is by looking for the next big thing.

579

00:32:19,000 --> 00:32:27,000

Well, I've got a ton of stuff that I get every day on email from people about all sorts of things that they can do with crap they've got laying around their house.

580

00:32:27,000 --> 00:32:28,000

So do I.

581

00:32:31,000 --> 00:32:39,000

So Adam and Jamie have got explosion envy and to soothe their egos, they're going to weave some homemade magic of their own.

582

00:32:39,000 --> 00:32:47,000

First out of the blocks is Adam and he's intending to set the worldwide Web of Light with a towering inferno of soapy water.

583

00:32:47,000 --> 00:32:55,000

We're trying something an old friend of mine gave me, which is that if you bubble methane up through soapy water,

584

00:32:55,000 --> 00:32:59,000

you'll end up with a column of bubbles because the methane is lighter than air.

585

00:32:59,000 --> 00:33:02,000

It helps lift the column and keep it stable.

586

00:33:02,000 --> 00:33:06,000

And then that column gets a certain height, however high you want it, you can light it.

587

00:33:06,000 --> 00:33:09,000

The whole thing goes, whoo, in the flame.

588

00:33:09,000 --> 00:33:14,000

And with a garden sprinkler on the end of a methane hose in a bucket of foamy water,

589

00:33:14,000 --> 00:33:18,000

it's not long before he has his very own bust of bubbles.

590

00:33:18,000 --> 00:33:22,000

I've been a bubble sculptor for about 20 years.

591

00:33:22,000 --> 00:33:27,000

The bubbles are a very fine way to sculpt the real world.

592

00:33:27,000 --> 00:33:34,000

Their first attempt is a little lopsided, but Adam is poised to feed the fire of his pyromania.

593

00:33:41,000 --> 00:33:44,000

That is so cool. It's water and it's burning.

594

00:33:44,000 --> 00:33:46,000

And now it's gone.

595

00:33:46,000 --> 00:33:50,000

Second time around and for Jamie and Adam, it's onwards and upwards.

596

00:33:50,000 --> 00:33:57,000

The bubbles are sticking together nicely and the lighter than air methane is pulling the flammable column skywards.

597

00:33:57,000 --> 00:34:04,000

At first it's like, okay, it looks like it's working, but then it starts to get out into the area that defines physics.

598

00:34:04,000 --> 00:34:09,000

Not only is it getting more fascinating, but it's increasing in funniness every minute.

599

00:34:11,000 --> 00:34:14,000

Okay, you ready? I just don't want to lose it.

600

00:34:16,000 --> 00:34:18,000

Wow!

601

00:34:21,000 --> 00:34:26,000

That was like a movie. That was like the beast dying at the end of the movie.

602

00:34:28,000 --> 00:34:32,000

Well, I don't see anything on fire up there.

603

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

That was really cool.

604

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

I have to say, for my money, that rivals the Canyon soda.

605

00:34:39,000 --> 00:34:43,000

However, the Canyon soda, that's safe enough for any four-year-old to do.

606

00:34:43,000 --> 00:34:47,000

I mean, at least they're safe from everything except getting yelled at by their parents.

607

00:34:47,000 --> 00:34:51,000

It's not safe pretty much for any of our viewers.

608

00:34:51,000 --> 00:34:54,000

We've done it. No, you don't have to.

609

00:34:54,000 --> 00:34:59,000

Next up in the household history on X, Jamie is getting his hands dirty.

610

00:34:59,000 --> 00:35:00,000

Whatcha doing?

611

00:35:00,000 --> 00:35:02,000

Coming down and checking it out.

612

00:35:02,000 --> 00:35:04,000

I'm making a smoke bomb.

613

00:35:04,000 --> 00:35:06,000

Nice!

614

00:35:06,000 --> 00:35:10,000

With just salt, Peter, and sugar, that's it?

615

00:35:10,000 --> 00:35:13,000

You make it like a peanut bread.

616

00:35:13,000 --> 00:35:18,000

You know, you get the sugar hot and the salt, Peter, hot until it's like molasses-y.

617

00:35:18,000 --> 00:35:23,000

You can put match heads in it, apparently, so that when it cools, they're there.

618

00:35:23,000 --> 00:35:24,000

Kind of like a fuse.

619

00:35:24,000 --> 00:35:30,000

In an attempt to make a point about his manhood, Adam whips up a larger batch.

620

00:35:30,000 --> 00:35:36,000

But finds out quickly that when cooking with flammable ingredients, it can get hot in the kitchen.

621

00:35:40,000 --> 00:35:42,000

So that's what can happen.

622

00:35:42,000 --> 00:35:45,000

And that's why you don't try this at home.

623

00:35:45,000 --> 00:35:50,000

Stay with us as more household products get put under the Mythbusters microscope.

624

00:35:50,000 --> 00:35:54,000

Stay frosty, people. This is still gonna blow.

625

00:35:58,000 --> 00:36:06,000

Inspired by the diet coke and Mentos phenomenon, Adam and Jamie are trying to find their very own recipe for homemade fun.

626

00:36:06,000 --> 00:36:12,000

But so far, their experiments have been too hot for any normal household to handle.

627

00:36:12,000 --> 00:36:16,000

Now, Adam's going to find out if the smoke bomb cupcake he and Jamie baked earlier

628

00:36:16,000 --> 00:36:24,000

will rival diet coke and Mentos for spectacular fun and satisfy his desire for revenge.

629

00:36:24,000 --> 00:36:33,000

I think you all remember when Carrie and Tori decided that it would be a good idea to shock me during bagged out of battery.

630

00:36:33,000 --> 00:36:34,000

Ow!

631

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

Do you feel God?

632

00:36:38,000 --> 00:36:44,000

Well, all I gotta say is, payback is rough.

633

00:36:44,000 --> 00:36:48,000

They say revenge is a dish best served cold.

634

00:36:48,000 --> 00:36:50,000

That is a good puff of smoke.

635

00:36:50,000 --> 00:36:52,000

Alright, let's do regular black powder.

636

00:36:52,000 --> 00:36:54,000

What is that?

637

00:36:54,000 --> 00:36:56,000

Wait.

638

00:36:59,000 --> 00:37:03,000

Is it a hockey puck? It's a flaming hockey puck.

639

00:37:07,000 --> 00:37:10,000

It's resisting.

640

00:37:10,000 --> 00:37:12,000

Put it out.

641

00:37:12,000 --> 00:37:14,000

Ah, kill it.

642

00:37:14,000 --> 00:37:19,000

So the smoke bomb cupcake was nothing but hot air.

643

00:37:19,000 --> 00:37:21,000

Okay!

644

00:37:21,000 --> 00:37:24,000

But the next test could jumpstart things.

645

00:37:24,000 --> 00:37:27,000

A hydrogen and potato chip bomb?

646

00:37:27,000 --> 00:37:32,000

The trick is that you poke a hole in the bottom and you poke a hole in the top

647

00:37:32,000 --> 00:37:36,000

and you pump in some hydrogen, some gaseous hydrogen.

648

00:37:36,000 --> 00:37:45,000

And if you do it just right and you light the top at a certain point when it reaches that golden, you know, air to fuel mixture,

649

00:37:45,000 --> 00:37:51,000

then the whole thing blows up and it will remove the tin without even disturbing the chips.

650

00:37:51,000 --> 00:37:57,000

While they get set up, let's go over to Adam who can tell us a bit more about how it works.

651

00:37:57,000 --> 00:38:04,000

You've got a can you filled with hydrogen, which is lighter than air, like helium, so it wants to rise.

652

00:38:04,000 --> 00:38:08,000

You provide a little hole for it to rise through and when you put a match over that hole,

653

00:38:08,000 --> 00:38:13,000

the hydrogen mixing with oxygen at the exit creates a little flame.

654

00:38:13,000 --> 00:38:18,000

Now, it's burning hydrogen out of the can, which means it's pulling oxygen in it from underneath.

655

00:38:18,000 --> 00:38:24,000

When the correct air fuel mixture in the can is reached, the flame up top goes down inside

656

00:38:24,000 --> 00:38:28,000

and boom! Blows that can right off the chips.

657

00:38:28,000 --> 00:38:30,000

So, let's see it in action.

658

00:38:30,000 --> 00:38:31,000

All set?

659

00:38:31,000 --> 00:38:32,000

Yep.

660

00:38:32,000 --> 00:38:34,000

Okay.

661

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

That was fast!

662

00:38:39,000 --> 00:38:40,000

Are you okay?

663

00:38:40,000 --> 00:38:46,000

Yeah, I'm fine. I didn't wear your protection though, because you said I didn't need it.

664

00:38:46,000 --> 00:38:47,000

That's what I was told.

665

00:38:47,000 --> 00:38:52,000

It was fast and loud enough to give Jamie the shock of his life.

666

00:38:52,000 --> 00:38:57,000

But despite losing an eardrum or two, they can't wait to do it again.

667

00:38:57,000 --> 00:39:04,000

This time with ear protection and a remote control ignition system, otherwise known as a taper on a stick.

668

00:39:04,000 --> 00:39:07,000

That would be a life, wouldn't it? You heard it, right?

669

00:39:07,000 --> 00:39:09,000

Yeah, I think so.

670

00:39:09,000 --> 00:39:14,000

Adam and Jamie are uncertain because the hydrogen burns with a clear white flame.

671

00:39:14,000 --> 00:39:19,000

But, burning it is. It's pulling oxygen through the bottom of the can.

672

00:39:19,000 --> 00:39:22,000

And when the mixture is just so...

673

00:39:27,000 --> 00:39:28,000

That is very cool!

674

00:39:28,000 --> 00:39:33,000

I'd say it comes off fantastically in one sense and terrible in the other.

675

00:39:33,000 --> 00:39:41,000

Hydrogen, pure gaseous hydrogen, isn't something that everybody has, or is it something that's safe to play with?

676

00:39:41,000 --> 00:39:48,000

However, the results of blasting the can off of a stack of chips and leaving them almost intact,

677

00:39:48,000 --> 00:39:50,000

I mean, it just makes me smile, just thinking about it.

678

00:39:50,000 --> 00:39:56,000

After a timeout to think about ear protection protocol, Adam is ready for the next test.

679

00:39:56,000 --> 00:39:59,000

This is what I've known about for a long time. It's called dry ice bomb.

680

00:39:59,000 --> 00:40:03,000

Years ago, I went to an ice company to pick up some stuff for Jamie.

681

00:40:03,000 --> 00:40:05,000

It's like 20 years ago, 15 years ago.

682

00:40:05,000 --> 00:40:08,000

And it said, you cannot buy dry ice unless you're 18.

683

00:40:08,000 --> 00:40:10,000

And I thought, why would that be?

684

00:40:10,000 --> 00:40:13,000

And so I said, hey, how come you can't buy dry ice unless you're over 18?

685

00:40:13,000 --> 00:40:18,000

And the guy goes, oh, because you can stick it in a 2 liter bottle and make a huge bomb out of it.

686

00:40:18,000 --> 00:40:23,000

It blows up and it, like, set car alarms off across the street. It's really cool.

687

00:40:23,000 --> 00:40:27,000

And I was thinking, you're new here, aren't you?

688

00:40:28,000 --> 00:40:31,000

Since then, I have always wanted to try it.

689

00:40:32,000 --> 00:40:40,000

So apparently with nothing more than a 2 liter soda bottle and some dry ice, there's some big boom fun to be had.

690

00:40:40,000 --> 00:40:44,000

But Adam is slightly concerned with safety on this one.

691

00:40:44,000 --> 00:40:49,000

Look at it this way. I'm crazy. And even I'm putting on a massive amount of padding to do this one.

692

00:40:49,000 --> 00:40:51,000

Oh yeah, the cod piece.

693

00:40:51,000 --> 00:40:54,000

Meanwhile, Jamie is working on the dry ice.

694

00:40:54,000 --> 00:40:59,000

I'm cutting the dry ice up because we need to fit it into the neck of the bottle.

695

00:40:59,000 --> 00:41:07,000

Once it's in there, we're going to add water to it, which has the amazing effect of melting the ice really quickly.

696

00:41:07,000 --> 00:41:13,000

It turns it all into gas and all that gas has to go somewhere.

697

00:41:13,000 --> 00:41:19,000

So add a little water to the dry ice in the bottle and the dry ice turns into CO₂ gas.

698

00:41:19,000 --> 00:41:24,000

And with the lid secured, Adam and Jamie have a pressure vessel on their hands.

699

00:41:24,000 --> 00:41:28,000

Now, it's just a matter of time.

700

00:41:28,000 --> 00:41:30,000

Huge dramatic music.

701

00:41:31,000 --> 00:41:33,000

It's going to go any second, I swear.

702

00:41:33,000 --> 00:41:36,000

Stay frosty, people. This is still going to blow.

703

00:41:37,000 --> 00:41:42,000

It's kind of like watching the grass grow except there's an explosion at the end of it.

704

00:41:44,000 --> 00:41:46,000

Wow!

705

00:41:49,000 --> 00:41:53,000

Dude, that is intensely loud.

706

00:41:53,000 --> 00:41:55,000

I've got to say that's louder than a gunshot.

707

00:41:55,000 --> 00:41:58,000

Now you see it, now you don't.

708

00:41:59,000 --> 00:42:05,000

And what was a plastic soda bottle is now a million pieces of twisted shrapnel.

709

00:42:05,000 --> 00:42:06,000

That is amazing.

710

00:42:06,000 --> 00:42:20,000

That's one of those things it is, you know, it doesn't look like much, but it's such a shockwave that, you know, I can't imagine this killing you, but I wouldn't want to be anywhere near it when it goes off.

711

00:42:20,000 --> 00:42:27,000

It would be a hell of a lot of trauma. You would definitely lose your hearing if you were anywhere near this thing.

712

00:42:30,000 --> 00:42:35,000

Well, you know, this is a lot of fun, but I don't think anything we came up with came close to the candy and soda.

713

00:42:35,000 --> 00:42:39,000

I mean, it is one of the most perfect parlor tricks I've ever seen.

714

00:42:39,000 --> 00:42:47,000

Not only is it spectacular, not only is it totally safe, but everything you need to do it, you can get at literally any store there is.

715

00:42:47,000 --> 00:42:53,000

Yeah, we kind of cheated a little bit. Not everything we used was household per se.

716

00:42:53,000 --> 00:43:01,000

Yeah, I have no doubt that the very morning after this episode airs, you and I will have thousands of suggestions of other new things to try.

717

00:43:01,000 --> 00:43:05,000

Maybe that's another episode, but I think we can put this one to bed and go home.