

1

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

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

2

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

Where would you call experts?

3

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

Yeah.

4

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

Whoo.

5

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

On this episode of Mythbusters,

6

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

Adam and Jamie are gunning for two dual dilemmas.

7

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

Right in the belly.

8

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

First, is it true that you should never bring a knife to a gunfight?

9

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

Dude, that was just so terrifying.

10

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

Then, in a samurai showdown,

11

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

does the fighter who moves first actually lose?

12

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

Ow. I got a headache.

13

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

Meanwhile, Kari, Tori and Grant go ballistic.

14

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

Raining death from above.

15

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

As they fire up an epic retro rocket.

16

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

I got a bullet to shoot an arrow.

17

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

Whaa-wee!

18

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

Was the ancient Chinese fire dragon...

19

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

This is ten live rocket arrows inside Fire Dragon.

20

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

Really the world's first two-stage mythical missile.

21

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

In three, two, one, fire.

22

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

Aaaaaaah!

23

00:01:02,000 --> 00:01:07,000

Who are the Mythbusters?

24

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

Adam Savage.

25

00:01:09,000 --> 00:01:11,000

I reject the reality and substitute my own.

26

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

And Jamie Heineman.

27

00:01:12,000 --> 00:01:14,000

We're gonna have an adventure.

28

00:01:14,000 --> 00:01:18,000

Between them more than 30 years of special effects experience,

29

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

together with Tori Belachie,

30

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

come along for the journey,

31

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

Brent Imahara,

32

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

Nothing can take me!

33

00:01:24,000 --> 00:01:26,000

And Kari Byron.

34

00:01:26,000 --> 00:01:28,000

Let's do it.

35

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

They don't just tell the Myths,

36

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

they put them to the test.

37

00:01:44,000 --> 00:01:46,000

What's with all the weaponry?

38

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

Well, we've got some dueling Myths on the roster today.

39

00:01:49,000 --> 00:01:50,000

Dueling.

40

00:01:50,000 --> 00:01:52,000

Dueling. You know, two guys facing off against each other.

41

00:01:52,000 --> 00:01:54,000

You were in a duel once, weren't you?

42

00:01:54,000 --> 00:01:55,000

I don't want to talk about it.

43

00:01:55,000 --> 00:01:56,000

Fair enough.

44

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

The first one we've got to test is an old West saying,

45

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

don't bring a knife to a gunfight.

46

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

Meaning that one of those always beats one of these.

47

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

Yeah.

48

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

The second one is a samurai saying that in a battle between two swordsmen,

49

00:02:09,000 --> 00:02:12,000

the first one to move will lose.

50

00:02:12,000 --> 00:02:14,000

Aaaaaah!

51

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

So it's a dueling double bill.

52

00:02:17,000 --> 00:02:21,000

And first up, the guys are gunning for a classic cliché.

53

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

So Cowboys' advice is to never bring a knife to a gunfight.

54

00:02:26,000 --> 00:02:27,000

Exactly.

55

00:02:27,000 --> 00:02:29,000

And honestly, that seems patently obvious.

56

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

I mean, if I'm holding this gun and you're holding that knife

57

00:02:31,000 --> 00:02:33,000

and we're like 20 feet apart,

58

00:02:33,000 --> 00:02:36,000

I am going to shoot you before you can get to me and stab me.

59

00:02:36,000 --> 00:02:39,000

Yeah, but what if I was to throw the knife?

60

00:02:39,000 --> 00:02:40,000

Like Magnificent Seven.

61

00:02:40,000 --> 00:02:41,000

That's the one.

62

00:02:41,000 --> 00:02:43,000

And it might even the odds a little bit.

63

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

Boy, it might.

64

00:02:44,000 --> 00:02:46,000

I tell you what, why don't you be the shooter

65

00:02:46,000 --> 00:02:48,000

and I'll go get some expert knife-throwing advice.

66

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

And then we'll meet at the corral.

67

00:02:50,000 --> 00:02:51,000

You're on.

68

00:02:51,000 --> 00:02:52,000

See you there.

69

00:02:55,000 --> 00:02:58,000

If I'm going to go up against a gun with a throwing knife,

70

00:02:58,000 --> 00:02:59,000

Draw!

71

00:02:59,000 --> 00:03:01,000

I'm going to need a little practice.

72

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

And so with that in mind, we've brought in knife-throwing expert,

73

00:03:05,000 --> 00:03:08,000

John Labush, who's going to tell me everything I need to know,

74

00:03:08,000 --> 00:03:12,000

including how to do the famous throw from Magnificent Seven.

75

00:03:14,000 --> 00:03:16,000

So John, let's have a look at the overhand throw.

76

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

What's the trick?

77

00:03:17,000 --> 00:03:19,000

Your basic grip is you take your pinky,

78

00:03:19,000 --> 00:03:21,000

put it on the radius at a handle,

79

00:03:21,000 --> 00:03:23,000

hold the handle like you would a hammer.

80

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

Okay, got it.

81

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

And then what?

82

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

Your stance is sideways to the target,

83

00:03:27,000 --> 00:03:29,000

bring the knife back over your head,

84

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

go forward, and when you get to here,

85

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

let the knife slide out of your hand.

86

00:03:32,000 --> 00:03:34,000

John makes it sound so easy.

87

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

And with ten years of knife-throwing experience,

88

00:03:38,000 --> 00:03:40,000

it is.

89

00:03:40,000 --> 00:03:42,000

But for a don't try this at home novice,

90

00:03:42,000 --> 00:03:45,000

thumb on the side, pinky on the radius.

91

00:03:45,000 --> 00:03:48,000

There's no catching to the spin.

92

00:03:48,000 --> 00:03:52,000

But Jamie tries, tries, and tries again.

93

00:03:52,000 --> 00:03:54,000

Until.

94

00:03:54,000 --> 00:03:56,000

Look at that.

95

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

Despite hitting the bullseye,

96

00:03:58,000 --> 00:03:59,000

Not bad.

97

00:03:59,000 --> 00:04:02,000

It's not all good news.

98

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

Because this overhand throw is too slow to beat a gunslinger.

99

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

The Magnificent Seven here went under the knife.

100

00:04:10,000 --> 00:04:15,000

And this lower blow is a much tougher throw.

101

00:04:15,000 --> 00:04:18,000

So, let's cut to our shooter.

102

00:04:18,000 --> 00:04:20,000

It's knife versus gun,

103

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

and I'm the one holding the gun against Jamie's throwing knife.

104

00:04:23,000 --> 00:04:26,000

Now we couldn't find an old West gun that shoots paintballs,

105

00:04:26,000 --> 00:04:29,000

so we went with a more modern version.

106

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

This one here.

107

00:04:30,000 --> 00:04:33,000

But I'm still going to wear an old West style holster for it.

108

00:04:33,000 --> 00:04:36,000

They don't make those, so I'm going to make one.

109

00:04:36,000 --> 00:04:39,000

Firing real bullets at Jamie is too dangerous,

110

00:04:39,000 --> 00:04:41,000

even for the Mythbusters.

111

00:04:41,000 --> 00:04:44,000

Soaking a leather makes it nice and pliable.

112

00:04:44,000 --> 00:04:46,000

So a paintball pistol,

113

00:04:46,000 --> 00:04:49,000

complete with freshly fabricated holster,

114

00:04:49,000 --> 00:04:54,000

yeah, will be their weapon of choice.

115

00:04:54,000 --> 00:04:56,000

I'm pretty pleased with that.

116

00:04:56,000 --> 00:04:57,000

This is not a real gun.

117

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

I wouldn't point a real gun at my cameraman.

118

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

You got that?

119

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

And while Adam practices his quick draw,

120

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

right in the belly,

121

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

Jamie's finally perfected his pitch.

122

00:05:11,000 --> 00:05:12,000

There we go.

123

00:05:12,000 --> 00:05:13,000

I made this throw.

124

00:05:13,000 --> 00:05:15,000

I actually hit the bullseye from 20 feet.

125

00:05:15,000 --> 00:05:17,000

So it's clear that with some practice,

126

00:05:17,000 --> 00:05:18,000

you can get pretty good at this.

127

00:05:18,000 --> 00:05:20,000

But having a successful knife throw

128

00:05:20,000 --> 00:05:22,000

is all about precisely knowing

129

00:05:22,000 --> 00:05:24,000

what kind of power you have to put in

130

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

at a specific distance to hit the target.

131

00:05:26,000 --> 00:05:29,000

Now, that puts it into an entirely different way.

132

00:05:29,000 --> 00:05:31,000

So, I'm going to go with a straight shot.

133

00:05:31,000 --> 00:05:34,000

Now, that puts it into an entirely different league

134

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

than using a pistol,

135

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

where all you have to do is point the darn thing

136

00:05:38,000 --> 00:05:40,000

and pull the trigger.

137

00:05:40,000 --> 00:05:42,000

Yep, there's no doubt about it.

138

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

Firing a gun is easier.

139

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

But does that mean you should never bring a knife

140

00:05:46,000 --> 00:05:48,000

to a gunfight?

141

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

Next, it's out of the frying pan into the Fire Dragon.

142

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

All right, this is going to be fun,

143

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

because we have an ancient weapon myth

144

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

that I think is awesome.

145

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

All right, what is it?

146

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

It's called the Fire Dragon.

147

00:06:08,000 --> 00:06:10,000

Now, this is from 14th century China

148

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

and rumored to be the very first two-stage rocket.

149

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

All right, I know this one.

150

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

It's supposedly a fairly long tube

151

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

with a dragon head on the end.

152

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

And according to legend, it had rockets on the outside

153

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

that propelled it up into the air halfway through the flight.

154

00:06:24,000 --> 00:06:26,000

The second weapon stage activates,

155

00:06:26,000 --> 00:06:29,000

and rocket arrows come shooting out of the mouth.

156

00:06:29,000 --> 00:06:31,000

All right, so then the kicker is nobody knows

157

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

for sure if this thing worked?

158

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

Exactly.

159

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

The evidence is really, really poor,

160

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

so it's up to us to test it.

161

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

Roaring to life in 14th century China,

162

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

the Fire Dragon was supposedly the world's first

163

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

two-stage rocket missile.

164

00:06:45,000 --> 00:06:48,000

Stage one used four rockets to get airborne.

165

00:06:48,000 --> 00:06:51,000

Stage two would then fire off ten rocket arrows

166

00:06:51,000 --> 00:06:53,000

directly towards its target.

167

00:06:53,000 --> 00:06:56,000

But is this ancient anecdote accurate,

168

00:06:56,000 --> 00:06:59,000

or is this myth going down?

169

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

All right, so since this rocket is two-stage rocket,

170

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

I say we test it in two stages.

171

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

Go on.

172

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

All right, first stage, we got to see

173

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

if this rocket design is aerodynamic enough

174

00:07:09,000 --> 00:07:10,000

to actually fly straight.

175

00:07:10,000 --> 00:07:12,000

Look, I got to say right off the bat,

176

00:07:12,000 --> 00:07:14,000

I highly doubt that this thing is going to fly straight.

177

00:07:14,000 --> 00:07:15,000

If you look at the drawing,

178

00:07:15,000 --> 00:07:17,000

it doesn't look aerodynamic at all.

179

00:07:17,000 --> 00:07:19,000

Okay, well then why don't we make a miniature version,

180

00:07:19,000 --> 00:07:22,000

take it to NASA and see if it is aerodynamic.

181

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

And then we'll move on to see if we get

182

00:07:24,000 --> 00:07:27,000

rocket-powered arrows to fly out of its mouth mid-flight.

183

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

I love it.

184

00:07:29,000 --> 00:07:32,000

I've been doing a little bit of research on the Fire Dragon weapon,

185

00:07:32,000 --> 00:07:35,000

and all the historical drawings look pretty consistent.

186

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

There's four booster rockets on the outside

187

00:07:38,000 --> 00:07:40,000

and an open-mouth dragon head

188

00:07:40,000 --> 00:07:42,000

that spits out the arrows inside.

189

00:07:42,000 --> 00:07:45,000

And then there's sort of a tail that makes the fins.

190

00:07:45,000 --> 00:07:48,000

So I'm going to make the Fire Dragon rocket in small scale.

191

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

Take it to the NASA wind tunnel

192

00:07:50,000 --> 00:07:53,000

and see if it even has a chance of flying straight.

193

00:07:53,000 --> 00:07:54,000

And if it doesn't,

194

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

then we'll make a couple modifications until it does.

195

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

Because historical pictures can be more propaganda than precision...

196

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

Not a dragon yet.

197

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

...carry starting by sculpting the ancient drawings in scale.

198

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

Ah, Ritchie, they have a Fire Dragon.

199

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

She'll then use this model to see if the mythical missile

200

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

could ever get off the ground in the first place.

201

00:08:16,000 --> 00:08:19,000

One arrow-breathing Fire Dragon.

202

00:08:19,000 --> 00:08:23,000

And in case not, she's also built a backup.

203

00:08:23,000 --> 00:08:26,000

I made an arrow-breathing Fire Dragon based on the historical drawings,

204

00:08:26,000 --> 00:08:29,000

but because it's not the most aerodynamic shape,

205

00:08:29,000 --> 00:08:32,000

I also modified a head and made it a little more simple

206

00:08:32,000 --> 00:08:34,000

so that when we take this to NASA,

207

00:08:34,000 --> 00:08:38,000

if this isn't going to fly straight, we have some alternatives.

208

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

With the two creations carved out,

209

00:08:40,000 --> 00:08:43,000

let the rocket science commence.

210

00:08:43,000 --> 00:08:45,000

Ready to go back into the wind tunnel?

211

00:08:45,000 --> 00:08:48,000

NASA and Dragon seems like an odd mix, doesn't it?

212

00:08:48,000 --> 00:08:50,000

Oh, you'll see.

213

00:08:52,000 --> 00:08:54,000

So we have here Carrie's traditional Fire Dragon,

214

00:08:54,000 --> 00:08:57,000

exactly as depicted in all the diagrams.

215

00:08:57,000 --> 00:08:59,000

We've got it set up here in the wind tunnel.

216

00:08:59,000 --> 00:09:02,000

It's been in the wind tunnel to 25 miles per hour,

217

00:09:02,000 --> 00:09:06,000

and if it starts to turn and does not self-correct back to straight,

218

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

then we'll know we're not stable.

219

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

This is Test 1, lateral stability of the arrow-breathing Fire Dragon.

220

00:09:12,000 --> 00:09:14,000

Go ahead, turn on the wind.

221

00:09:15,000 --> 00:09:19,000

Under the watchful eye of senior scientist Steve Smith,

222

00:09:19,000 --> 00:09:22,000

the wind winds up, and then...

223

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

Okay, so if I poke at it, we'll see how it diverges, whoa.

224

00:09:25,000 --> 00:09:28,000

Well, that's really not stable.

225

00:09:28,000 --> 00:09:31,000

Yep, a stable rocket won't budge when given a notch.

226

00:09:31,000 --> 00:09:33,000

By flipping full circle,

227

00:09:33,000 --> 00:09:38,000

the ancient Fire Dragon design is an aerodynamic disaster.

228

00:09:38,000 --> 00:09:40,000

So it's on to Carrie's plan B.

229

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

New head, new head.

230

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

Where, thanks to some simple aerodynamic encouragement...

231

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

...the eternal motor.

232

00:09:47,000 --> 00:09:51,000

The mythical missile can still get fired up yet.

233

00:09:51,000 --> 00:09:53,000

All right, round two.

234

00:09:53,000 --> 00:09:56,000

This is more aerodynamic, hopefully,

235

00:09:56,000 --> 00:09:59,000

aerobreeding Fire Dragon with fins and modified head.

236

00:09:59,000 --> 00:10:01,000

Go ahead, start up the wind.

237

00:10:01,000 --> 00:10:04,000

With the wind at speed, Steve knocks her up.

238

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

Yeah, that's really stable.

239

00:10:06,000 --> 00:10:08,000

That's great.

240

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

And this time, the rocket immediately bounces back.

241

00:10:11,000 --> 00:10:15,000

A clear sign that this Dragon is durable.

242

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

I think we have a design.

243

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

So we've had great success in the wind tunnel.

244

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

We have a stable design.

245

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

Now, yeah, I know it doesn't look exactly like the drawings,

246

00:10:24,000 --> 00:10:27,000

but believe you me, if you saw this flying over the horizon,

247

00:10:27,000 --> 00:10:28,000

spinning arrows at you,

248

00:10:28,000 --> 00:10:32,000

you would call this an aerobreeding Dragon.

249

00:10:32,000 --> 00:10:36,000

Still to come, the Fire Dragon breathes again.

250

00:10:36,000 --> 00:10:38,000

Ah!

251

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

But next, who will rule the duel?

252

00:10:41,000 --> 00:10:43,000

Oh!

253

00:10:43,000 --> 00:10:45,000

Did I get hit?

254

00:10:45,000 --> 00:10:47,000

You nicked my shoulder.

255

00:10:52,000 --> 00:10:54,000

Make it fast, Libre.

256

00:10:54,000 --> 00:10:56,000

This is your last draw.

257

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

It's a classic cowboy conundrum.

258

00:10:59,000 --> 00:11:04,000

But should you really never bring a knife to a gunfight?

259

00:11:05,000 --> 00:11:08,000

What a great space.

260

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

Nice space for a shootout.

261

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

Let's have a showdown.

262

00:11:13,000 --> 00:11:17,000

First up for this showdown comes some mutual target practice.

263

00:11:17,000 --> 00:11:21,000

Adam with his paintball pistol and Jamie with a water balloon.

264

00:11:21,000 --> 00:11:23,000

So I wanted to throw my hunting knife at Adam,

265

00:11:23,000 --> 00:11:26,000

but for some reason nobody else thought this was a good idea.

266

00:11:26,000 --> 00:11:30,000

So I've come up with a safe knife analog, and it's these water balloons.

267

00:11:30,000 --> 00:11:33,000

They're filled up such that they've got the same mass as the knife,

268

00:11:33,000 --> 00:11:37,000

and if I throw them at the same speed, they're basically identical,

269

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

except that they're non-lethal.

270

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

Feeling ready?

271

00:11:42,000 --> 00:11:43,000

Ready as I'll ever be.

272

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

Let's do it.

273

00:11:44,000 --> 00:11:46,000

So here's our experimental setup for replicating

274

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

the knife versus gun showdown from the Magnificent Seven.

275

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

Jamie is the knife. I am the gun.

276

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

We stand 16 feet apart, and our signal to move

277

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

is when Mike fires the starter pistol.

278

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

Now the minute I hear that bang,

279

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

I've got to get to Adam with my knife substitute

280

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

before he gets to me with his pistol.

281

00:12:08,000 --> 00:12:09,000

I'm ready.

282

00:12:09,000 --> 00:12:11,000

Let's do it.

283

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

Oh!

284

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

Are you all right?

285

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

You got me in the crotch.

286

00:12:18,000 --> 00:12:19,000

You got me right here.

287

00:12:19,000 --> 00:12:20,000

I got you around there.

288

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

I shot you in the crotch. I'm sorry about that.

289

00:12:22,000 --> 00:12:25,000

And I think I got the shot off before you got the knife in.

290

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

However, it still means I'm dead.

291

00:12:28,000 --> 00:12:31,000

Yeah, and I'd be very unhappy.

292

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

This is a very interesting result.

293

00:12:33,000 --> 00:12:37,000

I got my shot off long before the knife got to me,

294

00:12:37,000 --> 00:12:39,000

but the knife still got to me.

295

00:12:39,000 --> 00:12:43,000

So the fact is that Jamie got his groin shot off,

296

00:12:43,000 --> 00:12:45,000

and I have a knife in my chest.

297

00:12:45,000 --> 00:12:47,000

In that one, I'd say knife wins.

298

00:12:47,000 --> 00:12:50,000

But we're going to run this a few more times just to make sure.

299

00:12:50,000 --> 00:12:52,000

So Q-Test 2.

300

00:12:54,000 --> 00:12:56,000

That was it.

301

00:12:56,000 --> 00:12:58,000

You hit me, and I got you.

302

00:12:58,000 --> 00:12:59,000

Knife!

303

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

Good.

304

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

We've only had a couple of tries at this,

305

00:13:01,000 --> 00:13:03,000

and we're already getting some really interesting data.

306

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

You can see on the high-speed camera that my knife is halfway to Adam

307

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

before he's pulled the trigger of his gun,

308

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

which means that unless he dodges,

309

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

he's going to die from the knife.

310

00:13:16,000 --> 00:13:19,000

So for test 3, the plan is exactly that.

311

00:13:19,000 --> 00:13:23,000

Can Adam shoot straight, then dodge the knife?

312

00:13:26,000 --> 00:13:28,000

You dodged my knife.

313

00:13:28,000 --> 00:13:29,000

Did I get hit?

314

00:13:29,000 --> 00:13:30,000

I missed you.

315

00:13:30,000 --> 00:13:32,000

Well, in a word, no.

316

00:13:32,000 --> 00:13:36,000

While he did duck, doing so meant his aim was lame,

317

00:13:36,000 --> 00:13:38,000

and Jamie survives as well.

318

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

Let's do it again.

319

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

In test 4, Adam is accurate,

320

00:13:43,000 --> 00:13:45,000

but this time gets hit himself.

321

00:13:45,000 --> 00:13:48,000

You nicked my shoulder.

322

00:13:48,000 --> 00:13:53,000

But in test 5, it all comes together in slow motion.

323

00:13:53,000 --> 00:13:55,000

Mike fires the gun.

324

00:13:55,000 --> 00:13:58,000

Jamie launches the knife.

325

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

Adam shoots Jamie, square in the chest,

326

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

before he then ducks from death.

327

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

I hit him right in the chest.

328

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

And in a whole bunch of subsequent tests.

329

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

Hey, guys, shot your leg off.

330

00:14:18,000 --> 00:14:20,000

It's the same old story.

331

00:14:20,000 --> 00:14:22,000

You keep ducking.

332

00:14:22,000 --> 00:14:26,000

Bringing a knife to a gunfight won't let you rule the duel.

333

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

I'm like spot on every time that you keep moving.

334

00:14:30,000 --> 00:14:34,000

After our extensive testing of the Magnificent 7,

335

00:14:34,000 --> 00:14:37,000

knife vs. gun showdown, here's how it shakes out.

336

00:14:37,000 --> 00:14:38,000

Gun wins.

337

00:14:38,000 --> 00:14:40,000

And for a couple of reasons.

338

00:14:40,000 --> 00:14:42,000

One, I was always able to squeeze a shot off

339

00:14:42,000 --> 00:14:43,000

before the knife got to me.

340

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

Two, most of the time I had enough time

341

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

after squeezing off the round to actually dodge the knife.

342

00:14:51,000 --> 00:14:52,000

You can't dodge a bullet.

343

00:14:52,000 --> 00:14:55,000

I think we've proven that one before.

344

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

So is that it for knife vs. gun?

345

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

Does gun just win?

346

00:14:57,000 --> 00:14:59,000

Not by a long shot.

347

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

I'm not done with you yet.

348

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

Excellent.

349

00:15:01,000 --> 00:15:02,000

Let's go.

350

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

Coming right up, will the Fire Dragon go ballistic?

351

00:15:07,000 --> 00:15:11,000

Fire Dragon is no joke.

352

00:15:16,000 --> 00:15:20,000

The ancient Fire Dragon had a wind tunnel wipeout.

353

00:15:20,000 --> 00:15:22,000

That's really not stable.

354

00:15:22,000 --> 00:15:26,000

But their modified missile was a streamlined sensation.

355

00:15:26,000 --> 00:15:28,000

I think we have a design.

356

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

So what's next?

357

00:15:30,000 --> 00:15:34,000

Alright, so now it's time to focus on this mythical second stage of the Fire Dragon.

358

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

Yeah, supposedly mid-flight.

359

00:15:36,000 --> 00:15:38,000

Ten rocket arrows started shooting out of the Dragon's mouth.

360

00:15:38,000 --> 00:15:41,000

Yeah, well there's three things we have to figure out.

361

00:15:41,000 --> 00:15:42,000

One, design.

362

00:15:42,000 --> 00:15:44,000

How do we grip the arrows inside of the body

363

00:15:44,000 --> 00:15:46,000

to make sure they can still fire out accurately?

364

00:15:46,000 --> 00:15:47,000

Two, timing.

365

00:15:47,000 --> 00:15:50,000

How do we get all ten arrows to fire on Q?

366

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

And three, size.

367

00:15:51,000 --> 00:15:53,000

How big is this thing going to be?

368

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

Alright, well I have an idea for an arrow containment unit

369

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

and a timed fuse system,

370

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

but I'm not really sure about the size.

371

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

I think they have to be pretty big

372

00:16:02,000 --> 00:16:04,000

because we have to accommodate a three-foot arrow

373

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

plus fuses and the first stage of the rocket.

374

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

So I think we're actually talking about a six-foot Fire Dragon rocket.

375

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

We're going to have to go out to the desert to fire these off.

376

00:16:12,000 --> 00:16:13,000

Sounds good to me.

377

00:16:13,000 --> 00:16:17,000

With the history books no help for the mythical second stage,

378

00:16:17,000 --> 00:16:20,000

the guys have to tackle this part from scratch

379

00:16:20,000 --> 00:16:26,000

as they redesign and retune their ancient wartime weapon, Full Scale.

380

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

Or at least Tori does.

381

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

I'm going to be working on the ignition system.

382

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

Now this isn't going to be an easy task.

383

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

What I need to do is get all ten rocket-powered arrows to fire out

384

00:16:37,000 --> 00:16:41,000

right as the shuttle is coming down upon the approaching army.

385

00:16:41,000 --> 00:16:46,000

Tori's first step for this second stage is to turn the arrows into rocket arrows.

386

00:16:46,000 --> 00:16:48,000

Alright.

387

00:16:48,000 --> 00:16:51,000

Then he comes over all a quiver.

388

00:16:51,000 --> 00:16:55,000

What I'm working on right now is the quiver that's going to hold the rocket-powered arrows.

389

00:16:55,000 --> 00:16:58,000

There's going to be ten of them and they're going to slip inside the Fire Dragon.

390

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

We don't want all ten arrows just bouncing around as it's going on its flight.

391

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

Although it looks more a gaffling gun than an arrow holder,

392

00:17:06,000 --> 00:17:08,000

instead of bullet to shoot an arrow,

393

00:17:08,000 --> 00:17:11,000

it's going to slip.

394

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

It's this clever quiver that should give the arrows a degree of accuracy,

395

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

provided that they even ignite.

396

00:17:19,000 --> 00:17:24,000

Alright, you ready? This is second stage of Fire Dragon test.

397

00:17:24,000 --> 00:17:28,000

Here we go in three, two, one.

398

00:17:28,000 --> 00:17:32,000

It may not look like it, but this test could not have gone better.

399

00:17:32,000 --> 00:17:37,000

The fuse system was a blast, igniting all arrows on cue.

400

00:17:37,000 --> 00:17:41,000

The quiver support let those arrows fly straight and true.

401

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

The ignition system for the second stage of the Fire Dragon worked perfectly.

402

00:17:48,000 --> 00:17:53,000

The best part is the arrows embedded themselves in the plywood behind us.

403

00:17:53,000 --> 00:17:56,000

So that means we have some lethal rocket-powered arrows.

404

00:17:56,000 --> 00:18:01,000

I think all we have to do now is get the timing from the first stage to the second stage perfect,

405

00:18:01,000 --> 00:18:03,000

and it's time to go to the desert.

406

00:18:03,000 --> 00:18:06,000

Tori's right, with the second stage firing on all cylinders.

407

00:18:06,000 --> 00:18:09,000

Next, the guys need to up the ante.

408

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

I love it out here.

409

00:18:11,000 --> 00:18:16,000

Here comes the Mongolian army. Let's hit them at the Fire Dragon.

410

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

We've come out to the Mojave Desert to test our Fire Dragon in.

411

00:18:21,000 --> 00:18:26,000

Now, I've taken my small-scale Fire Dragon, which worked great in NASA and flew straight,

412

00:18:26,000 --> 00:18:31,000

and brought it to full scale.

413

00:18:31,000 --> 00:18:35,000

Yep, it's now six feet of pure rocket power.

414

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

Alright, that's complete.

415

00:18:38,000 --> 00:18:42,000

But before any missile may hem, there's some timer testing to be done.

416

00:18:42,000 --> 00:18:47,000

Now, one challenge that we're faced with is figuring out when the second stage is going to happen.

417

00:18:47,000 --> 00:18:50,000

So, what we're going to do is fire one of these without a second stage.

418

00:18:50,000 --> 00:18:57,000

See how long it goes? Once we know that, then we can cut our fuse so that our second stage happens halfway through the flight.

419

00:18:58,000 --> 00:19:01,000

Correct timing of the second stage is crucial.

420

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

To short a fuse, the arrows will go nowhere fast.

421

00:19:04,000 --> 00:19:07,000

To long a fuse, and they'll be just as inept.

422

00:19:07,000 --> 00:19:10,000

The butter zone is the middle.

423

00:19:10,000 --> 00:19:16,000

When the missile has reached its apex, the second stage can deliver its payload at full potential.

424

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

But how long to reach apex?

425

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

Alright, so this is Fire Dragon test fire to see how long it flies for.

426

00:19:24,000 --> 00:19:28,000

Here we go in three, two, one, fire.

427

00:19:28,000 --> 00:19:32,000

Fire Dragon is no joke.

428

00:19:32,000 --> 00:19:34,000

Little pit stop.

429

00:19:34,000 --> 00:19:35,000

Stop the timer.

430

00:19:35,000 --> 00:19:36,000

12 seconds.

431

00:19:36,000 --> 00:19:37,000

That's perfect.

432

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

So the first stage of the Fire Dragon flew for 12 seconds, and it flew straight.

433

00:19:40,000 --> 00:19:43,000

Now it's time to work on the second stage.

434

00:19:43,000 --> 00:19:45,000

And we want that to happen in the middle of its flight.

435

00:19:45,000 --> 00:19:50,000

So six seconds after it launches, the fire arrows need to start shooting out of its mouth.

436

00:19:50,000 --> 00:19:54,000

I need to cut a fuse, so that happens at exactly six seconds.

437

00:19:54,000 --> 00:19:57,000

This is going to be awesome fire.

438

00:19:57,000 --> 00:20:03,000

Yet now they know the first time the guys can at last put the second stage to a proof of concept test.

439

00:20:03,000 --> 00:20:10,000

So with a new dragon, a 10 rocket arrow warhead, and a six second fuse, Fire Dragon.

440

00:20:10,000 --> 00:20:13,000

It's all set for the stage two showdown.

441

00:20:13,000 --> 00:20:21,000

Alright now listen, I need you to fly into the air, and at six seconds I need you to start shooting your fire arrows out of your mouth.

442

00:20:21,000 --> 00:20:23,000

Alright, you got that?

443

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

Don't make me look stupid.

444

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

Okay, this is rocket test fully loaded with arrows.

445

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

In three, two, one.

446

00:20:35,000 --> 00:20:37,000

Wow!

447

00:20:37,000 --> 00:20:39,000

Oh, fins blew off.

448

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

Oh!

449

00:20:43,000 --> 00:20:45,000

Oh my god!

450

00:20:45,000 --> 00:20:47,000

Woohoo!

451

00:20:47,000 --> 00:20:50,000

I don't know about that distance, but it looked like the rig worked.

452

00:20:50,000 --> 00:20:53,000

Yeah, no the fuses worked perfectly man.

453

00:20:53,000 --> 00:20:57,000

It was a test, but it was mission accomplished.

454

00:20:57,000 --> 00:21:02,000

Moments after launch, the stabilizing fins fell off, sending the rocket spinning.

455

00:21:02,000 --> 00:21:08,000

But in spite of this, the second stage ignited on cue, and the rocket arrows fired.

456

00:21:08,000 --> 00:21:12,000

And that's enough to take this myth into battle.

457

00:21:32,000 --> 00:21:36,000

Next is the world of Kendo or Samurai.

458

00:21:36,000 --> 00:21:38,000

He who moves first loses.

459

00:21:38,000 --> 00:21:40,000

So reaction is faster than action.

460

00:21:40,000 --> 00:21:47,000

Right, perhaps adrenaline helps your brain react to something faster than you could actually initiate it in the first place.

461

00:21:47,000 --> 00:21:50,000

Well, it looks like we need to get some Kendo training.

462

00:21:50,000 --> 00:21:51,000

Let's do it.

463

00:21:51,000 --> 00:21:57,000

It should be noted here, neither Jamie nor I are a very good friend of the Kendo.

464

00:21:57,000 --> 00:22:04,000

Mr. David Nakanishi is a fourth Dan Kendo practitioner, and he is going to instruct us in the basics enough to properly conduct this test without, you know, hurting each other.

465

00:22:04,000 --> 00:22:08,000

And once kitted up, the Kendo class begins.

466

00:22:08,000 --> 00:22:11,000

Full steam ahead.

467

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

You want to swing all the way over your head and come down.

468

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

You want to swing all the way over your head and come down.

469

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

You want to swing all the way over your head and come down.

470

00:22:21,000 --> 00:22:24,000

You want to swing all the way over your head and come down.

471

00:22:24,000 --> 00:22:27,000

You want to swing all the way over your head and come down.

472

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

All right.

473

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

And after three hours of being hit.

474

00:22:31,000 --> 00:22:33,000

Wow, that hurt.

475

00:22:33,000 --> 00:22:36,000

Again, again, and again.

476

00:22:36,000 --> 00:22:38,000

This isn't very pleasant.

477

00:22:38,000 --> 00:22:40,000

The guys have apparently mastered the basics.

478

00:22:40,000 --> 00:22:43,000

Okay, so now we've learned different striking techniques.

479

00:22:43,000 --> 00:22:53,000

And because while we like bashing each other on the head best, we're going to test that technique and see whether in fact he who attacks first strikes last.

480

00:22:53,000 --> 00:22:59,000

But before the reaction versus action battle commences, Adam's got a rig to rig.

481

00:22:59,000 --> 00:23:04,000

So when Jamie and I go head to head, we need an automated system that does two things.

482

00:23:04,000 --> 00:23:11,000

First, it's got to randomly allocate who makes the first move, which is what this circuit box controls.

483

00:23:11,000 --> 00:23:12,000

Nice.

484

00:23:12,000 --> 00:23:15,000

And second, it's got to determine who wins.

485

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

For that, I've coated our helmets and our swords with a conductive mesh so that when you get hit, your helmet lights up.

486

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

If this works, then my sword should light up Jamie's helmet.

487

00:23:27,000 --> 00:23:28,000

It does.

488

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

And Jamie's sword should light up my helmet.

489

00:23:30,000 --> 00:23:32,000

It does.

490

00:23:32,000 --> 00:23:34,000

We are totally ready.

491

00:23:37,000 --> 00:23:44,000

Well, in that case, it's back to the dojo, which has had a makeover for both aesthetics and science.

492

00:23:44,000 --> 00:23:46,000

Our setup here is pretty straightforward.

493

00:23:46,000 --> 00:23:49,000

Who attacks first will be determined by a little signal light.

494

00:23:49,000 --> 00:23:53,000

There's one over Jamie's shoulder that only I can see and the same over my shoulder for him.

495

00:23:53,000 --> 00:24:00,000

If I see my signal light go on, I take a deep breath and sometime between five and 10 seconds later, I attack.

496

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

If I hit Jamie correctly, his lights go on.

497

00:24:02,000 --> 00:24:05,000

If he hits me correctly, so do mine.

498

00:24:05,000 --> 00:24:08,000

The high-speed camera tells us who got there first.

499

00:24:08,000 --> 00:24:13,000

We should make do note here that this isn't about wailing away at each other until somebody gives.

500

00:24:13,000 --> 00:24:17,000

This is one strike at a time and we're recording the results.

501

00:24:17,000 --> 00:24:19,000

All right, Mr. Heidemann, are you ready?

502

00:24:19,000 --> 00:24:21,000

I'm ready.

503

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

Here we go.

504

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

Begin test one.

505

00:24:26,000 --> 00:24:31,000

On cue, the randomizer selects that it's Adam who has to move first.

506

00:24:33,000 --> 00:24:35,000

But who won?

507

00:24:35,000 --> 00:24:37,000

So check this first shot out.

508

00:24:37,000 --> 00:24:42,000

Classic Jamie, you give him a contest and he only pays attention to the ultimate parameter of the contest.

509

00:24:42,000 --> 00:24:44,000

But just, I got to light up the lights on Adam's head.

510

00:24:44,000 --> 00:24:50,000

You can see, I'm actually going for a full hit and Jamie's just reaching out poking with his stick.

511

00:24:50,000 --> 00:24:54,000

And what that means is test one's tie is invalid.

512

00:24:54,000 --> 00:25:01,000

For test two, where the randomizer again selects Adam, it's go big or go home.

513

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

Ow, I'm getting hit with a two by four.

514

00:25:05,000 --> 00:25:07,000

Yeah, it doesn't feel good.

515

00:25:07,000 --> 00:25:14,000

This time with two sizable swings, Adam's the clear winner, which is not good news for the myth.

516

00:25:14,000 --> 00:25:17,000

For test three, Jamie selected to lead.

517

00:25:17,000 --> 00:25:23,000

And like test two, he who moved first actually won.

518

00:25:23,000 --> 00:25:32,000

But the guys aren't giving up on this myth without a fight as they break through the pain barrier

in 20 separate bouts.

519

00:25:32,000 --> 00:25:38,000

Jamie and I spent all day in that armor smacking each other in the heads with those Sheen Eye.

520

00:25:38,000 --> 00:25:44,000

And you should note a couple of things as we're going one, you can see clearly that we get faster as we go.

521

00:25:44,000 --> 00:25:49,000

Which means that it doesn't hurt less, it actually hurts more as we progress.

522

00:25:49,000 --> 00:25:53,000

And secondly, the Sheen Eye that we're using, they're wrapped in screen.

523

00:25:53,000 --> 00:25:59,000

They're about half a pound heavier each, which means we're taking more force on our head than the armor's been designed for.

524

00:25:59,000 --> 00:26:01,000

And both of us can feel it the next day.

525

00:26:01,000 --> 00:26:03,000

Oh, I'm sorry, Jamie.

526

00:26:03,000 --> 00:26:07,000

Yeah, I didn't know when I signed up for this job that it required impacts to the head.

527

00:26:07,000 --> 00:26:09,000

I got a headache.

528

00:26:09,000 --> 00:26:13,000

So do I. Let's go crunch our data and nurse our wounds.

529

00:26:13,000 --> 00:26:16,000

Back at the shop with medication taken.

530

00:26:16,000 --> 00:26:18,000

First mover, first hit.

531

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

That was you.

532

00:26:19,000 --> 00:26:21,000

The guys review all 20 high speeds.

533

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

That was a tie.

534

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

And a pattern emerges fast.

535

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

Well, Jamie and I have reviewed many, many high-speed shots of us whacking each other in the head.

536

00:26:30,000 --> 00:26:35,000

And it would seem that our injuries are not for naught because the results are pretty consistent.

537

00:26:35,000 --> 00:26:41,000

We could not find a single case where the second person to move achieved the first hit.

538

00:26:41,000 --> 00:26:44,000

And keep in mind, this is not about skill at Kendo.

539

00:26:44,000 --> 00:26:47,000

We broke this down to simple reaction time.

540

00:26:47,000 --> 00:26:50,000

And first mover always won in our testing.

541

00:26:50,000 --> 00:26:52,000

That's pretty definitive.

542

00:26:52,000 --> 00:26:56,000

So definitive that this myth is busted.

543

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

In the middle of the Mojave Desert, the Mythbusters missile has delivered its payload.

544

00:27:05,000 --> 00:27:07,000

Whoa!

545

00:27:07,000 --> 00:27:12,000

So the proof of concept work, all 10 rock arrows came out of the missile mid-launch.

546

00:27:12,000 --> 00:27:13,000

Now what?

547

00:27:13,000 --> 00:27:14,000

We ramp it up.

548

00:27:14,000 --> 00:27:20,000

We build 10 fire dragons, take them back out to the desert and have a real-world ballistics battle.

549

00:27:20,000 --> 00:27:25,000

Alright, but before we have an all-out launch, let's fire one rocket arrow from the ground and see how far it flies.

550

00:27:25,000 --> 00:27:30,000

Yeah, that's a great idea because a rocket arrow would have been the most advanced technology of its time.

551

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

So in order to move on to the next weapon, you would have to beat the old technology.

552

00:27:34,000 --> 00:27:35,000

Sounds great.

553

00:27:35,000 --> 00:27:37,000

Sounds like we have a lot of building to do.

554

00:27:37,000 --> 00:27:44,000

Yep, with a dozen dragons to deliver, the guys divide and conquer as Grant preps the arrows.

555

00:27:44,000 --> 00:27:46,000

Burning death from above.

556

00:27:46,000 --> 00:27:48,000

Tori the Fuses.

557

00:27:48,000 --> 00:27:50,000

This is going to be so awesome.

558

00:27:50,000 --> 00:27:52,000

And Carrie the Dragon Heads.

559

00:27:52,000 --> 00:27:57,000

Now back in the day of the Fire Dragon, they probably had lots of artisans to make these heads.

560

00:27:57,000 --> 00:27:58,000

We just got made.

561

00:27:58,000 --> 00:28:02,000

So I'm going to vacuum form these because we need 10.

562

00:28:02,000 --> 00:28:06,000

And once all the parts are assembled, the production line can begin.

563

00:28:06,000 --> 00:28:11,000

Alright, so to execute this experiment, we've got a veritable fire dragon factory happening here.

564

00:28:11,000 --> 00:28:14,000

We've got to get all of our fire dragon bodies built.

565

00:28:14,000 --> 00:28:17,000

We've got to glue 100 rockets to 100 arrows.

566

00:28:17,000 --> 00:28:21,000

We've got to get those put into our rocket holding tubes.

567

00:28:21,000 --> 00:28:25,000

And get those tubes glued into the fire dragon bodies.

568

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

And then at the very end, we've got to decorate everything.

569

00:28:29,000 --> 00:28:31,000

We've got a big job ahead of us.

570

00:28:31,000 --> 00:28:34,000

Dude, I think we're done. These look great.

571

00:28:34,000 --> 00:28:35,000

Let's go to the desert.

572

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

Alright, let's go launch the fire dragon.

573

00:28:40,000 --> 00:28:45,000

Back in the middle of nowhere, the guys start by building a firing range.

574

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

Okay, that is 100 yards.

575

00:28:50,000 --> 00:28:53,000

Because first up are the distance tests.

576

00:28:53,000 --> 00:28:55,000

You pack enough water?

577

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

Comparing a regular rocket arrow with a fire dragon warhead.

578

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

This is weird. It's like we're the last couple on earth.

579

00:29:05,000 --> 00:29:07,000

Add with the range maxed out.

580

00:29:07,000 --> 00:29:09,000

750 yards.

581

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

The guys retreat to the launch pad.

582

00:29:12,000 --> 00:29:16,000

Alright, so this is a single rocket arrow.

583

00:29:16,000 --> 00:29:19,000

Alright, let's see how far this goes by itself.

584

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

Oh wow, those bees.

585

00:29:23,000 --> 00:29:28,000

Sky writing a little bit and now it's falling to the earth.

586

00:29:28,000 --> 00:29:31,000

Yes, what goes up must come down.

587

00:29:31,000 --> 00:29:33,000

650 yards away.

588

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

And that means it's time to unleash the beast.

589

00:29:36,000 --> 00:29:41,000

So what we're looking for here is to have the first stage of this two stage rocket

590

00:29:41,000 --> 00:29:44,000

fire off straight and stable.

591

00:29:44,000 --> 00:29:47,000

And then here about midway through its flight,

592

00:29:47,000 --> 00:29:51,000

it's placed in second stage in the form of 10 fire arrows.

593

00:29:51,000 --> 00:29:56,000

The rocket arrows have to land at least here 750 yards away from the start.

594

00:29:56,000 --> 00:30:01,000

Thus extending the range of the arrows for this to be a viable weapon in battle.

595

00:30:01,000 --> 00:30:06,000

Grants right, if its arrows don't better the control, then this missile will bomb.

596

00:30:06,000 --> 00:30:08,000

Alright, the rocket is loaded.

597

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

In three, two, one.

598

00:30:13,000 --> 00:30:19,000

Just as hoped the launch works perfectly and then mid-flight, oof, the arrows are released.

599

00:30:19,000 --> 00:30:23,000

But the key question here is how far did they go?

600

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

For this test we have some good news and bad news.

601

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

The bad news is we haven't been able to find all 10 arrows,

602

00:30:29,000 --> 00:30:32,000

which suggests that accuracy is going to be an issue.

603

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

Now the good news is that minimum distance they went was 800 yards.

604

00:30:37,000 --> 00:30:40,000

That's well beyond the rocket arrow alone.

605

00:30:40,000 --> 00:30:43,000

And that means the battle can commence.

606

00:30:49,000 --> 00:30:54,000

In dual dilemma, it's Mythbusters 2.

607

00:30:54,000 --> 00:30:57,000

Fight fables zero.

608

00:30:57,000 --> 00:31:00,000

I hit it right in the chest.

609

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

Or is it?

610

00:31:02,000 --> 00:31:06,000

Something's been bugging me about the don't bring a knife to a gunfight test we've done.

611

00:31:06,000 --> 00:31:07,000

What's that?

612

00:31:07,000 --> 00:31:13,000

Well, we tested it in a quick draw scenario where both parties know exactly what's about to happen.

613

00:31:13,000 --> 00:31:17,000

Suppose it wasn't a quick draw scenario.

614

00:31:17,000 --> 00:31:22,000

If I was running for you, I could cover a heck of a lot of ground by the time you got that gun out and fired.

615

00:31:22,000 --> 00:31:23,000

Exactly what I'm thinking.

616

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

So you're the shooter again and I'm just running straight at you?

617

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

Actually, you're going to start by running away from me.

618

00:31:28,000 --> 00:31:29,000

How do you figure?

619

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

You'll find out.

620

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

Okay.

621

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

So it's knife versus gun part two and back at bout HQ, Adam's readying to run rings around Jamie.

622

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

The myth is that it is foolish to bring a knife to a gunfight.

623

00:31:41,000 --> 00:31:47,000

But if you were standing in front of me with a knife in your hand and I got a gun in my holster, I think I'm in danger.

624

00:31:47,000 --> 00:31:52,000

What we want to know is what is the minimum distance at which a knife is in fact dangerous to a person with a gun.

625

00:31:52,000 --> 00:31:55,000

This circle is how we're going to figure that out.

626

00:31:55,000 --> 00:31:58,000

Jamie and I will stand back to back on this dot.

627

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

When he feels the muse, Jamie will start to run towards the outside of the circle.

628

00:32:01,000 --> 00:32:07,000

The moment I feel him move, I pull out my gun, cock it, pull the safety off and fire around.

629

00:32:07,000 --> 00:32:11,000

The moment Jamie hears me fire around, he stops running.

630

00:32:11,000 --> 00:32:19,000

The distance at which he's standing when he stops running should be the minimum distance at which a knife is dangerous to a gun.

631

00:32:19,000 --> 00:32:21,000

Are you ready to do this?

632

00:32:21,000 --> 00:32:22,000

Absolutely.

633

00:32:22,000 --> 00:32:24,000

Alright, here we go.

634

00:32:24,000 --> 00:32:26,000

Now how are you going to tell when I'm moving?

635

00:32:26,000 --> 00:32:29,000

We go back to back like this. We have to touch unfortunately.

636

00:32:29,000 --> 00:32:30,000

Okay.

637

00:32:31,000 --> 00:32:36,000

With the boys in there, just good friends, starting positions, the waiting game begins.

638

00:32:41,000 --> 00:32:42,000

Until...

639

00:32:46,000 --> 00:32:48,000

...

640

00:32:48,000 --> 00:32:50,000

...

641

00:32:51,000 --> 00:32:53,000

...

642

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

I was a little slow on that one.

643

00:32:56,000 --> 00:33:04,000

Not only was Adam slow, but Jamie was fast, passing beyond the 24 foot perimeter before Adam got his shot off.

644

00:33:06,000 --> 00:33:14,000

I am totally blown away by what this test suggests, which is that bringing a knife to a gun fight might actually be the smart move

645

00:33:14,000 --> 00:33:19,000

The distance separating the knife-wielder from the gunslinger is 24 feet or less,

646

00:33:19,000 --> 00:33:23,000

which is a heck of a lot more distance than I ever thought it would be.

647

00:33:23,000 --> 00:33:28,000

Now of course we don't know this for sure until we reverse engineer it and have Jamie run at me from that distance.

648

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

We'll see who gets the first kill.

649

00:33:30,000 --> 00:33:38,000

And to do just that, Adam adds a foam knife to his Samurai switchbox, so it'll make for some safe stabbing.

650

00:33:38,000 --> 00:33:39,000

Here's how this goes.

651

00:33:39,000 --> 00:33:43,000

I wear the hat, I wear the shirt.

652

00:33:43,000 --> 00:33:46,000

Jamie runs at me with a knife.

653

00:33:46,000 --> 00:33:49,000

If he successfully stabs me, I die.

654

00:33:49,000 --> 00:33:52,000

The lights tell you that I'm dead.

655

00:33:53,000 --> 00:33:59,000

With both duelers dressed for success, I feel conductive.

656

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

It's go time.

657

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

Now this time I'm not shooting at any cardboard cowboy.

658

00:34:03,000 --> 00:34:08,000

I'm staring right at the face of death because Heinemann is running straight towards me.

659

00:34:08,000 --> 00:34:15,000

Just like the time before, I'm going to be starting at Will, running like crazy for Adam and trying to stab him before he shoots me.

660

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

Perhaps now is a good time to say, don't try what you're about to see at home.

661

00:34:22,000 --> 00:34:24,000

You ready? I'm ready when you are.

662

00:34:31,000 --> 00:34:33,000

Bosh!

663

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

Are you okay?

664

00:34:36,000 --> 00:34:39,000

It had to happen sooner or later.

665

00:34:39,000 --> 00:34:44,000

It's a spectacular result, if a little unexpected.

666

00:34:44,000 --> 00:34:48,000

Less true grit, more blazing saddles.

667

00:34:49,000 --> 00:34:54,000

And unfortunately for Jamie, the high speed caught every last frame.

668

00:34:56,000 --> 00:35:00,000

Coming right up, Jamie takes aim at revenge.

669

00:35:00,000 --> 00:35:03,000

I've never heard you make that noise ever.

670

00:35:03,000 --> 00:35:06,000

And the Fire Dragons finale.

671

00:35:06,000 --> 00:35:08,000

In three, two, one.

672

00:35:20,000 --> 00:35:25,000

Once upon a time in the West, cowboys were coached to never bring a knife to a gunfight.

673

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

And after test one, that seems like good advice.

674

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

I'm ready when you are.

675

00:35:36,000 --> 00:35:42,000

But with Jamie reset at the 24 foot mark, it's kill or be killed, take two.

676

00:35:46,000 --> 00:35:52,000

I nailed you right in the chest, but man, that is terrifying, totally terrifying.

677

00:35:53,000 --> 00:35:58,000

Yep, a sprinting, screaming Heinemann is what nightmares are made of.

678

00:35:58,000 --> 00:36:02,000

But at this distance, it was Adam who won the duel.

679

00:36:03,000 --> 00:36:05,000

Just barely.

680

00:36:05,000 --> 00:36:08,000

So Jamie ships the start line to 20 feet.

681

00:36:08,000 --> 00:36:12,000

Alright, my safety's on, gun is loaded.

682

00:36:19,000 --> 00:36:22,000

Dude, I've never heard you make that noise ever.

683

00:36:26,000 --> 00:36:30,000

In these face to face tests, I've been able to shoot Jamie at both 24 and 20 feet.

684

00:36:30,000 --> 00:36:32,000

Although 20 feet was quite close.

685

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

But the fact that I'm able to make that distance shorter than I was for the other test makes sense to me.

686

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

Because watching him run at me while screaming is a fantastic adrenaline rush.

687

00:36:40,000 --> 00:36:47,000

It is absolutely an incredible motivation to get things in order to shoot him before I die.

688

00:36:47,000 --> 00:36:51,000

But will it be motivation enough for a 16 foot showdown?

689

00:36:51,000 --> 00:36:53,000

I'm dead.

690

00:36:53,000 --> 00:36:57,000

I touched you with a gun, but I wasn't able to fire and you had the knife deep in my chest.

691

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

You're dead.

692

00:36:58,000 --> 00:37:01,000

I'm dead. I'm dead.

693

00:37:01,000 --> 00:37:04,000

Yep, at last, the Heinemann's the hero.

694

00:37:04,000 --> 00:37:09,000

From 16 feet, Adam could draw and cock, but not fire.

695

00:37:09,000 --> 00:37:12,000

A pattern repeated on subsequent tests,

696

00:37:12,000 --> 00:37:15,000

I'm dead. I'm dead. It's official.

697

00:37:15,000 --> 00:37:17,000

I'm totally dead.

698

00:37:17,000 --> 00:37:20,000

So what does that mean for the myth?

699

00:37:20,000 --> 00:37:25,000

When you hear the phrase, don't bring a knife to a gunfight, it implies that if you're the one holding the gun,

700

00:37:25,000 --> 00:37:29,000

you should feel completely relaxed in your superior firepower.

701

00:37:29,000 --> 00:37:32,000

You're not going to be able to shoot a gun.

702

00:37:32,000 --> 00:37:35,000

You're going to be able to shoot a gun.

703

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

You're going to be able to shoot a gun.

704

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

It implies that if you're the one holding the gun,

705

00:37:39,000 --> 00:37:44,000

you should feel completely relaxed in your superior firepower against your opponents' stone age tool.

706

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

And I think we've totally busted that.

707

00:37:47,000 --> 00:37:54,000

Here, we have demonstrated that at close quarters, a knife is a very respectable and to be feared opponent.

708

00:38:01,000 --> 00:38:05,000

Well, that is pretty definitive. You're able to get to me between 16 and 18 feet.

709

00:38:05,000 --> 00:38:09,160

Yeah, let's call 18 feet a guaranteed death zone by knife.

710

00:38:09,160 --> 00:38:10,080

That is shocking.

711

00:38:10,080 --> 00:38:12,040

I would not have called it being that far.

712

00:38:12,040 --> 00:38:12,540

Me neither.

713

00:38:18,280 --> 00:38:21,600

Two stage missiles have been used in warfare for decades.

714

00:38:24,440 --> 00:38:27,640

But could they have a far longer history than that

715

00:38:27,640 --> 00:38:32,920

to find out, view the Fire Dragon finale?

716

00:38:32,960 --> 00:38:35,800

Now it's time to put our Fire Dragon myth to the ultimate test.

717

00:38:35,800 --> 00:38:38,200

We're going to fire 10 rockets into the air.

718

00:38:38,200 --> 00:38:41,280

And we're going to see how it does in a battle situation.

719

00:38:41,280 --> 00:38:43,680

We have our Chinese army and a castle.

720

00:38:43,680 --> 00:38:46,280

We're going to put them out at 800 yards.

721

00:38:46,280 --> 00:38:49,760

If attacking a distant enemy wasn't hard enough.

722

00:38:49,760 --> 00:38:52,240

Good luck, man.

723

00:38:52,240 --> 00:38:54,520

The wind is blowing again.

724

00:38:54,520 --> 00:38:56,560

Come on, bring it on.

725

00:38:56,560 --> 00:39:00,880

Making this test the ultimate trial by Fire Dragon.

726

00:39:00,880 --> 00:39:02,040

All right, man.

727

00:39:02,040 --> 00:39:04,120

We are going into battle.

728

00:39:04,120 --> 00:39:05,560

Ready?

729

00:39:05,560 --> 00:39:07,120

Charge.

730

00:39:07,120 --> 00:39:08,800

Come on, charge.

731

00:39:08,800 --> 00:39:09,720

Come on, you guys.

732

00:39:09,720 --> 00:39:10,280

Charge.

733

00:39:10,280 --> 00:39:13,160

What are you waiting for?

734

00:39:13,160 --> 00:39:15,880

With the targets ready to stand and deliver,

735

00:39:15,880 --> 00:39:17,880

at mission control.

736

00:39:17,880 --> 00:39:18,960

We've failed the arsenal.

737

00:39:21,360 --> 00:39:24,160

It's time to ready the rockets.

738

00:39:24,160 --> 00:39:28,480

So we've got 10 Fire Dragons, each with 10 rocket arrows inside.

739

00:39:28,520 --> 00:39:32,000

And we're going to call this whole myth based on two things.

740

00:39:32,000 --> 00:39:34,720

Death from the skies.

741

00:39:34,720 --> 00:39:37,880

First, will all second stages fire off?

742

00:39:37,880 --> 00:39:40,360

In other words, will the weapon be reliable?

743

00:39:40,360 --> 00:39:41,600

Leave the charge.

744

00:39:41,600 --> 00:39:44,240

Back Golden Dragon.

745

00:39:44,240 --> 00:39:48,320

And second, will it take out a significant number of soldiers?

746

00:39:48,320 --> 00:39:51,840

In other words, does it have any degree of accuracy?

747

00:39:51,840 --> 00:39:54,280

It's so awesome.

748

00:39:54,280 --> 00:39:56,160

Now for this myth to be confirmed,

749

00:39:56,160 --> 00:39:58,320

both those answers need to be yes.

750

00:39:58,320 --> 00:39:59,440

All right, here we go.

751

00:39:59,440 --> 00:40:01,040

This is for real.

752

00:40:01,040 --> 00:40:05,440

In three, two, one, fire.

753

00:40:05,440 --> 00:40:06,440

Wow.

754

00:40:06,440 --> 00:40:07,440

Whoa.

755

00:40:07,440 --> 00:40:09,440

Whoa.

756

00:40:09,440 --> 00:40:10,720

Wow.

757

00:40:10,720 --> 00:40:13,760

Wow is right as all 10 take off.

758

00:40:13,760 --> 00:40:14,600

And then.

759

00:40:14,600 --> 00:40:16,320

Wow.

760

00:40:16,320 --> 00:40:18,720

It's raining down.

761

00:40:18,720 --> 00:40:20,200

Wow.

762

00:40:20,200 --> 00:40:21,200

It's just raining now.

763

00:40:21,200 --> 00:40:23,280

It's here, it's raining everywhere.

764

00:40:23,280 --> 00:40:26,040

All right, let's go check it out.

765

00:40:26,040 --> 00:40:29,480

From the bunker, the guys know that seven out of 10 second

766

00:40:29,480 --> 00:40:33,280

stages fire, meaning 70 arrows deploy.

767

00:40:33,280 --> 00:40:35,400

But did any hit the target?

768

00:40:35,400 --> 00:40:37,280

Well, no.

769

00:40:37,280 --> 00:40:39,160

So we found maybe 40 arrows.

770

00:40:39,160 --> 00:40:40,480

But here's the thing.

771

00:40:40,480 --> 00:40:42,720

Less than 10 are in the target zone.

772

00:40:42,720 --> 00:40:45,400

Some fell early at around the 400 yard mark.

773

00:40:45,400 --> 00:40:50,640

But others sailed way beyond the castle to like 1,100 yards.

774

00:40:50,640 --> 00:40:52,440

Clearly, the wind didn't help.

775

00:40:52,440 --> 00:40:54,880

But as far as accuracy goes, this was a fail.

776

00:40:54,920 --> 00:40:56,160

Ain't that the truth?

777

00:40:56,160 --> 00:40:58,840

With not a single soldier struck down,

778

00:40:58,840 --> 00:41:01,440

the fire dragons proved fickle.

779

00:41:01,440 --> 00:41:03,520

All right, so where are we with the fire dragon myth?

780

00:41:03,520 --> 00:41:05,560

Did it fulfill all the requirements?

781

00:41:05,560 --> 00:41:07,280

Well, yes and no.

782

00:41:07,280 --> 00:41:11,040

For one, the first stage fired off straight and stable.

783

00:41:11,040 --> 00:41:14,560

Two, the second stage deployed, thus increasing

784

00:41:14,560 --> 00:41:15,680

the range of the arrows.

785

00:41:15,680 --> 00:41:18,200

The problem is that it's not reliable.

786

00:41:18,200 --> 00:41:20,760

We had 10 fire dragons out there.

787

00:41:20,760 --> 00:41:22,760

Not all of them deployed all their arrows.

788

00:41:22,840 --> 00:41:25,640

That were the case in C, 100 arrows in this region.

789

00:41:25,640 --> 00:41:27,680

But we only see five or 10.

790

00:41:27,680 --> 00:41:30,640

So yes, it's plausible that it might have existed.

791

00:41:30,640 --> 00:41:32,680

But is it a practical weapon?

792

00:41:32,680 --> 00:41:33,180

No.

793

00:41:37,180 --> 00:41:39,040

All right, what do you guys think?

794

00:41:39,040 --> 00:41:40,600

Well, we got them in the vicinity.

795

00:41:40,600 --> 00:41:43,680

Yeah, but they're not accurate or completely reliable.

796

00:41:43,680 --> 00:41:46,880

I mean, you might still fear your enemy, but it's not

797

00:41:46,880 --> 00:41:47,880

practical.

798

00:41:47,880 --> 00:41:50,240

All right, so not really effective or efficient

799

00:41:50,240 --> 00:41:51,640

and overly complicated.

800

00:41:51,680 --> 00:41:53,160

But definitely plausible.

801

00:41:53,160 --> 00:41:54,840

All right, plausible it is.

802

00:41:54,840 --> 00:41:56,520

That was awesome.

803

00:41:56,520 --> 00:42:01,920

So awesome, let's see that plausible launch one more time.