

1

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

Attention, viewers, do not try anything you're about to see at home.

2

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

We're what you call experts.

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

On this blockbusting epic episode of Mythbusters...

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

James Cameron...

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

Yeah, baby.

6

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

This is James Frickin' Cameron.

7

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

...has a conundrum.

8

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

I am indeed James Frickin' Cameron.

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

Thousands of furious fans flooding the Internet claim Cameron got it wrong.

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

It's alive!

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

That rose...

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

Don't call me Rose.

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

...and Jack...

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

Hope, Hope, Hope could have both lived to tell their Titanic tale

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

by sharing their floating fluxes.

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

Stay on it! Stay on Rose!

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

Meanwhile, surfs up, up and away for Carrie Grant, Tori...

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

You could possibly go wrong.

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

...and Buster.

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

Our trio of intrepid rocket scientists ask...

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

Yeah, that was a crazy one.

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

Can you really catch a wild, rad ride with rockets?

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

You're dead!

24

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

Who are the Mythbusters?

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00:01:10,000 --> 00:01:11,000

Adam Savage...

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00:01:11,000 --> 00:01:13,000

I reject your reality and substitute my own.

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

...and Jamie Heinemann.

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

We're gonna have an adventure.

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00:01:16,000 --> 00:01:21,000

...between them more than 30 years of special effects experience...

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00:01:21,000 --> 00:01:23,000

...together with Tori Valenci...

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

Time to go, Diane.

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

...Grant Imajaro...

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

Start the car!

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00:01:27,000 --> 00:01:28,000

...and Carrie Byron.

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00:01:28,000 --> 00:01:29,000

Fire!

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00:01:30,000 --> 00:01:32,000

They don't just tell the Myths...

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

They put them to the test.

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00:01:42,000 --> 00:01:45,000

First up, Adam and Jamie tackle an internet sensation...

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00:01:45,000 --> 00:01:49,000

...that's causing an A-list viewer extreme vexation.

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00:01:50,000 --> 00:01:51,000

Hey.

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00:01:51,000 --> 00:01:56,000

Hey, we have a very exciting Myth today from an unbelievably special viewer.

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00:01:56,000 --> 00:01:57,000

Who's that?

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00:01:57,000 --> 00:01:59,000

None other than James Cameron.

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

You mean that guy that went to the bottom of the Marianas Trench?

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

That's the guy.

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

I was thinking of him more as a movie director, but yes, that's the guy.

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00:02:06,000 --> 00:02:11,000

So, James Cameron also directs movies, is what you're telling me?

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

Yes, he does.

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

Really?

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

So what's his myth?

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00:02:14,000 --> 00:02:16,000

Actually, I think we should talk to him.

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

Okay.

53

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

Hey, James.

54

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

Hey, could you tell Jamie what you told me?

55

00:02:25,000 --> 00:02:26,000

Sure.

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

So for the last few months since I released Titanic in 3D,

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00:02:29,000 --> 00:02:35,000

I've been getting dozens of emails every day saying that Rose is a selfish so-and-so,

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00:02:35,000 --> 00:02:37,000

and Jack's an idiot.

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00:02:37,000 --> 00:02:39,000

Who are Rose and Jack?

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

Two main characters of the movie.

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00:02:42,000 --> 00:02:47,000

All right, Jamie, at the end of the film, Titanic, Rose and Jack are distributed among the detritus of the sunken ship,

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00:02:47,000 --> 00:02:51,000

and Rose is perched on a piece of wood, and Jack is not.

63

00:02:52,000 --> 00:02:54,000

Because there wasn't enough buoyancy to support both of them?

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00:02:54,000 --> 00:02:59,000

Right, and Jack makes the ultimate sacrifice, and he dies so that Rose can live.

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

Right, so anyway, these thousands of fans think that I got it wrong,

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

and that they both could have been supported by the board, and they both could have lived,

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

so this is what I want you guys to test.

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

Wait, so you made a movie about the Titanic?

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

Yes.

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00:03:13,000 --> 00:03:14,000

Why would you do that?

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

We already know how it ends.

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

He doesn't get out much, does he?

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00:03:18,000 --> 00:03:19,000

No, he doesn't.

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00:03:20,000 --> 00:03:26,000

The movie, the second highest grossing of all time, was anything but a disaster,

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00:03:26,000 --> 00:03:29,000

but the ending has caused a storm of protest.

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00:03:30,000 --> 00:03:33,000

Dispens to survive in the freezing cold North Atlantic.

77

00:03:33,000 --> 00:03:35,000

Stay on it. Stay on, Rose.

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00:03:35,000 --> 00:03:39,000

Jack and Rose attempt to clamber onto a piece of debris,

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00:03:39,000 --> 00:03:42,000

and seemingly there's room aboard for just one,

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00:03:42,000 --> 00:03:48,000

and Jack, being the noble hero he is, sacrifices himself to keep Rose's head above water.

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00:03:49,000 --> 00:03:53,000

But multitudes of Titanic and MythBuster fans don't believe it.

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00:03:53,000 --> 00:03:58,000

James Cameron's inbox has been flooded with the theory that both hero and heroine

83

00:03:58,000 --> 00:04:01,000

could have lived to tell their Titanic tale.

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

Okay, so I need you guys to find out who's right.

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

These so-called fans are my movie.

86

00:04:07,000 --> 00:04:10,000

Okay, it seems to me the place we start is with buoyancy.

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00:04:10,000 --> 00:04:14,000

The question is, could the board possibly have supported both Rose and Jack?

88

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

I agree, but the second issue is about survivors.

89

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

The second issue is about survival in those freezing conditions.

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

You mean, if they both could have died regardless of the board?

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00:04:23,000 --> 00:04:24,000

Exactly.

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00:04:24,000 --> 00:04:28,000

What's the agate started doing, some small-scale testing with the mini-board and the mini-Rose and Jack?

93

00:04:28,000 --> 00:04:31,000

Why don't I start to prep for some hypothermia tests?

94

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

And I'll get back to sweeping up.

95

00:04:33,000 --> 00:04:34,000

Awesome.

96

00:04:34,000 --> 00:04:38,000

So the epic full-scale Jack and Rose reenactment comes later.

97

00:04:38,000 --> 00:04:41,000

Let's see, here we can both get on this thing.

98

00:04:41,000 --> 00:04:46,000

Because this Titanic tale won't set sail until it's been tested in safer waters.

99

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

Where the guys opt for an efficient division of labor.

100

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

Jamie's taking charge of how to quantify and replicate the hero's hypothermia.

101

00:04:54,000 --> 00:04:58,000

And grumble about the lack of logic in love.

102

00:04:58,000 --> 00:05:01,000

While Adam's cutting things down to size.

103

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

Okay, the myth in miniature. So what are you gonna do?

104

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

I'm glad you asked. I'm gonna start by playing with dolls.

105

00:05:07,000 --> 00:05:09,000

I'm gonna make some very accurate dolls of Rose and Jack,

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00:05:09,000 --> 00:05:13,000

accurate both in terms of their size, but also in their weight.

107

00:05:14,000 --> 00:05:18,000

And then I'm gonna put them on a piece of wood that is exactly the same type of wood as the original.

108

00:05:18,000 --> 00:05:19,000

Right, so white oak.

109

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

Yes, and basically put that in a tub full of salty water and see what happens.

110

00:05:23,000 --> 00:05:25,000

And prove my movie was right.

111

00:05:25,000 --> 00:05:26,000

Maybe.

112

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

Yeah, maybe.

113

00:05:27,000 --> 00:05:31,000

With Adam's quarter-sized dolls cut and sewn, they're ready to put on some weight.

114

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

Exactly how much is kind of clever.

115

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

Now, given that this guy is one quarter my size, does that make him one quarter my weight?

116

00:05:38,000 --> 00:05:39,000

No!

117

00:05:39,000 --> 00:05:42,000

Let me explain, because most people get this wrong.

118

00:05:42,000 --> 00:05:45,000

This is a two-inch cube of aluminum.

119

00:05:45,000 --> 00:05:49,000

This is exactly one quarter scale, a half-inch cube of aluminum.

120

00:05:49,000 --> 00:05:52,000

This one weighs 352 grams.

121

00:05:52,000 --> 00:05:55,000

This one weighs 5.5 grams.

122

00:05:55,000 --> 00:05:57,000

Actually, just a shade under.

123

00:05:57,000 --> 00:05:58,000

How do we get there from there?

124

00:05:58,000 --> 00:06:01,000

Well, what you do is you scale by what's called the cube root.

125

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

That means three separate times, because there are three separate dimensions, length, width, and height.

126

00:06:05,000 --> 00:06:08,000

You take 352 and divide it by four.

127

00:06:08,000 --> 00:06:13,000

You're again divided by four one more time and you get 5.5 grams.

128

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

Isn't that cool?

129

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

Add to achieve the correctly scaled weight, Adam fills the dolls with beans and knowledge.

130

00:06:20,000 --> 00:06:21,000

Ready, Jack?

131

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

I'm going to fill your head full of knowledge.

132

00:06:23,000 --> 00:06:24,000

Learn that stuff.

133

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

Yeah, it's good for you.

134

00:06:26,000 --> 00:06:27,000

Science.

135

00:06:27,000 --> 00:06:28,000

Math.

136

00:06:28,000 --> 00:06:33,000

Next up, Adam brings the same scaling rigor to the key prop piece.

137

00:06:33,000 --> 00:06:38,000

Using the same type of wood, he accurately scales each dimension by a quarter.

138

00:06:38,000 --> 00:06:43,000

And with a final coat of theatrical magic, perfect.

139

00:06:43,000 --> 00:06:48,000

Adam is just a bathtub full of salty seawater, sure of being ready.

140

00:06:48,000 --> 00:06:49,000

Excellent.

141

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

We are at a proper level of ocean salinity.

142

00:06:52,000 --> 00:06:55,000

All right, we're getting ready for a quarter scale test.

143

00:06:55,000 --> 00:07:00,000

I've got my piece of wood that Rose floated on and I've got a scale weighted Rose.

144

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

We should see identical behavior to the full-size one.

145

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

Here we go.

146

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

Rose lies down on it.

147

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

Oh, oh, that actually, wow.

148

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

In the movie, you can see that it's lapping on most of the board and that's exactly what we're getting here.

149

00:07:16,000 --> 00:07:17,000

So far, so good.

150

00:07:17,000 --> 00:07:22,000

Adam's eye for detailed and mathematically accurate scaling has paid off.

151

00:07:22,000 --> 00:07:25,000

Now, what about the myth itself?

152

00:07:25,000 --> 00:07:27,000

Could Jack have jumped aboard?

153

00:07:27,000 --> 00:07:28,000

Here we go.

154

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

Jack and Rose.

155

00:07:30,000 --> 00:07:31,000

Nope.

156

00:07:31,000 --> 00:07:32,000

Whoa, whoa, whoa.

157

00:07:32,000 --> 00:07:33,000

They're about sinking.

158

00:07:33,000 --> 00:07:34,000

Hold on.

159

00:07:34,000 --> 00:07:38,000

It doesn't look like they can stay afloat.

160

00:07:38,000 --> 00:07:44,000

That means this maiden voyage myth is on thin ice and the movie's looking like the real deal.

161

00:07:44,000 --> 00:07:46,000

Science is on my side.

162

00:07:46,000 --> 00:07:51,000

So what we see in the movie where he tries to climb on and the thing starts to zip over,

163

00:07:51,000 --> 00:07:53,000

seems like it's totally accurate.

164

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

There they go.

165

00:07:54,000 --> 00:07:59,000

Well, it seems that all the time I spent making my dolls exactly one quarter scale to their counterparts

166

00:07:59,000 --> 00:08:02,000

and using the exact same wood for the wood piece has paid off.

167

00:08:02,000 --> 00:08:04,000

We've learned some important things in scale.

168

00:08:04,000 --> 00:08:11,000

First and foremost, it would seem that all the behavior we see out of this piece of wood in the movie is accurate to reality.

169

00:08:11,000 --> 00:08:15,000

It is just barely buoyant enough to hold Rose's body out of the water.

170

00:08:15,000 --> 00:08:20,000

It also appears that it is not buoyant enough to keep Rose and Jack's body out of the water.

171

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

Now, of course, Jamie and I are going to experiment with this in full scale.

172

00:08:24,000 --> 00:08:26,000

Yep, it's too early to call it yet.

173

00:08:26,000 --> 00:08:28,000

There they go.

174

00:08:28,000 --> 00:08:29,000

No.

175

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

Because the problem is not just about buoyancy.

176

00:08:33,000 --> 00:08:41,000

To find out if the film failed in the survivability stakes, Adam and Jamie will examine every aspect of cold water endurance.

177

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

It's alive.

178

00:08:43,000 --> 00:08:46,000

Enter thermal man.

179

00:08:46,000 --> 00:08:47,000

There it goes.

180

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

Whoa.

181

00:08:48,000 --> 00:08:52,000

Adam and Jamie, Cyborg Midwives.

182

00:08:52,000 --> 00:09:01,000

Up next, Carrie, Grant and Tori are counting down to a wet and wild lift off.

183

00:09:01,000 --> 00:09:05,000

All right, I have a myth for you guys that I have been wanting to try since I started surfing.

184

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

What?

185

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

A California surfer moves to the Midwest and gets a little frustrated.

186

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

Oh, let me guess.

187

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

No waves, dude.

188

00:09:13,000 --> 00:09:14,000

Exactly.

189

00:09:14,000 --> 00:09:19,000

But instead of getting bummed out, he decides to make a rocket powered surfboard.

190

00:09:19,000 --> 00:09:20,000

Are you kidding me?

191

00:09:20,000 --> 00:09:21,000

Are you making this up?

192

00:09:21,000 --> 00:09:22,000

No.

193

00:09:22,000 --> 00:09:23,000

Is that perfect?

194

00:09:23,000 --> 00:09:27,000

He takes a giant rocket, straps it to a surfboard, heads out onto a flat lake.

195

00:09:27,000 --> 00:09:28,000

It starts surfing.

196

00:09:28,000 --> 00:09:29,000

Okay.

197

00:09:29,000 --> 00:09:30,000

No waves, no problem.

198

00:09:30,000 --> 00:09:31,000

I like it.

199

00:09:31,000 --> 00:09:39,000

The story goes that a souped up surfboard gave its rider a 20 miles per hour ride for 30 nail biting seconds.

200

00:09:39,000 --> 00:09:45,000

But could a single super-sized rocket really turn a languid lake into a radical ride?

201

00:09:45,000 --> 00:09:48,000

Or will this myth be a Duncan disaster?

202

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

All right, what do you guys think?

203

00:09:50,000 --> 00:09:52,000

Okay, well, I have my doubts.

204

00:09:52,000 --> 00:09:56,000

Large rockets tend to have a lot of thrust in over a really small period of time.

205

00:09:56,000 --> 00:09:58,000

Fair enough, but you know, we have to start somewhere.

206

00:09:58,000 --> 00:10:02,000

Let's just start with Buster on a surfboard with one really big rocket.

207

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

All right, well, I know just the place.

208

00:10:04,000 --> 00:10:08,000

Look how gorgeous this is.

209

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

Man, it's totally flat.

210

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

There's no waves.

211

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

But that's no problem for us.

212

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

No problem at all.

213

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

We're here at the Quarry Lakes at the East Bay Regional Parks District so that we can test the rocket surfer myth.

214

00:10:20,000 --> 00:10:28,000

Now, this myth is where a guy straps one big rocket to his surfboard and sails across the lake going 20 miles an hour for a 30-second ride.

215

00:10:28,000 --> 00:10:29,000

Why?

216

00:10:29,000 --> 00:10:30,000

Because lakes are flat.

217

00:10:30,000 --> 00:10:31,000

They don't have waves.

218

00:10:31,000 --> 00:10:37,000

No matter what, this is going to be an awesome day.

219

00:10:37,000 --> 00:10:39,000

You guys ready to rocket?

220

00:10:39,000 --> 00:10:41,000

Yeah, myth Buster style.

221

00:10:41,000 --> 00:10:46,000

This is our rocket surfboard, just like the myth, one big rocket.

222

00:10:46,000 --> 00:10:47,000

It's surfs up, dude.

223

00:10:47,000 --> 00:10:51,000

Now, because we don't know exactly what's going to happen, we're going to use Buster.

224

00:10:51,000 --> 00:10:54,000

And because Buster can't stand, I've built this back to the shop.

225

00:10:54,000 --> 00:10:57,000

We're going to attach it to this and see how it goes.

226

00:10:57,000 --> 00:10:59,000

Nice pose, dude.

227

00:10:59,000 --> 00:11:01,000

This is our rocket motor stand.

228

00:11:01,000 --> 00:11:03,000

This is what goes inside of it.

229

00:11:03,000 --> 00:11:04,000

It's a Cesaroni K-Motor.

230

00:11:04,000 --> 00:11:12,000

You may remember from our James Bond ejector seat episode, four of these is enough to launch a guy straight up in the air about 25 feet.

231

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

Fire!

232

00:11:18,000 --> 00:11:23,000

And because we're not fighting gravity on this, one of these should be more than enough to surf a lake.

233

00:11:23,000 --> 00:11:28,000

The actual details of the rocket and the myth are few and far between.

234

00:11:28,000 --> 00:11:29,000

Ouchy.

235

00:11:29,000 --> 00:11:30,000

That's right. It's built for comfort.

236

00:11:30,000 --> 00:11:38,000

But the advantage of their K-Motor is that it's both powerful and relatively available, making it a realistic rocket of choice.

237

00:11:38,000 --> 00:11:42,000

Is it just me or are we actually strapping rockets to a surfboard?

238

00:11:42,000 --> 00:11:48,000

With Buster ready to ride, all that's left for this surfing saga is a helping hand.

239

00:11:48,000 --> 00:11:56,000

So we've learned through all of our various rocket experiments through the years, it's really important to keep your rocket stable using a rail system.

240

00:11:56,000 --> 00:12:03,000

It's exactly what this is. This is a 20 foot long guide rail. Hopefully keep the surfboard upright, at least for the first 20 feet.

241

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

Yep, the team has proven a stable launch is a prerequisite for a successful flight.

242

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

Oh, how's he looking?

243

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

All right, we're good.

244

00:12:11,000 --> 00:12:15,000

I hope this goes well, because if it does, I think I might want to go for a ride.

245

00:12:15,000 --> 00:12:21,000

Contrary to the don't try this at home mantra, Tori's keen to take a turn to test this for himself.

246

00:12:21,000 --> 00:12:22,000

All right, we're wired.

247

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

But first, let's see how badly Buster gets busted up.

248

00:12:29,000 --> 00:12:38,000

This is rocket surfer with one big rock. Here we go. In three, two, one.

249

00:12:42,000 --> 00:12:45,000

That looked a little dangerous.

250

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

That is a lot of thrust.

251

00:12:49,000 --> 00:12:51,000

That was a crazy flip.

252

00:12:51,000 --> 00:12:57,000

Crazy flip is right. The moment Buster left the guide rail, he went heels overhead, literally.

253

00:12:57,000 --> 00:13:01,000

So our rocket surfer got a perfect 10 for gymnastics. We got a nice loop doodle.

254

00:13:01,000 --> 00:13:07,000

What I think happened is that we had all of our weight in the back of the surfboard, as well as a huge amount of power.

255

00:13:07,000 --> 00:13:12,000

And it pulled all at once, pushing our surfboard to curve upward and flip over.

256

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

Don't die on me.

257

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

You gonna be all right?

258

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

Nah, he's dead.

259

00:13:17,000 --> 00:13:18,000

He's dead.

260

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

Buster may be dead in the water, but the myth is hanging on.

261

00:13:24,000 --> 00:13:28,000

The team has a few ideas that might just bring it back to life.

262

00:13:29,000 --> 00:13:33,000

Coming up when a Hollywood big hitter asked for myth-busting help.

263

00:13:33,000 --> 00:13:37,000

It's like I just picked up all of my blood veins and light them on the table.

264

00:13:37,000 --> 00:13:41,000

Dr. Frankenheinemann makes a human metabolism.

265

00:13:41,000 --> 00:13:43,000

It's beating just like a heart.

266

00:13:49,000 --> 00:14:00,000

In 1912, the Titanic hit her iceberg nemesis and has lain in the eerie deep of the North Atlantic ever since.

267

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

But in 2012, the ship has hit the fan for the movie. The fans are in a furious fever over the ending.

268

00:14:08,000 --> 00:14:13,000

So far, in small scale at least, it looks like Mr. Cameron nailed it.

269

00:14:13,000 --> 00:14:16,000

It doesn't look like they can stay afloat.

270

00:14:17,000 --> 00:14:18,000

Science is on my side.

271

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

But the guys aren't stopping there.

272

00:14:20,000 --> 00:14:28,000

To test the mortal limits of hypothermia, they're creating a stand-in with a circulatory system made from superconductive copper,

273

00:14:28,000 --> 00:14:32,000

embedded in gel, close to the density of human flesh.

274

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

It's complex and very, very cool.

275

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

I think that ought to work just fine.

276

00:14:37,000 --> 00:14:41,000

Look, this whole thing boils down to whether the way their survival was portrayed was accurate.

277

00:14:41,000 --> 00:14:47,000

In addition to the main question, was the board big enough, we also need to know whether board or no board,

278

00:14:47,000 --> 00:14:52,000

anyone could have survived temperatures identical to those the day the Titanic sank.

279

00:14:52,000 --> 00:14:57,000

We need to know whether Jack and Rose would have survived long enough to be rescued.

280

00:14:57,000 --> 00:15:02,000

To find out, we're going to have to do some high-tech hypothermic testing to answer that question.

281

00:15:02,000 --> 00:15:07,000

And the crucial reference for those tests is how long did it take for rescue?

282

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

Alright, James, so for our hypothermia testing, we need to know exactly how long it took Rose to be rescued,

283

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

but in the film, it's a little ambiguous.

284

00:15:20,000 --> 00:15:21,000

What's the answer?

285

00:15:21,000 --> 00:15:26,000

We show her getting rescued by 5th Officer Low, and he, according to survivor testimony,

286

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

started his search about 20 minutes after the ship sank.

287

00:15:29,000 --> 00:15:30,000

And how long did he search for?

288

00:15:30,000 --> 00:15:32,000

About 45 minutes.

289

00:15:32,000 --> 00:15:37,000

Okay, so he could have found her anywhere between 20 and 65 minutes after she hits the water.

290

00:15:37,000 --> 00:15:41,000

Alright, but let's push it toward the back end, because we show her in the movie being one of the last ones rescued.

291

00:15:41,000 --> 00:15:44,000

He's almost ready to give up when he hears her whistle.

292

00:15:44,000 --> 00:15:48,000

So let's say she blows her whistle at 63 minutes? Does that sound reasonable?

293

00:15:48,000 --> 00:15:49,000

Yeah, perfect.

294

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

Cue Dr. Frankin Heinemann.

295

00:15:52,000 --> 00:15:57,000

It's like I just picked up all of my blood veins and laid them on the table.

296

00:15:57,000 --> 00:16:01,000

All this plumbing right here is the cardiovascular system of our dummy.

297

00:16:01,000 --> 00:16:07,000

Now the idea is to supply the same amount of heat to this dummy as your metabolism supplies you.

298

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

So to do that, we're going to have a reservoir of blood, which is basically water.

299

00:16:12,000 --> 00:16:17,000

That water will be picked up by this pump and pumped into the intake of our vascular system here.

300

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

It's alive!

301

00:16:19,000 --> 00:16:21,000

And it'll just keep circulating.

302

00:16:21,000 --> 00:16:23,000

It's beating just like a heart.

303

00:16:23,000 --> 00:16:25,000

I'd say we're in business.

304

00:16:25,000 --> 00:16:28,000

That's the heart and pump system.

305

00:16:28,000 --> 00:16:32,000

But how will thermoman generate heat like a real human?

306

00:16:32,000 --> 00:16:37,000

The metabolism of our dummy in this case is replaced by this 300 watt fish tank heater.

307

00:16:37,000 --> 00:16:43,000

It will be able, under neutral conditions, to keep his body temperature at 98.6 degrees Fahrenheit.

308

00:16:43,000 --> 00:16:47,000

When we immerse him, however, it won't be able to keep up and his body temperature will start to drop.

309

00:16:47,000 --> 00:16:49,000

We'll monitor that on this.

310

00:16:49,000 --> 00:16:56,000

A thermocouple embedded right into the intake tube so we'll be able to see directly how quickly his body temperature drops.

311

00:16:56,000 --> 00:17:04,000

So thermoman's gelatin flesh has been poured into his human-shaped mold, surrounding and supporting his copper veins.

312

00:17:04,000 --> 00:17:06,000

And once Jamie tops that off with a head...

313

00:17:06,000 --> 00:17:09,000

Oh, look at you, you handsome devil.

314

00:17:09,000 --> 00:17:11,000

...and cracks open the mold...

315

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

There it goes.

316

00:17:12,000 --> 00:17:13,000

Oh!

317

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

Adam and Jamie, cyborg midwife.

318

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

Our stand-in Jack and Rose is looking good.

319

00:17:19,000 --> 00:17:23,000

That looks creepy and upsetting and awesome all at the same time.

320

00:17:23,000 --> 00:17:30,000

And once they turn it on and the water flooding through the copper coils is at body temperature, it looks even better.

321

00:17:30,000 --> 00:17:33,000

Hey, Adam, come check this out.

322

00:17:33,000 --> 00:17:34,000

Oh!

323

00:17:34,000 --> 00:17:36,000

Look at the coils.

324

00:17:36,000 --> 00:17:39,000

That is so cool. It is totally working.

325

00:17:39,000 --> 00:17:43,000

It also looks like it's heating up the flesh around the coils.

326

00:17:43,000 --> 00:17:46,000

You can see exactly where it's heating it up.

327

00:17:46,000 --> 00:17:49,000

Well, we've got Thermoboy here up to 98.6.

328

00:17:49,000 --> 00:17:58,000

So it would seem that our cardiovascular system is up to the task of providing enough heat to our body to be equivalent to a normal human.

329

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

Everything's working!

330

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

Ah, that's awesome.

331

00:18:02,000 --> 00:18:04,000

Now it's time for him to go for a little swim.

332

00:18:13,000 --> 00:18:17,000

What happens when you haven't got access to waves or a green screen?

333

00:18:17,000 --> 00:18:20,000

Supposedly, we try rockets.

334

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

But so far, surf is far from up.

335

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

And that's the bad news for Tori, because he's desperate to test this myth himself.

336

00:18:29,000 --> 00:18:33,000

However, our team of budding rocket scientists has a plan.

337

00:18:33,000 --> 00:18:35,000

Oh, yummy!

338

00:18:35,000 --> 00:18:37,000

Alright, so it looks like our fears were confirmed.

339

00:18:37,000 --> 00:18:40,000

The big rocket just has too much of an initial hit for him to surf.

340

00:18:40,000 --> 00:18:42,000

But I want to give him the benefit of the doubt.

341

00:18:42,000 --> 00:18:45,000

Maybe he did some sort of configuration of small rockets.

342

00:18:45,000 --> 00:18:47,000

You know, that's not a bad idea.

343

00:18:47,000 --> 00:18:51,000

I mean, we could take the small rockets, configure them in a way, so we get a slow ramp up,

344

00:18:51,000 --> 00:18:53,000

and it's not too big of a thrust to knock the surfer off,

345

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

and we could extend the ride to get that 30-second ride that the myth talks about.

346

00:18:57,000 --> 00:19:01,000

You know what? We could start by pulling you on a skateboard, faster and faster,

347

00:19:01,000 --> 00:19:05,000

and find out what the maximum acceleration is that you can hang on without falling off.

348

00:19:05,000 --> 00:19:08,000

Well, it's a great idea, and then we could use that number as our rocket threshold.

349

00:19:09,000 --> 00:19:14,000

Whenever you have to wear padding for science, things generally go horribly wrong.

350

00:19:14,000 --> 00:19:17,000

So to find out the maximum g-force that Tori can handle...

351

00:19:17,000 --> 00:19:20,000

What could possibly go wrong?

352

00:19:20,000 --> 00:19:25,000

Without falling over, they're going to yank Tori faster.

353

00:19:25,000 --> 00:19:27,000

And faster.

354

00:19:30,000 --> 00:19:32,000

Wow, that was intense.

355

00:19:32,000 --> 00:19:35,000

Until the acceleration delivers a g-force he can't handle.

356

00:19:35,000 --> 00:19:40,000

Tori acceleration at 60% capacity in 3, 2, 1.

357

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

Whoa!

358

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

Just like that.

359

00:19:47,000 --> 00:19:50,000

Okay, so this right here is the information from the data logger.

360

00:19:50,000 --> 00:19:55,000

Along this axis is time, and along this axis is the g-load.

361

00:19:55,000 --> 00:19:58,000

You can see here the peak is at 0.8 g's.

362

00:19:58,000 --> 00:20:04,000

So what this means is that none of our rocket tests should exceed 0.8 g's.

363

00:20:04,000 --> 00:20:07,000

That way we know that he'll be able to hang on.

364

00:20:09,000 --> 00:20:12,000

And that all means to get this myth off the ground,

365

00:20:12,000 --> 00:20:17,000

they require a surfboard rocket rig that'll have a thrust below 0.8 g's,

366

00:20:17,000 --> 00:20:22,000

but still hit the myth specified 20 miles an hour for 30 seconds.

367

00:20:22,000 --> 00:20:24,000

Rocket pulling.

368

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

And the plan is to use several banks of smaller rockets in a series of ignitions.

369

00:20:29,000 --> 00:20:33,000

Each of these smaller rockets give us around 2 pounds of thrust.

370

00:20:33,000 --> 00:20:36,000

Now our surfer and the surfboard weigh 180 pounds,

371

00:20:36,000 --> 00:20:38,000

and we need to get that weight up to 20 miles an hour.

372

00:20:38,000 --> 00:20:42,000

So we're going to need 20 model rockets for that initial stage.

373

00:20:42,000 --> 00:20:45,000

Now if this works, then we need to continue that thrust

374

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

because these only last for 3 seconds.

375

00:20:47,000 --> 00:20:51,000

At that point we're going to have to figure out how many rockets we need for the second stage

376

00:20:51,000 --> 00:20:54,000

and at what time that second stage needs to go off.

377

00:20:54,000 --> 00:20:57,000

With the surfboard prepped and Tori's rockets ready to roll,

378

00:20:57,000 --> 00:21:01,000

it's down to Treasure Island to find out if this myth has struck gold.

379

00:21:01,000 --> 00:21:03,000

Why does this thing weigh so much?

380

00:21:03,000 --> 00:21:05,000

Because you're a fat guy.

381

00:21:05,000 --> 00:21:08,000

So here's our somewhat complicated setup for today's experiment.

382

00:21:08,000 --> 00:21:14,000

First of all, we're going to drape a guide cable the entire length of this somewhat murky water channel.

383

00:21:14,000 --> 00:21:16,000

And we'll put the surfboard down in there.

384

00:21:16,000 --> 00:21:17,000

We have touchdown.

385

00:21:17,000 --> 00:21:19,000

And connect it up to the guide cable.

386

00:21:19,000 --> 00:21:22,000

I think I'm going to need an antibacterial shower after this.

387

00:21:22,000 --> 00:21:25,000

Next we'll install the rockets and then we're ready to go.

388

00:21:25,000 --> 00:21:27,000

We'll fire them off.

389

00:21:27,000 --> 00:21:29,000

Alright, the rockets are wired.

390

00:21:29,000 --> 00:21:33,000

To collect data, we have our onboard accelerometer and our high speed camera.

391

00:21:33,000 --> 00:21:36,000

Tori's weight equivalent is strapped to the surfboard

392

00:21:36,000 --> 00:21:39,000

and the 20 rocket stage one is ready for ignition.

393

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

It's time for launch.

394

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

Alright, this is acceleration test for rocket surfer.

395

00:21:44,000 --> 00:21:47,000

Alright, here we go in 3, 2, 1, fire.

396

00:21:52,000 --> 00:21:54,000

Awesome!

397

00:21:54,000 --> 00:21:58,000

My gosh, that was beautiful.

398

00:21:58,000 --> 00:22:00,000

It was a slow controlled acceleration.

399

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

And with a peak velocity close to the 20 miles an hour they need, this myth is on the up and up.

400

00:22:06,000 --> 00:22:07,000

This is great.

401

00:22:07,000 --> 00:22:10,000

We got a measurement of 0.6 Gs on takeoff.

402

00:22:10,000 --> 00:22:12,000

That's a little bit less than our predicted model.

403

00:22:12,000 --> 00:22:19,000

But the important thing is that it's below 0.8 Gs, which means Tori will be able to hang on in that situation.

404

00:22:19,000 --> 00:22:21,000

Now it's under the two stage test.

405

00:22:21,000 --> 00:22:26,000

So now that we know how many rockets we need to push my weight 20 miles an hour, just like the myth says,

406

00:22:26,000 --> 00:22:29,000

it's time to figure out how to sustain that ride for 30 seconds.

407

00:22:29,000 --> 00:22:34,000

So what I'm going to do is take a second bake of rockets and use a time fuse to extend the ride.

408

00:22:34,000 --> 00:22:36,000

Alright, rockets are loaded.

409

00:22:37,000 --> 00:22:43,000

Alright, here we go. This is two stage rocket on the surfboard in 3, 2, 1, fire.

410

00:22:49,000 --> 00:22:52,000

That's the sound of happy rocket scientists.

411

00:22:52,000 --> 00:22:56,000

Stage one fired and produced a gentle rideable start.

412

00:22:56,000 --> 00:23:01,000

Then stage two kicked in to extend the ride, just as they'd hoped.

413

00:23:01,000 --> 00:23:04,000

So we learned two important pieces of information today.

414

00:23:04,000 --> 00:23:12,000

First, that 20 rockets is enough to give us a start up G load of 0.6 Gs, which is something that Tori should be able to ride.

415

00:23:12,000 --> 00:23:19,000

Second, we can sustain our ride and maintain our speed by delaying the firing of the next stage by two seconds.

416

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

Now we just need to add more stages to get that 30 second ride.

417

00:23:24,000 --> 00:23:28,000

The real question is, how much fun is it going to be when I ride it?

418

00:23:35,000 --> 00:23:37,000

Welcome back. I'm Jim Cameron and this is MythBusters.

419

00:23:37,000 --> 00:23:43,000

Adam and Jamie are manning the lifeboats for the most requested tall tale that the guys have ever tackled.

420

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

Remember kids, in order to perform science you need patience.

421

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

Patience willing to be subjected to dangerous experiments.

422

00:23:49,000 --> 00:23:54,000

And the patient willing to take a leafily cold dip is Thermoman.

423

00:23:54,000 --> 00:23:59,000

The question is, could Rosenjak have survived on that piece of wood until rescue came?

424

00:23:59,000 --> 00:24:04,000

And it all boils down to how long the human body can stave off hypothermia.

425

00:24:04,000 --> 00:24:08,000

Now we know medically how long the human body can stave off hypothermia if it's immersed in water.

426

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

But if you're out of the water in wet clothes and the air is the same temperature, how long then?

427

00:24:13,000 --> 00:24:18,000

Is there a difference? My intuition tells me that there is, but that's what we are testing for.

428

00:24:18,000 --> 00:24:21,000

We've got to add a little more North Atlantic.

429

00:24:21,000 --> 00:24:26,000

First we're going to immerse our fully clothed dummy in 29 degree Fahrenheit water

430

00:24:26,000 --> 00:24:29,000

and see how long it takes for him to reach hypothermia.

431

00:24:29,000 --> 00:24:33,000

Can I just tell you I'm so glad it's not me doing this test?

432

00:24:33,000 --> 00:24:37,000

Then we're going to pull him out, warm him up to his normal temperature

433

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

and put him in his wet clothing in 29 degree Fahrenheit air

434

00:24:42,000 --> 00:24:46,000

and see how long it takes for him to reach hypothermia there.

435

00:24:46,000 --> 00:24:50,000

So that's the cold bath plan, but is it accurate?

436

00:24:53,000 --> 00:24:57,000

So what can you tell me about the climatic conditions Rosenjak were facing?

437

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

Well it turns out there were really good records from the night of the sinking

438

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

and the water temperature would have been hovering just below freezing.

439

00:25:04,000 --> 00:25:07,000

So around 28, 29 degrees Fahrenheit.

440

00:25:07,000 --> 00:25:08,000

Hence the icebergs?

441

00:25:08,000 --> 00:25:11,000

Yeah, exactly, but what's interesting is the air temperature was almost identical.

442

00:25:11,000 --> 00:25:17,000

So it was about 33 degrees at the time of the collision, but by the time it rose,

443

00:25:19,000 --> 00:25:24,000

by the time it rose is rescue about 3 a.m. and it come down to 29 degrees.

444

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

So your 29 degree comparison would be right on.

445

00:25:27,000 --> 00:25:28,000

Excellent.

446

00:25:28,000 --> 00:25:32,000

So with the director's seal of approval, Jack is warm to human body temperature

447

00:25:32,000 --> 00:25:33,000

and ready for action.

448

00:25:33,000 --> 00:25:34,000

Let's go.

449

00:25:34,000 --> 00:25:37,000

The conduction of this test is going to be pretty straightforward.

450

00:25:37,000 --> 00:25:41,000

Jamie with a little assistance is going to dunk our dummy in cold North Atlantic water.

451

00:25:41,000 --> 00:25:46,000

I will be monitoring his temperature drop every 30 seconds until he's dead.

452

00:25:46,000 --> 00:25:51,000

And after 10 minutes with Thermoboy's temperature dropping significantly,

453

00:25:51,000 --> 00:25:54,000

we catch a rare glimpse of Jamie's tender side.

454

00:25:54,000 --> 00:25:56,000

How you doing there, little buddy?

455

00:25:56,000 --> 00:25:57,000

Real tender.

456

00:25:57,000 --> 00:25:59,000

Sweet cheeks.

457

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

As you move towards 96 degrees, you're shivering.

458

00:26:03,000 --> 00:26:08,000

As you move towards 91 degrees, you're shivering violently and uncontrollably.

459

00:26:08,000 --> 00:26:13,000

All this is a good thing because that's what your body is doing to keep you warm and alive.

460

00:26:13,000 --> 00:26:19,000

As you go beyond 91 degrees, you stop shivering and that's a bad thing.

461

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

Ow!

462

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

That water is cold.

463

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

Our body is at 85 degrees at this point.

464

00:26:25,000 --> 00:26:32,000

He is on a solid trajectory towards dying, experiencing almost full immobility and stupor.

465

00:26:32,000 --> 00:26:35,000

Yep, and the key symptom at this stage of hypothermia,

466

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

loss of motor control means Jack, unable to hang onto the board, would have drowned by now.

467

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

What's your diagnosis, Dr. Heidemann?

468

00:26:43,000 --> 00:26:44,000

He's dead.

469

00:26:44,000 --> 00:26:49,000

A diagnosis reached long before the 63-minute rescue time.

470

00:26:49,000 --> 00:26:53,000

So far, so good for the survival times portrayed in the movie.

471

00:26:53,000 --> 00:26:58,000

Remember, kids, the only difference between screwing around and science is writing it down.

472

00:26:58,000 --> 00:27:04,000

Now, with Thermoman warm back up to body temperature, what about survival on the board?

473

00:27:04,000 --> 00:27:06,000

Three, two, one, here we go.

474

00:27:06,000 --> 00:27:12,000

Out of the water, in 29-degree air, would Rose have survived to die warm in her bed?

475

00:27:12,000 --> 00:27:19,000

If Jack could have got on board, would there have been a happy ending to the biggest disaster movie of all time?

476

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

This is interesting. In 23 minutes, our guy out of the water is at 90.7 degrees.

477

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

At the same time, in the cold water, he was at 90 degrees.

478

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

So we're pretty much almost neck and neck between both tests.

479

00:27:32,000 --> 00:27:40,000

So, in terms of retaining heat, there's only the slightest advantage to being on the board, except in one crucial respect.

480

00:27:40,000 --> 00:27:44,000

I should point out that Thermoboy has just passed the 85-degree mark,

481

00:27:44,000 --> 00:27:48,000

which is the point that he would be in a stupor and in a mobile.

482

00:27:48,000 --> 00:27:51,000

That means that if he was in the water, he'd probably drown.

483

00:27:51,000 --> 00:27:54,000

But he's not. He's on a board. He's in air.

484

00:27:54,000 --> 00:27:58,000

So he's got kind of a grace period here where he's not dead yet.

485

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

He's got a few degrees to go before that happens. He might get rescued.

486

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

Yup, below 82 degrees, death is a deadly certainty.

487

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

But at the time of rescue, Thermoman's core temperature was above that.

488

00:28:11,000 --> 00:28:18,000

So, again, the movie is accurate. Rose would have been alive just barely when the lifeboat arrived.

489

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

So what do we take away from all this?

490

00:28:20,000 --> 00:28:26,000

Well, if you're in subzero water and weather, the difference between being in that water or out of it and wet is pretty small,

491

00:28:26,000 --> 00:28:29,000

but there is an advantage to being out of the water.

492

00:28:29,000 --> 00:28:34,000

And, critically, once you pass 85 degrees core body temperature, you can no longer move your limbs.

493

00:28:34,000 --> 00:28:39,000

If you're in the water when that happens, you are nothing but a weight heading to the bottom of the sea.

494

00:28:39,000 --> 00:28:45,000

If you are on your board or boat or whatever you've got, you might just last until rescue.

495

00:28:45,000 --> 00:28:49,000

Quite simply, Jack's only chance of survival is to get on the board.

496

00:28:49,000 --> 00:28:51,000

But could he?

497

00:28:51,000 --> 00:28:53,000

There's only one way to answer that question.

498

00:28:53,000 --> 00:28:58,000

Adam and Janie are getting wet and intimate for science.

499

00:28:58,000 --> 00:29:01,000

Next on Mythbusters...

500

00:29:01,000 --> 00:29:03,000

What could possibly go wrong?

501

00:29:03,000 --> 00:29:07,000

Is Tori really going to ride a rocket-powered surfboard?

502

00:29:10,000 --> 00:29:13,000

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

503

00:29:13,000 --> 00:29:15,000

We're surrounded by experts that keep us safe.

504

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

We get hurt so you don't have to.

505

00:29:21,000 --> 00:29:27,000

Is it true with no waves in sight, you can power a surfboard with a rocket?

506

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

Resident human Crash Test dummy, that's Tori under the afro, is ready and willing to find out.

507

00:29:34,000 --> 00:29:39,000

So it's off to the perfect location, Quarry Lakes Regional Parks.

508

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

I'm a little nervous, what if the scene blows up?

509

00:29:42,000 --> 00:29:49,000

For the maiden launch of Bellachy's Bodacious Board, a board that has been extensively modified.

510

00:29:49,000 --> 00:29:51,000

Keel weight is installed.

511

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

We have a steel protective box so that our surfer won't get hit with any of the rocket flame.

512

00:29:56,000 --> 00:30:02,000

We have altered the shape of the surfboard, giving a little junk in the trunk to give us added stability of the way that outriggers would.

513

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

On the bottom, we've got a strake going along the board that will keep us in a nice straight line and not toss our surfer off.

514

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

We also have a weighted keel for extra stability.

515

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

So this is the rocket bank. We have over 200 rockets.

516

00:30:17,000 --> 00:30:19,000

The first bank of 30 will go off.

517

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

Now that'll get the surfer going so it doesn't just shoot from underneath his feet.

518

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

Now after that happens, there's a fuse that runs through the rest of the rocket.

519

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

So every 2 1.5 seconds, another bank of 15 will go off.

520

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

Keep the speed steady and to extend the ride to 30 seconds at 20 miles an hour.

521

00:30:35,000 --> 00:30:39,000

So it's the non-human crash test dummy that will be stepping up first.

522

00:30:39,000 --> 00:30:42,000

The team has to know it's going to be safe for Tori.

523

00:30:42,000 --> 00:30:44,000

He looks excited about this one.

524

00:30:44,000 --> 00:30:46,000

Same setup as before.

525

00:30:46,000 --> 00:30:53,000

Rail system out on the water, electric match to remotely ignite it from a safe distance and we'll see what happens.

526

00:30:53,000 --> 00:30:56,000

Alright, we're wired. Let's launch this guy.

527

00:30:56,000 --> 00:30:59,000

If it's safe, then it's Tori time.

528

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

Okay, here we go. This is Buster Rocket Surf.

529

00:31:04,000 --> 00:31:07,000

In 3, 2, 1...

530

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

Good launch, good launch!

531

00:31:12,000 --> 00:31:14,000

Look at that, look at that!

532

00:31:18,000 --> 00:31:20,000

That was awesome!

533

00:31:21,000 --> 00:31:25,000

Buster's Rocket Surf was an epic ride.

534

00:31:25,000 --> 00:31:27,000

That totally worked! That's awesome!

535

00:31:27,000 --> 00:31:30,000

He didn't fall in, he served it!

536

00:31:30,000 --> 00:31:35,000

Just that last jump made it a little scary to actually think Tori's going to be on the board.

537

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

I think it's time I suit up.

538

00:31:38,000 --> 00:31:40,000

I think so!

539

00:31:40,000 --> 00:31:44,000

I've already picked out a really nice bouquet to bring to him in the hospital.

540

00:31:44,000 --> 00:31:47,000

And I'm sure there are not that many stitches involved.

541

00:31:47,000 --> 00:31:48,000

I know!

542

00:31:51,000 --> 00:31:55,000

Welcome back. This is MythBusters and this is James Frickin' Cameron.

543

00:31:55,000 --> 00:31:57,000

I am indeed James Frickin' Cameron.

544

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

We've been testing a very controversial story here.

545

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

At the end of the movie Titanic, could Jack and Rose both have gotten onto the board and survived?

546

00:32:05,000 --> 00:32:09,000

So we conducted some small scale tests here in a tub in the shop.

547

00:32:09,000 --> 00:32:11,000

Jeez, and crow, Jack.

548

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

And at that point, it was looking pretty good for my movie.

549

00:32:14,000 --> 00:32:17,000

Yeah, they may extensively tested hypothermia.

550

00:32:17,000 --> 00:32:19,000

What's your diagnosis, Dr. Heidemann?

551

00:32:19,000 --> 00:32:20,000

He's dead.

552

00:32:20,000 --> 00:32:22,000

So again, the movie's right.

553

00:32:22,000 --> 00:32:26,000

Jack in the water would have died before a rescue got there,

554

00:32:26,000 --> 00:32:29,000

and Rose out of the water could have held on.

555

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

So, it's myth confirmed, right?

556

00:32:31,000 --> 00:32:33,000

Not just yet.

557

00:32:33,000 --> 00:32:36,000

We almost never call it based on the scale tests alone.

558

00:32:36,000 --> 00:32:38,000

The ultimate test is always full scale.

559

00:32:38,000 --> 00:32:42,000

Okay, full scale, but the actors are no longer available, so...

560

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

You're going to be Jack. You're going to be Rose.

561

00:32:44,000 --> 00:32:45,000

Yes!

562

00:32:45,000 --> 00:32:47,000

Wait a second, I have a problem with this.

563

00:32:47,000 --> 00:32:48,000

What?

564

00:32:48,000 --> 00:32:49,000

We weigh more than Jack and Rose.

565

00:32:49,000 --> 00:32:51,000

Ah, you're going to be Jack.

566

00:32:51,000 --> 00:32:52,000

You're going to be Rose.

567

00:32:52,000 --> 00:32:53,000

Ah, you're totally right.

568

00:32:53,000 --> 00:32:55,000

Well, look, we got to build a board anyway,

569

00:32:55,000 --> 00:32:58,000

so let's scale up its buoyancy to adjust for our increased mass,

570

00:32:58,000 --> 00:33:00,000

and then we'll put it to the test once and for all.

571

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

Are you ready, Rose?

572

00:33:01,000 --> 00:33:02,000

Don't call me Rose.

573

00:33:02,000 --> 00:33:03,000

Sorry.

574

00:33:03,000 --> 00:33:06,000

So, it's crunch time for Cameron's Conundrum.

575

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

Off the shores of Treasure Island,

576

00:33:08,000 --> 00:33:13,000

will Rose Heidemann and Jack Savage both get on board the board,

577

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

and both survive until rescue.

578

00:33:15,000 --> 00:33:17,000

And speaking of the board...

579

00:33:17,000 --> 00:33:20,000

We've had this thing carefully crafted to be an accurate replica

580

00:33:20,000 --> 00:33:24,000

of what was in the movie, based on designs provided by the Maritime Museum

581

00:33:24,000 --> 00:33:25,000

of Nova Scotia.

582

00:33:25,000 --> 00:33:30,000

It's the same material, same size, it's what we're going to use.

583

00:33:30,000 --> 00:33:34,000

Next, it's over to the wardrobe department to get dressed for the occasion.

584

00:33:34,000 --> 00:33:36,000

Let's go swimming.

585

00:33:36,000 --> 00:33:41,000

In addition to this, I'm going to be wearing this Cork and Canvas replica life preserver,

586

00:33:41,000 --> 00:33:45,000

which Adam sewed up, and it's exactly like what they had in the movie.

587

00:33:45,000 --> 00:33:48,000

Indeed, it's a period-accurate piece,

588

00:33:48,000 --> 00:33:53,000

made of the same materials and with the same buoyancy as the one Rose was wearing.

589

00:33:53,000 --> 00:33:58,000

And speaking of accuracy, Jamie has finessed the floating question.

590

00:33:58,000 --> 00:34:00,000

So, the board matches the movie, but we don't.

591

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

We're heavier, obviously.

592

00:34:01,000 --> 00:34:06,000

So, we're adjusting the board to give it the same amount of lift and stability that it does for Rose.

593

00:34:06,000 --> 00:34:10,000

According to our math, we need to make it 11% more buoyant.

594

00:34:10,000 --> 00:34:13,000

However, we're not just relying on a number.

595

00:34:13,000 --> 00:34:14,000

We'll know we've got it right.

596

00:34:14,000 --> 00:34:19,000

It visually, me on the board, matches Rose on the board in the movie.

597

00:34:19,000 --> 00:34:20,000

And why do you know?

598

00:34:20,000 --> 00:34:23,000

It does, which means they're in business.

599

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

Meaning the myth is ready to sink or swim.

600

00:34:30,000 --> 00:34:33,000

All right, Jamie, you ready for me to start the timer and start this test?

601

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

Go ahead.

602

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

Okay, 63 minutes till rescue starts.

603

00:34:38,000 --> 00:34:39,000

Now.

604

00:34:39,000 --> 00:34:41,000

Okay, Rose.

605

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

I mean, Jamie, sorry.

606

00:34:44,000 --> 00:34:47,000

Let's see if we can both get on this thing.

607

00:34:47,000 --> 00:34:51,000

As the small scale test predicted, it's not looking great.

608

00:34:57,000 --> 00:35:05,000

With Jack Savage struggling to stabilize himself and the board, the myth looks destined for a watery grave.

609

00:35:05,000 --> 00:35:06,000

Ha ha ha ha.

610

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

It's looking good.

611

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

I think we might actually have a rocket test coming.

612

00:35:39,000 --> 00:35:41,000

The stability is good.

613

00:35:41,000 --> 00:35:42,000

Let's go for it.

614

00:35:42,000 --> 00:35:43,000

Yeah.

615

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

I'm not sure if we can get on the board.

616

00:36:07,000 --> 00:36:08,000

We're going to get on the board.

617

00:36:08,000 --> 00:36:09,000

We're going to get on the board.

618

00:36:09,000 --> 00:36:10,000

We're going to get on the board.

619

00:36:10,000 --> 00:36:11,000

We're going to get on the board.

620

00:36:11,000 --> 00:36:12,000

We're going to get on the board.

621

00:36:12,000 --> 00:36:13,000

We're going to get on the board.

622

00:36:13,000 --> 00:36:14,000

We're going to get on the board.

623

00:36:14,000 --> 00:36:15,000

We're going to get on the board.

624

00:36:15,000 --> 00:36:16,000

We're going to get on the board.

625

00:36:16,000 --> 00:36:17,000

We're going to get on the board.

626

00:36:17,000 --> 00:36:18,000

We're going to get on the board.

627

00:36:18,000 --> 00:36:19,000

We're going to get on the board.

628

00:36:19,000 --> 00:36:20,000

We're going to get on the board.

629

00:36:20,000 --> 00:36:21,000

We're going to get on the board.

630

00:36:21,000 --> 00:36:22,000

We're going to get on the board.

631

00:36:22,000 --> 00:36:23,000

We're going to get on the board.

632

00:36:23,000 --> 00:36:24,000

We're going to get on the board.

633

00:36:24,000 --> 00:36:25,000

We're going to get on the board.

634

00:36:25,000 --> 00:36:29,000

But I have to say, I wouldn't trade this moment for anything.

635

00:36:29,000 --> 00:36:32,000

To be on a surfboard powered by a rocket,

636

00:36:32,000 --> 00:36:34,000

this is going to be the best day ever.

637

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

Belayche Wad, this is control.

638

00:36:38,000 --> 00:36:40,000

Take your position on board the board.

639

00:36:40,000 --> 00:36:42,000

You are go for launch.

640

00:36:42,000 --> 00:36:44,000

We're getting close to being ready.

641

00:36:44,000 --> 00:36:46,000

System's check is complete.

642

00:36:46,000 --> 00:36:48,000

You are cleared for takeoff.

643

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

This is rocket surf for final experiment.

644

00:36:51,000 --> 00:36:52,000

Rock the rocket!

645

00:36:52,000 --> 00:36:54,000

Go, go, go!

646

00:36:54,000 --> 00:36:58,000

In three, two, one.

647

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

Ignition.

648

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

We have liftoff.

649

00:37:11,000 --> 00:37:12,000

You okay?

650

00:37:12,000 --> 00:37:14,000

Man down. Man down.

651

00:37:16,000 --> 00:37:19,000

Now, you can't keep Belayche down for long.

652

00:37:19,000 --> 00:37:21,000

That was one incredible ride.

653

00:37:21,000 --> 00:37:24,000

The acceleration was insane.

654

00:37:24,000 --> 00:37:28,000

I did it! I rode the rocket surfboard!

655

00:37:28,000 --> 00:37:31,000

Everything didn't go exactly according to plan.

656

00:37:31,000 --> 00:37:33,000

Some of the rocket banks went off too early.

657

00:37:33,000 --> 00:37:36,000

Meaning he didn't have that nice, slow acceleration we hoped for,

658

00:37:36,000 --> 00:37:40,000

but a little bit more of a hold on for dear life kind of ride.

659

00:37:43,000 --> 00:37:45,000

That was awesome!

660

00:37:45,000 --> 00:37:47,000

Rock it, sir!

661

00:37:47,000 --> 00:37:48,000

But he still did it.

662

00:37:48,000 --> 00:37:52,000

He held on to the almost bitter end before he fell off.

663

00:37:52,000 --> 00:37:54,000

That was insane!

664

00:37:54,000 --> 00:37:55,000

You did it!

665

00:37:55,000 --> 00:37:57,000

It literally happened so quick.

666

00:37:57,000 --> 00:37:59,000

I was like, I was trying to get my balance,

667

00:37:59,000 --> 00:38:01,000

and I hit the switch, and before I knew it,

668

00:38:01,000 --> 00:38:03,000

I was looking at the whole lake.

669

00:38:03,000 --> 00:38:05,000

It was crazy!

670

00:38:06,000 --> 00:38:11,000

Crazy, incredibly lucky, and a brilliant feat of engineering.

671

00:38:12,000 --> 00:38:15,000

This is one of those experiments where a hundred things have to go right

672

00:38:15,000 --> 00:38:17,000

in order for you to be successful.

673

00:38:17,000 --> 00:38:21,000

Getting that 30-second, 20-mile-per-hour ride is a very difficult problem,

674

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

mostly because of the rockets.

675

00:38:23,000 --> 00:38:25,000

They're heavy. They have a high center of gravity.

676

00:38:25,000 --> 00:38:28,000

The timing is critical. You don't have a lot of space.

677

00:38:29,000 --> 00:38:33,000

Having said that, I feel like we all need to go buy some lottery tickets,

678

00:38:33,000 --> 00:38:36,000

because that could have been disastrous, but it went exceptionally well.

679

00:38:36,000 --> 00:38:40,000

And with that, it's back to the shop to wrap it up.

680

00:38:40,000 --> 00:38:42,000

I think we should supersize this.

681

00:38:43,000 --> 00:38:45,000

That was awesome.

682

00:38:45,000 --> 00:38:46,000

It was so much fun.

683

00:38:46,000 --> 00:38:48,000

All right, so how are we going to call this one?

684

00:38:48,000 --> 00:38:51,000

Well, I did ride a rocket-powered surfboard, so can't we call it plausible?

685

00:38:51,000 --> 00:38:53,000

Based on our parameters, I checked the high speed.

686

00:38:53,000 --> 00:38:55,000

You didn't quite make it to 20 miles an hour.

687

00:38:55,000 --> 00:38:57,000

And you didn't have a full 30-second ride.

688

00:38:57,000 --> 00:38:59,000

And there's the fact that we had to use multiple rockets

689

00:38:59,000 --> 00:39:02,000

instead of the one rocket like the myth talks about.

690

00:39:02,000 --> 00:39:05,000

Yeah, so based on technicalities, this one is busted.

691

00:39:05,000 --> 00:39:08,000

All right, it's busted. Man, that was one dangerous experiment.

692

00:39:08,000 --> 00:39:11,000

Needless to say, do not try this one at home.

693

00:39:16,000 --> 00:39:20,000

Want to know why we did what we did and didn't do what we didn't do?

694

00:39:20,000 --> 00:39:25,000

Go to discovery.com/slash/mythbusters after show and see why.

695

00:39:28,000 --> 00:39:30,000

You ready to start this test?

696

00:39:30,000 --> 00:39:32,000

Okay, Rose. I mean, Jamie.

697

00:39:32,000 --> 00:39:34,000

All right, let's see.

698

00:39:34,000 --> 00:39:37,000

Here we can both get on this thing.

699

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

Will Adam and Jamie's Titanic tail be consigned to Davy Jones Locker?

700

00:39:42,000 --> 00:39:47,000

Jack's first attempts to get aboard the board seem very similar to the movie.

701

00:39:47,000 --> 00:39:51,000

The board does appear to be only made for one.

702

00:39:54,000 --> 00:39:58,000

But once they stabilize and get their balance, things are looking up.

703

00:39:58,000 --> 00:40:02,000

All right, all right. Baby steps. Baby steps.

704

00:40:02,000 --> 00:40:05,000

So when I first got on, it felt anything but stable.

705

00:40:05,000 --> 00:40:07,000

Just like the movie and the small scale test we did,

706

00:40:07,000 --> 00:40:09,000

it felt like it could tip at any moment.

707

00:40:09,000 --> 00:40:12,000

It's holding us up out of the water, mostly.

708

00:40:12,000 --> 00:40:15,000

And if we were in nearly freezing temperatures and danger of passing out,

709

00:40:15,000 --> 00:40:18,000

that would be a real issue. So I had an idea.

710

00:40:18,000 --> 00:40:20,000

You're wearing a life jacket.

711

00:40:20,000 --> 00:40:23,000

What say, Rose? Spread some of your buoyancy around.

712

00:40:23,000 --> 00:40:27,000

Let's put it underneath this thing and get every bit we can out of it.

713

00:40:27,000 --> 00:40:32,000

And it's the MacGyver style tweak that really puts the nail in this myth's coffin.

714

00:40:32,000 --> 00:40:35,000

The additional buoyancy has made a massive difference.

715

00:40:35,000 --> 00:40:39,000

They're no longer floundering around but sitting pretty.

716

00:40:39,000 --> 00:40:44,000

In fact, so pretty that Rose is ready to nap her way to the 63-minute rescue.

717

00:40:44,000 --> 00:40:48,000

80% of my body is out of the water and in the air.

718

00:40:48,000 --> 00:40:53,000

Yeah, same here. If we can hold this sort of stationery, I think we're golden.

719

00:40:53,000 --> 00:40:56,000

Jamie, we're almost there. 15 seconds.

720

00:40:56,000 --> 00:41:00,000

Well, you know, however noble Jackson tensions might have been,

721

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

sometimes discretion is the better part of valor.

722

00:41:03,000 --> 00:41:05,000

Hang on, Rose!

723

00:41:05,000 --> 00:41:10,000

With all we've learned, I think Jack's death was needless.

724

00:41:13,000 --> 00:41:14,000

Don't call me Rose.

725

00:41:14,000 --> 00:41:19,000

Sorry. The key fact is we're rescued.

726

00:41:19,000 --> 00:41:26,000

We totally made it on top of the board with most of our bodies out of the water in 63 minutes.

727

00:41:27,000 --> 00:41:31,000

All right, James, we have some good news and we have some bad news.

728

00:41:31,000 --> 00:41:33,000

All right, give me the good news.

729

00:41:33,000 --> 00:41:36,000

Well, the good news is the movie got it right as far as hypothermia.

730

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

Jack would have drowned and Rose would have been able to hang on long enough to be rescued.

731

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

The bad news is based on our experiments, we have to find that they both could have survived on that board.

732

00:41:48,000 --> 00:41:49,000

Really?

733

00:41:49,000 --> 00:41:57,000

There were a couple of things and the first was that we were able to retie the life preserver that Rose was wearing underneath the board.

734

00:41:57,000 --> 00:41:59,000

And that gave it more buoyancy.

735

00:41:59,000 --> 00:42:06,000

And we were able to prop up our bodies on the board so that most of our body mass was actually outside of the water.

736

00:42:06,000 --> 00:42:10,000

Based on that, we've got to say this is plausible. Rose and Jack could have survived.

737

00:42:11,000 --> 00:42:13,000

I think you guys are missing the point here.

738

00:42:13,000 --> 00:42:16,000

The script says Jack dies. He has to die.

739

00:42:16,000 --> 00:42:21,000

So maybe we screwed up and the board should have been a little tiny bit smaller, but the dude's going down.

740

00:42:21,000 --> 00:42:22,000

I can't argue with that.

741

00:42:22,000 --> 00:42:23,000

No.

742

00:42:29,000 --> 00:42:31,000

You