



1
00:01:27,190 --> 00:01:25,190
hello i'm lynn bonderant chief of the

2
00:01:29,670 --> 00:01:27,200
office of educational programs at the

3
00:01:31,030 --> 00:01:29,680
nasa lewis research center in cleveland

4
00:01:33,109 --> 00:01:31,040
ohio

5
00:01:35,830 --> 00:01:33,119
today's edition of nasa report to

6
00:01:38,469 --> 00:01:35,840
education will look at two educational

7
00:01:41,109 --> 00:01:38,479
programs going on within nasa

8
00:01:43,109 --> 00:01:41,119
the first is nasa's educational workshop

9
00:01:45,190 --> 00:01:43,119
for elementary school teachers which is

10
00:01:47,350 --> 00:01:45,200
sometimes called newest

11
00:01:50,630 --> 00:01:47,360
we will also look at lewis research

12
00:01:53,109 --> 00:01:50,640
center's t-34 aircraft and see how it is

13
00:01:55,749 --> 00:01:53,119

used to promote aerospace education in

14

00:01:59,670 --> 00:01:55,759

several cleveland area schools

15

00:02:01,990 --> 00:01:59,680

but first let's go back to july 1990 to

16

00:02:04,310 --> 00:02:02,000

see how a group of educators came

17

00:02:06,389 --> 00:02:04,320

together at lewis to learn how to

18

00:02:08,389 --> 00:02:06,399

incorporate aerospace educational

19

00:02:20,630 --> 00:02:08,399

materials into their classroom

20

00:02:24,550 --> 00:02:22,309

in the following few minutes you will

21

00:02:25,589 --> 00:02:24,560

learn about an exciting educational

22

00:02:28,070 --> 00:02:25,599

program

23

00:02:30,150 --> 00:02:28,080

hosted at the nasa lewis research center

24

00:02:32,309 --> 00:02:30,160

in cleveland ohio

25

00:02:34,390 --> 00:02:32,319

it's called new west

26

00:02:36,869 --> 00:02:34,400

nasa's educational workshops for

27

00:02:39,670 --> 00:02:36,879

elementary school teachers the united

28

00:02:41,270 --> 00:02:39,680

states is training scientists and

29

00:02:42,869 --> 00:02:41,280

engineers

30

00:02:45,350 --> 00:02:42,879

foreign-born

31

00:02:47,589 --> 00:02:45,360

seven out of every ten and the colleges

32

00:02:48,550 --> 00:02:47,599

and universities were from a foreign

33

00:02:51,030 --> 00:02:48,560

land

34

00:02:53,030 --> 00:02:51,040

the remaining 3 out of 10 were from the

35

00:02:55,350 --> 00:02:53,040

united states

36

00:02:57,750 --> 00:02:55,360

it told me that our educational system

37

00:02:58,550 --> 00:02:57,760

cannot be poor

38

00:03:00,470 --> 00:02:58,560

but

39

00:03:02,550 --> 00:03:00,480

we're making a mistake someplace and we

40

00:03:04,550 --> 00:03:02,560

need to turn kids on

41

00:03:07,190 --> 00:03:04,560

and it has to be early in their school

42

00:03:09,430 --> 00:03:07,200

life by the third or fourth grade where

43

00:03:10,229 --> 00:03:09,440

we've lost them you uniquely

44

00:03:12,390 --> 00:03:10,239

have

45

00:03:16,390 --> 00:03:12,400

the ability to go and

46

00:03:18,630 --> 00:03:16,400

motivate excite touch so many children

47

00:03:21,030 --> 00:03:18,640

at the age when they are

48

00:03:23,110 --> 00:03:21,040

in their formative stages in particular

49

00:03:26,149 --> 00:03:23,120

in things like getting into interested

50

00:03:28,149 --> 00:03:26,159

in science and math and technology where

51
00:03:30,630 --> 00:03:28,159
this country as you know as well as i

52
00:03:32,390 --> 00:03:30,640
has gone downhill i'll say in the number

53
00:03:34,789 --> 00:03:32,400
of last years and people being kids

54
00:03:36,789 --> 00:03:34,799
being interested in that and it's at the

55
00:03:40,070 --> 00:03:36,799
age of kids which you're associating

56
00:03:42,070 --> 00:03:40,080
with where they really i believe make up

57
00:03:43,589 --> 00:03:42,080
they may not make up their minds but if

58
00:03:45,910 --> 00:03:43,599
they don't

59
00:03:47,430 --> 00:03:45,920
get some type of interest in their heart

60
00:03:49,270 --> 00:03:47,440
for this they're never going to pick it

61
00:03:50,789 --> 00:03:49,280
up later it's unlikely that you're going

62
00:03:53,509 --> 00:03:50,799
to pick it up later

63
00:03:55,589 --> 00:03:53,519

and so it's critical for

64

00:03:58,869 --> 00:03:55,599

in a very parochial sense

65

00:04:00,949 --> 00:03:58,879

for the future of the space program for

66

00:04:02,390 --> 00:04:00,959

you to go out and do what

67

00:04:05,910 --> 00:04:02,400

what we'd like you to do as a result of

68

00:04:08,149 --> 00:04:05,920

this program to turn our students on

69

00:04:09,750 --> 00:04:08,159

to help them dream of reaching for the

70

00:04:11,670 --> 00:04:09,760

unknown

71

00:04:13,190 --> 00:04:11,680

to motivate them to go the extra

72

00:04:15,270 --> 00:04:13,200

distance

73

00:04:18,629 --> 00:04:15,280

these are some of the challenges facing

74

00:04:21,270 --> 00:04:18,639

teachers in america's schools today

75

00:04:23,189 --> 00:04:21,280

with recent surveys and studies showing

76
00:04:25,510 --> 00:04:23,199
that american students are falling

77
00:04:26,790 --> 00:04:25,520
behind the rest of the industrialized

78
00:04:29,189 --> 00:04:26,800
world

79
00:04:30,550 --> 00:04:29,199
in the areas of mathematics and the hard

80
00:04:33,350 --> 00:04:30,560
sciences

81
00:04:35,909 --> 00:04:33,360
nasa has taken an increased interest in

82
00:04:37,990 --> 00:04:35,919
trying to reach these children

83
00:04:39,270 --> 00:04:38,000
through various workshops

84
00:04:41,590 --> 00:04:39,280
seminars

85
00:04:42,469 --> 00:04:41,600
and on-site help sessions

86
00:04:44,550 --> 00:04:42,479
nasa

87
00:04:47,189 --> 00:04:44,560
in conjunction with the national science

88
00:04:49,749 --> 00:04:47,199

teachers association and the national

89

00:04:51,830 --> 00:04:49,759

council of teachers of mathematics

90

00:04:53,670 --> 00:04:51,840

is attempting to get the educators

91

00:04:55,590 --> 00:04:53,680

excited about space

92

00:04:56,710 --> 00:04:55,600

and to get space theme related

93

00:04:59,030 --> 00:04:56,720

curriculum

94

00:05:00,870 --> 00:04:59,040

integrated into the daily lesson plans

95

00:05:03,510 --> 00:05:00,880

of these teachers

96

00:05:05,510 --> 00:05:03,520

nasa supports two programs which bring

97

00:05:07,830 --> 00:05:05,520

the teachers to its centers for two

98

00:05:09,270 --> 00:05:07,840

weeks of intensive hands-on learning and

99

00:05:11,990 --> 00:05:09,280

training

100

00:05:14,870 --> 00:05:12,000

these two programs new mass

101
00:05:18,150 --> 00:05:14,880
nasa educational workshops for math and

102
00:05:20,310 --> 00:05:18,160
science teachers and new west nasa

103
00:05:21,909 --> 00:05:20,320
educational workshops for elementary

104
00:05:25,590 --> 00:05:21,919
school teachers

105
00:05:27,990 --> 00:05:25,600
involve about 200 select educators

106
00:05:28,950 --> 00:05:28,000
out of the thousands that apply each

107
00:05:32,469 --> 00:05:28,960
year

108
00:05:35,749 --> 00:05:32,479
each nasa center hosts 20 to 24

109
00:05:38,070 --> 00:05:35,759
educators in either new mast or newest

110
00:05:40,710 --> 00:05:38,080
i'm really kind of proud that we can be

111
00:05:41,510 --> 00:05:40,720
part of a program that helps

112
00:05:43,749 --> 00:05:41,520
our

113
00:05:45,749 --> 00:05:43,759

elementary school teachers

114

00:05:47,430 --> 00:05:45,759

do the very difficult job that you all

115

00:05:48,150 --> 00:05:47,440

know better or better than i do that you

116

00:05:51,110 --> 00:05:48,160

do

117

00:05:53,110 --> 00:05:51,120

it's awfully important for

118

00:05:55,110 --> 00:05:53,120

the nation uh

119

00:05:57,110 --> 00:05:55,120

to do what you're doing you know we have

120

00:05:59,909 --> 00:05:57,120

an administrator who's

121

00:06:02,310 --> 00:05:59,919

the head of nasa who's absolutely

122

00:06:04,550 --> 00:06:02,320

uh committed to using

123

00:06:06,629 --> 00:06:04,560

nasa which has kind of a unique

124

00:06:07,909 --> 00:06:06,639

uh charm or unique appeal i think to our

125

00:06:09,909 --> 00:06:07,919

younger people

126
00:06:11,830 --> 00:06:09,919
with the astronauts and the flying and

127
00:06:14,070 --> 00:06:11,840
all that sort of stuff

128
00:06:15,909 --> 00:06:14,080
that really does capture them i know it

129
00:06:16,950 --> 00:06:15,919
captures my little boy

130
00:06:19,430 --> 00:06:16,960
um

131
00:06:20,629 --> 00:06:19,440
captures them and maybe even coops them

132
00:06:22,150 --> 00:06:20,639
just a little bit

133
00:06:24,870 --> 00:06:22,160
into doing some of the tougher

134
00:06:27,749 --> 00:06:24,880
coursework as the program began

135
00:06:29,430 --> 00:06:27,759
these 22 educators found themselves back

136
00:06:33,270 --> 00:06:29,440
in school again

137
00:06:35,749 --> 00:06:33,280
14 days of intense hands-on learning

138
00:06:37,510 --> 00:06:35,759

lecturing and field trips welcome to the

139

00:06:39,350 --> 00:06:37,520

icing research tunnel

140

00:06:41,990 --> 00:06:39,360

we'll refer to it as mostly other nasa

141

00:06:44,469 --> 00:06:42,000

facilities are in acronym irt this time

142

00:06:45,830 --> 00:06:44,479

together gave the educators a chance to

143

00:06:48,150 --> 00:06:45,840

grow together

144

00:06:50,629 --> 00:06:48,160

and develop deep friendships as well as

145

00:06:52,309 --> 00:06:50,639

grow intellectually i think the real

146

00:06:53,270 --> 00:06:52,319

intellectual impact

147

00:06:55,029 --> 00:06:53,280

will come

148

00:06:56,469 --> 00:06:55,039

as we go down the road and we look at

149

00:06:58,230 --> 00:06:56,479

some of these materials we use in our

150

00:06:59,670 --> 00:06:58,240

classrooms

151
00:07:05,029 --> 00:06:59,680
with

152
00:07:05,830 --> 00:07:05,039
the emotional impact is something

153
00:07:06,790 --> 00:07:05,840
that

154
00:07:08,150 --> 00:07:06,800
can't be

155
00:07:11,029 --> 00:07:08,160
replicated

156
00:07:12,390 --> 00:07:11,039
so um i guess for me the emotional thing

157
00:07:13,830 --> 00:07:12,400
is something of these two weeks is

158
00:07:15,510 --> 00:07:13,840
something that i'm really going to

159
00:07:17,830 --> 00:07:15,520
that's really going to stay with me i

160
00:07:18,870 --> 00:07:17,840
really want to piggyback to what ben has

161
00:07:20,629 --> 00:07:18,880
just said

162
00:07:22,309 --> 00:07:20,639
that's the personal contact that's going

163
00:07:23,670 --> 00:07:22,319

to be really something that i'm going to

164

00:07:26,230 --> 00:07:23,680

remember

165

00:07:28,309 --> 00:07:26,240

the first day of new west was a time for

166

00:07:31,110 --> 00:07:28,319

everybody to get acquainted

167

00:07:33,749 --> 00:07:31,120

get situated and get brought up to speed

168

00:07:36,230 --> 00:07:33,759

on what they could expect

169

00:07:38,150 --> 00:07:36,240

then the work began

170

00:07:40,629 --> 00:07:38,160

with group lectures every morning by

171

00:07:41,749 --> 00:07:40,639

john hartsfield aerospace educational

172

00:07:44,150 --> 00:07:41,759

specialist

173

00:07:45,909 --> 00:07:44,160

hartsfield talked on a range of subjects

174

00:07:47,350 --> 00:07:45,919

in the fields of aeronautics and

175

00:07:49,110 --> 00:07:47,360

aerospace

176
00:07:50,790 --> 00:07:49,120
the history of flight

177
00:07:52,469 --> 00:07:50,800
the solar system

178
00:07:54,550 --> 00:07:52,479
the space shuttle

179
00:07:55,990 --> 00:07:54,560
and eating and sleeping in space to name

180
00:07:58,070 --> 00:07:56,000
a few

181
00:08:00,070 --> 00:07:58,080
he also had some materials to let the

182
00:08:24,070 --> 00:08:00,080
teachers see for themselves

183
00:08:24,080 --> 00:08:32,070
um

184
00:08:36,550 --> 00:08:34,149
additionally hartsville introduced some

185
00:08:38,949 --> 00:08:36,560
simple projects which illustrated

186
00:08:41,589 --> 00:08:38,959
aerodynamic concepts that could be used

187
00:08:43,350 --> 00:08:41,599
in the classroom using inexpensive

188
00:08:45,750 --> 00:08:43,360

supplies

189

00:08:46,870 --> 00:08:45,760

your host gave talks on motivating

190

00:08:49,030 --> 00:08:46,880

students

191

00:08:51,350 --> 00:08:49,040

projects to be used in the classroom

192

00:08:58,710 --> 00:08:51,360

refrigerator reviewed comet halley and

193

00:09:02,630 --> 00:09:00,949

right sea of nectar okay

194

00:09:04,790 --> 00:09:02,640

sea of nectar and i guarantee you can

195

00:09:06,550 --> 00:09:04,800

see every one of these

196

00:09:09,030 --> 00:09:06,560

outside

197

00:09:11,750 --> 00:09:09,040

and introduce them to different projects

198

00:09:14,310 --> 00:09:11,760

on how to incorporate everyday things

199

00:09:17,670 --> 00:09:14,320

into space science related topics so

200

00:09:20,070 --> 00:09:17,680

take 344 000

201
00:09:21,990 --> 00:09:20,080
by 16

202
00:09:23,190 --> 00:09:22,000
that'll tell you how much your loaf

203
00:09:25,750 --> 00:09:23,200
weighs

204
00:09:28,389 --> 00:09:25,760
the newest participants afternoons were

205
00:09:30,790 --> 00:09:28,399
filled with tours of various facilities

206
00:09:33,430 --> 00:09:30,800
on the lewis grounds

207
00:09:36,150 --> 00:09:33,440
the icing research tunnel

208
00:09:39,110 --> 00:09:36,160
propulsion systems laboratory

209
00:09:41,190 --> 00:09:39,120
engines make their thrust by taking air

210
00:09:42,949 --> 00:09:41,200
from in front of them at three low

211
00:09:45,269 --> 00:09:42,959
speeds and throwing it out the back as

212
00:09:46,070 --> 00:09:45,279
fast as they can throw it out the back

213
00:09:47,590 --> 00:09:46,080

and

214

00:10:00,550 --> 00:09:47,600

they do it by pumping it through there

215

00:10:05,990 --> 00:10:02,470

so this is a brute force facility it

216

00:10:07,829 --> 00:10:06,000

doesn't take us long to evacuate

217

00:10:12,949 --> 00:10:07,839

and the hangar where they research

218

00:10:16,870 --> 00:10:14,470

we always tell the people since we fly

219

00:10:18,790 --> 00:10:16,880

in an urban area we give them an ohio

220

00:10:21,430 --> 00:10:18,800

bell card a master card

221

00:10:25,670 --> 00:10:23,350

there were also group activities where

222

00:10:28,069 --> 00:10:25,680

the teachers got hands-on experience

223

00:10:29,670 --> 00:10:28,079

with projects for classroom and breakout

224

00:10:32,470 --> 00:10:29,680

groups energy

225

00:10:34,550 --> 00:10:32,480

to the orbiter the momentum it's staying

226

00:10:37,030 --> 00:10:34,560

down here it's a smaller bounce and then

227

00:10:38,949 --> 00:10:37,040

children work with the weight larger

228

00:10:41,190 --> 00:10:38,959

heavier how much farther is it going to

229

00:10:42,949 --> 00:10:41,200

go and they start doing predictions and

230

00:10:47,269 --> 00:10:42,959

don't forget to tell your students there

231

00:10:49,350 --> 00:10:47,279

were no wrong answers in science only

232

00:10:50,550 --> 00:10:49,360

unexpected results

233

00:10:52,310 --> 00:10:50,560

okay

234

00:10:54,310 --> 00:10:52,320

so watch again just the ball part now

235

00:10:56,550 --> 00:10:54,320

i'll watch the orbiter so it doesn't

236

00:10:58,470 --> 00:10:56,560

can we go a little bit higher

237

00:11:00,710 --> 00:10:58,480

there were also group activities where

238

00:11:03,190 --> 00:11:00,720

the teachers got hands-on experience

239

00:11:03,990 --> 00:11:03,200

with projects for classroom and breakout

240

00:11:07,509 --> 00:11:04,000

groups

241

00:11:09,750 --> 00:11:07,519

to eight teachers

242

00:11:11,190 --> 00:11:09,760

working on various projects which were

243

00:11:13,110 --> 00:11:11,200

then shared with the rest of the

244

00:11:15,110 --> 00:11:13,120

teachers during the last days of the

245

00:11:18,870 --> 00:11:15,120

workshop

246

00:11:21,430 --> 00:11:18,880

the groups included comet halley

247

00:11:23,509 --> 00:11:21,440

electromagnetic spectrum microwaves

248

00:11:25,829 --> 00:11:23,519

right in here

249

00:11:28,949 --> 00:11:25,839

and shorter wavelength gamma rays and

250

00:11:32,949 --> 00:11:28,959

x-rays which can be extremely harmful

251

00:11:37,110 --> 00:11:35,269

yeah thanks to millie

252

00:11:39,190 --> 00:11:37,120

all of our hunting of phone numbers and

253

00:11:41,590 --> 00:11:39,200

stuff we first got connected

254

00:11:45,430 --> 00:11:41,600

and donna watson with nasa pilot bill

255

00:11:48,230 --> 00:11:45,440

rickey on her experience in the t-34

256

00:11:50,710 --> 00:11:48,240

this plane is used by nasa lewis in

257

00:11:53,030 --> 00:11:50,720

aerospace projects in conjunction with

258

00:11:55,269 --> 00:11:53,040

local high schools and the office of

259

00:11:57,110 --> 00:11:55,279

educational programs

260

00:11:59,110 --> 00:11:57,120

one day the group got to tour the

261

00:12:01,269 --> 00:11:59,120

federal aviation administration's

262

00:12:02,949 --> 00:12:01,279

facilities at the cleveland hopkins

263

00:12:05,110 --> 00:12:02,959

airport

264

00:12:06,870 --> 00:12:05,120

they split up into groups and got to go

265

00:12:09,350 --> 00:12:06,880

up into the tower

266

00:12:10,389 --> 00:12:09,360

the track or terminal radar approach

267

00:12:12,629 --> 00:12:10,399

control

268

00:12:13,990 --> 00:12:12,639

and saw a presentation on careers in

269

00:12:16,310 --> 00:12:14,000

aeronautics

270

00:12:17,350 --> 00:12:16,320

another group project the teachers had

271

00:12:20,470 --> 00:12:17,360

to do

272

00:12:23,030 --> 00:12:20,480

was construct an egg survival system

273

00:12:29,110 --> 00:12:23,040

which was then tested so to speak

274

00:12:29,120 --> 00:12:36,310

needless to say

275

00:12:44,230 --> 00:12:38,230

some of them needed a little refinement

276

00:12:47,269 --> 00:12:45,829

but the highlight for many of their

277

00:12:49,910 --> 00:12:47,279

participants

278

00:12:52,870 --> 00:12:49,920

was an interactive video conference with

279

00:12:54,870 --> 00:12:52,880

astronaut story musgrave and the newest

280

00:12:56,870 --> 00:12:54,880

group down at the johnson space center

281

00:12:59,269 --> 00:12:56,880

in houston texas

282

00:13:01,829 --> 00:12:59,279

musgrave gave a slide presentation on

283

00:13:03,670 --> 00:13:01,839

manned space flight aboard the shuttle

284

00:13:05,829 --> 00:13:03,680

and his philosophies

285

00:13:07,269 --> 00:13:05,839

and then took questions from both newest

286

00:13:09,590 --> 00:13:07,279

groups

287

00:13:11,350 --> 00:13:09,600

the activity left some deep impressions

288

00:13:13,269 --> 00:13:11,360

on the teachers

289

00:13:15,269 --> 00:13:13,279

when story spent so much time with the

290

00:13:16,550 --> 00:13:15,279

little child bent over looking into the

291

00:13:18,310 --> 00:13:16,560

sand

292

00:13:20,470 --> 00:13:18,320

he did that on purpose

293

00:13:22,389 --> 00:13:20,480

there was a quite a message that it was

294

00:13:24,069 --> 00:13:22,399

brought home to me and it kind of pulled

295

00:13:25,030 --> 00:13:24,079

everything together that we're doing

296

00:13:27,269 --> 00:13:25,040

here

297

00:13:28,550 --> 00:13:27,279

and he said we can spend a lot of time

298

00:13:30,069 --> 00:13:28,560

and we're doing a lot of research and

299

00:13:31,350 --> 00:13:30,079

we're looking at things from different

300

00:13:34,230 --> 00:13:31,360

angles

301
00:13:35,829 --> 00:13:34,240
but do stop and look look at what we

302
00:13:38,470 --> 00:13:35,839
have right here

303
00:13:40,870 --> 00:13:38,480
he brought earth home so close to me

304
00:13:42,790 --> 00:13:40,880
that i will look at everything around me

305
00:13:44,710 --> 00:13:42,800
and much a different viewpoint than i

306
00:13:47,750 --> 00:13:44,720
had ever done before

307
00:13:50,550 --> 00:13:47,760
as the two-week session came to a close

308
00:13:52,949 --> 00:13:50,560
a banquet was held for the teachers

309
00:14:12,150 --> 00:13:52,959
after dinner the teachers had to present

310
00:14:17,430 --> 00:14:15,350
once was a lady her name was flo for a

311
00:14:19,750 --> 00:14:17,440
classroom teacher who said she had to go

312
00:14:21,910 --> 00:14:19,760
so she packed up her thing to move to

313
00:14:24,710 --> 00:14:21,920

mars but little did she know she had to

314

00:14:28,550 --> 00:14:24,720

travel through the stars cassiopeia

315

00:14:30,069 --> 00:14:28,560

andromeda hercules on the final day

316

00:14:32,629 --> 00:14:30,079

several of the teachers shared their

317

00:14:35,670 --> 00:14:32,639

impressions of the workshop with fred

318

00:14:39,030 --> 00:14:35,680

povinelli director of the administration

319

00:14:41,110 --> 00:14:39,040

and computer services directorate

320

00:14:43,430 --> 00:14:41,120

the benefits of the newest program are

321

00:14:45,269 --> 00:14:43,440

incredible they will multiply and it is

322

00:14:47,670 --> 00:14:45,279

like a ripple effect

323

00:14:49,910 --> 00:14:47,680

taking the 22 teachers that have

324

00:14:51,509 --> 00:14:49,920

experienced something here at lewis we

325

00:14:52,870 --> 00:14:51,519

will go on and spread that throughout

326

00:14:55,670 --> 00:14:52,880

the country

327

00:14:59,110 --> 00:14:55,680

the difference i think between

328

00:15:00,790 --> 00:14:59,120

passing out information to teachers at a

329

00:15:02,629 --> 00:15:00,800

convention

330

00:15:04,550 --> 00:15:02,639

meeting people at a symposium or at a

331

00:15:07,110 --> 00:15:04,560

conference and passing out information

332

00:15:08,870 --> 00:15:07,120

to twenty thousand educators the chances

333

00:15:10,150 --> 00:15:08,880

of it really getting into the classroom

334

00:15:13,030 --> 00:15:10,160

are very slim

335

00:15:16,069 --> 00:15:13,040

and then you can take 22 teachers

336

00:15:18,230 --> 00:15:16,079

bring them to a nasa center

337

00:15:19,350 --> 00:15:18,240

let them meet the people and all of a

338

00:15:21,189 --> 00:15:19,360

sudden

339

00:15:21,990 --> 00:15:21,199

the information that nasa wants to give

340

00:15:26,470 --> 00:15:22,000

us

341

00:15:28,230 --> 00:15:26,480

new ownership in it and when someone has

342

00:15:29,670 --> 00:15:28,240

an ownership in something

343

00:15:31,509 --> 00:15:29,680

you take that very personally and you

344

00:15:34,069 --> 00:15:31,519

will make sure that it is taken care of

345

00:15:36,150 --> 00:15:34,079

and it is given out to others

346

00:15:38,150 --> 00:15:36,160

what i have discovered in the two weeks

347

00:15:39,269 --> 00:15:38,160

that i've been here at lewis is that the

348

00:15:41,189 --> 00:15:39,279

people

349

00:15:42,790 --> 00:15:41,199

of the lewis research center are nasa's

350

00:15:44,949 --> 00:15:42,800

greatest resource

351

00:15:47,590 --> 00:15:44,959

they are tremendous these are

352

00:15:49,990 --> 00:15:47,600

professional people who treated us as

353

00:15:52,069 --> 00:15:50,000

professionals they opened their doors

354

00:15:53,670 --> 00:15:52,079

they opened their minds

355

00:15:55,269 --> 00:15:53,680

they would listen to us they answered

356

00:15:58,150 --> 00:15:55,279

our questions

357

00:16:00,710 --> 00:15:58,160

uh i it was exciting for us to see the

358

00:16:03,110 --> 00:16:00,720

pride that they had in their work

359

00:16:05,189 --> 00:16:03,120

there was uh one gentleman at the zero

360

00:16:07,110 --> 00:16:05,199

gravity facility

361

00:16:09,910 --> 00:16:07,120

who really took pride in what he was

362

00:16:12,310 --> 00:16:09,920

doing and he gave us that sense of pride

363

00:16:15,749 --> 00:16:12,320

that we can take back to our classrooms

364

00:16:17,829 --> 00:16:15,759

i think probably this is singularly the

365

00:16:21,509 --> 00:16:17,839

most important activity in which i could

366

00:16:26,790 --> 00:16:24,069

it was not only

367

00:16:29,110 --> 00:16:26,800

an exciting and productive experience to

368

00:16:32,069 --> 00:16:29,120

visit the laboratories to meet with the

369

00:16:33,910 --> 00:16:32,079

people to have an opportunity to ask

370

00:16:35,990 --> 00:16:33,920

questions of them

371

00:16:37,990 --> 00:16:36,000

i was particularly impressed with their

372

00:16:40,150 --> 00:16:38,000

dedication to what they're doing and

373

00:16:42,310 --> 00:16:40,160

their enthusiasm for it

374

00:16:43,269 --> 00:16:42,320

but i also gained

375

00:16:46,069 --> 00:16:43,279

much

376
00:16:48,710 --> 00:16:46,079
from the outstanding elementary school

377
00:16:50,790 --> 00:16:48,720
teachers that were involved in this

378
00:16:53,590 --> 00:16:50,800
two-week newest workshop

379
00:16:55,910 --> 00:16:53,600
these are really incredible people they

380
00:16:58,550 --> 00:16:55,920
not only talk shop

381
00:17:00,470 --> 00:16:58,560
during the time that they were at the

382
00:17:03,749 --> 00:17:00,480
louis facility

383
00:17:08,390 --> 00:17:06,230
16 hours a day and that may be a

384
00:17:11,110 --> 00:17:08,400
conservative estimate because that was

385
00:17:13,110 --> 00:17:11,120
only during the times that i saw them

386
00:17:13,909 --> 00:17:13,120
following their visit to lewis research

387
00:17:15,909 --> 00:17:13,919
center

388
00:17:18,069 --> 00:17:15,919

the newest teachers are supported and

389

00:17:19,510 --> 00:17:18,079

followed up on through the year by anita

390

00:17:21,669 --> 00:17:19,520

solars

391

00:17:23,510 --> 00:17:21,679

nasa newest coordinator at lewis

392

00:17:25,270 --> 00:17:23,520

research center

393

00:17:28,309 --> 00:17:25,280

if you are interested in learning more

394

00:17:29,830 --> 00:17:28,319

about the newest or new mass programs

395

00:17:32,549 --> 00:17:29,840

please write

396

00:17:35,830 --> 00:17:32,559

national science teachers association

397

00:17:39,029 --> 00:17:35,840

space science and technology programs

398

00:17:40,789 --> 00:17:39,039

5110 roanoke place

399

00:17:46,390 --> 00:17:40,799

suite 101

400

00:17:50,310 --> 00:17:48,310

a project that is currently aimed at

401
00:17:53,510 --> 00:17:50,320
high school students is the lewis

402
00:17:56,070 --> 00:17:53,520
research center's t-34 program

403
00:17:57,270 --> 00:17:56,080
this program involves nasa pilots and

404
00:17:59,270 --> 00:17:57,280
researchers

405
00:18:02,789 --> 00:17:59,280
as well as several area cleveland

406
00:18:08,710 --> 00:18:06,789
the plane is an old t-34 navy trainer

407
00:18:10,710 --> 00:18:08,720
that was retrieved from a storage

408
00:18:13,190 --> 00:18:10,720
facility in arizona

409
00:18:15,750 --> 00:18:13,200
and restored to its present condition by

410
00:18:18,070 --> 00:18:15,760
the lewis research center's aircraft

411
00:18:21,110 --> 00:18:18,080
maintenance division

412
00:18:23,430 --> 00:18:21,120
the plane has gotten a new lease on life

413
00:18:26,390 --> 00:18:23,440

through its use in a cooperative program

414

00:18:29,029 --> 00:18:26,400
between local schools and nasa

415

00:18:31,590 --> 00:18:29,039
the students of brother david martin at

416

00:18:34,230 --> 00:18:31,600
saint edward high school in cleveland

417

00:18:35,990 --> 00:18:34,240
are using the t-34 to measure the

418

00:18:38,710 --> 00:18:36,000
environmental impact

419

00:18:40,230 --> 00:18:38,720
that the waters of lake erie have had on

420

00:18:42,870 --> 00:18:40,240
some park beaches

421

00:18:45,270 --> 00:18:42,880
and various studies at two waste water

422

00:18:48,390 --> 00:18:45,280
treatment plants

423

00:18:50,390 --> 00:18:48,400
copley high school near akron ohio had

424

00:18:51,510 --> 00:18:50,400
their students working on several

425

00:18:53,750 --> 00:18:51,520
projects

426
00:18:55,750 --> 00:18:53,760
including aerial imaging and the

427
00:18:59,350 --> 00:18:55,760
reclamation of land

428
00:19:02,470 --> 00:18:59,360
the t-34 project is designed to excite

429
00:19:04,789 --> 00:19:02,480
students about scientific research

430
00:19:06,710 --> 00:19:04,799
to get involved in the project the

431
00:19:07,909 --> 00:19:06,720
students had to design a program of

432
00:19:10,230 --> 00:19:07,919
study

433
00:19:13,029 --> 00:19:10,240
submit an abstract detailing what their

434
00:19:15,270 --> 00:19:13,039
study was expected to accomplish

435
00:19:17,750 --> 00:19:15,280
determine the equipment they needed

436
00:19:20,150 --> 00:19:17,760
and after the data was gathered prepare

437
00:19:21,909 --> 00:19:20,160
a report on their findings

438
00:19:24,310 --> 00:19:21,919

and they had nothing to begin with no

439

00:19:26,470 --> 00:19:24,320

cookbook recipe no guidance no hints

440

00:19:28,549 --> 00:19:26,480

they had to design it for themselves

441

00:19:30,070 --> 00:19:28,559

i want them to take the film

442

00:19:31,590 --> 00:19:30,080

see what they can do with it maybe it

443

00:19:33,750 --> 00:19:31,600

will answer the question they raised

444

00:19:35,510 --> 00:19:33,760

maybe it won't but that's the beauty of

445

00:19:37,430 --> 00:19:35,520

science and in that sense it'll be a

446

00:19:39,110 --> 00:19:37,440

real learning experience it's not

447

00:19:41,190 --> 00:19:39,120

something that was given to them they

448

00:19:43,350 --> 00:19:41,200

can see now that they can put something

449

00:19:45,510 --> 00:19:43,360

together which is actually their own

450

00:19:46,789 --> 00:19:45,520

in a sense they are creating something

451
00:19:49,270 --> 00:19:46,799
new for each and every one of these

452
00:19:51,430 --> 00:19:49,280
experiments we did some of the projects

453
00:19:53,909 --> 00:19:51,440
at st edwards may benefit the local

454
00:19:56,150 --> 00:19:53,919
community sometime in the future

455
00:19:57,669 --> 00:19:56,160
working on the west side of cleveland

456
00:20:00,070 --> 00:19:57,679
some students are attempting to

457
00:20:01,270 --> 00:20:00,080
determine erosion rates at edgewater

458
00:20:03,350 --> 00:20:01,280
state park

459
00:20:04,310 --> 00:20:03,360
lake erie is slowly shallowing up

460
00:20:05,830 --> 00:20:04,320
because

461
00:20:08,070 --> 00:20:05,840
there's no it's not draining the

462
00:20:09,909 --> 00:20:08,080
sediment's not draining and the water

463
00:20:12,070 --> 00:20:09,919

just hits the beach and it just takes

464

00:20:13,909 --> 00:20:12,080

all the sediment with it so it's it's

465

00:20:15,430 --> 00:20:13,919

rapidly deteriorating and there's no

466

00:20:17,990 --> 00:20:15,440

there's nothing to stop the

467

00:20:19,590 --> 00:20:18,000

erosion there's no plants or grass with

468

00:20:21,110 --> 00:20:19,600

this picture and several others we can

469

00:20:23,029 --> 00:20:21,120

establish the fact that erosion does

470

00:20:24,549 --> 00:20:23,039

occur at edgewater park and it occurs

471

00:20:26,950 --> 00:20:24,559

rather rapidly in

472

00:20:28,070 --> 00:20:26,960

using plants and bushes we can stop the

473

00:20:30,230 --> 00:20:28,080

erosion

474

00:20:32,230 --> 00:20:30,240

another group of students is working on

475

00:20:35,110 --> 00:20:32,240

the east side of cleveland at the

476
00:20:37,590 --> 00:20:35,120
easterly wastewater treatment plant

477
00:20:40,470 --> 00:20:37,600
they are trying to determine the effects

478
00:20:43,750 --> 00:20:40,480
of the effluent plume from the plant

479
00:20:45,750 --> 00:20:43,760
on the surrounding waters of lake erie

480
00:20:46,870 --> 00:20:45,760
by taking various measurements on the

481
00:20:48,549 --> 00:20:46,880
ground

482
00:20:50,870 --> 00:20:48,559
then comparing these with the

483
00:20:52,149 --> 00:20:50,880
photographs taken both with regular

484
00:20:54,950 --> 00:20:52,159
color film

485
00:20:57,270 --> 00:20:54,960
and infrared film they hope to see how

486
00:20:58,230 --> 00:20:57,280
the fluent warms the waters near the

487
00:21:00,070 --> 00:20:58,240
site

488
00:21:01,669 --> 00:21:00,080

and if the chemistry of the water is

489

00:21:04,470 --> 00:21:01,679

affected

490

00:21:07,350 --> 00:21:04,480

at copley high school in akron ohio the

491

00:21:09,990 --> 00:21:07,360

studies focused on aerial imaging

492

00:21:13,590 --> 00:21:10,000

what was the minimum size an object

493

00:21:16,789 --> 00:21:13,600

could be before it couldn't be resolved

494

00:21:17,990 --> 00:21:16,799

along with optical illusions and shadows

495

00:21:20,230 --> 00:21:18,000

and heights

496

00:21:21,909 --> 00:21:20,240

we set one up this time that deals with

497

00:21:23,750 --> 00:21:21,919

optical illusions another one dealing

498

00:21:26,789 --> 00:21:23,760

with shadows for measuring

499

00:21:28,310 --> 00:21:26,799

uh heights and distances apart

500

00:21:30,950 --> 00:21:28,320

from tires

501
00:21:34,149 --> 00:21:30,960
and we did some with the speed of the

502
00:21:36,230 --> 00:21:34,159
plane and velocity of the wind

503
00:21:38,870 --> 00:21:36,240
so they're set up

504
00:21:41,270 --> 00:21:38,880
to try to take a look at can you

505
00:21:43,110 --> 00:21:41,280
determine things

506
00:21:44,630 --> 00:21:43,120
from looking at aerial photographs when

507
00:21:47,590 --> 00:21:44,640
on the ground

508
00:21:49,750 --> 00:21:47,600
side testing it with the nasa project we

509
00:21:52,070 --> 00:21:49,760
could really work together and

510
00:21:53,190 --> 00:21:52,080
it's much more on the spot

511
00:21:54,710 --> 00:21:53,200
you can uh

512
00:21:57,029 --> 00:21:54,720
from the textbooks you can just read

513
00:21:59,990 --> 00:21:57,039

about it but from going outside and

514

00:22:01,750 --> 00:22:00,000

actually being in the pictures you know

515

00:22:03,270 --> 00:22:01,760

analyzing the pictures you can just

516

00:22:05,590 --> 00:22:03,280

learn so much more

517

00:22:08,390 --> 00:22:05,600

in the future it is hoped that other

518

00:22:11,110 --> 00:22:08,400

cleveland area schools will get involved

519

00:22:13,430 --> 00:22:11,120

in the t-34 project

520

00:22:15,909 --> 00:22:13,440

one goal of the project is to involve

521

00:22:17,909 --> 00:22:15,919

more students and schools in a wider

522

00:22:19,270 --> 00:22:17,919

area someday

523

00:22:21,430 --> 00:22:19,280

but for now

524

00:22:23,990 --> 00:22:21,440

some of the cleveland areas young

525

00:22:27,750 --> 00:22:24,000

students are getting a head start on

526

00:22:29,750 --> 00:22:27,760

tomorrow's problems today

527

00:22:31,190 --> 00:22:29,760

in the time that we have left let's

528

00:22:33,350 --> 00:22:31,200

watch a short piece from nasa

529

00:22:34,710 --> 00:22:33,360

headquarters on the space exploration

530

00:22:38,549 --> 00:22:34,720

initiative

531

00:22:41,750 --> 00:22:38,559

history proves that we have never lost

532

00:22:44,630 --> 00:22:41,760

by pressing the limits of our frontiers

533

00:22:46,710 --> 00:22:44,640

last july president bush set new goals

534

00:22:49,190 --> 00:22:46,720

for america's space program when he

535

00:22:50,710 --> 00:22:49,200

announced the national space exploration

536

00:22:52,470 --> 00:22:50,720

initiative

537

00:22:55,510 --> 00:22:52,480

first for the coming decade for the

538

00:22:58,870 --> 00:22:55,520

1990s space station freedom

539

00:22:59,909 --> 00:22:58,880

our critical next step in all our space

540

00:23:02,710 --> 00:22:59,919

endeavors

541

00:23:04,470 --> 00:23:02,720

and next for the new century

542

00:23:06,070 --> 00:23:04,480

back to the moon

543

00:23:12,789 --> 00:23:06,080

back to the future

544

00:23:17,669 --> 00:23:15,510

and then a journey into tomorrow

545

00:23:22,549 --> 00:23:17,679

a journey to another planet

546

00:23:27,190 --> 00:23:25,110

inspired by the president's declaration

547

00:23:29,750 --> 00:23:27,200

research into ways of permanently

548

00:23:31,909 --> 00:23:29,760

returning to the moon and exploring mars

549

00:23:34,549 --> 00:23:31,919

is accelerating throughout government

550

00:23:37,110 --> 00:23:34,559

industry and academia

551
00:23:38,950 --> 00:23:37,120
inflatable modules protected by lunar

552
00:23:41,909 --> 00:23:38,960
soil and linked together to form an

553
00:23:44,070 --> 00:23:41,919
expandable base are under study

554
00:23:46,390 --> 00:23:44,080
to explore mars engineers are looking

555
00:23:48,710 --> 00:23:46,400
into a number of robotic rovers that

556
00:23:52,310 --> 00:23:48,720
could serve as pathfinders for manned

557
00:23:54,870 --> 00:23:52,320
missions in this scenario a mars

558
00:23:56,390 --> 00:23:54,880
spaceship is assembled in orbit using a

559
00:23:58,950 --> 00:23:56,400
robot arm

560
00:24:14,310 --> 00:23:58,960
heavy launch vehicles haul up its major

561
00:24:18,950 --> 00:24:17,029
once the ship is complete a shuttle

562
00:24:26,870 --> 00:24:18,960
brings in the flight crew

563
00:24:32,310 --> 00:24:28,950

upon reaching the planet a crew-carrying

564

00:24:34,549 --> 00:24:32,320

lander separates from the mothership

565

00:24:36,710 --> 00:24:34,559

guided by information from an earlier

566

00:24:39,110 --> 00:24:36,720

rover mission it is steered to a

567

00:24:43,830 --> 00:24:39,120

pre-planned touchdown spot

568

00:24:46,310 --> 00:24:43,840

providing a base for mars operations

569

00:24:48,470 --> 00:24:46,320

to ensure that no approach to building a

570

00:24:49,669 --> 00:24:48,480

lunar base and exploring mars is

571

00:24:51,909 --> 00:24:49,679

overlooked

572

00:24:54,870 --> 00:24:51,919

nasa administrator richard truly

573

00:24:56,149 --> 00:24:54,880

recently launched a nationwide outreach

574

00:24:59,510 --> 00:24:56,159

program

575

00:25:01,990 --> 00:24:59,520

seeking new and innovative ideas

576
00:25:04,310 --> 00:25:02,000
the program includes more than 3200

577
00:25:06,789 --> 00:25:04,320
letters from truly to universities and

578
00:25:09,750 --> 00:25:06,799
professional societies an announcement

579
00:25:12,470 --> 00:25:09,760
to industry in commerce business daily

580
00:25:14,789 --> 00:25:12,480
a review of federally sponsored research

581
00:25:17,990 --> 00:25:14,799
and a study by the american institute of

582
00:25:20,630 --> 00:25:18,000
aeronautics and astronautics

583
00:25:22,630 --> 00:25:20,640
nasa's even established this toll-free

584
00:25:26,230 --> 00:25:22,640
telephone number for anyone who would

585
00:25:31,190 --> 00:25:28,230
the outreach effort offers this

586
00:25:36,230 --> 00:25:31,200
country's best and brightest a chance to

587
00:25:39,430 --> 00:25:37,909
station freedom

588
00:25:41,510 --> 00:25:39,440

a lunar base

589

00:25:44,470 --> 00:25:41,520

and journey to mars

590

00:25:49,430 --> 00:25:44,480

a comprehensive plan to extend human

591

00:25:53,669 --> 00:25:51,750

well that's all for this edition of nasa

592

00:25:55,269 --> 00:25:53,679

report to education

593

00:25:57,110 --> 00:25:55,279

i hope that you enjoyed the show and

594

00:25:59,590 --> 00:25:57,120

will join us next time

595

00:26:01,830 --> 00:25:59,600

until then this is lynn bondurant saying

596

00:26:04,070 --> 00:26:01,840

goodbye from the teacher resource center