

1

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

So it's that way, is it?

2

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

Each shrimp savage

3

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

Okay stop stop.

4

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

Shall we put some of this chaos to work?

5

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

Sounds tasty.

6

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

Let's get cooking.

7

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

Music

8

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

So what's cooking?

9

00:01:26,000 --> 00:01:30,000

Well in this final season episode we are paying homage to our foodie past

10

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

with a couple of myths that we could couch under the rubric

11

00:01:33,000 --> 00:01:35,000

cooking chaos.

12

00:01:35,000 --> 00:01:36,000

Like what?

13

00:01:36,000 --> 00:01:42,000

Well later we're going to be creating some fruit juice using nothing but fruit and explosives.

14

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

Music

15

00:01:46,000 --> 00:01:48,000

We just blow up a tomato and now we're trying to have a drink.

16

00:01:48,000 --> 00:01:50,000

But first up we have a viral video.

17

00:01:50,000 --> 00:01:54,000

Two women are seen loading raw shrimp into what looks like an air cannon.

18

00:01:54,000 --> 00:01:56,000

They then fire it.

19

00:01:56,000 --> 00:01:59,000

Music

20

00:01:59,000 --> 00:02:05,000

Through crowds of flour, egg, breadcrumbs and eventually a fireball where the shrimp hit a target,

21

00:02:05,000 --> 00:02:09,000

land on a plate and seem to be perfectly cooked.

22

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

Instant tempura.

23

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

Exactly and I think we should try doing it.

24

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

Yum.

25

00:02:14,000 --> 00:02:17,000

For 14 years the mythbusters have dined.

26

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

You want to try some?

27

00:02:18,000 --> 00:02:20,000

Oh ha ha ha you can't.

28

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

Devoured and feasted.

29

00:02:22,000 --> 00:02:24,000

It can't hold it anymore.

30

00:02:24,000 --> 00:02:27,000

On some fantastically far-fetched

31

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

Oh!

32

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

Food fables.

33

00:02:29,000 --> 00:02:33,000

Alright meat and high explosives.

34

00:02:33,000 --> 00:02:38,000

Music

35

00:02:38,000 --> 00:02:41,000

But in this farewell season spectacular

36

00:02:41,000 --> 00:02:48,000

They're going to crank up the cooking chaos to the max with a classic mythbuster medley.

37

00:02:48,000 --> 00:02:49,000

Oh ha ha ha ha.

38

00:02:49,000 --> 00:02:51,000

Like some sort of jet engine.

39

00:02:51,000 --> 00:03:00,000

First up is it really possible to coordinate four explosive ingredients and a fireball to fry on the fly?

40

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

To test it they have to copy the video's crazy contraption.

41

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

It's going to be a challenge.

42

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

Music

43

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

Alright let's start by listing the components.

44

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

What do we got?

45

00:03:12,000 --> 00:03:14,000

We have some sort of pneumatic cannon.

46

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

A flour cannon.

47

00:03:15,000 --> 00:03:17,000

Then we've got the egg wash.

48

00:03:17,000 --> 00:03:20,000

And then a bread crumb cannon.

49

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

And then of course there's fire.

50

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

And then the target.

51

00:03:25,000 --> 00:03:29,000

The flour cannon and the bread crumb cannon are effectively the same device.

52

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

I can jump on that.

53

00:03:30,000 --> 00:03:34,000

Okay well I'll take care of the egg wash and the cannon.

54

00:03:34,000 --> 00:03:36,000

I think I have just the thing.

55

00:03:36,000 --> 00:03:38,000

Oh ha ha ha ha.

56

00:03:38,000 --> 00:03:43,000

This launch has been on the show several times before.

57

00:03:44,000 --> 00:03:48,000

The last one was testing whether rocks coming out of the lawn more could be lethal or not.

58

00:03:48,000 --> 00:03:51,000

Music

59

00:03:51,000 --> 00:03:52,000

Wow.

60

00:03:52,000 --> 00:04:00,000

Now the benefit of using a pneumatic launcher like this is that we can shoot just about anything that we can fit in the barrel.

61

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

And because it has a regulator we can precisely adjust the speed.

62

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

Now in the case of shrimp that's doubly important because we want to fire the whole shrimp intact.

63

00:04:09,000 --> 00:04:14,000

We don't want to shoot a cloud of shrimp bits at our target.

64

00:04:14,000 --> 00:04:18,000

And with a little modification here and there I think this might just do the trick.

65

00:04:18,000 --> 00:04:21,000

That's the shrimp launcher.

66

00:04:21,000 --> 00:04:25,000

Next comes the cannon for the dry ingredients.

67

00:04:25,000 --> 00:04:29,000

First the bread crumbs.

68

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

All right allow me to walk you through the components.

69

00:04:31,000 --> 00:04:37,000

First and foremost we have the cones that will shoot out the bread crumbs.

70

00:04:37,000 --> 00:04:45,000

These horns are being powered by air which is blasted up through these tubes to this T coming out of this large pneumatic valve.

71

00:04:45,000 --> 00:04:54,000

It's actually an electromagnetic valve so when I apply a little power to it under pressure it will release air and hopefully send the bread crumbs flying.

72

00:04:54,000 --> 00:05:00,000

Jamie's going to be like why does my shop smell like an Italian restaurant?

73

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

If I wanted an Italian restaurant I'd open one.

74

00:05:03,000 --> 00:05:09,000

To keep the mess to a minimum Adam fills half of the cones for a quick systems check.

75

00:05:09,000 --> 00:05:11,000

This is bread crumb horn test.

76

00:05:11,000 --> 00:05:15,000

Three, two, one.

77

00:05:16,000 --> 00:05:18,000

Ah!

78

00:05:24,000 --> 00:05:26,000

That's lovely!

79

00:05:26,000 --> 00:05:34,000

That works and while Adam knocks up an identical system for the flour, Jamie's getting egggy with it.

80

00:05:34,000 --> 00:05:38,000

I've got to figure out how to shoot egg wash down.

81

00:05:38,000 --> 00:05:43,000

This is a solenoid valve. It's an electronic valve that opens and closes a stream of air.

82

00:05:43,000 --> 00:05:44,000

Oops, wrong end.

83

00:05:44,000 --> 00:05:49,000

And that's fine but I'm using egg and I don't want to clog it up.

84

00:05:49,000 --> 00:05:59,000

What I'm going to use is this puppy right here which has a similar solenoid valve here and a piston with a rack and pinion on it that rotates a ball valve.

85

00:05:59,000 --> 00:06:03,000

And I can send anything I want through here and not gum anything up.

86

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

It's done.

87

00:06:05,000 --> 00:06:09,000

To test that it matches the spray in the video.

88

00:06:09,000 --> 00:06:12,000

It's going to be hard to make it with this camera in there. Hold on.

89

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

Mmm!

90

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

Delicious!

91

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

Adam whips up some egg like liquid.

92

00:06:19,000 --> 00:06:22,000

Oh, yummy! Look at that!

93

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

Briggs Jamie's host to its compressed air power source.

94

00:06:27,000 --> 00:06:30,000

Three, two, one.

95

00:06:30,000 --> 00:06:32,000

And let's loose.

96

00:06:34,000 --> 00:06:36,000

Ha! Beautiful!

97

00:06:36,000 --> 00:06:40,000

And the flower thrower also gets a systems check.

98

00:06:48,000 --> 00:06:52,000

Here you can run that sound effect right over the high speed.

99

00:06:54,000 --> 00:07:03,000

That just leaves the fireball but that will be assembled on location because the team has a dubious safety record at M5.

100

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

Am I missing an eyebrow?

101

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

So before things heat up, it's time to tackle another classic Kniffbusters conundrum.

102

00:07:14,000 --> 00:07:20,000

Juicing the inside of fruit with an explosion.

103

00:07:20,000 --> 00:07:25,000

So tell me about creating smoothies inside fruits and vegetables using explosives.

104

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

Well, you pretty much outlined the whole thing right there.

105

00:07:28,000 --> 00:07:37,000

It is in a viral video we found where apparently the shockwave of an explosion can be tuned perfectly enough to not destroy the outside of the fruit

106

00:07:37,000 --> 00:07:45,000

but turn the inside into juice such that you can stick a straw in and have a refreshing drink.

107

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

Hmm. Well, I'm dubious but sounds like fun.

108

00:07:49,000 --> 00:07:51,000

I agree. Let's do it.

109

00:07:51,000 --> 00:07:57,000

It's a deadly fruit cocktail only the Miffbusters can tackle and they've got just the place to do it.

110

00:07:57,000 --> 00:08:03,000

When you want to investigate the power of an explosion, we have a place we like to get. Actually, we have a lot of places we go.

111

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

But our home away from home and the place we go more than any other is right here at the Alameda County Sheriff's Department.

112

00:08:09,000 --> 00:08:15,000

We've been coming here for more than a decade and we have blown up thousands of things on this property.

113

00:08:15,000 --> 00:08:18,000

It's like a clown's head exploded.

114

00:08:18,000 --> 00:08:22,000

Today, however, we're doing things just a little bit differently.

115

00:08:22,000 --> 00:08:27,000

Yep, this time they won't be destroying so much as creating and continuing.

116

00:08:27,000 --> 00:08:28,000

Okay.

117

00:08:28,000 --> 00:08:33,000

To test the premise of the video and its use of surgically precise high explosives.

118

00:08:33,000 --> 00:08:35,000

I love filling waterproof tanks.

119

00:08:35,000 --> 00:08:42,000

They have to accurately recreate all of the elements starting with the water filled, glass proof box.

120

00:08:42,000 --> 00:08:47,000

We've gone above and beyond to make this tank really robust because water doesn't compress.

121

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

You're effectively delivering a hammer blow to that structure.

122

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

One.

123

00:08:53,000 --> 00:08:54,000

That worked beautifully.

124

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

In this case, the ballistic material is probably the weak point.

125

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

It's made to stop a bullet.

126

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

But what it'll do with an explosive, it's anybody's guess.

127

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

I can tell you one thing for sure. I'm going to be standing well back.

128

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

Now to position the fruit at explosive as per the video.

129

00:09:11,000 --> 00:09:15,000

Now that our tank is set up and filled with water, let's talk about the parameters for this experiment.

130

00:09:15,000 --> 00:09:17,000

First and foremost is the explosive.

131

00:09:17,000 --> 00:09:22,000

Now in the video, they show that the explosive is 17.5 centimeters from the fruit.

132

00:09:22,000 --> 00:09:25,000

That's the radius of the explosion.

133

00:09:25,000 --> 00:09:29,000

And the explosion goes to about 2.5 centimeters or 1 inch away from the fruit.

134

00:09:29,000 --> 00:09:31,000

We double that, calculate the diameter.

135

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

It comes to about a 12 or 13 inch cavitation that the explosive creates.

136

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

So we're going to be using one of these things.

137

00:09:38,000 --> 00:09:41,000

It's a blasting cap. It's what we saw them use in the video.

138

00:09:42,000 --> 00:09:43,000

Nice.

139

00:09:43,000 --> 00:09:44,000

Great.

140

00:09:44,000 --> 00:09:48,000

It's easily set off by applying a small amount of electric current to these wires.

141

00:09:48,000 --> 00:09:50,000

That's about as dead center as we can get.

142

00:09:50,000 --> 00:09:58,000

The blasting cap has 3,640 joules of energy and should match the explosive bubble in the video.

143

00:09:58,000 --> 00:10:00,000

Now for the shrink wrap tomato.

144

00:10:03,000 --> 00:10:08,000

This is a polyolefin bag and I can shrink it.

145

00:10:09,000 --> 00:10:13,000

There you go.

146

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

Oh, that's beautiful.

147

00:10:15,000 --> 00:10:17,000

Do you think this will float?

148

00:10:17,000 --> 00:10:18,000

I think it will.

149

00:10:19,000 --> 00:10:21,000

What are we going to do about that?

150

00:10:21,000 --> 00:10:27,000

I've got a magnet with a string on it and I figure I'll attach it to the bottom and we'll hang the blasting cap from the top.

151

00:10:27,000 --> 00:10:32,000

The fruit is suspended according to the reference, 7 inches from the blasting cap.

152

00:10:32,000 --> 00:10:34,000

And the setup is complete.

153

00:10:35,000 --> 00:10:42,000

Will the blast wave leave the exterior surface intact and juice the interior cellular structure?

154

00:10:42,000 --> 00:10:46,000

Or is it just another far-fetched fake film?

155

00:10:47,000 --> 00:10:50,000

They're all set to take the plunge.

156

00:10:52,000 --> 00:10:53,000

You ready?

157

00:10:53,000 --> 00:10:54,000

I'm ready.

158

00:10:54,000 --> 00:10:58,000

Fire the hole! Fire the hole! Fire the hole!

159

00:11:04,000 --> 00:11:06,000

The hole thing jumped.

160

00:11:07,000 --> 00:11:08,000

That was awesome.

161

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

What?

162

00:11:10,000 --> 00:11:13,000

Just how awesome is illustrated on the high-speed camera?

163

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

Whoa, look at that beautiful bubble.

164

00:11:19,000 --> 00:11:20,000

Wow!

165

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

We have this perfect 12-inch cavitation.

166

00:11:27,000 --> 00:11:31,000

As per the video, the tomato skin is intact, but has it been juice?

167

00:11:32,000 --> 00:11:34,000

I've got some straws.

168

00:11:35,000 --> 00:11:38,000

Now, if the video is to be believed, I should get tomato juice out of this.

169

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

Aaron, do you want to try it?

170

00:11:43,000 --> 00:11:44,000

All right.

171

00:11:45,000 --> 00:11:48,000

Oh, oh, oh, what, what? Hey!

172

00:11:49,000 --> 00:11:51,000

You're kind of getting some juice there.

173

00:11:51,000 --> 00:11:54,000

Janie manages to suck up a decent mouthful of juice.

174

00:11:55,000 --> 00:11:56,000

I did.

175

00:11:57,000 --> 00:12:01,000

At Adam, comparing it to an unexploded raw control with zero liquid uptake...

176

00:12:01,000 --> 00:12:02,000

I'm getting nothing.

177

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

...thinks they may be onto something.

178

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

This is so ludicrous.

179

00:12:07,000 --> 00:12:09,000

We just blow up a tomato and now we're trying to have a drink.

180

00:12:10,000 --> 00:12:11,000

What does? No big.

181

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

Question is, where to now?

182

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

Okay, did you see what I see there?

183

00:12:17,000 --> 00:12:18,000

Yeah, exactly.

184

00:12:18,000 --> 00:12:21,000

Our tomato was just a little too far from the bubble.

185

00:12:21,000 --> 00:12:25,000

I'd say about two inches away, and we needed to be one inch away, like we see in the video.

186

00:12:25,000 --> 00:12:27,000

That is our next test.

187

00:12:27,000 --> 00:12:30,000

Coming up on this final season food spectacular,

188

00:12:31,000 --> 00:12:33,000

the fruit apocalypse continues.

189

00:12:35,000 --> 00:12:39,000

And cooking shrimp gets a mad max makeover.

190

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

Eat shrimp and die, m****.

191

00:12:55,000 --> 00:13:00,000

For more than a decade, the mythbusters have put kitchen catastrophes to the test.

192

00:13:01,000 --> 00:13:02,000

We should never do this at home.

193

00:13:03,000 --> 00:13:08,000

To sign off their food fun and style, they're going out with a classic experimental bag.

194

00:13:14,000 --> 00:13:15,000

Here's what just happened.

195

00:13:15,000 --> 00:13:19,000

We detonated a blasting cap seven inches away from a tomato,

196

00:13:19,000 --> 00:13:24,000

and it seems we made a difference in how much juice we were able to get out of that tomato.

197

00:13:24,000 --> 00:13:27,000

Hey, you're kind of getting some juice there.

198

00:13:27,000 --> 00:13:28,000

I did.

199

00:13:31,000 --> 00:13:35,000

So we're going to do it again, except next time we're going to move the tomato a little bit closer.

200

00:13:35,000 --> 00:13:39,000

And there it is, exactly six inches, one inch closer than last time.

201

00:13:40,000 --> 00:13:43,000

Because that might get even more of a definitive Brazil.

202

00:13:45,000 --> 00:13:46,000

Fire the hole!

203

00:13:50,000 --> 00:13:51,000

That doesn't get old.

204

00:13:52,000 --> 00:13:58,000

The skin once again survived a blast wave measuring more than 27,000 feet per second.

205

00:13:59,000 --> 00:14:05,000

And thanks to advances in camera tech, we can see the positioning perfectly matched the clip.

206

00:14:05,000 --> 00:14:08,000

We're not messing around when it comes to the high speed footage.

207

00:14:08,000 --> 00:14:15,000

This camera is state of the art, and it films at a maximum frame rate of 28,000 frames per second in HD.

208

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

But what about the all important taste test?

209

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

That looks like a lot of juice.

210

00:14:27,000 --> 00:14:28,000

That was almost a mouthful.

211

00:14:28,000 --> 00:14:29,000

Really?

212

00:14:29,000 --> 00:14:30,000

Yeah.

213

00:14:30,000 --> 00:14:32,000

We're a lot further along on this than I thought we would be.

214

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

I thought this was that realm of almost total fantasy.

215

00:14:36,000 --> 00:14:39,000

I have to admit on this one you have to color me totally surprised.

216

00:14:39,000 --> 00:14:43,000

I was sure our explosive was going to rip apart the outside of our fruit.

217

00:14:43,000 --> 00:14:47,000

And even if it didn't, there was no way it was going to yield actual juice.

218

00:14:47,000 --> 00:14:51,000

Now we will compare the juice we get from the explosive to an industrial juicer later,

219

00:14:51,000 --> 00:14:54,000

but right now we are going to start looking for the sweet spot.

220

00:14:55,000 --> 00:14:56,000

Four and a half.

221

00:14:56,000 --> 00:14:57,000

There you go.

222

00:14:57,000 --> 00:14:58,000

Fire the hole!

223

00:14:58,000 --> 00:15:04,000

And that is how close we can get the explosive to the fruit before we start to destroy the skin.

224

00:15:04,000 --> 00:15:07,000

That's where we'll get maximum juice.

225

00:15:13,000 --> 00:15:14,000

This is our cooking show.

226

00:15:14,000 --> 00:15:16,000

Three, two, one.

227

00:15:18,000 --> 00:15:22,000

Yep, they want to get as close as they can without rupturing the tomato.

228

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

Fruit is still intact.

229

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

To get the highest juice yield possible.

230

00:15:28,000 --> 00:15:30,000

That looks amazing.

231

00:15:30,000 --> 00:15:33,000

He's getting juice out of it.

232

00:15:34,000 --> 00:15:36,000

It's the same story at three inches.

233

00:15:36,000 --> 00:15:37,000

What?

234

00:15:39,000 --> 00:15:40,000

Still there.

235

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

I don't know that we've reached the outer skin.

236

00:15:42,000 --> 00:15:43,000

This is amazing.

237

00:15:43,000 --> 00:15:48,000

And even at 1.5 inches.

238

00:15:48,000 --> 00:15:53,000

And most importantly, Jamie seems to be getting more juice each time.

239

00:15:53,000 --> 00:15:55,000

Look at that, dude.

240

00:15:56,000 --> 00:15:58,000

That looks like the best one yet.

241

00:15:58,000 --> 00:16:02,000

When Jamie's people come and invade the earth, this is what they're going to do to our planet.

242

00:16:04,000 --> 00:16:06,000

I feel like a mosquito.

243

00:16:06,000 --> 00:16:10,000

Until half an inch proves too close for comfort.

244

00:16:10,000 --> 00:16:11,000

One!

245

00:16:14,000 --> 00:16:17,000

Yep, finally.

246

00:16:17,000 --> 00:16:22,000

We figured out how close you can get and actually herd a tomato.

247

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

Before they quantify just how much juice they're detonating and deliberate on the result,

248

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

it's back to the shrimp course.

249

00:16:32,000 --> 00:16:38,000

One of the great things about shooting the show in the Bay Area is that we have such a wonderful array of places to run our experiments at.

250

00:16:38,000 --> 00:16:47,000

This one in particular is going to be perfect for us to run an experiment that involves shrimp, guns, air cannons and fireballs.

251

00:16:50,000 --> 00:16:56,000

The engineering challenge they're facing to even test this viral video is as tough as it gets.

252

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

A ballistic ballet of perfectly choreographed explosive ingredients.

253

00:17:01,000 --> 00:17:08,000

We have watched this video dozens of times and looked at every single shot of the rig.

254

00:17:11,000 --> 00:17:12,000

Beauty.

255

00:17:12,000 --> 00:17:21,000

And we have measured as best we can the distances between each of the stations and replicated exactly the journey of the shrimp from gun to plate.

256

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

I love color.

257

00:17:24,000 --> 00:17:29,000

With the system laid out according to the video reference, Jamie hooks up the power source.

258

00:17:30,000 --> 00:17:40,000

Given that this whole thing is driven by air, we don't want any leaks.

259

00:17:41,000 --> 00:17:45,000

While Jamie springs into action, unspringing any leaks,

260

00:17:45,000 --> 00:17:50,000

Lake number three, Adam attempts to avoid product placement.

261

00:17:50,000 --> 00:17:55,000

In the video, the target seems to be a pillow, a bubble.

262

00:17:55,000 --> 00:17:57,000

So am I allowed to say bubble?

263

00:17:57,000 --> 00:17:59,000

The world.

264

00:18:01,000 --> 00:18:07,000

In the video, the target seems to be a pillow of this bubble packaging stuff.

265

00:18:07,000 --> 00:18:08,000

You know what it's called.

266

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

I'm going to make a pillow of the same stuff.

267

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

With their trademark target taped into place.

268

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

Time for shooting and the firing squad peeled and prepped.

269

00:18:20,000 --> 00:18:26,000

They're all set to test the first cog in their multi part machine, the shrimp cannon.

270

00:18:27,000 --> 00:18:34,000

After all of our prep work, what remains to be done is to fire shrimp from this gun and see, well, just how accurately it fires.

271

00:18:34,000 --> 00:18:36,000

Oh, look at those.

272

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

But this whole machine depends upon this shrimp firing accurately.

273

00:18:42,000 --> 00:18:44,000

The shrimp gun is locked and loaded.

274

00:18:44,000 --> 00:18:48,000

I for one think that there may be a little adjustment after the first time we fired.

275

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

Here we go.

276

00:18:49,000 --> 00:18:52,000

In three, two, one.

277

00:18:55,000 --> 00:18:57,000

I got shrimp on my nose.

278

00:18:57,000 --> 00:18:58,000

What happened?

279

00:19:01,000 --> 00:19:07,000

The first test, well, my face got covered with shrimp guts.

280

00:19:09,000 --> 00:19:11,000

And that's the best I can say about that test.

281

00:19:11,000 --> 00:19:18,000

It was pretty much a total failure, but we're going to hold down the shrimp cartridge so it doesn't jump like it did last time.

282

00:19:18,000 --> 00:19:23,000

Okay, so I'm going to hold on to that and see if we can't get the shrimps to hit the target.

283

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

Shrimp cannon test fire number two.

284

00:19:25,000 --> 00:19:26,000

That's the first test.

285

00:19:26,000 --> 00:19:32,000

Then the second one is to make sure they hit it consistently in three, two, one.

286

00:19:35,000 --> 00:19:37,000

We might have a problem on our hands.

287

00:19:37,000 --> 00:19:38,000

Shrimp, no.

288

00:19:41,000 --> 00:19:45,000

Nice.

289

00:19:45,000 --> 00:19:46,000

What?

290

00:19:47,000 --> 00:19:48,000

Shrimp no.

291

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

Let's go collect the shrimp no.

292

00:19:51,000 --> 00:20:00,000

Right out of the gate, it's not looking too good for this story because we didn't even get to the target and our shrimp basically disintegrated.

293

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

Oh, it gratifies eyeball.

294

00:20:02,000 --> 00:20:05,000

There's a little bits everywhere.

295

00:20:05,000 --> 00:20:07,000

And we can't just add more pressure.

296

00:20:07,000 --> 00:20:09,000

It's just going to disintegrate them more.

297

00:20:09,000 --> 00:20:14,000

And that means that we've got to do something to doctor this a little bit.

298

00:20:14,000 --> 00:20:25,000

And what it would take is what is known as a sabote, which is behind the shrimp and takes the brunt of the force of the air blast, pushing the shrimp out of the cannon without destroying them.

299

00:20:25,000 --> 00:20:29,000

Things we turn out to get good at that will never be useful again.

300

00:20:31,000 --> 00:20:35,000

And then that sabote or wadding falls away before it reaches the target.

301

00:20:35,000 --> 00:20:39,000

Test number three, three, two, one.

302

00:20:41,000 --> 00:20:42,000

That was a little better.

303

00:20:42,000 --> 00:20:47,000

That was a lot better. All three of them hit the back target. And if I'm not incorrect, at the same time.

304

00:20:48,000 --> 00:20:54,000

The sabote was successful. The shrimp stayed intact. And with a small adjustment to the aim.

305

00:20:56,000 --> 00:20:59,000

Ah, that was perfect.

306

00:20:59,000 --> 00:21:02,000

That was perfect. I was going to say almost perfect, but that was perfect.

307

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

The guys seem happy.

308

00:21:06,000 --> 00:21:08,000

Spank right into the pillow.

309

00:21:08,000 --> 00:21:09,000

Couldn't be better.

310

00:21:09,000 --> 00:21:14,000

That success means they can go again, this time to measure the flight time.

311

00:21:14,000 --> 00:21:20,000

For the record, the last one took 392 milliseconds to reach from the end of the barrel to the target.

312

00:21:20,000 --> 00:21:28,000

And with that, they're ready to coordinate the launch of the shrimp with each ingredient and the final fiery piece of the puzzle.

313

00:21:28,000 --> 00:21:32,000

Nice.

314

00:21:41,000 --> 00:21:43,000

That's the coolest toy ever.

315

00:21:51,000 --> 00:21:55,000

Welcome back. We have been attempting to cook a shrimp in midair.

316

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

So far, we've got the shrimp flying consistently into a target.

317

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

Spank right into the pillow.

318

00:22:03,000 --> 00:22:07,000

And now we need to set off each of those elements at precisely the right time.

319

00:22:10,000 --> 00:22:16,000

For that, we're going to be using these timers, which will allow us to tune everything the way we need it within milliseconds.

320

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

That's the key to this complicated cooking method, the launch sequence.

321

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

All right.

322

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

Each element has its own trigger, delayed depending on how fast that ingredient reaches its optimum spread.

323

00:22:29,000 --> 00:22:33,000

And they have to be wired together to fire and sink.

324

00:22:33,000 --> 00:22:38,000

I love these situations when we've set this stuff up like a house of cards.

325

00:22:38,000 --> 00:22:45,000

All we have to do is take off one of these and run it to run it to our AC line.

326

00:22:45,000 --> 00:22:50,000

There's all these switches and solenoids and all bunch of other stuff.

327

00:22:50,000 --> 00:22:56,000

Activating all at once and it's almost too much to comprehend.

328

00:22:56,000 --> 00:23:02,000

I don't think you're right. You only have one. The switch only activates one of two legs.

329

00:23:02,000 --> 00:23:03,000

It's cool.

330

00:23:03,000 --> 00:23:06,000

The question is, will it work?

331

00:23:06,000 --> 00:23:08,000

Things are about to get messy.

332

00:23:08,000 --> 00:23:11,000

Cue a 500-degree fireball.

333

00:23:12,000 --> 00:23:14,000

Yes, this is what you've been waiting for.

334

00:23:14,000 --> 00:23:17,000

Like this. Cook shrimp.

335

00:23:17,000 --> 00:23:18,000

Might be next.

336

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

I'm going to go out on a limb here and say this might be the weirdest machine we've built on the shelf.

337

00:23:24,000 --> 00:23:25,000

It's right up there.

338

00:23:28,000 --> 00:23:30,000

This one's for the money.

339

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

I'm going to try cooking shrimp in midair.

340

00:23:33,000 --> 00:23:38,000

In. Three. Two. One.

341

00:23:42,000 --> 00:23:46,000

Dude! That was beautiful.

342

00:23:47,000 --> 00:23:49,000

Shrimp are leaving.

343

00:23:49,000 --> 00:23:52,000

It's going through the flower. Awesome!

344

00:23:53,000 --> 00:23:55,000

Go shoot the egg!

345

00:23:55,000 --> 00:23:58,000

And the red course!

346

00:23:58,000 --> 00:23:59,000

Oh my god.

347

00:23:59,000 --> 00:24:01,000

And the fire!

348

00:24:05,000 --> 00:24:09,000

It worked! That is awesome.

349

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

It's an astonishing ballet of edible ballistics.

350

00:24:14,000 --> 00:24:17,000

Each ingredient timed with millisecond accuracy.

351

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

And if the video is to be believed, that means we have a plate full of cooked shrimp, right?

352

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

Here's one here.

353

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

He's not coated or cooked.

354

00:24:27,000 --> 00:24:28,000

Wrong.

355

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

What?

356

00:24:31,000 --> 00:24:32,000

Our machine works beautifully.

357

00:24:32,000 --> 00:24:36,000

The shrimp is flying through clouds of flour, breadcrumbs, egg, and fire.

358

00:24:36,000 --> 00:24:40,000

But it's not getting coated. It's not getting covered. And it's definitely not getting cooked.

359

00:24:40,000 --> 00:24:44,000

This guy does have what appear to be some breadcrumbs on it.

360

00:24:44,000 --> 00:24:46,000

But like three?

361

00:24:46,000 --> 00:24:47,000

Yeah.

362

00:24:47,000 --> 00:24:49,000

Okay. So we need like hundreds more.

363

00:24:49,000 --> 00:24:55,000

After timing the flight of the shrimp with millisecond accuracy, it turns out time was never on their side.

364

00:24:55,000 --> 00:25:01,000

The problem is that if we slow the shrimp down long enough to allow these processes time to work,

365

00:25:01,000 --> 00:25:04,000

the shrimp are going to fall short of the target.

366

00:25:04,000 --> 00:25:08,000

It could make the clouds larger and shoot over a longer distance,

367

00:25:08,000 --> 00:25:12,000

but that would require more air pressure, which most likely is going to blow the shrimp apart.

368

00:25:12,000 --> 00:25:15,000

It's a classic catch-22.

369

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

To coat the shrimp requires a much longer flight time, but that would destroy it.

370

00:25:20,000 --> 00:25:24,000

So that part of the video was clearly faked.

371

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

And then there's the fire.

372

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

For the same reason that flicking your hand through a candle flame doesn't burn you,

373

00:25:30,000 --> 00:25:34,000

the shrimp just doesn't spend enough time in the fire to get cooked.

374

00:25:34,000 --> 00:25:38,000

And we can't, for all the reasons Jamie just stated, let it spend more time in the fire.

375

00:25:38,000 --> 00:25:41,000

But we can make the fire hotter.

376

00:25:43,000 --> 00:25:47,000

This is a five-burner sword forge running pro-pay.

377

00:25:47,000 --> 00:25:50,000

It runs about four times as hot as our flame bar.

378

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

2,000 degrees.

379

00:25:52,000 --> 00:25:55,000

And because it's a sword forge, it's open on either end.

380

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

That means we're going to shoot our shrimp right through the middle of this baby.

381

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

If that doesn't cook our shrimp in midair, I don't know what would.

382

00:26:04,000 --> 00:26:07,000

Before the shrimp fly through the forge, go!

383

00:26:08,000 --> 00:26:16,000

Jamie and Adam are facing the far-fetched fact that fruit could be juiced using an explosion.

384

00:26:18,000 --> 00:26:20,000

Alright, once we figured out that we had the right explosive,

385

00:26:20,000 --> 00:26:24,000

that putting it seven inches away from our tomato did not destroy it and gave us juice,

386

00:26:24,000 --> 00:26:27,000

then we figured out that putting it ever closer still didn't destroy the tomato,

387

00:26:27,000 --> 00:26:29,000

but got us more juice each time.

388

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

The question was, how close can you get to get the maximum amount of juice without destroying the tomato?

389

00:26:34,000 --> 00:26:37,000

And that distance turns out to be one and a half inches.

390

00:26:39,000 --> 00:26:43,000

But now it's time to figure out exactly how much juice we can get out of that to actually quantify it.

391

00:26:44,000 --> 00:26:51,000

How? Well, earlier back at the shop, we quantified the amount of juice that we got from a tomato using an industrial juicer.

392

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

And it was 62%. That means I got 62% of the weight of the tomato out in delicious tomato juice.

393

00:26:59,000 --> 00:27:05,000

Now we're going to compare that to what we get from a tomato detonated at our sweet spot of one and a half inches.

394

00:27:08,000 --> 00:27:10,000

Alright, so here's how this is going to work.

395

00:27:10,000 --> 00:27:14,000

I've got a vacuum pump, a containment vessel, and a straw at the end of a tube.

396

00:27:14,000 --> 00:27:18,000

The vacuum pump will pull air out of this, which will then come through this straw.

397

00:27:18,000 --> 00:27:22,000

We stick the straw into the tomato and it acts just like Jamie's mouth, sucking the tomato juice out.

398

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

Oh. That's vigorous.

399

00:27:28,000 --> 00:27:31,000

That's actually pretty impressive, isn't it? Yeah.

400

00:27:33,000 --> 00:27:34,000

It's coming.

401

00:27:37,000 --> 00:27:40,000

Alright, alright, alright, alright. I think that's more than a human could get out.

402

00:27:40,000 --> 00:27:46,000

Which we then weigh in this cup and determine exactly what percentage of juice we got out by detonating a blasted cat near the tomato.

403

00:27:46,000 --> 00:27:52,000

60. This works out beautifully. 180 gram tomato, we got 60 grams of juice. That's exactly one third.

404

00:27:52,000 --> 00:27:59,000

That is 30% of the tomato in juice. That's half of what you get out of an industrial juicer, but that's a lot more than I thought we'd get.

405

00:27:59,000 --> 00:28:04,000

I actually believe that we are drifting dangerously into plausible territory here.

406

00:28:04,000 --> 00:28:08,000

In fact, after all this blasting, I'm not sure where we could go from here.

407

00:28:09,000 --> 00:28:16,000

Yes, using a precisely calibrated explosive charge, it's possible to juice the inside of a tomato.

408

00:28:16,000 --> 00:28:19,000

And there really is only one place to go from here.

409

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

Impatented Mythbusters style is bigger, better.

410

00:28:25,000 --> 00:28:26,000

I think we need more explosives.

411

00:28:26,000 --> 00:28:45,000

Welcome back. All episode long, we've been attempting to replicate a viral video we found, which seems to show that a small amount of explosives can turn a tomato into a tomato juice dispenser.

412

00:28:45,000 --> 00:28:50,000

That is, that it can turn the inside of a tomato to liquid you can drink while not damaging the outside.

413

00:28:50,000 --> 00:28:55,000

And astonishingly, we seem to have determined that this is actually true.

414

00:28:57,000 --> 00:29:05,000

Now, of course, it's Mythbusters, so where a small amount of explosives seems to work pretty well, a large amount of explosives ought to work a lot better.

415

00:29:06,000 --> 00:29:11,000

This time around, we're going to be using 20 pounds of TNT. Nice.

416

00:29:13,000 --> 00:29:18,000

It's nice and peaceful out here. At least, right now it is.

417

00:29:19,000 --> 00:29:22,000

And that's going to create a much larger and more powerful pressure weight.

418

00:29:22,000 --> 00:29:27,000

So, in theory, that should do a better job of creating more juice.

419

00:29:28,000 --> 00:29:37,000

The blasting cap yield was 30%. To attempt to maximize the juice, they're scaling up the explosion energy by a factor of 10,000.

420

00:29:37,000 --> 00:29:48,000

All right, let's double check our supplies. We've got mesh bags, check oranges, check cucumbers, check tomatoes, wrapped, check pineapples, check 20 pounds of TNT.

421

00:29:50,000 --> 00:29:52,000

Let's make some fruit juice.

422

00:29:53,000 --> 00:30:01,000

While Adam and Jamie know a tomato works, the video also shows a variety of fruit and veg being satisfactorily slurred.

423

00:30:02,000 --> 00:30:08,000

So, to find out if this juicing technique really is that flexible, they're covering their bases.

424

00:30:09,000 --> 00:30:11,000

Let's start attaching them to the buoys.

425

00:30:12,000 --> 00:30:22,000

Finally, without knowing the ideal distance for this sized explosion, each bag is placed under the surface at staggered intervals.

426

00:30:22,000 --> 00:30:23,000

There's the 10.

427

00:30:24,000 --> 00:30:29,000

The blasting cap is an explosive energy of 3,640 joules.

428

00:30:29,000 --> 00:30:34,000

20 pounds of TNT has 37 megajoules.

429

00:30:34,000 --> 00:30:40,000

Will the larger amplitude blast wave be more effective? We're about to find out.

430

00:30:40,000 --> 00:30:41,000

Does it look beautiful?

431

00:30:41,000 --> 00:30:43,000

Yeah, it's perfect.

432

00:30:43,000 --> 00:30:48,000

All right, Captain, back to shore. Let me explain our methodology, although I think it's pretty straightforward.

433

00:30:48,000 --> 00:30:54,000

At the three orange buoys at the end of that line, we're going to hang 20 pounds of explosives 10 feet down.

434

00:30:54,000 --> 00:30:58,000

At each of the numbered markers is hanging a bag of fruit about 5 feet down.

435

00:31:01,000 --> 00:31:04,000

Okay, large scale fruit smoothie.

436

00:31:04,000 --> 00:31:09,000

We're going to set off those explosives in three.

437

00:31:09,000 --> 00:31:16,000

Retrieve what fruit we can to and find out how juicy the explosives made it.

438

00:31:19,000 --> 00:31:20,000

One.

439

00:31:28,000 --> 00:31:32,000

Yeah, that was a little more energetic than I thought.

440

00:31:34,000 --> 00:31:40,000

More energetic at 8,000 frames per second. It's also beautiful.

441

00:31:40,000 --> 00:31:45,000

You can see the original impulse of the explosive starting to expand,

442

00:31:45,000 --> 00:31:51,000

and then you can see a set of different speed shock waves emanating out from that center.

443

00:31:51,000 --> 00:31:56,000

Then you can also see some of the reflected waves, which are bouncing off the bottom of the lake,

444

00:31:56,000 --> 00:32:01,000

also interrupting and creating secondary artifacts around the primary shock wave.

445

00:32:01,000 --> 00:32:06,000

This is one of the loveliest shots of an explosion I think that we have ever got.

446

00:32:11,000 --> 00:32:13,000

That's 40.

447

00:32:13,000 --> 00:32:15,000

But did they get any juice?

448

00:32:15,000 --> 00:32:17,000

That's 30.

449

00:32:17,000 --> 00:32:20,000

This is actually pretty darn cool.

450

00:32:20,000 --> 00:32:24,000

We were afraid when we first saw the explosion go off that we'd lost like most of our fruit,

451

00:32:24,000 --> 00:32:29,000

but it turns out it seems that we have lost our 2, 5, and 10 foot bags,

452

00:32:29,000 --> 00:32:33,000

which we kind of expected because there's so much more to it.

453

00:32:33,000 --> 00:32:35,000

We got them from 15. Awesome.

454

00:32:35,000 --> 00:32:39,000

But we have 15, 20, 25, 30, and 40.

455

00:32:39,000 --> 00:32:44,000

Now it's time to inspect and see just how juicy our bouquets of fruit and vegetables are.

456

00:32:44,000 --> 00:32:48,000

The initial signs, oh man, are not great.

457

00:32:48,000 --> 00:32:52,000

Okay, I'm just going to go on a limb and say cucumbers do not like explosives.

458

00:32:52,000 --> 00:32:57,000

Searching through the debris, many of the most recent explosives have been found.

459

00:32:57,000 --> 00:33:01,000

Okay, I'm just going to go on a limb and say cucumbers do not like explosives.

460

00:33:01,000 --> 00:33:06,000

Searching through the debris, many of the victims are ruptured, but luckily not all.

461

00:33:06,000 --> 00:33:08,000

This one's been compromised.

462

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

There is evidence of tenderization.

463

00:33:11,000 --> 00:33:13,000

It's definitely softer.

464

00:33:13,000 --> 00:33:15,000

At 40 feet?

465

00:33:16,000 --> 00:33:20,000

Uh, no, so I'd say that orange is not a fruit juice dispenser.

466

00:33:20,000 --> 00:33:21,000

30.

467

00:33:21,000 --> 00:33:22,000

Nope.

468

00:33:22,000 --> 00:33:23,000

Nope.

469

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

25 and 20.

470

00:33:25,000 --> 00:33:26,000

Tomatoes.

471

00:33:26,000 --> 00:33:27,000

That one's dead.

472

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

It's the kind of carnage that can only be yielded by the episode of investors.

473

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

But by the time all survivors have been examined, the results are definitive.

474

00:33:38,000 --> 00:33:41,000

Now, it's the same thing as before.

475

00:33:41,000 --> 00:33:42,000

Not juice.

476

00:33:42,000 --> 00:33:43,000

Not juice.

477

00:33:43,000 --> 00:33:44,000

Tender.

478

00:33:44,000 --> 00:33:45,000

Tender, but not juice.

479

00:33:45,000 --> 00:33:49,000

So, it seems like bigger is not better in this case, huh?

480

00:33:49,000 --> 00:33:54,000

No, no, we found at least one thing for which more explosives do not get a better result.

481

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

But why didn't it scale up?

482

00:33:59,000 --> 00:34:00,000

Whoa!

483

00:34:01,000 --> 00:34:05,000

We know that blast pressures can bounce off of surfaces.

484

00:34:05,000 --> 00:34:06,000

They can reflect.

485

00:34:06,000 --> 00:34:14,000

And so that small container caused the blast pressure to go back and forth and back and forth through the fruit a bunch of times,

486

00:34:14,000 --> 00:34:17,000

each time breaking the cell walls a little bit more.

487

00:34:17,000 --> 00:34:23,000

So that may actually have been the ideal situation, even though the amount of explosive was very small.

488

00:34:23,000 --> 00:34:29,000

If you remember, we started out with a viral video that seemed to imply that with a little boom in a box,

489

00:34:29,000 --> 00:34:33,000

you could generate sweet juice out of something like a tomato.

490

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

In that scale, we actually succeeded in getting some lovely gulps of juice out of a tomato.

491

00:34:39,000 --> 00:34:42,000

Now, it didn't work when we scaled it up, but I have to say,

492

00:34:42,000 --> 00:34:45,000

given how well it worked in the scale that the video shows,

493

00:34:45,000 --> 00:34:49,000

I think that we're going to have to call this one plausible.

494

00:34:53,000 --> 00:34:56,000

This is the final season of the season.

495

00:34:56,000 --> 00:34:59,000

The final season of the season is coming up.

496

00:34:59,000 --> 00:35:02,000

Welcome to Jamie's Temporar Kitchen.

497

00:35:02,000 --> 00:35:07,000

This final season spectacular signs off with a sword forge fried shrimp.

498

00:35:07,000 --> 00:35:09,000

Like some sort of jet engine.

499

00:35:14,000 --> 00:35:19,000

To celebrate the final season, this is the Mythbusters number crunching countdown.

500

00:35:20,000 --> 00:35:28,000

Over the last 14 years, the team has tested tasty beverages and crazy explosive cuisine

501

00:35:28,000 --> 00:35:33,000

in a gut-busting, calorie-counting 71 story.

502

00:35:36,000 --> 00:35:43,000

Their Epicurean curiosity has guzzled 240 gallons of cola and 14 kegs of beer.

503

00:35:44,000 --> 00:35:46,000

Oh, it's a delicious memory.

504

00:35:46,000 --> 00:35:51,000

Behind and for the camera, they've devoured 1,500 donuts.

505

00:35:51,000 --> 00:35:56,000

On seven occasions, they've raised the stakes with exploding steak,

506

00:35:56,000 --> 00:35:58,000

Matty, tasty meat,

507

00:35:58,000 --> 00:36:00,000

lathe, five salamis,

508

00:36:00,000 --> 00:36:04,000

and imbibed alcohol for science 23 times.

509

00:36:05,000 --> 00:36:07,000

Cheers.

510

00:36:14,000 --> 00:36:16,000

What?

511

00:36:16,000 --> 00:36:21,000

We've been trying to cook shrimp in midair and so far we've got focus.

512

00:36:23,000 --> 00:36:28,000

We were able to exactly replicate the process as we saw in that video,

513

00:36:28,000 --> 00:36:32,000

but the problem is we weren't able to replicate any of the results.

514

00:36:32,000 --> 00:36:35,000

And when you think about it, it's not really surprising

515

00:36:35,000 --> 00:36:39,000

because all of these activities are occurring in the course of milliseconds.

516

00:36:39,000 --> 00:36:44,000

So there's not really any time for coding or cooking anything.

517

00:36:44,000 --> 00:36:48,000

We have no choice, therefore, but to conclude that those results were faked.

518

00:36:48,000 --> 00:36:51,000

Of course, we're not done yet.

519

00:36:52,000 --> 00:36:55,000

Yep, in this final season food challenge...

520

00:36:55,000 --> 00:36:57,000

Yeah, I like it further away.

521

00:36:57,000 --> 00:36:58,000

Me too.

522

00:36:58,000 --> 00:37:02,000

They have to exhaust all reasonable possibilities.

523

00:37:02,000 --> 00:37:08,000

With the ingredient clouds busted as a possibility, it boils down to heat.

524

00:37:09,000 --> 00:37:11,000

It's gonna get hot in here.

525

00:37:11,000 --> 00:37:13,000

A sword forage.

526

00:37:13,000 --> 00:37:15,000

Welcome to Jamie's Temporary Kitchen.

527

00:37:15,000 --> 00:37:18,000

Versus a single pre-prepared shrimp.

528

00:37:19,000 --> 00:37:23,000

I'm a shrimp student, aren't I?

529

00:37:24,000 --> 00:37:27,000

Science is often about refining questions and removing variables,

530

00:37:27,000 --> 00:37:29,000

and we have done both of those here.

531

00:37:30,000 --> 00:37:32,000

I'll turn on the gas.

532

00:37:39,000 --> 00:37:42,000

Shrimp, gun, furnace.

533

00:37:42,000 --> 00:37:44,000

It's gonna take a few minutes to get hot.

534

00:37:44,000 --> 00:37:47,000

Hopefully cook shrimp on the other side.

535

00:37:47,000 --> 00:37:49,000

We are soon to find out.

536

00:37:49,000 --> 00:37:52,000

I'm getting about 2,100 degrees.

537

00:37:52,000 --> 00:37:56,000

That's five times hotter than we were getting in our fireball.

538

00:37:56,000 --> 00:37:57,000

Yeah.

539

00:37:57,000 --> 00:38:03,000

750,000 British thermal units of heat energy are generated by this propane powered forge.

540

00:38:03,000 --> 00:38:06,000

It's like some sort of jet engine.

541

00:38:06,000 --> 00:38:12,000

Each of those BTUs can raise the temperature of one pound of water by one degree Fahrenheit.

542

00:38:12,000 --> 00:38:13,000

Woo-hoo-hoo-hoo!

543

00:38:13,000 --> 00:38:15,000

Dude, that is one hot oven.

544

00:38:15,000 --> 00:38:16,000

Here we go.

545

00:38:16,000 --> 00:38:21,000

But is there enough time for that energy to cook the pre-prepped shrimp?

546

00:38:21,000 --> 00:38:23,000

I'm feeling good about this.

547

00:38:23,000 --> 00:38:26,000

Here we go, fire and shrimp through a forge.

548

00:38:26,000 --> 00:38:30,000

And three, two, one, go!

549

00:38:31,000 --> 00:38:36,000

The shrimp fired through the forge accurately.

550

00:38:39,000 --> 00:38:41,000

But did it fry?

551

00:38:43,000 --> 00:38:45,000

Does it seem at all cooked to you?

552

00:38:45,000 --> 00:38:47,000

Are the breadcrumbs crispy at all?

553

00:38:47,000 --> 00:38:50,000

Uh...no.

554

00:38:53,000 --> 00:38:57,000

We upped our fire game significantly in this last experiment

555

00:38:57,000 --> 00:39:02,000

where formerly we had a fireball that was about as hot as a consumer oven, 500 degrees.

556

00:39:02,000 --> 00:39:06,000

This forge was 2,000 degrees.

557

00:39:06,000 --> 00:39:10,000

We fired the shrimp through it and we ended up with a room temperature shrimp.

558

00:39:10,000 --> 00:39:13,000

And I can feel this is cold.

559

00:39:13,000 --> 00:39:14,000

It's cold? Oh, great.

560

00:39:14,000 --> 00:39:16,000

It's 67 degrees.

561

00:39:16,000 --> 00:39:17,000

Yeah, room temperature.

562

00:39:17,000 --> 00:39:18,000

Room temperature.

563

00:39:18,000 --> 00:39:20,000

That's not a cooked shrimp.

564

00:39:20,000 --> 00:39:23,000

Despite trying several times...

565

00:39:23,000 --> 00:39:24,000

It hit the plate!

566

00:39:24,000 --> 00:39:28,000

The flying shrimp shows no sign of warming to the occasion.

567

00:39:28,000 --> 00:39:29,000

Ta-ta-ta-ta.

568

00:39:29,000 --> 00:39:30,000

Stop right there!

569

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

66 degrees!

570

00:39:33,000 --> 00:39:36,000

Most people would give up at this point, but come on.

571

00:39:36,000 --> 00:39:37,000

We're not most people.

572

00:39:37,000 --> 00:39:38,000

We're gonna continue.

573

00:39:38,000 --> 00:39:44,000

How about instead of three feet of sword forge, 12 feet of sword forge.

574

00:39:44,000 --> 00:39:45,000

Yeah, evil laugh.

575

00:39:45,000 --> 00:39:48,000

We're gonna set this up and try it again.

576

00:39:48,000 --> 00:39:50,840

Using all of their 14 years of experience,

577

00:39:50,940 --> 00:39:54,340

this is the very cutting edge of ramping it up.

578

00:39:54,440 --> 00:39:56,680

For reference, a typical kitchen burner

579

00:39:56,780 --> 00:40:01,420

is putting out 10,000 to 15,000 BTUs.

580

00:40:01,520 --> 00:40:06,420

This set up right here, 3 million BTUs, all in case,

581

00:40:06,520 --> 00:40:08,560

and one long square tube.

582

00:40:08,660 --> 00:40:10,560

That's pretty extreme heat.

583

00:40:10,660 --> 00:40:11,800

You ready to fire it up?

584

00:40:11,900 --> 00:40:13,600

Let's do it.

585

00:40:13,700 --> 00:40:15,600

This is it.

586

00:40:15,700 --> 00:40:17,040

I'm looking.

587

00:40:17,060 --> 00:40:18,640

It's looking pretty good.

588

00:40:18,740 --> 00:40:22,540

One final fry on the fly try.

589

00:40:22,640 --> 00:40:23,680

Oh!

590

00:40:23,780 --> 00:40:25,280

One last chance.

591

00:40:25,380 --> 00:40:26,640

I'm going to love the shrimp.

592

00:40:26,740 --> 00:40:27,440

OK.

593

00:40:27,540 --> 00:40:29,840

To cook a cannon-fired shrimp.

594

00:40:29,940 --> 00:40:32,580

Man, I've never seen anything like that before.

595

00:40:32,680 --> 00:40:33,820

No, no, no.

596

00:40:33,920 --> 00:40:35,220

This is an insane, insane thing.

597

00:40:35,320 --> 00:40:36,560

Ha, ha, ha.

598

00:40:42,460 --> 00:40:45,360

We have 12 feet of sword forge putting out

599

00:40:45,420 --> 00:40:48,020

3 million BTUs of heat.

600

00:40:48,120 --> 00:40:50,660

If this doesn't cook it, nothing will.

601

00:40:50,760 --> 00:40:51,660

Nothing.

602

00:40:51,760 --> 00:40:54,960

OK, maybe something, but not something we can build here.

603

00:40:55,060 --> 00:40:56,060

Are you ready?

604

00:40:56,160 --> 00:40:57,460

Ready to fire.

605

00:40:57,560 --> 00:40:59,400

Fire your shrimp in midair.

606

00:40:59,500 --> 00:41:01,360

3 million BTUs.

607

00:41:01,460 --> 00:41:07,640

Three, two, one, fire.

608

00:41:10,240 --> 00:41:11,840

It made it through.

609

00:41:11,940 --> 00:41:13,280

Ha, ha.

610

00:41:13,300 --> 00:41:14,500

You hit the plate.

611

00:41:14,600 --> 00:41:17,300

Fire!

612

00:41:17,400 --> 00:41:20,440

The shrimp flew successfully through all four sword

613

00:41:20,540 --> 00:41:22,880

fortresses.

614

00:41:22,980 --> 00:41:23,980

OK, here we go.

615

00:41:24,080 --> 00:41:26,980

And hit the target, ready to be served up and eaten.

616

00:41:27,080 --> 00:41:28,380

Right?

617

00:41:28,480 --> 00:41:29,680

Still raw.

618

00:41:29,780 --> 00:41:32,220

That is still a raw shrimp.

619

00:41:32,320 --> 00:41:33,560

That is not cooked.

620

00:41:33,660 --> 00:41:36,520

The breading has not been set.

621

00:41:36,620 --> 00:41:37,960

It's room temperature.

622

00:41:38,060 --> 00:41:39,160

Well, there you go.

623

00:41:39,260 --> 00:41:41,160

There you go.

624

00:41:41,260 --> 00:41:43,160

No shrimp for you tonight.

625

00:41:43,160 --> 00:41:44,620

OK.

626

00:41:44,720 --> 00:41:46,420

Well, you can't fault us for not trying.

627

00:41:46,520 --> 00:41:47,920

You can have all the heat you want.

628

00:41:48,020 --> 00:41:54,360

But if there's not enough time, you're not cooking.

629

00:41:54,460 --> 00:41:55,860

Looking at it from a physics perspective,

630

00:41:55,960 --> 00:41:58,060

the limiting factor is not the amount of heat

631

00:41:58,160 --> 00:42:02,440

or even necessarily how long the meat is exposed to the heat.

632

00:42:02,540 --> 00:42:05,700

It's how fast the heat can move through the meat.

633

00:42:05,800 --> 00:42:07,340

You can't cook a shrimp until you've

634

00:42:07,440 --> 00:42:11,080

got the outside hot and the inside not raw.

635

00:42:11,180 --> 00:42:12,240

This was just not enough time.

636

00:42:12,300 --> 00:42:14,400

This was on the order of milliseconds.

637

00:42:14,500 --> 00:42:18,300

And you need at least a couple of minutes.

638

00:42:18,400 --> 00:42:20,400

No, I'm not eating this at the end of this take.

639

00:42:20,500 --> 00:42:21,900

It's disgusting.