

1

00:00:30,000 --> 00:00:38,640

You know, Adam, I was thinking we should do another Star Wars episode.

2

00:00:38,640 --> 00:00:41,680

Seriously, I mean, it's a fictional universe.

3

00:00:41,680 --> 00:00:44,840

I'm just not sure how much material there is to test.

4

00:00:44,840 --> 00:00:46,760

I find your lack of faith upsetting.

5

00:00:46,760 --> 00:00:48,680

I mean, disturbing.

6

00:00:48,680 --> 00:00:52,680

Okay, well, are you gonna be in here all day because we could get started doing some other

7

00:00:52,680 --> 00:00:53,680

stuff?

8

00:00:53,680 --> 00:00:54,680

Nah, you go ahead.

9

00:00:54,680 --> 00:00:57,160

I like it in here.

10

00:00:57,160 --> 00:00:58,160

It's private.

11

00:00:58,160 --> 00:01:03,160

Nice bucket.

12

00:01:03,160 --> 00:01:08,160

Thank you.

13

00:01:08,160 --> 00:01:22,160

Dude, we've got an entirely new episode.

14

00:01:22,160 --> 00:01:29,160

That's that movie where they have those sword things that light up or something, right?

15

00:01:29,160 --> 00:01:30,160

Lightsabers.

16

00:01:30,160 --> 00:01:31,160

They're called lightsabers.

17

00:01:31,160 --> 00:01:32,160

And yes, that is the movie.

18

00:01:32,160 --> 00:01:35,160

And we have a whole myth about lightsabers in this episode.

19

00:01:35,160 --> 00:01:36,160

Do we get to make one?

20

00:01:36,160 --> 00:01:37,160

No, we're not.

21

00:01:37,160 --> 00:01:43,160

We're gonna test whether being on higher ground gives you a tactical advantage with a lightsaber.

22

00:01:43,160 --> 00:01:44,160

It's over, Anakin!

23

00:01:44,160 --> 00:01:46,160

I have the high ground!

24

00:01:46,160 --> 00:01:48,160

But I'm getting ahead of myself first.

25

00:01:48,160 --> 00:01:49,160

We are 10 years old.

26

00:01:49,160 --> 00:01:50,160

We have the high ground!

27

00:01:50,160 --> 00:01:51,160

But I'm getting ahead of myself first.

28

00:01:51,160 --> 00:01:54,160

We are testing a myth about these laser blasters.

29

00:01:54,160 --> 00:01:55,160

And those are...

30

00:01:55,160 --> 00:01:58,160

Well, these are the weapons of the stormtroopers in the films.

31

00:01:58,160 --> 00:01:59,160

Stop that ship!

32

00:01:59,160 --> 00:02:00,160

Blast off!

33

00:02:00,160 --> 00:02:04,160

And no matter how often they shoot at the good guys, the good guys always seem to be able

34

00:02:04,160 --> 00:02:07,160

to dodge out of the way of them.

35

00:02:07,160 --> 00:02:10,160

So it sounds to me like I'm gonna have to use the force.

36

00:02:10,160 --> 00:02:13,160

Well, yes, but please, this time only for good.

37

00:02:13,160 --> 00:02:15,160

If I must.

38

00:02:16,160 --> 00:02:19,160

It's a well-known Star Wars trope.

39

00:02:19,160 --> 00:02:23,160

Somehow the heroes always manage to dodge the bullet.

40

00:02:25,160 --> 00:02:29,160

But is it actually possible to dive out of the way in time?

41

00:02:31,160 --> 00:02:37,160

To find out, Adam and Jamie are going to simulate their own blaster battle and try it out for themselves.

42

00:02:37,160 --> 00:02:39,160

Ahhhhhhhhhhhhhhhh!

43

00:02:41,160 --> 00:02:47,160

And while Jamie begins building the gun, Adam investigates the velocity of the ammunition in question.

44

00:02:48,160 --> 00:02:49,160

Let's talk laser blasters.

45

00:02:49,160 --> 00:02:50,160

Oh wait, it's Star Wars.

46

00:02:50,160 --> 00:02:53,160

Let's talk laser blasters.

47

00:02:53,160 --> 00:02:54,160

Blast off!

48

00:02:55,160 --> 00:02:58,160

See, ever since the Star Wars universe shoots at each other with things we collectively

49

00:02:58,160 --> 00:03:03,160

refer to as laser blasters, even though the characters only call them blasters.

50

00:03:03,160 --> 00:03:04,160

But we think of them as lasers.

51

00:03:04,160 --> 00:03:06,160

The question is, are they?

52

00:03:06,160 --> 00:03:07,160

Well, let's find out.

53

00:03:07,160 --> 00:03:09,160

I've got here a handheld laser pointer.

54

00:03:09,160 --> 00:03:10,160

It shoots a green laser.

55

00:03:10,160 --> 00:03:12,160

Let's figure out how fast this thing goes.

56

00:03:12,160 --> 00:03:16,160

Three, two, one, there we go.

57

00:03:17,160 --> 00:03:18,160

Alright.

58

00:03:18,160 --> 00:03:20,160

Yup, 186,000 miles per second.

59

00:03:20,160 --> 00:03:21,160

I'm kidding.

60

00:03:21,160 --> 00:03:22,160

I'm not measuring light with this.

61

00:03:22,160 --> 00:03:24,160

This is actually a force gauge.

62

00:03:24,160 --> 00:03:25,160

Get it?

63

00:03:25,160 --> 00:03:26,160

Force gauge?

64

00:03:26,160 --> 00:03:29,160

The fact is, we all know how fast light moves.

65

00:03:29,160 --> 00:03:35,160

So I'm gonna venture to say that the bolts from the blasters on Star Wars move a lot slower than

the speed of light.

66

00:03:35,160 --> 00:03:36,160

How much slower?

67

00:03:36,160 --> 00:03:44,160

I'm gonna find out by watching Star Wars, measuring them with calipers and using some math to figure out how fast they might move in the real world.

68

00:03:44,160 --> 00:03:47,160

I've always hated it just once.

69

00:03:48,160 --> 00:03:54,160

Once I get enough measurements, I'm gonna average the amount that should give me a consistent laser blast speed.

70

00:03:54,160 --> 00:03:57,160

By extrapolating from a visual reference,

71

00:03:57,160 --> 00:04:00,160

Harrison is six feet tall,

72

00:04:00,160 --> 00:04:05,160

and timing how long it takes the blaster bolt to cover a known distance,

73

00:04:07,160 --> 00:04:09,160

Adam can calculate its velocity.

74

00:04:10,160 --> 00:04:14,160

And before you can say, LeBouria's arithmetic,

75

00:04:14,160 --> 00:04:15,160

Seven frames.

76

00:04:15,160 --> 00:04:19,160

Adam has calculated an average from across all six movies.

77

00:04:19,160 --> 00:04:25,160

I've got a speed of between 130 and 135 miles per hour at a distance of about 40 feet.

78

00:04:25,160 --> 00:04:28,160

So that's what Jamie's gun will replicate.

79

00:04:28,160 --> 00:04:31,160

130 miles an hour at 40 feet.

80

00:04:31,160 --> 00:04:34,160

We're gonna be replicating the performance of the blasters we see in the movie,

81

00:04:34,160 --> 00:04:40,160

and to do that we're gonna be using this pneumatic launcher by plumbing compressed air into the back of it.

82

00:04:40,160 --> 00:04:44,160

Every time you pull on the trigger down here, it fires around,

83

00:04:44,160 --> 00:04:49,160

and then these pistons push forward and advance another round into position ready to fire.

84

00:04:51,160 --> 00:04:52,160

Ow!

85

00:04:52,160 --> 00:04:54,160

That's what I'm talking about.

86

00:04:54,160 --> 00:04:59,160

Now, we can put anything that we want inside these tubes.

87

00:04:59,160 --> 00:05:04,160

So I'm gonna be experimenting to find out what we can fit in there

88

00:05:04,160 --> 00:05:07,160

that accurately replicates the performance of what we see in the movie,

89

00:05:07,160 --> 00:05:10,160

and hopefully doesn't hurt us at the same time.

90

00:05:10,160 --> 00:05:14,160

In theory, by altering the air pressure powering his gun,

91

00:05:14,160 --> 00:05:17,160

it looks like that's about 350 psi.

92

00:05:17,160 --> 00:05:22,160

Jamie will be able to match the movie specs with his non-lethal ammo.

93

00:05:23,160 --> 00:05:26,160

Firing in three, two, one.

94

00:05:26,160 --> 00:05:29,160

But in practice, there's a speed problem.

95

00:05:29,160 --> 00:05:32,160

This only said there's 26 months of ground.

96

00:05:32,160 --> 00:05:34,160

Measuring problem.

97

00:05:34,160 --> 00:05:36,160

Didn't quite get a reading.

98

00:05:36,160 --> 00:05:37,160

One.

99

00:05:37,160 --> 00:05:39,160

And accuracy problem.

100

00:05:39,160 --> 00:05:42,160

And they're going off to the side.

101

00:05:42,160 --> 00:05:45,160

Whose here we have all the problems.

102

00:05:45,160 --> 00:05:50,160

Our first laser blasts don't fly straight, and we can't get a reading on how fast they're going.

103

00:05:50,160 --> 00:05:52,160

There's still some problem solving to do.

104

00:05:52,160 --> 00:05:54,160

We may end up going with a totally different solution.

105

00:05:54,160 --> 00:05:56,160

We don't know at this point.

106

00:05:56,160 --> 00:05:59,160

So while the team locates the drawing board,

107

00:06:02,160 --> 00:06:07,160

Darth Heidemann and Jedi Savage go head to head in a lightsaber duel

108

00:06:07,160 --> 00:06:10,160

to tackle the myth of higher ground.

109

00:06:16,160 --> 00:06:18,160

So tell me about this higher ground thing.

110

00:06:18,160 --> 00:06:21,160

Well, it takes place at the end of the third Star Wars movie.

111

00:06:21,160 --> 00:06:24,160

Obi-Wan and Anakin are having an epic battle with lightsabers.

112

00:06:24,160 --> 00:06:29,160

And at the battle's climax, Obi-Wan is standing on a hill slightly above Anakin, and he says to him,

113

00:06:29,160 --> 00:06:33,160

It's over Anakin! I have the high ground!

114

00:06:33,160 --> 00:06:38,160

Well, from a military perspective, it makes sense, but as far as one-on-one, I'm not so sure.

115

00:06:38,160 --> 00:06:40,160

What happens in the movie?

116

00:06:40,160 --> 00:06:44,160

Right after he says that Obi-Wan proceeds to chop off a bunch of Anakin's limbs.

117

00:06:44,160 --> 00:06:48,160

So the myth is that if you have higher ground, it's guaranteed you'll win.

118

00:06:48,160 --> 00:06:51,160

Exactly. Ready to do some sword fighting?

119

00:06:51,160 --> 00:06:53,160

Sure.

120

00:06:53,160 --> 00:06:58,160

Anakin vs Obi-Wan, a pivotal moment in the Star Wars canon.

121

00:06:58,160 --> 00:07:02,160

An epic battle that results in the birth of Darth Vader.

122

00:07:02,160 --> 00:07:06,160

But is topography really the deciding factor?

123

00:07:06,160 --> 00:07:11,160

Now, Jamie and I are going to be battling with swords, but it begs the question,

124

00:07:11,160 --> 00:07:13,160

How do you determine who wins?

125

00:07:13,160 --> 00:07:16,160

Well, we think with lightsabers, it's pretty straightforward.

126

00:07:16,160 --> 00:07:19,160

First touch wins, really, because anything you touch with a lightsaber,

127

00:07:19,160 --> 00:07:22,160

you're pretty much taken home as a keepsake.

128

00:07:22,160 --> 00:07:28,160

And I believe I had an idea for determining definitively who wins each of our sword battles.

129

00:07:28,160 --> 00:07:32,160

To test the dueling advantage of higher ground,

130

00:07:32,160 --> 00:07:38,160

Adam's connecting the dots on a complicated, conductive plan.

131

00:07:38,160 --> 00:07:40,160

Mindbender.

132

00:07:40,160 --> 00:07:44,160

Once revealed, it will clearly show who wins each battle.

133

00:07:44,160 --> 00:07:48,160

Thanks to bright lights lit up by a lightsaber.

134

00:07:48,160 --> 00:07:50,160

Plum yellow it is.

135

00:07:51,160 --> 00:07:54,160

And clever clothing that can carry a current.

136

00:07:54,160 --> 00:07:57,160

This, believe it or not, is actually metal.

137

00:07:57,160 --> 00:08:01,160

It moves like fabric. It is an incredibly fine copper mesh.

138

00:08:01,160 --> 00:08:05,160

It's super conductive, and that's why I'm using it.

139

00:08:05,160 --> 00:08:07,160

I'm going to make some clothing out of this stuff.

140

00:08:07,160 --> 00:08:10,160

Nice, one size fits all conductive pants.

141

00:08:10,160 --> 00:08:14,160

With the copper conductive clothing complete.

142

00:08:14,160 --> 00:08:15,160

Oh yeah.

143

00:08:17,160 --> 00:08:19,160

It's time for the...

144

00:08:20,160 --> 00:08:21,160

Lightsabers.

145

00:08:21,160 --> 00:08:22,160

What about them?

146

00:08:22,160 --> 00:08:24,160

Well, there's probably some people wondering about now

147

00:08:24,160 --> 00:08:27,160

whether we're going to spend part of this episode making our own real lightsabers.

148

00:08:27,160 --> 00:08:30,160

Well, I've got news for them. We're not.

149

00:08:30,160 --> 00:08:31,160

No.

150

00:08:31,160 --> 00:08:32,160

For a whole host of reasons.

151

00:08:32,160 --> 00:08:35,160

Yes, not least of which, photons.

152

00:08:35,160 --> 00:08:39,160

Light is made up of photons, but photons move in a single direction.

153

00:08:39,160 --> 00:08:42,160

You can't program one to stop three feet from its source.

154

00:08:42,160 --> 00:08:47,160

And even if you gather a bunch in a small place like we do with lasers,

155

00:08:47,160 --> 00:08:50,160

the beams of a lightsaber would likely pass right through each other.

156

00:08:51,160 --> 00:08:53,160

Well, and then there's the power required,

157

00:08:53,160 --> 00:08:57,160

because while there are lasers that cut through stone and metal,

158

00:08:57,160 --> 00:08:59,160

they require a massive power input.

159

00:08:59,160 --> 00:09:04,160

You'd have to have something like a small nuclear reactor attached to it.

160

00:09:04,160 --> 00:09:08,160

Meaning to test this age-old military adage.

161

00:09:09,160 --> 00:09:11,160

I'm making a lightsaber.

162

00:09:11,160 --> 00:09:13,160

Adams fakin' them.

163

00:09:14,160 --> 00:09:17,160

So a lightsaber is massless, right?

164

00:09:17,160 --> 00:09:19,160

The blade has no mass, it's just light.

165

00:09:20,160 --> 00:09:22,160

Yeah, look at that.

166

00:09:22,160 --> 00:09:26,160

Ah, muy auténtico.

167

00:09:26,160 --> 00:09:28,160

So we need our blade to be incredibly light,

168

00:09:28,160 --> 00:09:32,160

which is good because we want to be able to smack on each other without hurting each other.

169

00:09:33,160 --> 00:09:38,160

And the blade in this case will be played by a prrrrrrrrrrrrrr.

170

00:09:38,160 --> 00:09:42,160

Beautiful, super light, crazy light, carbon fiber tube.

171

00:09:42,160 --> 00:09:47,160

Oh, that's cool, it feels like there's almost nothing there.

172

00:09:48,160 --> 00:09:52,160

The final stage is a layer of foam pipe insulation,

173

00:09:54,160 --> 00:09:58,160

over which goes a sheath of conductive copper mesh.

174

00:09:59,160 --> 00:10:02,160

This is reminding me of something.

175

00:10:06,160 --> 00:10:09,160

Time to put the padding on the saber.

176

00:10:09,160 --> 00:10:12,160

Oh, good, good, good, that's exactly what I wanted.

177

00:10:14,160 --> 00:10:17,160

Adams finally ready to reveal his plan.

178

00:10:17,160 --> 00:10:19,160

There's your Jedi weapon.

179

00:10:19,160 --> 00:10:24,160

What I've got here is some conductive suits with conductive swords,

180

00:10:24,160 --> 00:10:26,160

so that as Jamie and I sword fight,

181

00:10:27,160 --> 00:10:29,160

it's not bad, give me a whack.

182

00:10:29,160 --> 00:10:31,160

Okay, not on the face,

183

00:10:31,160 --> 00:10:33,160

we can determine precisely who gets hit first,

184

00:10:33,160 --> 00:10:37,160

and that is when my sword touches Jamie, his belt lights up.

185

00:10:37,160 --> 00:10:40,160

Hey, look at that, it totally worked.

186

00:10:40,160 --> 00:10:42,160

When he touches me, my belt lights up.

187

00:10:42,160 --> 00:10:44,160

Hey, there we go.

188

00:10:45,160 --> 00:10:48,160

And we should be able to view exactly who wits.

189

00:10:48,160 --> 00:10:50,160

Time for Jamie and I to sword fight.

190

00:10:50,160 --> 00:10:53,160

And the fighting is going to start here,

191

00:10:53,160 --> 00:10:57,160

but I think maybe it ought to be a little more sci-fi.

192

00:11:00,160 --> 00:11:03,160

Jamie and I are going to begin with the control

193

00:11:03,160 --> 00:11:06,160

that is fighting each other on flat ground.

194

00:11:06,160 --> 00:11:07,160

Looks good to me.

195

00:11:07,160 --> 00:11:10,160

It's going to put a pair of X's on this platform where we start,

196

00:11:10,160 --> 00:11:13,160

and when a bell sounds, can you give me a bell sound's editors?

197

00:11:13,160 --> 00:11:14,160

No.

198

00:11:14,160 --> 00:11:16,160

Oh, I'm sorry, I'm sorry.

199

00:11:16,160 --> 00:11:18,160

Bell sounds, can you give me a bell sound's editors?

200

00:11:18,160 --> 00:11:19,160

No.

201

00:11:19,160 --> 00:11:20,160

Ah!

202

00:11:20,160 --> 00:11:21,160

No.

203

00:11:21,160 --> 00:11:23,160

That's it.

204

00:11:23,160 --> 00:11:25,160

When we hear the bell, we start fighting.

205

00:11:25,160 --> 00:11:28,160

Whoever touches first wins, and you know because the other guys lit up,

206

00:11:28,160 --> 00:11:31,160

reset, go back to zero, and try again.

207

00:11:31,160 --> 00:11:35,160

Oh, I'm like putting on a straight jacket.

208

00:11:35,160 --> 00:11:36,160

There we go.

209

00:11:36,160 --> 00:11:41,160

Dude, this is hot.

210

00:11:41,160 --> 00:11:45,160

In a best of 25 bouts on an even surface,

211

00:11:45,160 --> 00:11:49,160

our copper-clad Jedi will establish a comparative control.

212

00:11:49,160 --> 00:11:52,160

You look great.

213

00:11:52,160 --> 00:11:55,160

Then they'll repeat the test on higher ground

214

00:11:55,160 --> 00:11:58,160

and compare the difference in scores.

215

00:11:58,160 --> 00:12:01,160

We're battling with light sabers.

216

00:12:01,160 --> 00:12:04,160

We've ended up working with quite a variety of weapons on this show,

217

00:12:04,160 --> 00:12:08,160

and with things like guns and knives, we've even become somewhat proficient.

218

00:12:08,160 --> 00:12:13,160

But when it comes to things like swords,

219

00:12:13,160 --> 00:12:17,160

not so much, Adam and I are pretty much a blank slate.

220

00:12:17,160 --> 00:12:18,160

With the rig ready...

221

00:12:18,160 --> 00:12:20,160

When I touch you, you light up.

222

00:12:20,160 --> 00:12:21,160

Nice.

223

00:12:21,160 --> 00:12:24,160

Our tabular razors are ready to roll.

224

00:12:24,160 --> 00:12:25,160

Excellent.

225

00:12:25,160 --> 00:12:27,160

I think we're ready to do some sword fighting.

226

00:12:27,160 --> 00:12:28,160

Yeah.

227

00:12:28,160 --> 00:12:31,160

Okay, count us into a ding.

228

00:12:38,160 --> 00:12:45,160

It's over, Anakin.

229

00:12:45,160 --> 00:12:48,160

I have the high ground.

230

00:12:48,160 --> 00:12:53,160

To test the combat cliché that height equals might, ding,

231

00:12:53,160 --> 00:13:00,160

Adam's concocted a set of copper suits and non-lethal lightsabers to do battle with.

232

00:13:00,160 --> 00:13:02,160

Okay, not on the face.

233

00:13:02,160 --> 00:13:07,160

And first up, a flat ground best of 25 control.

234

00:13:15,160 --> 00:13:16,160

That's one.

235

00:13:16,160 --> 00:13:20,160

After they establish their relative abilities on the scoreboard...

236

00:13:25,160 --> 00:13:27,160

I think you got me on that one.

237

00:13:27,160 --> 00:13:29,160

This is kind of fun.

238

00:13:29,160 --> 00:13:32,160

They'll adjust the height of the playing field.

239

00:13:32,160 --> 00:13:33,160

Ha!

240

00:13:33,160 --> 00:13:34,160

Got to me.

241

00:13:34,160 --> 00:13:40,160

And find out if higher ground really is the ultimate advantage in a deadly duel.

242

00:13:47,160 --> 00:13:49,160

This is genuinely entertaining.

243

00:13:49,160 --> 00:13:54,160

Adam, did I ever tell you I was on the fencing club in college?

244

00:13:55,160 --> 00:13:57,160

What, 34 years ago?

245

00:13:57,160 --> 00:14:01,160

And it was only because there was a hot chick that I was dating and she wanted to do it,

246

00:14:01,160 --> 00:14:02,160

so I was doing it with her.

247

00:14:02,160 --> 00:14:05,160

That's a reason I learned a lot of things in my life.

248

00:14:05,160 --> 00:14:07,160

That's true.

249

00:14:07,160 --> 00:14:08,160

On guard.

250

00:14:08,160 --> 00:14:09,160

Alright.

251

00:14:10,160 --> 00:14:13,160

Yep, with no prospective mates to impress.

252

00:14:15,160 --> 00:14:20,160

Technique, strategy and composure are conspicuous by their absence.

253

00:14:20,160 --> 00:14:21,160

Ha!

254

00:14:23,160 --> 00:14:24,160

Right in the heart.

255

00:14:24,160 --> 00:14:29,160

Our neo-fight fighters are simply frantically flailing their way through each bout.

256

00:14:29,160 --> 00:14:30,160

Ha!

257

00:14:30,160 --> 00:14:37,160

Actually trying to come up with a strategy for blocking a hit and then going in and making a hit...

258

00:14:39,160 --> 00:14:41,160

is incredibly difficult.

259

00:14:44,160 --> 00:14:45,160

Ha!

260

00:14:45,160 --> 00:14:46,160

Gotcha.

261

00:14:46,160 --> 00:14:53,160

There's a lot going on including a guy with a blade trying to kill you while you're trying to think.

262

00:14:53,160 --> 00:14:56,160

As the match comes to its increasingly desperate...

263

00:14:59,160 --> 00:15:01,160

I've gone right for the direct approach.

264

00:15:01,160 --> 00:15:04,160

...and competitive conclusion...

265

00:15:05,160 --> 00:15:07,160

Oh, really? Really?

266

00:15:07,160 --> 00:15:09,160

That's how it is.

267

00:15:09,160 --> 00:15:15,160

The score indicates that with no topographical advantage, this was the perfect baseline.

268

00:15:17,160 --> 00:15:20,160

Jamie and I have completed 25 trials on even ground.

269

00:15:23,160 --> 00:15:25,160

That's a good shin hit right there.

270

00:15:25,160 --> 00:15:28,160

And experimentally, the results are kind of awesome.

271

00:15:28,160 --> 00:15:30,160

We are totally evenly matched.

272

00:15:30,160 --> 00:15:33,160

I had 13 wins to Jamie's 12.

273

00:15:34,160 --> 00:15:37,160

That means it's time now to go to higher ground.

274

00:15:37,160 --> 00:15:40,160

We're going to do another 25 trials.

275

00:15:42,160 --> 00:15:44,160

It's heads. I'm higher ground.

276

00:15:44,160 --> 00:15:45,160

Okay.

277

00:15:45,160 --> 00:15:48,160

Now that one of us is going to be fighting from higher ground...

278

00:15:48,160 --> 00:15:49,160

There we go.

279

00:15:49,160 --> 00:15:52,160

I would note that in the movie Obi-Wan tells Anakin that...

280

00:15:52,160 --> 00:15:54,160

It's over Anakin!

281

00:15:54,160 --> 00:15:56,160

I have the high ground!

282

00:15:56,160 --> 00:16:03,160

Now that means that when Adam and I start to fight, we're not talking about like one winning by a few points or the other.

283

00:16:03,160 --> 00:16:04,160

That seems great.

284

00:16:04,160 --> 00:16:10,160

If this idea is true, the person on higher ground has to totally dominate that battle.

285

00:16:16,160 --> 00:16:21,160

I got you.

286

00:16:21,160 --> 00:16:23,160

This is very interesting.

287

00:16:23,160 --> 00:16:28,160

When we were on level ground, Jamie and I were very toe to toe in terms of attack and defense.

288

00:16:28,160 --> 00:16:31,160

It's over Jamie. I've got the higher ground.

289

00:16:31,160 --> 00:16:37,160

But now that I'm on the higher ground, I'm definitely noticing Jamie is much more on the defensive.

290

00:16:37,160 --> 00:16:40,160

And I am able to take the lead in attack.

291

00:16:40,160 --> 00:16:42,160

I got you.

292

00:16:42,160 --> 00:16:43,160

She's good.

293

00:16:43,160 --> 00:16:47,160

I'm not sure if this is shifting the balance in my favor because it's still early,

294

00:16:47,160 --> 00:16:51,160

but it definitely feels like I am much more on the offensive.

295

00:16:52,160 --> 00:16:58,160

With Adam on higher ground, at first it was a little intimidating because he's over top of you.

296

00:16:58,160 --> 00:17:04,160

It sort of seems like he's dominant, like he has a higher reach and more power swinging down.

297

00:17:05,160 --> 00:17:07,160

He got me in the face, does that count?

298

00:17:07,160 --> 00:17:08,160

I was aiming for your chest.

299

00:17:08,160 --> 00:17:09,160

Sorry about that.

300

00:17:09,160 --> 00:17:16,160

But the longer I played with him, I found that seeming disadvantage was actually an opportunity.

301

00:17:16,160 --> 00:17:19,160

You got me in the foot. I don't know how to counter that.

302

00:17:19,160 --> 00:17:28,160

Namely that if I cleared his blade with a powerful sideways swipe and then swung in towards his ankles, which are now exposed.

303

00:17:31,160 --> 00:17:33,160

I see your strategy.

304

00:17:34,160 --> 00:17:36,160

You can't win. I've got the lower ground.

305

00:17:37,160 --> 00:17:39,160

They call me ankle biter.

306

00:17:41,160 --> 00:17:44,160

And that worked almost every time I was able to get the timing right.

307

00:17:45,160 --> 00:17:47,160

Oh, I hit myself in the groin.

308

00:17:50,160 --> 00:17:51,160

Now we're going to need a minute.

309

00:17:53,160 --> 00:17:56,160

I think I did it with the butt of my lightsaber.

310

00:17:59,160 --> 00:18:03,160

Let's take a minute for Mr. Heidemann to walk it off.

311

00:18:03,160 --> 00:18:06,160

I know you guys are loving this. In this great TV.

312

00:18:06,160 --> 00:18:08,160

You want a drink? You want a scotch or bourbon?

313

00:18:08,160 --> 00:18:10,160

No, no. I'm good to go.

314

00:18:17,160 --> 00:18:23,160

I really thought being above Jamie would just give me this towering plank and I was just going to win everyone.

315

00:18:24,160 --> 00:18:28,160

But he has access to my ankles, which he used incredibly effectively.

316

00:18:29,160 --> 00:18:33,160

Once I get close, my legs are just done for.

317

00:18:33,160 --> 00:18:39,160

From my perspective, I don't think I can call the high ground an ultimate advantage at this point.

318

00:18:39,160 --> 00:18:47,160

Yep. Despite finishing with a scoreboard advantage, Adam feels the numbers don't tell the whole story.

319

00:18:47,160 --> 00:18:50,160

There's two things wrong with the data we thus far gathered.

320

00:18:50,160 --> 00:18:54,160

One is we're looking for a definitive advantage, not a soft advantage.

321

00:18:54,160 --> 00:18:58,160

Two, and most importantly, we're not sword fighters.

322

00:18:58,160 --> 00:19:01,160

We don't know the first thing about fighting with swords like this.

323

00:19:01,160 --> 00:19:06,160

We need the assistance and perhaps even some training from an expert.

324

00:19:06,160 --> 00:19:08,160

Yeah, that's what we need, an expert.

325

00:19:09,160 --> 00:19:13,160

And while the guys wait on a Jedi delivery,

326

00:19:15,160 --> 00:19:20,160

it's back to the workshop where the Heinemann has dumped his foam failure.

327

00:19:20,160 --> 00:19:22,160

And they're going off to the side.

328

00:19:24,160 --> 00:19:31,160

To test the myth that the Star Wars laser blaster dodge is feasible physics or a filmic fiction,

329

00:19:31,160 --> 00:19:36,160

Jamie has to match the movie's velocity with more accurate aerodynamic ammo.

330

00:19:38,160 --> 00:19:43,160

Straight ping pong ball, not very accurate, it's going about 60 miles an hour, which isn't good.

331

00:19:43,160 --> 00:19:48,160

But we have ping pong balls made out of foam and when I put a skewer on them,

332

00:19:48,160 --> 00:19:51,160

150 miles an hour and dead straight.

333

00:19:52,160 --> 00:19:53,160

That's cool.

334

00:19:53,160 --> 00:19:56,160

One, bullseye.

335

00:19:56,160 --> 00:20:01,160

After converting his arrow inspired prototype into a more polished version,

336

00:20:01,160 --> 00:20:03,160

Let's see what that does.

337

00:20:03,160 --> 00:20:06,160

and adjusting the air pressure powering the gun.

338

00:20:06,160 --> 00:20:11,160

Okay, 80 psi in three, two, one.

339

00:20:13,160 --> 00:20:16,160

Jamie nails the blaster benchmark he's after.

340

00:20:16,160 --> 00:20:20,160

We've done a number of runs now and we're getting very consistent speeds

341

00:20:20,160 --> 00:20:23,160

of 130 miles an hour out of our gun.

342

00:20:27,160 --> 00:20:29,160

So we're right where we need to be.

343

00:20:45,160 --> 00:20:48,160

Welcome to the Mythbusters version of the Star Wars universe.

344

00:20:48,160 --> 00:20:51,160

We're investigating the myth that the good guys always seem to be able to just

345

00:20:51,160 --> 00:20:55,160

dive out of the way of the blasters used throughout the Star Wars universe.

346

00:20:55,160 --> 00:21:00,160

Now we have built ourselves our own little version of a Rebel ship with a 40 foot hallway.

347

00:21:00,160 --> 00:21:04,160

We're going to set up our blaster at the other end that shoots air bullets at the correct speed

348

00:21:04,160 --> 00:21:07,160

and Jamie and I are each going to take turns standing here

349

00:21:07,160 --> 00:21:11,160

and attempting to get out of the way of those blaster bolts.

350

00:21:11,160 --> 00:21:15,160

With their Rebel ship ship shape, all right.

351

00:21:15,160 --> 00:21:18,160

First up, they're making sure they stay on target.

352

00:21:19,160 --> 00:21:23,160

We're going to shoot him first to make sure that the darts are hitting the right spot.

353

00:21:23,160 --> 00:21:28,160

You know, we're asking our target storm troopers to do precisely what storm troopers do in all the movies,

354

00:21:28,160 --> 00:21:30,160

which is get shot.

355

00:21:33,160 --> 00:21:36,160

Three, two, one.

356

00:21:36,160 --> 00:21:39,160

Okay, firing now.

357

00:21:39,160 --> 00:21:40,160

That's weird.

358

00:21:40,160 --> 00:21:42,160

Two, one.

359

00:21:42,160 --> 00:21:44,160

Oops, that one went off to the side.

360

00:21:44,160 --> 00:21:45,160

Yeah.

361

00:21:45,160 --> 00:21:48,160

Off to both sides, high and low.

362

00:21:48,160 --> 00:21:50,160

The gun is firing at the correct speed.

363

00:21:50,160 --> 00:21:52,160

Pressure, take the pressure.

364

00:21:52,160 --> 00:21:53,160

Yeah.

365

00:21:53,160 --> 00:21:54,160

Pressure's good.

366

00:21:54,160 --> 00:21:55,160

Yeah.

367

00:21:55,160 --> 00:21:56,160

Firing.

368

00:21:57,160 --> 00:21:58,160

Now that's just crazy.

369

00:21:58,160 --> 00:22:03,160

But at some point in the mass production of the ammunition, they've become unpredictable.

370

00:22:04,160 --> 00:22:07,160

They're kind of like this.

371

00:22:07,160 --> 00:22:14,160

The arrow-like fletching has somehow lost the aerodynamic qualities of Jamie's handmade prototypes.

372

00:22:14,160 --> 00:22:18,160

That means I'm headed back to the shop to come up with something else.

373

00:22:20,160 --> 00:22:24,160

Back at base, Jamie decides to start over.

374

00:22:24,160 --> 00:22:28,160

And this time, he's borrowing a design element from bullet ballistics.

375

00:22:28,160 --> 00:22:31,160

Three, two, one.

376

00:22:32,160 --> 00:22:34,160

I think that's going to work.

377

00:22:34,160 --> 00:22:36,160

And it's diabolically simple.

378

00:22:36,160 --> 00:22:41,160

A couple of ice cream spoons that are put in the crisscross that I've cut into the balls.

379

00:22:41,160 --> 00:22:46,160

And because I've scissored them, this is going to be like rifling.

380

00:22:46,160 --> 00:22:49,160

It's going to spin it and hopefully make it more true.

381

00:22:49,160 --> 00:22:53,160

And with that, Jamie whips up a bucket load.

382

00:22:53,160 --> 00:22:57,160

Before heading back aboard, where Adam gets an eye-watering demo.

383

00:22:57,160 --> 00:23:00,160

Three, two, one.

384

00:23:00,160 --> 00:23:02,160

Ow!

385

00:23:03,160 --> 00:23:07,160

We are back in business. These darts are working beautifully.

386

00:23:07,160 --> 00:23:12,160

The only concern I have is that they keep hitting our stormtrooper where it counts.

387

00:23:12,160 --> 00:23:14,160

You first.

388

00:23:14,160 --> 00:23:15,160

Okay.

389

00:23:15,160 --> 00:23:21,160

This is it. The Heinemann steps up to the plate to put his body in the firing line for science.

390

00:23:21,160 --> 00:23:23,160

All right, Mr. Heinemann, are you ready?

391

00:23:23,160 --> 00:23:24,160

I'm ready.

392

00:23:24,160 --> 00:23:26,160

I'm not going to count it down, right?

393

00:23:26,160 --> 00:23:27,160

Yeah.

394

00:23:27,160 --> 00:23:30,160

Okay. So at some point in the next 10 seconds, we're going to fire.

395

00:23:31,160 --> 00:23:37,160

As far as reaction time goes, we know that a sprinter on the blocks ready to do a race

396

00:23:37,160 --> 00:23:41,160

can react within 160 milliseconds of the starting pistol firing.

397

00:23:41,160 --> 00:23:46,160

Jamie's got 220 to get out of the way of this bullet personally.

398

00:23:46,160 --> 00:23:48,160

I don't think he's going to be able to do it.

399

00:23:56,160 --> 00:23:59,160

A hit. A palpable hit.

400

00:23:59,160 --> 00:24:05,160

Jamie barely moved, but it's the best of three, and maybe now he's got his eye in.

401

00:24:05,160 --> 00:24:07,160

Mr. Heinemann, are you feeling fast?

402

00:24:07,160 --> 00:24:09,160

I'm set.

403

00:24:13,160 --> 00:24:14,160

Got me.

404

00:24:14,160 --> 00:24:15,160

Got you.

405

00:24:18,160 --> 00:24:23,160

As far as I can tell, I'm just starting to move about the time I get hit,

406

00:24:23,160 --> 00:24:30,160

and that means that the flight time of the projectile and my reaction time are pretty close to the same.

407

00:24:30,160 --> 00:24:33,160

All right. At some point in the next...

408

00:24:33,160 --> 00:24:37,160

Right in the center of your solar plexus there.

409

00:24:37,160 --> 00:24:40,160

That's a three-peat.

410

00:24:40,160 --> 00:24:46,160

Moving at the average speed from all six movies, the blaster seems unavoidable.

411

00:24:47,160 --> 00:24:51,160

Jamie's unable to react and take evasive action in time.

412

00:24:52,160 --> 00:24:53,160

All right, sir.

413

00:24:53,160 --> 00:24:56,160

Which means it's Adam's turn.

414

00:25:01,160 --> 00:25:03,160

Right in the shoulder.

415

00:25:06,160 --> 00:25:08,160

The adrenaline dump is intense.

416

00:25:10,160 --> 00:25:12,160

And once he gets an identical...

417

00:25:15,160 --> 00:25:17,160

and conclusive result...

418

00:25:18,160 --> 00:25:20,160

That was no contest.

419

00:25:22,160 --> 00:25:23,160

Three for three.

420

00:25:24,160 --> 00:25:26,160

This myth is on the ropes.

421

00:25:27,160 --> 00:25:35,160

Well, there's just no getting out of the way of those things, but I'm thinking there might be a wrinkle we want to add to this that makes it more realistic.

422

00:25:35,160 --> 00:25:38,160

But before they test a more realistic quick draw,

423

00:25:38,160 --> 00:25:47,160

our junior Jedi will test the martial myth of a higher ground advantage by learning from a lightsaber master.

424

00:26:08,160 --> 00:26:11,160

The training is what we are going to get today.

425

00:26:11,160 --> 00:26:13,160

And not just general sword fighting training.

426

00:26:13,160 --> 00:26:15,160

Oh, no, no, no. Lightsaber training.

427

00:26:15,160 --> 00:26:30,160

See, the stunt coordinator for the Star Wars films, Nick Gallard, has invented a true martial form for dueling with lightsabers.

428

00:26:30,160 --> 00:26:38,160

And what we've got here is one of his protégés, Colby Boothman, a world-class level fencer, an expert in Jedi sword style.

429

00:26:38,160 --> 00:26:41,160

I can come at you a million different ways.

430

00:26:41,160 --> 00:26:45,160

He's going to show us some of the ropes of dueling with lightsabers.

431

00:26:46,160 --> 00:26:51,160

Colby begins at the beginning. He covers the basics of balance and stance.

432

00:26:52,160 --> 00:26:54,160

So that's like a very strong kendo pose.

433

00:26:55,160 --> 00:26:58,160

Handling and footwork.

434

00:26:59,160 --> 00:27:04,160

If Adam and Jamie are to genuinely test the combat advantage of higher ground,

435

00:27:04,160 --> 00:27:06,160

Hold on, let me analyze that.

436

00:27:06,160 --> 00:27:10,160

They need to know a lot more about how to handle their weapons.

437

00:27:11,160 --> 00:27:12,160

Just like that.

438

00:27:13,160 --> 00:27:24,160

Well, we haven't been training very long, but what is already crystal clear is that up till now, Jamie and I have basically been like a couple of gorillas with baseball bats just kind of whaddling away at each other.

439

00:27:28,160 --> 00:27:30,160

I don't know if I make the hooting sounds. Is that very Jedi?

440

00:27:31,160 --> 00:27:35,160

Hopefully by the time we're done with this, oh, I almost got him in the head.

441

00:27:35,160 --> 00:27:36,160

You did get me in that.

442

00:27:36,160 --> 00:27:42,160

Our sword fighting will do a little more justice to the beauty of the lightsaber as an actual weapon.

443

00:27:43,160 --> 00:27:53,160

In a testament to the teacher's ability, rather than the students, several hours later, our journeyman Jedi begin to make real progress.

444

00:27:53,160 --> 00:28:00,160

This is very cool getting the lightsaber 101 from Colby and we're learning that it is sort of like a dance.

445

00:28:02,160 --> 00:28:03,160

Hey!

446

00:28:03,160 --> 00:28:04,160

There we go.

447

00:28:04,160 --> 00:28:08,160

But if there's a word that typifies dancing, it's cooperation.

448

00:28:11,160 --> 00:28:12,160

Oops, sorry.

449

00:28:12,160 --> 00:28:15,160

And in fact, a sword fight is sort of the opposite of that.

450

00:28:16,160 --> 00:28:20,160

You're looking for the opening. You're trying to close down those openings.

451

00:28:20,160 --> 00:28:25,160

So we're just starting to learn how to win the battle against the other.

452

00:28:26,160 --> 00:28:28,160

There's a lot to learn in a very short period of time.

453

00:28:29,160 --> 00:28:36,160

With the basics down, it's time to translate those techniques to an uneven playing field.

454

00:28:36,160 --> 00:28:37,160

There we go.

455

00:28:42,160 --> 00:28:48,160

A lot of times it's not so much putting as much power as you can. It's trying to hit the openings that you see.

456

00:28:48,160 --> 00:29:02,160

Where after an hour of intense one-on-one sparring, from both vantage points, our fledgling fencers are exhausted.

457

00:29:05,160 --> 00:29:06,160

Hold on a second.

458

00:29:07,160 --> 00:29:08,160

That's just a shing.

459

00:29:08,160 --> 00:29:15,160

But prepared for the ultimate fiery finale on the soon-to-be volcanic planet of Mustafar.

460

00:29:15,160 --> 00:29:22,160

Now the scene we're going to be creating here is the hellish interior of a volcano with molten magma, smoke, and fire.

461

00:29:22,160 --> 00:29:28,160

This may look like a giant tie-dyed t-shirt, but actually this is our volcanic sky.

462

00:29:29,160 --> 00:29:30,160

That's looking pretty good.

463

00:29:30,160 --> 00:29:40,160

Yep, to match conditions of the iconic silver screen scene, the team is going to recreate not just the topography, but the volcanic atmosphere.

464

00:29:41,160 --> 00:29:42,160

Nice.

465

00:29:43,160 --> 00:29:45,160

This thing is our lava flow.

466

00:29:45,160 --> 00:29:50,160

It's made out of clear plastic so that we can get lights underneath it to make it glow like lava does.

467

00:29:50,160 --> 00:29:55,160

One edge is higher than the other, so when we pour the lava in, it'll flow this way.

468

00:29:55,160 --> 00:30:00,160

And our lava itself is going to be guar gum.

469

00:30:00,160 --> 00:30:02,160

It's a powder like this stuff.

470

00:30:02,160 --> 00:30:08,160

And when you add it to water along with a little food colorant, voila, you've got this goopy lava stuff.

471

00:30:08,160 --> 00:30:09,160

It's perfect.

472

00:30:12,160 --> 00:30:19,160

With the suitably dramatic backdrop ready to rock, Jamie gets to work accurately faking the footing.

473

00:30:19,160 --> 00:30:21,160

This ramp is what we're going to be fighting on.

474

00:30:21,160 --> 00:30:29,160

I actually took footage of the movie in the fight scene and I held the protractor on the screen and measured it.

475

00:30:29,160 --> 00:30:31,160

That's what this angle right here is.

476

00:30:31,160 --> 00:30:37,160

And we've also put an uneven black terrain which pretty faithfully replicates that scene.

477

00:30:38,160 --> 00:30:46,160

And while the finishing touches are applied to their fake inferno, there's an unresolved reaction time test to tackle.

478

00:30:46,160 --> 00:30:51,160

Thus far Jamie and I have been completely unsuccessful in dodging the bullets from our blaster.

479

00:30:55,160 --> 00:30:59,160

And we've constructed, I think, a pretty nice experiment. We've removed a lot of variables.

480

00:30:59,160 --> 00:31:01,160

I'm not going to count it down, right?

481

00:31:01,160 --> 00:31:02,160

Yeah.

482

00:31:03,160 --> 00:31:07,160

But now I'm thinking we might have removed one too many. What?

483

00:31:07,160 --> 00:31:11,160

I know science is all about removing variables to look at the essence of a thing.

484

00:31:11,160 --> 00:31:14,160

But what we've got here is almost like a sniper arrangement.

485

00:31:14,160 --> 00:31:18,160

But at 40 feet I can see the stormtrooper holding the blaster.

486

00:31:18,160 --> 00:31:20,160

I can see him see me and he goes,

487

00:31:20,160 --> 00:31:26,160

That action of the lifting of the gun, that might make all the difference.

488

00:31:26,160 --> 00:31:31,160

So to replicate that scenario, these stands are holding this weapon in a standard carry position.

489

00:31:31,160 --> 00:31:37,160

So that when I identify a potential target, all I have to do is raise the gun and fire.

490

00:31:39,160 --> 00:31:42,160

Let's do it. All right, Heidemann. I'm feeling good about this one.

491

00:31:42,160 --> 00:31:44,160

Hold on, just a sec.

492

00:31:46,160 --> 00:31:48,160

There we go. Properly, properly covered.

493

00:31:48,160 --> 00:31:50,160

All right, sir. I'm ready when you are.

494

00:31:50,160 --> 00:31:51,160

Okay.

495

00:31:57,160 --> 00:31:58,160

Oh!

496

00:32:01,160 --> 00:32:02,160

Ow!

497

00:32:03,160 --> 00:32:05,160

Right in the knee.

498

00:32:07,160 --> 00:32:10,160

The gun raise takes an additional 400 milliseconds.

499

00:32:10,160 --> 00:32:15,160

Despite that, Adam's first attempt would have left him limping.

500

00:32:16,160 --> 00:32:18,160

There was no getting out of the way of that one.

501

00:32:19,160 --> 00:32:20,160

Set?

502

00:32:20,160 --> 00:32:21,160

Yep.

503

00:32:23,160 --> 00:32:25,160

That was a good one.

504

00:32:27,160 --> 00:32:32,160

Unlike the first series of tests, Adam is able to move before the bolt reaches him,

505

00:32:32,160 --> 00:32:34,160

but he still can't avoid the hit.

506

00:32:34,160 --> 00:32:36,160

All right, sir. I'm ready when you are.

507

00:32:41,160 --> 00:32:42,160

Ow!

508

00:32:42,160 --> 00:32:43,160

Uh-oh.

509

00:32:47,160 --> 00:32:50,160

I just had to curse because that hurt really, really badly.

510

00:32:50,160 --> 00:32:57,160

I'm done testing. I failed three times. That really hurt.

511

00:33:00,160 --> 00:33:02,160

I'm going to walk it off.

512

00:33:04,160 --> 00:33:08,160

Well, never let it be said that Jamie and I don't put our bodies on the line

513

00:33:08,160 --> 00:33:10,160

to test the stuff that we're doing.

514

00:33:12,160 --> 00:33:16,160

I started out this story thinking that the blaster bolts look darned slow,

515

00:33:16,160 --> 00:33:18,160

almost comically slow.

516

00:33:18,160 --> 00:33:23,160

But turns out, even when I can see our trooper lifting his rifle into position,

517

00:33:23,160 --> 00:33:27,160

it's fast enough to get me every single time.

518

00:33:27,160 --> 00:33:29,160

There is no dodging these blaster bolts.

519

00:33:30,160 --> 00:33:31,160

Ow!

520

00:33:32,160 --> 00:33:33,160

Or is there?

521

00:33:33,160 --> 00:33:37,160

Now, as it happens in a prior episode, we clocked our reaction times,

522

00:33:37,160 --> 00:33:39,160

and mine was somewhat faster than Adam's.

523

00:33:40,160 --> 00:33:45,160

So before we call this one, I'm going to have a go and see whether we get any different results.

524

00:33:45,160 --> 00:33:46,160

You ready, Heinemann?

525

00:33:46,160 --> 00:33:47,160

I'm ready.

526

00:33:48,160 --> 00:33:52,160

Can the Hoosier do what no normal human can?

527

00:33:55,160 --> 00:33:56,160

One for one.

528

00:33:56,160 --> 00:34:05,160

Jamie's fast, but there's simply not enough time to sight the incoming projectile, react.

529

00:34:05,160 --> 00:34:06,160

That's two for two.

530

00:34:06,160 --> 00:34:10,160

And then move all of your body parts out of the way.

531

00:34:14,160 --> 00:34:16,160

I've felt it on my c-

532

00:34:19,160 --> 00:34:21,160

Well, I think that's pretty definitive.

533

00:34:21,160 --> 00:34:24,160

You just can't dodge out of the way of these blaster bolts,

534

00:34:24,160 --> 00:34:28,160

and that's why in any gunfight, I recommend you shoot first.

535

00:34:31,160 --> 00:34:36,160

So, what have we learned today about humans' ability to dodge blaster bolts?

536

00:34:36,160 --> 00:34:37,160

Not going to happen.

537

00:34:37,160 --> 00:34:38,160

I was totally surprised by that.

538

00:34:38,160 --> 00:34:39,160

Let's get out of here.

539

00:34:40,160 --> 00:34:42,160

Dude, it's a set.

540

00:34:42,160 --> 00:34:43,160

Oh, right.

541

00:34:49,160 --> 00:34:55,160

That's one myth done and blasted.

542

00:34:55,160 --> 00:35:01,160

And coming up, Adam and Jamie suit up for the ultimate lightsaber showdown.

543

00:35:02,160 --> 00:35:04,160

Wait, what are we doing back here on the Rebel Base?

544

00:35:04,160 --> 00:35:06,160

I thought we had put this myth to bed.

545

00:35:06,160 --> 00:35:07,160

Uh-oh.

546

00:35:07,160 --> 00:35:09,160

And we had.

547

00:35:09,160 --> 00:35:12,160

Except Jedi have their own technique.

548

00:35:12,160 --> 00:35:17,160

They pull out their lightsaber, and they actually deflect the light.

549

00:35:17,160 --> 00:35:21,160

They deflect the blaster bolts coming towards them with the lightsaber.

550

00:35:21,160 --> 00:35:22,160

Is that possible?

551

00:35:22,160 --> 00:35:23,160

That's what we want to test.

552

00:35:23,160 --> 00:35:26,160

All we need is a Jedi.

553

00:35:26,160 --> 00:35:28,160

Colby, are you ready?

554

00:35:28,160 --> 00:35:29,160

Ready.

555

00:35:31,160 --> 00:35:32,160

Whoa!

556

00:35:32,160 --> 00:35:34,160

Holy crap, he actually blocked it.

557

00:35:34,160 --> 00:35:38,160

Yep, our Earthbound Jedi made contact.

558

00:35:39,160 --> 00:35:43,160

But with the next three sailing past his defenses,

559

00:35:44,160 --> 00:35:47,160

maybe it was a one-off lucky hit.

560

00:35:48,160 --> 00:35:49,160

Did he get that one?

561

00:35:49,160 --> 00:35:50,160

Yeah.

562

00:35:50,160 --> 00:35:51,160

Nice!

563

00:35:51,160 --> 00:35:54,160

I know we're talking about a fictional character in a fictional universe,

564

00:35:54,160 --> 00:36:00,160

but our Jedi was actually able to deflect some of our laser blasts with his lightsaber,

565

00:36:00,160 --> 00:36:02,160

i.e. Bebu thing.

566

00:36:02,160 --> 00:36:15,160

Welcome to the planet Mustafar.

567

00:36:15,160 --> 00:36:19,160

Jamie and I wanted to know if higher ground is in fact a crushing advantage

568

00:36:19,160 --> 00:36:21,160

when it comes to battling with lightsabers.

569

00:36:21,160 --> 00:36:26,160

So we brought in one of the actual fight coordinators from the Star Wars films

570

00:36:26,160 --> 00:36:28,160

to give us a little lightsaber 101,

571

00:36:28,160 --> 00:36:31,160

and now we've replicated the exact pitch of terrain

572

00:36:31,160 --> 00:36:34,160

that Obi-Wan and Anakin have their final battle on.

573

00:36:34,160 --> 00:36:39,160

Also, for your viewing pleasure, we've replicated some of the aesthetics of the planet itself

574

00:36:39,160 --> 00:36:41,160

we couldn't resist.

575

00:36:44,160 --> 00:36:46,160

Am I allowed to make mount sound effects?

576

00:36:46,160 --> 00:36:48,160

Okay, go ahead and turn the power on.

577

00:36:48,160 --> 00:36:50,160

So how's this gonna work?

578

00:36:50,160 --> 00:36:52,160

Well, we're gonna do 25 rounds with Adam on the high ground

579

00:36:52,160 --> 00:36:55,160

and then 25 rounds with me on the high ground.

580

00:36:55,160 --> 00:36:56,160

There you go, sir.

581

00:36:56,160 --> 00:37:00,160

To protect the lower person's head, we're using this kendo helmet

582

00:37:00,160 --> 00:37:02,160

and it's wired along with the rest of the suit,

583

00:37:02,160 --> 00:37:06,160

so we'll be able to see if we actually get a score on that.

584

00:37:06,160 --> 00:37:08,160

I'm gonna do a systems check on your helmet.

585

00:37:08,160 --> 00:37:09,160

Yeah.

586

00:37:09,160 --> 00:37:10,160

Hey, reset.

587

00:37:10,160 --> 00:37:11,160

The rules are simple.

588

00:37:11,160 --> 00:37:12,160

Yep.

589

00:37:12,160 --> 00:37:14,160

When you get hit by a sword stroke and your lights light up,

590

00:37:14,160 --> 00:37:16,160

that's a point for your opponent.

591

00:37:16,160 --> 00:37:19,160

It totally feels more realistic with this terrain, doesn't it?

592

00:37:19,160 --> 00:37:21,160

Yeah, it came out quite nice.

593

00:37:21,160 --> 00:37:24,160

At the end, we'll tally up the score and see what we got.

594

00:37:24,160 --> 00:37:25,160

You ready, Heidemann?

595

00:37:25,160 --> 00:37:27,160

You betcha.

596

00:37:28,160 --> 00:37:31,160

Are you a Sith or a Jedi?

597

00:37:31,160 --> 00:37:33,160

I would be a Sith.

598

00:37:33,160 --> 00:37:35,160

That's what I would have said, but I didn't want to insult you.

599

00:37:35,160 --> 00:37:37,160

All right, let's go, Sith.

600

00:37:47,160 --> 00:37:48,160

Gotcha.

601

00:37:48,160 --> 00:37:53,160

Our recently graduated Jedi once again do battle for science.

602

00:37:55,160 --> 00:37:56,160

Nice.

603

00:37:58,160 --> 00:37:59,160

Gotcha.

604

00:37:59,160 --> 00:38:00,160

This is intense.

605

00:38:00,160 --> 00:38:01,160

Reset.

606

00:38:01,160 --> 00:38:07,160

It's pretty clear that just one day of training won't make us sword experts,

607

00:38:07,160 --> 00:38:12,160

but it gave us some insight into ways to move the lightsaber.

608

00:38:12,160 --> 00:38:15,160

And it also does what all training does.

609

00:38:15,160 --> 00:38:17,160

It slows the process down a little bit.

610

00:38:20,160 --> 00:38:21,160

Reset.

611

00:38:21,160 --> 00:38:24,160

I feel like it's much less of a free-for-all in this test

612

00:38:24,160 --> 00:38:26,160

than it was when we started.

613

00:38:29,160 --> 00:38:30,160

Gotcha.

614

00:38:30,160 --> 00:38:32,160

They are certainly more skilled.

615

00:38:33,160 --> 00:38:34,160

Reset.

616

00:38:34,160 --> 00:38:37,160

More clinical in their execution.

617

00:38:37,160 --> 00:38:38,160

Oh, dead.

618

00:38:38,160 --> 00:38:39,160

Reset.

619

00:38:40,160 --> 00:38:44,160

But as the contest continues, it's clear J. Meat,

620

00:38:44,160 --> 00:38:47,160

supposedly at a deadly disadvantage.

621

00:38:48,160 --> 00:38:49,160

Dead.

622

00:38:49,160 --> 00:38:51,160

His holding his own.

623

00:38:51,160 --> 00:38:53,160

You and I are quite evenly matched, sir.

624

00:38:56,160 --> 00:39:00,160

At this point, I feel like I'm making quite a number of scores.

625

00:39:02,160 --> 00:39:07,160

And to me, that says that this is not a definitive thing

626

00:39:07,160 --> 00:39:09,160

that higher ground always wins.

627

00:39:09,160 --> 00:39:10,160

Yep.

628

00:39:10,160 --> 00:39:13,160

And with J. Meat exacting the revenge of the Sith.

629

00:39:13,160 --> 00:39:18,160

Oh, you didn't quite nail me in the gullies,

630

00:39:18,160 --> 00:39:20,160

but there's a good shot.

631

00:39:20,160 --> 00:39:22,160

Careful with that, will you?

632

00:39:22,160 --> 00:39:26,160

Part one of the competition reaches its exhausting conclusion.

633

00:39:32,160 --> 00:39:37,160

So that's it for the 25 rounds of J. Meat from the lower ground position.

634

00:39:37,160 --> 00:39:39,160

Now it's my turn.

635

00:39:39,160 --> 00:39:41,160

We're not going to look at the scores just yet,

636

00:39:41,160 --> 00:39:43,160

because it's not about which one of us does better.

637

00:39:43,160 --> 00:39:48,160

It's about whether higher ground does significantly better than lower ground.

638

00:39:48,160 --> 00:39:49,160

Yep.

639

00:39:49,160 --> 00:39:51,160

All right, Mr. Heidemann, you ready?

640

00:39:51,160 --> 00:39:52,160

I'm ready.

641

00:39:52,160 --> 00:39:53,160

Okay.

642

00:39:53,160 --> 00:39:58,160

But my intuition right now says higher ground is not a crushing advantage.

643

00:39:59,160 --> 00:40:02,160

However, when J. Meat takes the high ground,

644

00:40:02,160 --> 00:40:06,160

he immediately racks up several quick fire wins.

645

00:40:08,160 --> 00:40:10,160

And Adams obviously off balance.

646

00:40:10,160 --> 00:40:11,160

Re-set.

647

00:40:11,160 --> 00:40:12,160

Oh, f***!

648

00:40:12,160 --> 00:40:13,160

Okay.

649

00:40:13,160 --> 00:40:15,160

But as Adam adjusts...

650

00:40:17,160 --> 00:40:19,160

Oh, I got your foot there.

651

00:40:19,160 --> 00:40:20,160

...and finds his footing...

652

00:40:22,160 --> 00:40:23,160

You got me.

653

00:40:23,160 --> 00:40:24,160

Ha ha.

654

00:40:24,160 --> 00:40:28,160

It once again appears to be a relatively even contest.

655

00:40:28,160 --> 00:40:30,160

Despite the uneven playing field,

656

00:40:30,160 --> 00:40:35,160

each position seemingly offers as many scoring possibilities,

657

00:40:35,160 --> 00:40:37,160

equal pros and cons.

658

00:40:40,160 --> 00:40:43,160

And with all 50 fights done and dusted,

659

00:40:43,160 --> 00:40:45,160

the conclusion is clear.

660

00:40:45,160 --> 00:40:48,160

Yeah, they both have their different sort of approaches.

661

00:40:48,160 --> 00:40:51,160

In the higher ground, you feel a slight bit of superiority,

662

00:40:51,160 --> 00:40:52,160

because you're high up,

663

00:40:52,160 --> 00:40:55,160

but that's quickly dispelled by dying repeatedly.

664

00:40:56,160 --> 00:40:57,160

So what do the numbers say?

665

00:40:57,160 --> 00:40:59,160

Well, the numbers tell an interesting story,

666

00:40:59,160 --> 00:41:02,160

though it's not the story that the movie tells.

667

00:41:02,160 --> 00:41:04,160

Out of 50 trials,

668

00:41:04,160 --> 00:41:07,160

low ground won 26 times,

669

00:41:07,160 --> 00:41:10,160

and high ground won 24 times.

670

00:41:10,160 --> 00:41:12,160

Well, that's about as close to dead even as you can get

671

00:41:12,160 --> 00:41:13,160

without being dead even.

672

00:41:13,160 --> 00:41:17,160

Indeed, and that tells me that this myth is dead busted.

673

00:41:17,160 --> 00:41:18,160

Let's go back to our home planet.

674

00:41:18,160 --> 00:41:19,160

Okay.

675

00:41:20,160 --> 00:41:22,160

Where's Jamie's home planet?