

1

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

entertain your brain.

2

00:00:02,000 --> 00:00:04,500

Hey, don't try what you are about to see at home.

3

00:00:04,500 --> 00:00:06,500

We are what you call experts.

4

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

That's right. We do this for a living.

5

00:00:08,500 --> 00:00:12,500

On this special episode of Mythbusters,

6

00:00:12,500 --> 00:00:14,500

the feathers are flying

7

00:00:14,500 --> 00:00:17,500

as we put animal myths under the microscope.

8

00:00:19,500 --> 00:00:20,500

Don't turn away.

9

00:00:20,500 --> 00:00:23,000

It's chickens of mass destruction.

10

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

The Mythbusters are firing their chicken gun

11

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

to see which does the most damage,

12

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

thawed or frozen.

13

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

I would say that what you got here

14

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

is a potential supersonic chicken.

15

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

Are goldfish and a bowl bored

16

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

or simply stupid?

17

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

Does their memory last more than three seconds?

18

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

I've got all the smart ones.

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

You've got all the stupid ones.

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

Crack, damn you.

21

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

And science or quackery?

22

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

I want you to do this, got it?

23

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

The burning question.

24

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

Does a duck's quack echo?

25

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

Who are the Mythbusters?

26

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

Is my missing an eyebrow?

27

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

Adam Savage.

28

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

I always enjoyed seeing Adam in pain.

29

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

Oh!

30

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

And Jamie Heineman.

31

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

Jamie wants a big girl.

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

Between them, more than 30 years special effects experience.

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

Still kind of sexy.

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

They don't just tell the Myths.

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00:01:17,000 --> 00:01:20,000

They put them to the test.

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00:01:27,000 --> 00:01:32,000

Well Jamie, I got an angry chicken,

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00:01:32,000 --> 00:01:34,000

a really big gun and an airplane.

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00:01:34,000 --> 00:01:36,000

What are we working on?

39

00:01:36,000 --> 00:01:39,000

Well we're here testing the myth of the chicken gun.

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00:01:39,000 --> 00:01:42,000

Scientists conduct impact tests

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00:01:42,000 --> 00:01:46,000

by firing bird carcasses from big guns.

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00:01:46,000 --> 00:01:49,000

With more than 3,000 bird strikes each year,

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00:01:49,000 --> 00:01:51,000

aviation authorities spend millions

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00:01:51,000 --> 00:01:54,000

trying to protect the cockpit crews.

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00:01:55,000 --> 00:01:58,000

We know that the military uses chicken cannons

46

00:01:58,000 --> 00:02:00,000

to test windshields, you know,

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

how they would do with a bird hit.

48

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

What's the myth?

49

00:02:03,000 --> 00:02:05,000

Well the myth says that the British

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

borrowed this technology from NASA

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

to test high speed trains.

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00:02:09,000 --> 00:02:11,000

But they ran into a problem,

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00:02:11,000 --> 00:02:13,000

and the problem was that the chickens were going

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

right through the windshields of the trains

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00:02:15,000 --> 00:02:17,000

and even embedding themselves in the seats

56

00:02:17,000 --> 00:02:19,000

further down inside the train.

57

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

That would be bad.

58

00:02:20,000 --> 00:02:21,000

Yeah.

59

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

Well the British were horrified at this, of course,

60

00:02:23,000 --> 00:02:26,000

and they sent a tape back to NASA asking for help.

61

00:02:26,000 --> 00:02:29,000

NASA replied saying, gentlemen,

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00:02:29,000 --> 00:02:31,000

thaw your chickens.

63

00:02:32,000 --> 00:02:34,000

So this is what we're testing here today.

64

00:02:34,000 --> 00:02:36,000

Not that there is a chicken gun in existence,

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00:02:36,000 --> 00:02:38,000

but whether or not there's a difference

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00:02:38,000 --> 00:02:40,000

between a frozen and a thawed chicken

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00:02:40,000 --> 00:02:42,000

at a couple hundred miles an hour

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00:02:42,000 --> 00:02:43,000

to an airplane windshield.

69

00:02:43,000 --> 00:02:44,000

That's correct.

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

To fire thawed or frozen chickens at high speed,

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

the misbusters will need a sealed tank

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00:02:50,000 --> 00:02:53,000

and compressor to supply air for the massive gun.

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00:02:53,000 --> 00:02:56,000

An industrial-strength butterfly valve

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00:02:56,000 --> 00:02:58,000

will provide an explosive release

75

00:02:58,000 --> 00:03:01,000

for firing the carcass down the long barrel.

76

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

The target, a used fuselage,

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

and several spare windshields.

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

There are loads of stories where one country pokes fun at another,

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00:03:09,000 --> 00:03:11,000

particularly where America is involved.

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00:03:13,000 --> 00:03:16,000

Misbusters folklorist Heather Joseph Witham.

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00:03:16,000 --> 00:03:18,000

There are versions of this narrative

82

00:03:18,000 --> 00:03:21,000

where it's the Royal Canadian Air Force, for example,

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00:03:21,000 --> 00:03:22,000

that invents the chicken gun,

84

00:03:22,000 --> 00:03:26,000

and it's borrowed by American airplane manufacturers

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00:03:26,000 --> 00:03:28,000

who don't know how to use the gun right.

86

00:03:31,000 --> 00:03:34,000

First stop for anyone buying light aircraft spare parts

87

00:03:34,000 --> 00:03:38,000

in California is Ken Fates' yard in Sacramento.

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00:03:38,000 --> 00:03:41,000

Wind shields, I'm thinking about, might be over here, some of them.

89

00:03:41,000 --> 00:03:43,000

Acres of used light aircraft components

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00:03:43,000 --> 00:03:46,000

make it a prime location for Jamie and Adam

91

00:03:46,000 --> 00:03:49,000

to find a fuselage and extra windshields.

92

00:03:49,000 --> 00:03:51,000

I love places like this. I can spend hours here

93

00:03:51,000 --> 00:03:55,000

looking through the gauges and the headsets and seats

94

00:03:55,000 --> 00:03:57,000

and, you know, hats.

95

00:03:57,000 --> 00:03:59,000

Look, a chicken.

96

00:03:59,000 --> 00:04:01,000

Looks like a bird already went through it.

97

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

It did. What about something like this, Jamie?

98

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

You know, we get double the bang for our buck.

99

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

I certainly like the looks of these better.

100

00:04:09,000 --> 00:04:11,000

Aircraft chosen.

101

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

Now, how to get it home.

102

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

Jamie and Adam have been all over Kenny's yard,

103

00:04:20,000 --> 00:04:23,000

but there's one question they forgot to ask,

104

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

an oversight that will come back to haunt them.

105

00:04:29,000 --> 00:04:31,000

Not bad, sir. Very good.

106

00:04:31,000 --> 00:04:33,000

Never done that before.

107

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

Keep going. Good.

108

00:04:42,000 --> 00:04:45,000

Back at the workshop, the plane is stored

109

00:04:45,000 --> 00:04:49,000

until the chicken gun is built and ready to fire.

110

00:04:49,000 --> 00:04:51,000

Well, we've got our target, so the next step

111

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

and the hardest step is going to be to set up the chicken gun.

112

00:04:54,000 --> 00:04:57,000

That means that we have to build a large tank

113

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

to hold a whole lot of high pressure air

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00:04:59,000 --> 00:05:02,000

and rig some kind of a valve to let go all that air all at once

115

00:05:02,000 --> 00:05:06,000

to fire a chicken. It's kind of tricky. It's a lot of work.

116

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

And Jamie should know he's solved the compressed air problem

117

00:05:10,000 --> 00:05:12,000

once before.

118

00:05:12,000 --> 00:05:14,000

Good job, baby.

119

00:05:15,000 --> 00:05:18,000

He built this seven-up vending machine with attitudes

120

00:05:18,000 --> 00:05:22,000

for a TV commercial with impressive results.

121

00:05:27,000 --> 00:05:30,000

One of the things that I noticed was that the firing system

122

00:05:30,000 --> 00:05:32,000

that we set up required a large valve

123

00:05:32,000 --> 00:05:34,000

that delivered a whole bunch of air all at once.

124

00:05:34,000 --> 00:05:36,000

And we thought, wow, this is great.

125

00:05:36,000 --> 00:05:38,000

We should use this on the chicken gun

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

because it requires exactly the same thing.

127

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

It's a simple, elegant design.

128

00:05:44,000 --> 00:05:46,000

It's exactly what I like to see come out of the shop.

129

00:05:46,000 --> 00:05:49,000

It's fun, yet deadly.

130

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

What else could you possibly want to come out of an effects shop?

131

00:05:55,000 --> 00:06:00,000

So the search for the perfect high pressure tank begins.

132

00:06:01,000 --> 00:06:03,000

Wow.

133

00:06:03,000 --> 00:06:07,000

The machinery and equipment company in Brisbane, California

134

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

is a vast supermarket for used tanks.

135

00:06:11,000 --> 00:06:13,000

You can flip this in any direction.

136

00:06:13,000 --> 00:06:15,000

That could be upside down.

137

00:06:15,000 --> 00:06:17,000

You can hang it from something or leave it like that.

138

00:06:17,000 --> 00:06:19,000

What do you want for this thing?

139

00:06:19,000 --> 00:06:21,000

This is \$750.

140

00:06:21,000 --> 00:06:23,000

Okay.

141

00:06:23,000 --> 00:06:26,000

Jamie, it still occurs to me that it's way overkill

142

00:06:26,000 --> 00:06:28,000

for what we want to do.

143

00:06:28,000 --> 00:06:30,000

But Adam's not convinced.

144

00:06:30,000 --> 00:06:33,000

He's called around town and found another tank.

145

00:06:33,000 --> 00:06:35,000

What I've got, I found a guy who's got one.

146

00:06:35,000 --> 00:06:37,000

It's about half that size.

147

00:06:37,000 --> 00:06:40,000

I think it's just perfect for us up in Petaluma.

148

00:06:40,000 --> 00:06:43,000

I need some cash and I need the keys to the car, Dad.

149

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

Okay.

150

00:06:46,000 --> 00:06:47,000

High five.

151

00:06:47,000 --> 00:06:48,000

Alright.

152

00:06:48,000 --> 00:06:50,000

Drive carefully.

153

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

Vegas, baby!

154

00:06:57,000 --> 00:07:01,000

Adam's ideal tank is waiting out back at Masselian Sun.

155

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

What's it rated for?

156

00:07:03,000 --> 00:07:05,000

It's 200 PS.

157

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

That is good.

158

00:07:08,000 --> 00:07:10,000

I love it. Let's do it.

159

00:07:11,000 --> 00:07:12,000

That's it.

160

00:07:12,000 --> 00:07:16,000

Meanwhile, Jamie has found an oversized butterfly valve

161

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

that will release the pressurized air.

162

00:07:18,000 --> 00:07:22,000

He also ordered 20 feet of quarter inch steel pipe

163

00:07:22,000 --> 00:07:24,000

for a 10 inch diameter barrel.

164

00:07:25,000 --> 00:07:26,000

How you savage?

165

00:07:26,000 --> 00:07:27,000

You all righty?

166

00:07:27,000 --> 00:07:29,000

So, here she is.

167

00:07:29,000 --> 00:07:31,000

Even Jamie is impressed with Adam's purchase.

168

00:07:31,000 --> 00:07:34,000

It's an ideal tank for storing enough compressed air

169

00:07:34,000 --> 00:07:36,000

to propel chickens.

170

00:07:43,000 --> 00:07:45,000

Jamie is using a plasma cutter,

171

00:07:45,000 --> 00:07:49,000

a high energy precision tool to cut the pipe to length

172

00:07:49,000 --> 00:07:52,000

and to make a hole in the tank for the barrel.

173

00:07:55,000 --> 00:07:57,000

For the explosive release of air,

174

00:07:57,000 --> 00:08:01,000

the butterfly valve will be fitted between two lengths of pipe.

175

00:08:01,000 --> 00:08:05,000

Adam's job is to fit the short end to the tank.

176

00:08:10,000 --> 00:08:13,000

The big valve is the most critical aspect.

177

00:08:13,000 --> 00:08:17,000

It's the only mechanism standing between a great shot and a weak one.

178

00:08:17,000 --> 00:08:21,000

When we pressure this tank up, this can hold 250 PSI.

179

00:08:21,000 --> 00:08:25,000

We'll get it to about 200 and then yank on this

180

00:08:25,000 --> 00:08:27,000

and chickens will be flying.

181

00:08:28,000 --> 00:08:31,000

The air compressor is connected to the tank.

182

00:08:31,000 --> 00:08:34,000

Time for a chicken free test blast

183

00:08:34,000 --> 00:08:37,000

at 200 pounds per square inch of pressure.

184

00:08:37,000 --> 00:08:38,000

Staying clear.

185

00:08:38,000 --> 00:08:40,000

There goes the neighborhood.

186

00:08:40,000 --> 00:08:41,000

Give us a countdown then.

187

00:08:41,000 --> 00:08:43,000

Two, three, one.

188

00:08:49,000 --> 00:08:51,000

It looks impressive.

189

00:08:51,000 --> 00:08:54,000

Yet the white smoke is simply water vapor forming droplets

190

00:08:54,000 --> 00:08:58,000

when the previously hot compressed air meets the cool.

191

00:08:58,000 --> 00:09:01,000

It feels like a Mack truck just drove by me.

192

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

I just wonder what a chicken breaking the speed of sound

193

00:09:04,000 --> 00:09:05,000

sounds like.

194

00:09:17,000 --> 00:09:20,000

If you're going to let your chickens fly free range,

195

00:09:20,000 --> 00:09:24,000

there's no better place to stock up than Tarantino's.

196

00:09:24,000 --> 00:09:27,000

Tony's family has been in poultry for years

197

00:09:27,000 --> 00:09:30,000

and he's heard all the chicken stories.

198

00:09:30,000 --> 00:09:32,000

Tony, do you think there'd be any difference

199

00:09:32,000 --> 00:09:35,000

between whether they used frozen or thawed chickens?

200

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

I would imagine frozen would be harder.

201

00:09:38,000 --> 00:09:39,000

It could do more damage.

202

00:09:39,000 --> 00:09:40,000

Do a little bit more damage.

203

00:09:40,000 --> 00:09:43,000

I think the fresh just might kind of splat.

204

00:09:43,000 --> 00:09:45,000

So if you were in a plane,

205

00:09:45,000 --> 00:09:47,000

you'd rather hit a thawed chicken than a frozen one.

206

00:09:47,000 --> 00:09:49,000

Correct, yes.

207

00:09:49,000 --> 00:09:52,000

I don't imagine there's many frozen chickens at 2,000 feet.

208

00:09:52,000 --> 00:09:54,000

No, no maybe it's cold up there.

209

00:09:54,000 --> 00:09:57,000

And freezing down here,

210

00:09:57,000 --> 00:09:59,000

they're chickens of choice,

211

00:09:59,000 --> 00:10:02,000

eight rock hard four pounders.

212

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

The key to launching chickens explosively

213

00:10:05,000 --> 00:10:08,000

is to ensure they fit the barrel snugly.

214

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

Adam places them in a mold of expanding rigid foam.

215

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

The result is a sleeve called a saboteur.

216

00:10:15,000 --> 00:10:18,000

It enables projectiles to be fired

217

00:10:18,000 --> 00:10:20,000

from weapons of a larger caliber.

218

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

So once the foam sets up and gets rigid,

219

00:10:22,000 --> 00:10:25,000

what we end up with is this perfect sort of molded cartridge

220

00:10:25,000 --> 00:10:27,000

for the chicken that equals the size of the barrel

221

00:10:27,000 --> 00:10:29,000

and allows us to propel it out.

222

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

I would say that what you got here

223

00:10:31,000 --> 00:10:33,000

is a potential supersonic chicken.

224

00:10:33,000 --> 00:10:38,000

Just a few bolts to tighten

225

00:10:38,000 --> 00:10:41,000

and this very potent chicken gun

226

00:10:41,000 --> 00:10:44,000

is ready for its first outing.

227

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

Bringing up the rear is Bruce Bradford,

228

00:10:49,000 --> 00:10:52,000

a man who knows all about gigantic guns.

229

00:10:52,000 --> 00:10:56,000

He's the designer of one called Second Amendment.

230

00:10:56,000 --> 00:10:59,000

At the annual Pumpkin Chunkin in Delaware,

231

00:10:59,000 --> 00:11:03,000

these huge air guns blast pumpkins nearly a mile.

232

00:11:03,000 --> 00:11:08,000

With Bruce, the 2002 and three world champion,

233

00:11:08,000 --> 00:11:14,000

who better to consult on the business of big barrels?

234

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

I think it's a great looking gun.

235

00:11:16,000 --> 00:11:17,000

It's got all the basics.

236

00:11:17,000 --> 00:11:18,000

It's got a tank.

237

00:11:18,000 --> 00:11:20,000

It's got a valve and it's got a barrel.

238

00:11:20,000 --> 00:11:23,000

Excellent job of welding by Adam, that's for sure.

239

00:11:23,000 --> 00:11:27,000

And it's going to shoot a chicken at high velocity.

240

00:11:27,000 --> 00:11:32,000

The countdown to chicken blast off has begun.

241

00:11:32,000 --> 00:11:36,000

Unsure of the chicken gun's firepower,

242

00:11:36,000 --> 00:11:41,000

for safety reasons, they sit the plane inside their blast chamber.

243

00:11:41,000 --> 00:11:42,000

I'll lean it right there.

244

00:11:42,000 --> 00:11:46,000

To check their aim, they need a test shot.

245

00:11:46,000 --> 00:11:49,000

Yeah, you're going to try it here first.

246

00:11:49,000 --> 00:11:54,000

So our first test is a frozen chicken.

247

00:11:54,000 --> 00:11:55,000

Let's see here.

248

00:11:55,000 --> 00:12:01,000

The tank is primed to 120 pounds per square inch of air pressure.

249

00:12:01,000 --> 00:12:03,000

Here we go.

250

00:12:03,000 --> 00:12:06,000

That is one loaded chicken gun.

251

00:12:06,000 --> 00:12:07,000

I'm good.

252

00:12:07,000 --> 00:12:08,000

All right.

253

00:12:08,000 --> 00:12:11,000

We are arming the chicken cannon.

254

00:12:11,000 --> 00:12:13,000

I'm going to stand back here.

255

00:12:13,000 --> 00:12:14,000

All right.

256

00:12:14,000 --> 00:12:18,000

Three, two, one.

257

00:12:18,000 --> 00:12:20,000

All right.

258

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

I'm talking about.

259

00:12:22,000 --> 00:12:24,000

I know you're right there.

260

00:12:24,000 --> 00:12:25,000

I'm good man.

261

00:12:25,000 --> 00:12:28,000

Out of the barrel and free of the sabote,

262

00:12:28,000 --> 00:12:32,000

the frozen chicken clocked 121 miles an hour.

263

00:12:32,000 --> 00:12:33,000

Wow.

264

00:12:33,000 --> 00:12:36,000

So much for the blast shield.

265

00:12:36,000 --> 00:12:40,000

So even if you're flying with a rated plexiglass shield

266

00:12:40,000 --> 00:12:44,000

in front of your plane, you're in some serious danger.

267

00:12:44,000 --> 00:12:46,000

Where's the chicken?

268

00:12:46,000 --> 00:12:48,000

What the chicken?

269

00:12:48,000 --> 00:12:52,000

Oh my God.

270

00:12:52,000 --> 00:12:57,000

You know, who knows what the damage to the neighbors would have been

271

00:12:57,000 --> 00:12:59,000

if this had gotten out?

272

00:12:59,000 --> 00:13:02,000

You know, that's about one of the more destructive things

273

00:13:02,000 --> 00:13:05,000

that I've ever done.

274

00:13:05,000 --> 00:13:07,000

That was cool.

275

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

Yeah, that was exceedingly cool.

276

00:13:09,000 --> 00:13:12,000

Let's do a thought.

277

00:13:12,000 --> 00:13:15,000

A replacement windshield is fitted for another shot.

278

00:13:15,000 --> 00:13:18,000

This time, a thawed chicken.

279

00:13:18,000 --> 00:13:23,000

The big question, will it cause as much damage as a frozen one?

280

00:13:23,000 --> 00:13:28,000

Three, two, one.

281

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

Whoa.

282

00:13:30,000 --> 00:13:36,000

Under the same pressure, the thawed chicken was marginally slower

283

00:13:36,000 --> 00:13:45,000

than the frozen one, but still reached a destructive 99.5 miles an hour.

284

00:13:45,000 --> 00:13:49,000

For the next shot, the tank pressure will be reduced by more than half

285

00:13:49,000 --> 00:13:51,000

down to 50 psi.

286

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

They're hoping to see a difference between frozen and thawed

287

00:13:55,000 --> 00:13:57,000

at a slower speed.

288

00:13:57,000 --> 00:14:02,000

And three, two, one.

289

00:14:02,000 --> 00:14:05,000

Another frozen bird is blasted.

290

00:14:05,000 --> 00:14:09,000

This one at 128 miles an hour.

291

00:14:09,000 --> 00:14:10,000

Jamie.

292

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

Yeah?

293

00:14:11,000 --> 00:14:15,000

There was no difference in speed between 120 psi and 50 psi.

294

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

It may just be that initial blast.

295

00:14:17,000 --> 00:14:21,000

Like, it's probably within the first, like, eighth of the valve opening.

296

00:14:21,000 --> 00:14:23,000

It's gone or something, you know?

297

00:14:23,000 --> 00:14:28,000

Once more into the breach for the thawed bird at the 50 psi mark.

298

00:14:28,000 --> 00:14:31,000

Three, two, one.

299

00:14:31,000 --> 00:14:36,000

It's clock speed, a shattering 132 miles an hour.

300

00:14:36,000 --> 00:14:42,000

You know, if anything, the thawed chicken leaves a bigger hole.

301

00:14:42,000 --> 00:14:44,000

Which would kind of make sense.

302

00:14:44,000 --> 00:14:45,000

It would.

303

00:14:45,000 --> 00:14:48,000

Its impact spreads out as it hits, but it's still the same amount of mass

304

00:14:48,000 --> 00:14:50,000

going through the same amount of space.

305

00:14:50,000 --> 00:14:57,000

They cut the pressure again to just 25 psi for the frozen valve.

306

00:14:57,000 --> 00:15:00,000

And then thawed.

307

00:15:00,000 --> 00:15:03,000

The Mythbusters are some outcome.

308

00:15:03,000 --> 00:15:06,000

All their flying poultry, highly destructive.

309

00:15:06,000 --> 00:15:08,000

I'm totally shocked.

310

00:15:08,000 --> 00:15:10,000

Does that mean that the myth is busted?

311

00:15:10,000 --> 00:15:13,000

I think that would mean that the myth is definitely busted.

312

00:15:13,000 --> 00:15:16,000

But wait, there's a hitch.

313

00:15:16,000 --> 00:15:24,000

Those light aircraft windshields they bought are not rated for bird strikes.

314

00:15:24,000 --> 00:15:26,000

Well, Jamie, that's the biggest screw up we've ever done.

315

00:15:26,000 --> 00:15:29,000

I mean, we're supposed to test the difference between frozen and thawed chickens

316

00:15:29,000 --> 00:15:31,000

and the Piper Cherokee.

317

00:15:31,000 --> 00:15:34,000

Its windscreen is not even rated to be smacked into by anything.

318

00:15:34,000 --> 00:15:38,000

Yeah, it was like trying to check the difference between a 22 and a 357

319

00:15:38,000 --> 00:15:40,000

by shooting at a cardboard box.

320

00:15:40,000 --> 00:15:42,000

I mean, it looked really destructive.

321

00:15:42,000 --> 00:15:45,000

It looked great, but it didn't really tell us anything.

322

00:15:45,000 --> 00:15:46,000

Yeah.

323

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

For the moment, the Mythbusters are stymied.

324

00:15:49,000 --> 00:15:54,000

But already they're formulating a new plan to measure the chicken's force of impact.

325

00:15:54,000 --> 00:15:57,000

We'll tell you about it a little later in the show.

326

00:15:57,000 --> 00:16:00,000

It automatically deboned the chicken, didn't it?

327

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

Up next, the Goldfish Memory Face Off.

328

00:16:05,000 --> 00:16:08,000

I also, in fact, trained a fish to ring a bell.

329

00:16:08,000 --> 00:16:13,000

I don't have anything like that kind of pedigree with Goldfish training regiments.

330

00:16:14,000 --> 00:16:26,000

Does a Goldfish's Memory last more than three seconds?

331

00:16:26,000 --> 00:16:29,000

He's looking at it. He's trying to eat it.

332

00:16:29,000 --> 00:16:32,000

Jamie and Adam are locked in combat.

333

00:16:32,000 --> 00:16:34,000

We have to identify the smart ones.

334

00:16:34,000 --> 00:16:37,000

Who's the superior fish wrangler?

335

00:16:37,000 --> 00:16:40,000

Back in the Amazon when I used to train piranhas.

336

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

Oh, and does a Goldfish's Memory last more than three seconds?

337

00:16:49,000 --> 00:16:52,000

This Myth's a pretty laid-back one, huh, Jamie?

338

00:16:52,000 --> 00:16:58,000

Yeah. The Myth says that you can put a Goldfish in a small bowl, and they're okay with it,

339

00:16:58,000 --> 00:17:02,000

because they're so stupid that by the time they make it around the bowl,

340

00:17:02,000 --> 00:17:06,000

in about three seconds, they've just forgotten where they were.

341

00:17:06,000 --> 00:17:12,000

I think that we tell this story in order to placate ourselves and allow us to keep animals in a small tank,

342

00:17:12,000 --> 00:17:15,000

which usually we would perceive as being kind of cruel.

343

00:17:15,000 --> 00:17:22,000

And you could certainly keep it in a small bowl, because every time it goes around that bowl, it's a new experience.

344

00:17:22,000 --> 00:17:27,000

So what we really want to test here is what is the memory span of the average Goldfish?

345

00:17:27,000 --> 00:17:33,000

Well, what I thought we'd do is build a maze, and the Goldfish will have to be taught how to make it through the maze.

346

00:17:33,000 --> 00:17:37,000

And if they can remember that, we'll know a little bit more how smart they are.

347

00:17:37,000 --> 00:17:43,000

So what you're talking about is not just a Goldfish intelligence test, but a Mythbusters intelligence test as well.

348

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

You can look at it that way.

349

00:17:45,000 --> 00:17:48,000

One that I think I will win.

350

00:17:48,000 --> 00:17:52,000

So the guys want to train Goldfish to swim through a maze.

351

00:17:52,000 --> 00:17:58,000

If they do it, they'll prove they're smarter than we think. The Goldfish will look clever too.

352

00:17:58,000 --> 00:18:01,000

Have you heard of the myth that Goldfish only have three seconds of memory?

353

00:18:01,000 --> 00:18:10,000

Yes, I have. Their brains are pretty small, and it's about 2% of their body weight, so you can figure that they're not going to have too much of a memory.

354

00:18:10,000 --> 00:18:16,000

Steve, the pet shop guy, has all the fish and all the accessories the Mythbusters need.

355

00:18:16,000 --> 00:18:20,000

I think this is definitely the one for me, Jamie. It's a deep sea diver with a shark.

356

00:18:20,000 --> 00:18:23,000

But the Goldfish have needs too.

357

00:18:23,000 --> 00:18:29,000

This is a 38 gallon. I have the best food for Goldfish. You make sure that you have a good water conditioner.

358

00:18:29,000 --> 00:18:32,000

Those are perfect. What do we need? 10 of those?

359

00:18:32,000 --> 00:18:33,000

Yeah, 5.

360

00:18:33,000 --> 00:18:34,000

5 in each tank?

361

00:18:34,000 --> 00:18:35,000

Yeah.

362

00:18:35,000 --> 00:18:38,000

It's the easiest sale Steve's ever made.

363

00:18:38,000 --> 00:18:45,000

Two tanks, 10 fish, and enough supplies to feed a whale.

364

00:18:45,000 --> 00:18:52,000

Jamie and Adam have given themselves 45 days to train the fish and bust the myth.

365

00:18:52,000 --> 00:18:57,000

They've each got a tank, and each will devise their own training method.

366

00:18:57,000 --> 00:18:59,000

The competition is heating up.

367

00:18:59,000 --> 00:19:04,000

I think that I shall be the best trainer.

368

00:19:04,000 --> 00:19:11,000

Purely because of the fact that training animals requires above all consistency.

369

00:19:11,000 --> 00:19:16,000

Adam is not a very consistent person.

370

00:19:16,000 --> 00:19:23,000

Turns out Jamie has another advantage. He used to own a pet shop, and he knows his fish.

371

00:19:23,000 --> 00:19:28,000

In addition to his time in the Special Forces and being the International WISTS Champion and even being a lion owner,

372

00:19:28,000 --> 00:19:33,000

Jamie is probably one of only a handful of people in the world who has actually trained a Goldfish to ring a bell.

373

00:19:33,000 --> 00:19:38,000

I don't have anything like that kind of pedigree with Goldfish training regiments.

374

00:19:38,000 --> 00:19:40,000

Oh, look at that.

375

00:19:40,000 --> 00:19:48,000

Undaunted, Adam is determined to rise to the ultimate challenge of teaching fish to swim through a maze.

376

00:19:48,000 --> 00:19:53,000

I think I'm in fact just going to leave mine totally uncovered.

377

00:19:53,000 --> 00:20:00,000

I'm going to kick your Goldfish ass.

378

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

It's day one of the Great Goldfish Challenge.

379

00:20:06,000 --> 00:20:14,000

Jamie and Adam are trying to bust the myth that Goldfish only have a three-second memory

380

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

by training them to swim through a simple maze.

381

00:20:17,000 --> 00:20:23,000

But this challenge has already transcended the myth. It's a battle for bragging rights.

382

00:20:23,000 --> 00:20:27,000

I better not go get a tube and feed them with a tube because I'll kick his butt. That was my idea.

383

00:20:27,000 --> 00:20:32,000

In fact, Jamie has something entirely different in mind.

384

00:20:32,000 --> 00:20:37,000

He's making bright plastic holes, which he hopes will be to the fish's liking.

385

00:20:37,000 --> 00:20:44,000

I'm going to get them used to taking their food out of the middle of the hole by making this colorful hole

386

00:20:44,000 --> 00:20:51,000

that they'll easily recognize that has some mesh suspended in the middle of it that will put the food in.

387

00:20:51,000 --> 00:21:04,000

Jamie's holes are already attracting interest.

388

00:21:04,000 --> 00:21:08,000

But will the fish be as attracted to the holes as Adam is?

389

00:21:08,000 --> 00:21:15,000

If someone comes down out of the hole, maybe they'll start to look around and eventually find it.

390

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

There we go. You're looking at it. He's looking at it. He's trying to eat it.

391

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

Oh my God, he's taking the bait almost. We have to identify the smart ones.

392

00:21:27,000 --> 00:21:37,000

School is in for Adam too. He's trying to be the goldfish to understand their needs. He has an idea.

393

00:21:37,000 --> 00:21:44,000

Instead of using the store-bought tank dividers, Adam is making his own out of plastic.

394

00:21:44,000 --> 00:21:49,000

He'll custom make the course based on his deep grasp of fish behavior.

395

00:21:49,000 --> 00:21:56,000

If I get them comfortable with the fact that they can go through, perhaps they'll understand that there is a way to get there

396

00:21:56,000 --> 00:22:02,000

but all they see is just this black ring that's exposed. They don't know that they can actually go and swim around over there.

397

00:22:02,000 --> 00:22:07,000

So they have their strategies and the battle of the fish tags is on.

398

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

Adam's clear dividers versus Jamie's gaudy plastic.

399

00:22:12,000 --> 00:22:15,000

May the best fish man win.

400

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

Eight days since the Goldfish Memory Challenge began and Adam's got a problem or rather his fish do.

401

00:22:24,000 --> 00:22:35,000

Smells. Oh no. Oh no. I've got a dead fish.

402

00:22:35,000 --> 00:22:42,000

Okay, something's going on. I don't like this whole thing. I'm going to call the pet store. I'm going to replace the water completely.

403

00:22:42,000 --> 00:22:46,000

Jamie's water is clearer. Mine's really, really foggy.

404

00:22:46,000 --> 00:22:55,000

The thing is, is the tank is really foggy and then last night one of the Goldfish died.

405

00:22:55,000 --> 00:23:01,000

Turns out the filter hasn't removed the ammonia in the water created by the fish waste.

406

00:23:01,000 --> 00:23:07,000

A tank that's working correctly has a certain amount of bacteria that's grown in the filter that processes the ammonia.

407

00:23:07,000 --> 00:23:12,000

It actually takes like four to eight weeks for it to fully take effect.

408

00:23:12,000 --> 00:23:21,000

Given everything is going so swimmingly in Jamie's tank, perhaps Adam's solid plastic dividers are messing with the filter.

409

00:23:21,000 --> 00:23:26,000

Whatever the cause, eight weeks is time Adam just doesn't have.

410

00:23:26,000 --> 00:23:30,000

I'm trying to train them but it turns out I'm just trying to keep them alive.

411

00:23:30,000 --> 00:23:38,000

Jamie's fish aren't just alive. They're happy, healthy and apparently pretty smart.

412

00:23:38,000 --> 00:23:48,000

They seem to know automatically where the food is. I would say that even now, even though we haven't got them to go really through anything in terms of a maze as such,

413

00:23:48,000 --> 00:23:56,000

that the myth is busted because they clearly recognize either me or the location where the food is being delivered.

414

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

They are clearly capable of some sort of minimal memory.

415

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

I think the myth that Goldfish are easy to maintain and hardy fish has also been busted.

416

00:24:06,000 --> 00:24:12,000

There are three weeks left in this challenge. Adam has a lot of ground to make up.

417

00:24:12,000 --> 00:24:18,000

Look, they're even growing little Jamie mustaches now. They're like, oh, thanks for the food every morning.

418

00:24:18,000 --> 00:24:27,000

Coming up, Adam and Jamie have bigger fish to fry as they attempt to prove who is the superior fish wrangler.

419

00:24:27,000 --> 00:24:29,000

It's a record.

420

00:24:30,000 --> 00:24:35,000

Remember, don't try this at home.

421

00:24:35,000 --> 00:24:38,000

We've got years of experience that keeps us safe.

422

00:24:38,000 --> 00:24:47,000

It's been nearly six weeks since the Goldfish Challenge began. Today, all their hard work will be put to the test.

423

00:24:47,000 --> 00:24:56,000

Remember, they're testing the myth Goldfish only have a three second memory by trying to train them to swim through a simple maze.

424

00:24:57,000 --> 00:25:03,000

The Heinemann technique is to associate orange plastic with food. It's working.

425

00:25:03,000 --> 00:25:06,000

Oh, look, they see the orange thing. They want to go for it.

426

00:25:06,000 --> 00:25:15,000

Jamie appears to have science on his side. Studies have shown that Goldfish repeatedly respond to

color for food rewards.

427

00:25:15,000 --> 00:25:20,000

In other words, they seem to have memory longer than three seconds.

428

00:25:20,000 --> 00:25:28,000

Camp Savage has struck troubled waters with an ammonia problem. There are only two contenders left.

429

00:25:28,000 --> 00:25:31,000

They just like, you know, bang their heads in the corner over here.

430

00:25:31,000 --> 00:25:37,000

The first to get fish through their maze wins and busts the myth.

431

00:25:37,000 --> 00:25:40,000

Time this starting now.

432

00:25:40,000 --> 00:25:42,000

They're off and racing.

433

00:25:42,000 --> 00:25:45,000

Hey guys, here's your food.

434

00:25:45,000 --> 00:25:49,000

Corn boys, there you go.

435

00:25:49,000 --> 00:25:54,000

Jamie's school has learned its lessons well.

436

00:25:54,000 --> 00:25:57,000

But Adam's guys must have been playing hooky.

437

00:25:57,000 --> 00:26:01,000

I think it's quite obvious what's happening or not happening.

438

00:26:01,000 --> 00:26:07,000

They seem to be fascinated with their reflection on the other end of the day.

439

00:26:07,000 --> 00:26:11,000

Jamie's crew is halfway through and going swimmingly.

440

00:26:11,000 --> 00:26:17,000

You know, you want it. Look at them. They're frantic to get through there.

441

00:26:17,000 --> 00:26:22,000

Maybe I should give them a compass.

442

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

Who's to say luck doesn't play a part in these things?

443

00:26:25,000 --> 00:26:29,000

They're through the first barrier but not for long.

444

00:26:29,000 --> 00:26:31,000

No, no, no, no bag.

445

00:26:31,000 --> 00:26:36,000

There's no backtracking in Jamie's tank. The first fish is through.

446

00:26:36,000 --> 00:26:38,000

One minute.

447

00:26:38,000 --> 00:26:43,000

The rest of the gang isn't far behind except one.

448

00:26:43,000 --> 00:26:47,000

Interesting to note there's one fish that is the stupidest one.

449

00:26:47,000 --> 00:26:53,000

There's a little redhead in the back and he's the skinniest.

450

00:26:53,000 --> 00:26:57,000

Adam apparently has two skinny fish.

451

00:26:57,000 --> 00:27:01,000

I don't understand the total ignorance of this panel.

452

00:27:01,000 --> 00:27:03,000

It's like this wall doesn't even exist for him.

453

00:27:03,000 --> 00:27:11,000

I would say that without a doubt one minute to make it through the maze is a lot quicker than random.

454

00:27:11,000 --> 00:27:13,000

And for Adam's fish?

455

00:27:13,000 --> 00:27:15,000

Nine minutes.

456

00:27:15,000 --> 00:27:21,000

Day 43 of the Goldfish Memory Test and Adam is still behind.

457

00:27:21,000 --> 00:27:26,000

Listen, I don't have any work to do on this experiment. These fish have a lot of work to do.

458

00:27:26,000 --> 00:27:31,000

I'm just giving them the framework with which to pre-themselves.

459

00:27:31,000 --> 00:27:33,000

For all Goldfish kind.

460

00:27:33,000 --> 00:27:36,000

Adam just got stupid fish. What are you going to do?

461

00:27:36,000 --> 00:27:39,000

Alright boys, you ready?

462

00:27:39,000 --> 00:27:41,000

Whistle

463

00:27:44,000 --> 00:27:49,000

Meanwhile, Jamie's A students are lining up at the gate.

464

00:27:49,000 --> 00:27:52,000

They're looking perky this morning.

465

00:27:52,000 --> 00:27:54,000

Just going for it.

466

00:27:54,000 --> 00:28:00,000

The starting gun has sounded. Jamie's looking to go under 60 seconds.

467

00:28:01,000 --> 00:28:04,000

Oh, oh, oh.

468

00:28:04,000 --> 00:28:10,000

Yay, that was, let's see, 25 seconds. It's a record.

469

00:28:10,000 --> 00:28:15,000

They were like definitely, way to go guys.

470

00:28:15,000 --> 00:28:19,000

Mine are eating your own poo.

471

00:28:19,000 --> 00:28:21,000

Well they seem healthy for all that.

472

00:28:21,000 --> 00:28:26,000

I know that everyone's going to take me to task for wasting these fishes time.

473

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

Hey, they're both in the second chamber though.

474

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

Oh, they go back.

475

00:28:35,000 --> 00:28:38,000

Okay guys.

476

00:28:38,000 --> 00:28:41,000

I'm going to awake this morning.

477

00:28:41,000 --> 00:28:46,000

Jamie is confident his fish are drawing on all their memory cells.

478

00:28:46,000 --> 00:28:52,000

It's the final day, day 45. Will they find their food faster?

479

00:28:52,000 --> 00:28:53,000

Okay, that's a go.

480

00:28:53,000 --> 00:28:56,000

Alright, timer's starting.

481

00:28:56,000 --> 00:28:59,000

There we go, we're going through one.

482

00:28:59,000 --> 00:29:02,000

Go back through.

483

00:29:05,000 --> 00:29:08,000

Oh, they're looking like they're going to do it.

484

00:29:08,000 --> 00:29:09,000

20 seconds.

485

00:29:09,000 --> 00:29:12,000

Oh, they've lost the record.

486

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

25 seconds.

487

00:29:15,000 --> 00:29:17,000

There we go. Almost.

488

00:29:17,000 --> 00:29:19,000

35 seconds.

489

00:29:19,000 --> 00:29:21,000

Come on, handsome.

490

00:29:21,000 --> 00:29:23,000

There it goes.

491

00:29:23,000 --> 00:29:25,000

There we go.

492

00:29:25,000 --> 00:29:27,000

Not bad at all. 40 seconds.

493

00:29:27,000 --> 00:29:32,000

40 seconds. I think that judging by what I'm seeing that that's probably the threshold,

494

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

plus or minus 30 seconds to get through.

495

00:29:35,000 --> 00:29:38,000

And 30 seconds I think is pretty good to make it through four holes.

496

00:29:38,000 --> 00:29:45,000

It's clear that they've learned and it's clear that they do in fact have a memory longer than 3 seconds.

497

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

Absolutely. I mean, I'm impressed how fast that is.

498

00:29:48,000 --> 00:29:55,000

My fish on average sort of randomly take between like three and 20 minutes to get to their food.

499

00:29:55,000 --> 00:29:58,000

I mean, you guys definitely know what's going on.

500

00:29:58,000 --> 00:30:01,000

Mitch Busted.

501

00:30:01,000 --> 00:30:03,000

Thanks, Adam.

502

00:30:03,000 --> 00:30:06,000

Alright, goodnight fish.

503

00:30:08,000 --> 00:30:11,000

See, it's that kind of behavior that screwed him up.

504

00:30:11,000 --> 00:30:14,000

It's like, goodnight fish. Yeah, that helps.

505

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

Bang, bang, bang.

506

00:30:17,000 --> 00:30:20,000

They don't need to be trained anymore.

507

00:30:20,000 --> 00:30:26,000

Next, does a duck's quack, echo, and still to come?

508

00:30:26,000 --> 00:30:29,000

We are arming the chicken cannon.

509

00:30:29,000 --> 00:30:31,000

Which chicken is more destructive?

510

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

Frozen or thawed.

511

00:30:33,000 --> 00:30:35,000

I think this one's thawed.

512

00:30:36,000 --> 00:30:39,000

Another bird-brained myth to bust.

513

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

Could it be true?

514

00:30:41,000 --> 00:30:46,000

Or have Adam and Jamie gone quackers?

515

00:30:46,000 --> 00:30:49,000

Anything to say to the ducks back home?

516

00:30:49,000 --> 00:30:52,000

So Jamie, what are we working on?

517

00:30:52,000 --> 00:30:55,000

Why are there ducks pooping all over your desk?

518

00:30:55,000 --> 00:30:57,000

I don't know.

519

00:30:57,000 --> 00:30:59,000

I don't know.

520

00:30:59,000 --> 00:31:01,000

I don't know.

521

00:31:01,000 --> 00:31:03,000

So Jamie, what are we working on?

522

00:31:03,000 --> 00:31:05,000

Why are there ducks pooping all over your desk?

523

00:31:05,000 --> 00:31:08,000

Well, the myth is that a duck's quack does not echo.

524

00:31:08,000 --> 00:31:11,000

That sounds kind of simple.

525

00:31:11,000 --> 00:31:16,000

Well, I guess we'll figure out a way of making it complicated, won't we?

526

00:31:16,000 --> 00:31:18,000

This really is an internet story.

527

00:31:18,000 --> 00:31:21,000

Not even a story, just a little factoid.

528

00:31:21,000 --> 00:31:27,000

And it generally comes out on these internet lists of facts that are very odd.

529

00:31:27,000 --> 00:31:32,000

In the past, they would have circulated as Xerox lore or Facts lore.

530

00:31:32,000 --> 00:31:37,000

The boys will take the lore into their own hands down on the farm.

531

00:31:39,000 --> 00:31:41,000

Adam, don't let their looks deceive you.

532

00:31:41,000 --> 00:31:43,000

These are actually quite deadly.

533

00:31:45,000 --> 00:31:49,000

If anyone can answer this myth, it should be Jim Reichard,

534

00:31:49,000 --> 00:31:53,000

part of America's oldest duck farming family.

535

00:31:53,000 --> 00:31:57,000

The Reichards have been listening to ducks quack for more than a century,

536

00:31:57,000 --> 00:32:00,000

but there's one thing they haven't heard.

537

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

Jim, have you heard of the myth that a duck's quack will not echo?

538

00:32:03,000 --> 00:32:05,000

I've never heard that.

539

00:32:05,000 --> 00:32:08,000

I've grown up on the ranch, you know.

540

00:32:08,000 --> 00:32:10,000

I've never had anybody ask me.

541

00:32:11,000 --> 00:32:14,000

It's pretty hard to ruffle Jim's feathers.

542

00:32:14,000 --> 00:32:18,000

He's agreed to help the mythbusters with some test subjects.

543

00:32:19,000 --> 00:32:24,000

I asked for volunteers this morning and I came up with a couple, you know.

544

00:32:24,000 --> 00:32:28,000

Meet Bob on the left and Roy.

545

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

You go down that side, I'll walk him down this way.

546

00:32:40,000 --> 00:32:42,000

That wasn't so bad, was it?

547

00:32:42,000 --> 00:32:44,000

That wasn't so bad.

548

00:32:45,000 --> 00:32:48,000

So, they've got their ducks in a row.

549

00:32:50,000 --> 00:32:53,000

Now they need a man who can catch an echo.

550

00:32:54,000 --> 00:32:56,000

That would be him now.

551

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

Roger Schwenke is an acoustician,

552

00:33:02,000 --> 00:33:05,000

which means he knows a thing or two about noise.

553

00:33:05,000 --> 00:33:08,000

Rogers agreed to help catch a duck's echo.

554

00:33:08,000 --> 00:33:11,000

The science is simple enough.

555

00:33:11,000 --> 00:33:14,000

Sounds are just vibrations in the air.

556

00:33:14,000 --> 00:33:18,000

An echo happens when those vibrations hit something and bounce back.

557

00:33:18,000 --> 00:33:23,000

So one of the challenges I have for you is we're going to use a tyclip mic

558

00:33:23,000 --> 00:33:25,000

as the trigger mic to start the recording.

559

00:33:25,000 --> 00:33:28,000

And we need to attach that to the duck.

560

00:33:28,000 --> 00:33:30,000

Duck tape.

561

00:33:35,000 --> 00:33:38,000

That microphone acts as a trigger.

562

00:33:38,000 --> 00:33:43,000

It'll hear Bob crack and switch on the main mic a few yards away.

563

00:33:46,000 --> 00:33:51,000

That will record the initial crack, then listen for echoes bouncing back.

564

00:33:51,000 --> 00:33:54,000

The whole shooting match plotted by a computer.

565

00:33:54,000 --> 00:33:57,000

You know what happens to ducks that don't cooperate, huh?

566

00:33:57,000 --> 00:33:59,000

Yeah.

567

00:34:01,000 --> 00:34:02,000

Got it.

568

00:34:02,000 --> 00:34:04,000

That was a test.

569

00:34:04,000 --> 00:34:08,000

You can see the initial shot from the starter's pistol is the peak on the left.

570

00:34:08,000 --> 00:34:12,000

And the smaller bumps after it are the echoes coming back.

571

00:34:12,000 --> 00:34:16,000

The system works now for the ducks.

572

00:34:16,000 --> 00:34:21,000

I'll tell you guys to be quiet because any sound will start the computer recording.

573

00:34:21,000 --> 00:34:25,000

And then you need to silently induce the duck to quack.

574

00:34:25,000 --> 00:34:27,000

You need to quack.

575

00:34:27,000 --> 00:34:30,000

Silently induce a duck to quack.

576

00:34:30,000 --> 00:34:32,000

Look me in the eye and quack.

577

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

Quack.

578

00:34:34,000 --> 00:34:35,000

Come on, boy.

579

00:34:35,000 --> 00:34:36,000

Quack.

580

00:34:36,000 --> 00:34:37,000

Quack.

581

00:34:37,000 --> 00:34:38,000

All right, see if they're ready.

582

00:34:38,000 --> 00:34:40,000

Are you guys ready?

583

00:34:40,000 --> 00:34:42,000

Don't mess with me, duck.

584

00:34:42,000 --> 00:34:44,000

When I say quack, you're going to quack, right?

585

00:34:44,000 --> 00:34:46,000

I'm the boss here.

586

00:34:46,000 --> 00:34:48,000

Don't give me any beak.

587

00:34:48,000 --> 00:34:50,000

Quiet!

588

00:34:50,000 --> 00:34:52,000

Give him a thumbs up.

589

00:34:52,000 --> 00:35:04,000

It's like he's trying to collect a loan from the duck.

590

00:35:04,000 --> 00:35:06,000

Duck loan collection agency.

591

00:35:06,000 --> 00:35:10,000

We want to talk to you about some outstanding feed.

592

00:35:10,000 --> 00:35:13,000

Who'd have thought ducks get cold feet?

593

00:35:13,000 --> 00:35:15,000

Oh, boy.

594

00:35:15,000 --> 00:35:18,000

There's nothing but wind noise.

595

00:35:18,000 --> 00:35:21,000

Clearly, Bob's got stage fright.

596

00:35:21,000 --> 00:35:23,000

I want you to do this. Got it?

597

00:35:23,000 --> 00:35:25,000

Quack.

598

00:35:25,000 --> 00:35:27,000

Quack, damn you.

599

00:35:27,000 --> 00:35:29,000

Done.

600

00:35:29,000 --> 00:35:31,000

I'm going to swap them out with the other one.

601

00:35:31,000 --> 00:35:33,000

All right, I'll bring them over to you.

602

00:35:33,000 --> 00:35:36,000

Bob's out. Roy's in.

603

00:35:36,000 --> 00:35:39,000

But a funny thing happens in the changeover.

604

00:35:39,000 --> 00:35:42,000

Oh, maybe they're taking him together.

605

00:35:42,000 --> 00:35:45,000

They just needed someone to talk to.

606

00:35:45,000 --> 00:35:47,000

Seems obvious now.

607

00:35:47,000 --> 00:35:50,000

The mythbusters are back in the hunt.

608

00:35:50,000 --> 00:36:00,000

That looks like a quack.

609

00:36:00,000 --> 00:36:04,000

It's astonishing how well that works.

610

00:36:04,000 --> 00:36:06,000

There's something else astonishing.

611

00:36:06,000 --> 00:36:09,000

They've got the quack, but they don't have an echo.

612

00:36:09,000 --> 00:36:11,000

Not a one.

613

00:36:11,000 --> 00:36:16,000

But then there's not much here for the sound to bounce off.

614

00:36:16,000 --> 00:36:20,000

In terms of trees and plants and so on,

615

00:36:20,000 --> 00:36:23,000

you don't get very much of an echo.

616

00:36:23,000 --> 00:36:26,000

Certainly not off of leaves.

617

00:36:26,000 --> 00:36:29,000

Roger thinks if there were any echoes,

618

00:36:29,000 --> 00:36:32,000

the background noise drowned them out.

619

00:36:32,000 --> 00:36:34,000

A sweetheart duck.

620

00:36:34,000 --> 00:36:37,000

To prove that and bust this silly myth once and for all,

621

00:36:37,000 --> 00:36:40,000

Bob and Roy will have to go high-fiving.

622

00:36:40,000 --> 00:36:45,000

Okay, that's really cool.

623

00:36:45,000 --> 00:36:49,000

Meyer Sound makes top-of-the-range concert speakers.

624

00:36:49,000 --> 00:36:52,000

Roger's their staff scientist.

625

00:36:52,000 --> 00:36:54,000

Hi, guys.

626

00:36:54,000 --> 00:36:57,000

They plan two experiments at the lab.

627

00:36:57,000 --> 00:37:01,000

First, to capture a crystal-clear quack with no echo.

628

00:37:01,000 --> 00:37:05,000

Then they'll record Bob and Roy in a room that does echo.

629

00:37:05,000 --> 00:37:08,000

The computer should show if there's a difference.

630

00:37:08,000 --> 00:37:12,000

To get the clear quack, they'll use an anechoic chamber.

631

00:37:12,000 --> 00:37:15,000

It absorbs echoes by trapping sound vibrations

632

00:37:15,000 --> 00:37:18,000

in baffles on the walls and ceiling.

633

00:37:18,000 --> 00:37:22,000

Let's take them in the chamber.

634

00:37:22,000 --> 00:37:23,000

There we go.

635

00:37:23,000 --> 00:37:26,000

Bob and Roy are game.

636

00:37:26,000 --> 00:37:28,000

I noticed there's a hole in the screen.

637

00:37:28,000 --> 00:37:31,000

Maybe I can goose the duck.

638

00:37:31,000 --> 00:37:42,000

Nothing.

639

00:37:42,000 --> 00:37:45,000

Bob and Roy have wised up.

640

00:37:45,000 --> 00:37:50,000

It's all starting to look like a high-tech waste of time.

641

00:37:50,000 --> 00:37:55,000

When, for no apparent reason, Bob and Roy get chatty.

642

00:37:55,000 --> 00:37:56,000

Got something.

643

00:37:56,000 --> 00:37:59,000

It's a pristine quack.

644

00:37:59,000 --> 00:38:03,000

It turns out there is something different about it after all.

645

00:38:03,000 --> 00:38:06,000

Well, I never, he said.

646

00:38:06,000 --> 00:38:10,000

It's a series of exponentially decaying impulses,

647

00:38:10,000 --> 00:38:15,000

which looks almost exactly like room reverberation.

648

00:38:15,000 --> 00:38:20,000

This is the exact moment Jamie is blinded by science.

649

00:38:20,000 --> 00:38:22,000

Have you been paying attention?

650

00:38:22,000 --> 00:38:25,000

What they've found is that when you plot it on the computer,

651

00:38:25,000 --> 00:38:28,000

the quack looks exactly like an echo.

652

00:38:28,000 --> 00:38:31,000

And that could explain the origins of the myth.

653

00:38:31,000 --> 00:38:33,000

Its echo might actually sound just like it's quack.

654

00:38:33,000 --> 00:38:36,000

It might blend together for you.

655

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

So you might be hearing an echo,

656

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

but think you're still hearing the quack.

657

00:38:42,000 --> 00:38:46,000

Time to crank up the second experiment in the echo-y room.

658

00:38:46,000 --> 00:38:49,000

Hopefully the computer can tell the difference.

659

00:38:49,000 --> 00:38:53,000

You ready to quack for science?

660

00:38:53,000 --> 00:38:56,000

Okay, quiet please.

661

00:38:56,000 --> 00:38:58,000

Go.

662

00:39:02,000 --> 00:39:03,000

Got it.

663

00:39:03,000 --> 00:39:05,000

You did really, really good.

664

00:39:05,000 --> 00:39:06,000

Good job.

665

00:39:06,000 --> 00:39:07,000

You did excellently.

666

00:39:07,000 --> 00:39:10,000

Finally, Bob and Roy have produced on cue.

667

00:39:10,000 --> 00:39:14,000

This cavern of a warehouse is perfect for echoes.

668

00:39:14,000 --> 00:39:18,000

If there are any, the moment of truth has arrived.

669

00:39:18,000 --> 00:39:20,000

Okay, so you want to see our quacks?

670

00:39:20,000 --> 00:39:23,000

So here's the duck quack that we recorded.

671

00:39:23,000 --> 00:39:25,000

This initial part here is the quack.

672

00:39:25,000 --> 00:39:27,000

Does that mean it echoes?

673

00:39:27,000 --> 00:39:28,000

You know what?

674

00:39:28,000 --> 00:39:30,000

It's just hard to tell.

675

00:39:30,000 --> 00:39:31,000

Really?

676

00:39:31,000 --> 00:39:33,000

The reverberation looks just like the quack.

677

00:39:33,000 --> 00:39:36,000

You'd think the combined brains of man and machine

678

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

would be more than a match for Bob and Roy.

679

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

But somehow, once again, they've frustrated science.

680

00:39:43,000 --> 00:39:44,000

Quiet.

681

00:39:44,000 --> 00:39:48,000

And for one final time, they'll have to sing for their supper.

682

00:39:48,000 --> 00:39:52,000

Roger knows the echo is there somewhere.

683

00:39:52,000 --> 00:39:55,000

And sure enough, amid the techno babble,

684

00:39:55,000 --> 00:39:58,000

at last he finds what he's looking for.

685

00:39:58,000 --> 00:40:04,000

This series of decaying impulses is the reverberation.

686

00:40:04,000 --> 00:40:05,000

Definitely the echo.

687

00:40:05,000 --> 00:40:07,000

Definitely the echo.

688

00:40:07,000 --> 00:40:08,000

With busted.

689

00:40:08,000 --> 00:40:10,000

Don't be so hasty.

690

00:40:10,000 --> 00:40:13,000

With busted, let's go home. See ya.

691

00:40:13,000 --> 00:40:16,000

They've conclusively shown that although a quack's echo

692

00:40:16,000 --> 00:40:21,000

might be quiet and tricky to hear, it does exist.

693

00:40:21,000 --> 00:40:25,000

So how does it feel to be riding the absolute crest

694

00:40:25,000 --> 00:40:28,000

of urban myth busting?

695

00:40:28,000 --> 00:40:29,000

Busterific.

696

00:40:29,000 --> 00:40:35,000

And for their contribution to modern science,

697

00:40:35,000 --> 00:40:38,000

Bob and Roy have earned a rent-free,

698

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

Bayside home for life.

699

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

Well, what do you think?

700

00:40:42,000 --> 00:40:43,000

Looks good?

701

00:40:43,000 --> 00:40:44,000

All right.

702

00:40:44,000 --> 00:40:48,000

Where were all those quacks when we needed them?

703

00:40:48,000 --> 00:40:50,000

Still to come.

704

00:40:50,000 --> 00:40:53,000

One last blast for the chicken guy.

705

00:40:53,000 --> 00:40:56,000

It's maker break time on Myth Busters.

706

00:40:56,000 --> 00:41:04,000

Three, two.

707

00:41:04,000 --> 00:41:07,000

You'll recall that while testing which chicken hits hardest,

708

00:41:07,000 --> 00:41:10,000

frozen or thawed, the guys discovered that their

709

00:41:10,000 --> 00:41:14,000

light airplane windshields were not rated for bird strikes.

710

00:41:14,000 --> 00:41:19,000

As a result, all their flying chickens smashed every windshield.

711

00:41:19,000 --> 00:41:22,000

This chicken went through it like butter.

712

00:41:22,000 --> 00:41:23,000

Whoa.

713

00:41:23,000 --> 00:41:27,000

So this is the experiment take two.

714

00:41:27,000 --> 00:41:30,000

To finally lay this myth to rest, they have

715

00:41:30,000 --> 00:41:32,000

rethought their methodology.

716

00:41:32,000 --> 00:41:34,000

No more windshields.

717

00:41:34,000 --> 00:41:37,000

This is purely a moment of impact test.

718

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

The chickens will be fired at a solid steel plate.

719

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

By using the high-speed camera to measure the time

720

00:41:44,000 --> 00:41:48,000

between the start and finish of impact, they hope to see

721

00:41:48,000 --> 00:41:56,000

a difference between frozen and thawed chickens.

722

00:41:56,000 --> 00:42:01,000

The three frozen chickens clock more than 140 miles an hour.

723

00:42:01,000 --> 00:42:05,000

The impact time, 7 1-thousandths of a second.

724

00:42:05,000 --> 00:42:08,000

It automatically deboned the chicken, didn't it?

725

00:42:08,000 --> 00:42:16,000

Three, two, one.

726

00:42:16,000 --> 00:42:19,000

Impact times for the three thawed chickens showed a perfect

727

00:42:19,000 --> 00:42:21,000

match with the frozen poultry.

728

00:42:21,000 --> 00:42:24,000

Seven one-thousandths of a second.

729

00:42:24,000 --> 00:42:26,000

Here we go.

730

00:42:26,000 --> 00:42:28,000

One point of impact.

731

00:42:28,000 --> 00:42:34,000

Two, three, four, five, six, seven.

732

00:42:34,000 --> 00:42:36,000

And then now it's starting to move back again.

733

00:42:36,000 --> 00:42:39,000

It's given all of its impact in that amount of time.

734

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

The results from the high-speed camera seem to be

735

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

fairly convincing.

736

00:42:44,000 --> 00:42:46,000

You know that adage that it's not the falling that kills you?

737

00:42:46,000 --> 00:42:48,000

It's the stopping.

738

00:42:48,000 --> 00:42:51,000

The stopping is where the force gets imparted.

739

00:42:51,000 --> 00:42:55,000

So both the frozen and the thawed chicken have the same mass.

740

00:42:55,000 --> 00:42:57,000

They have effectively the same speed.

741

00:42:57,000 --> 00:43:00,000

So the only difference between the two is going to be how much

742

00:43:00,000 --> 00:43:04,000

time they take to impart their energy to the plate.

743

00:43:04,000 --> 00:43:07,000

And on the high-speed camera we showed that each of them

744

00:43:07,000 --> 00:43:10,000

exerted all their energy in seven milliseconds.

745

00:43:10,000 --> 00:43:11,000

Almost exactly.

746

00:43:11,000 --> 00:43:13,000

Basically, there was no difference.

747

00:43:13,000 --> 00:43:15,000

So does that mean the myth is busted?

748

00:43:15,000 --> 00:43:18,000

At these speeds, frozen or thawed chicken myth busted

749

00:43:18,000 --> 00:43:20,000

no difference at all.

750

00:43:24,000 --> 00:43:28,000

Now that we're done testing, we get to have some fun.

751

00:43:28,000 --> 00:43:31,000

That'd be pumpkin chunking kind of fun.

752

00:43:31,000 --> 00:43:33,000

Dude, look at this.

753

00:43:33,000 --> 00:43:35,000

It's what you get when the pumpkin chunking champion buys

754

00:43:35,000 --> 00:43:37,000

your pumpkin for you.

755

00:43:37,000 --> 00:43:39,000

It's perfect.

756

00:43:40,000 --> 00:43:44,000

With the day almost done, what better way to finish

757

00:43:44,000 --> 00:43:48,000

than with a few pumpkin chunking rounds of their own?

758

00:43:51,000 --> 00:43:53,000

Was there anything in its way?

759

00:43:53,000 --> 00:43:56,000

I suspect that the pumpkin went through here.

760

00:43:59,000 --> 00:44:01,000

Oh, here we go.

761

00:44:02,000 --> 00:44:04,000

Jamie, can I ride it?

762

00:44:05,000 --> 00:44:08,000

Three, two, one.

763

00:44:09,000 --> 00:44:11,000

That was so cool.

764

00:44:11,000 --> 00:44:13,000

You feel a little tingle between your legs when that

765

00:44:13,000 --> 00:44:15,000

sucker went out.

766

00:44:15,000 --> 00:44:17,000

I do.

767

00:44:17,000 --> 00:44:19,000

It's going to be hard to top that.

768

00:44:19,000 --> 00:44:22,000

Ever wonder what would happen if the shark and the crocodile,

769

00:44:22,000 --> 00:44:25,000

two of the world's top predators, met?

770

00:44:25,000 --> 00:44:28,000

Witness a virtual battle between these two animals,

771

00:44:28,000 --> 00:44:30,000

used to being at the top of a food chain,

772

00:44:30,000 --> 00:44:32,000

on the world's third largest animal.

773

00:44:32,000 --> 00:44:34,000

The world's second largest animal,

774

00:44:34,000 --> 00:44:36,000

the crocodile.

775

00:44:36,000 --> 00:44:38,000

And that's what we're going to do.

776

00:44:38,000 --> 00:44:40,000

We're going to do a little test.

777

00:44:40,000 --> 00:44:42,000

We're going to do a little test.

778

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

We're going to do a little test.

779

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

We're going to do a little test.

780

00:44:46,000 --> 00:44:48,000

We're going to do a little test.

781

00:44:48,000 --> 00:44:51,000

On the world premiere of Animal Baseball.