



#AskNASA

WHAT IS THE MOON
MADE OF?

1
00:00:01,468 --> 00:00:04,771
[MUSIC]

2
00:00:04,771 --> 00:00:06,706
>> HI, I'M SARAH NOBLE.

3
00:00:06,706 --> 00:00:07,707
I STUDY THE MOON,

4
00:00:07,707 --> 00:00:08,908
AND THIS IS "ASK NASA."

5
00:00:15,048 --> 00:00:16,549
OUR FIRST QUESTION IS,

6
00:00:16,549 --> 00:00:18,084
"WHAT IS THE MOON MADE OF?"

7
00:00:18,084 --> 00:00:18,818
THE MOON IS MADE OF

8
00:00:18,818 --> 00:00:19,786
MOST OF THE SAME STUFF

9
00:00:19,786 --> 00:00:20,987
THAT THE EARTH IS MADE OF.

10
00:00:20,987 --> 00:00:22,188
THE MOON FORMED,

11
00:00:22,188 --> 00:00:23,256
UH, MANY YEARS AGO

12
00:00:23,256 --> 00:00:24,190
WHEN THE EARTH WAS STILL,

13
00:00:24,190 --> 00:00:25,458

SORT OF, MOLTEN,

14

00:00:25,458 --> 00:00:26,459

AND IT WAS HIT BY SOMETHING

15

00:00:26,459 --> 00:00:28,294

ABOUT THE SIZE OF MARS,

16

00:00:28,294 --> 00:00:29,129

AND IT KICKED OFF A LOT OF

17

00:00:29,129 --> 00:00:30,330

MATERIAL AND THAT MATERIAL

18

00:00:30,330 --> 00:00:31,564

CAME TO FORM THE MOON.

19

00:00:31,564 --> 00:00:32,165

AND SO, WE'RE MADE OF

20

00:00:32,165 --> 00:00:33,533

THE SAME STUFF.

21

00:00:35,168 --> 00:00:36,903

"CAN WE LIVE ON THE MOON?"

22

00:00:36,903 --> 00:00:37,804

THAT'S A GREAT QUESTION.

23

00:00:37,804 --> 00:00:38,705

WELL, THE MOON DOESN'T HAVE

24

00:00:38,705 --> 00:00:39,739

AN ATMOSPHERE, SO WE'LL-

25

00:00:39,739 --> 00:00:41,040

WE'LL NEED SOME TECHNOLOGY

26
00:00:41,040 --> 00:00:42,542
IN ORDER TO SURVIVE THERE.

27
00:00:42,542 --> 00:00:43,410
BUT THERE'S NO REASON WHY

28
00:00:43,410 --> 00:00:44,144
WE CAN'T BRING

29
00:00:44,144 --> 00:00:45,044
WHAT WE NEED WITH US,

30
00:00:45,044 --> 00:00:45,945
AND WE'RE WORKING RIGHT NOW

31
00:00:45,945 --> 00:00:47,013
WITH THE ARTEMIS PROGRAM

32
00:00:47,013 --> 00:00:48,047
TO HELP US PREPARE FOR THAT

33
00:00:48,047 --> 00:00:51,451
EVENTUALITY.

34
00:00:51,451 --> 00:00:52,385
"IS THERE REAL WATER

35
00:00:52,385 --> 00:00:53,686
"ON THE MOON?"

36
00:00:53,686 --> 00:00:54,621
WE DO THINK THERE'S WATER

37
00:00:54,621 --> 00:00:55,588
ON THE MOON.

38
00:00:55,588 --> 00:00:56,556

WE THINK THAT THERE IS WATER

39

00:00:56,556 --> 00:00:58,124
HIDDEN IN-IN PERMANENTLY

40

00:00:58,124 --> 00:00:59,058
SHADOWED CRATERS

41

00:00:59,058 --> 00:01:00,460
AT THE POLES OF THE MOON,

42

00:01:00,460 --> 00:01:01,494
UH, WHERE SUNLIGHT ACTUALLY

43

00:01:01,494 --> 00:01:02,729
CAN'T REACH DOWN IN THERE,

44

00:01:02,729 --> 00:01:04,798
SO IT'S SUPER, SUPER COLD,

45

00:01:04,798 --> 00:01:05,465
AND IT'S SO COLD

46

00:01:05,465 --> 00:01:06,499
THAT ONCE WATER GETS THERE,

47

00:01:06,499 --> 00:01:07,901
IT CAN'T ESCAPE AGAIN.

48

00:01:07,901 --> 00:01:08,601
THAT'S ONE OF THE REASONS

49

00:01:08,601 --> 00:01:09,936
WHY ARTEMIS IS HEADED FIRST

50

00:01:09,936 --> 00:01:11,070
TO THE SOUTH POLE OF THE MOON,

51
00:01:11,070 --> 00:01:12,105
SO THAT WE CAN INVESTIGATE

52
00:01:12,105 --> 00:01:13,039
AND FIND OUT

53
00:01:13,039 --> 00:01:13,873
JUST HOW MUCH WATER IS THERE.

54
00:01:13,873 --> 00:01:14,774
IT'S TIME FOR US TO GET DOWN

55
00:01:14,774 --> 00:01:15,975
TO THE SURFACE.

56
00:01:19,913 --> 00:01:20,980
"HOW MANY TIMES DID NASA

57
00:01:20,980 --> 00:01:21,915
"GO TO THE MOON?"

58
00:01:21,915 --> 00:01:23,550
WELL, WE'VE SENT SIX LANDERS

59
00:01:23,550 --> 00:01:24,818
TO THE SURFACE OF THE MOON

60
00:01:24,818 --> 00:01:25,919
DURING APOLLO.

61
00:01:25,919 --> 00:01:28,121
THAT'S A LOT, BUT NOT ENOUGH.

62
00:01:28,121 --> 00:01:29,022
WE HAVE ACTUALLY SENT A LOT

63
00:01:29,022 --> 00:01:30,190

OF OTHER THINGS TO ORBIT

64

00:01:30,190 --> 00:01:31,224

THE MOON, THOUGH, AND IN FACT,

65

00:01:31,224 --> 00:01:32,225

RIGHT NOW WE HAVE

66

00:01:32,225 --> 00:01:33,059

SEVERAL THINGS

67

00:01:33,059 --> 00:01:33,993

ORBITING THE MOON,

68

00:01:33,993 --> 00:01:34,928

INCLUDING THE LUNAR

69

00:01:34,928 --> 00:01:35,995

RECONNAISSANCE ORBITER,

70

00:01:35,995 --> 00:01:36,729

WHICH IS GIVING US A GREAT MAP

71

00:01:36,729 --> 00:01:38,031

AND HELPING US PREPARE

72

00:01:38,031 --> 00:01:39,499

FOR OUR NEXT LANDINGS.

73

00:01:39,499 --> 00:01:40,633

>> SO, WE'RE THERE NOW?

74

00:01:40,633 --> 00:01:42,001

>> ABSOLUTELY, WE'RE THERE NOW.

75

00:01:46,039 --> 00:01:47,841

"HOW WAS NASA ABLE TO FILM

76

00:01:47,841 --> 00:01:49,175

"THE MOON LANDINGS?"

77

00:01:49,175 --> 00:01:49,976

WE BROUGHT A LOT OF CAMERAS

78

00:01:49,976 --> 00:01:51,578

WITH US, AND WE WILL BRING

79

00:01:51,578 --> 00:01:53,112

EVEN MORE THE NEXT TIME.

80

00:01:53,112 --> 00:01:53,847

ALL RIGHT, SO WE--

81

00:01:53,847 --> 00:01:54,781

THEY ACTUALLY HAD A VERY

82

00:01:54,781 --> 00:01:55,815

SORT OF INGENIOUS SYSTEM

83

00:01:55,815 --> 00:01:56,950

WHERE-WHERE WHEN THEY LANDED

84

00:01:56,950 --> 00:01:57,917

THE MOON LANDER,

85

00:01:57,917 --> 00:01:58,718

A CAMERA WOULD POP OUT

86

00:01:58,718 --> 00:01:59,552

FROM THE SIDE

87

00:01:59,552 --> 00:02:00,687

SO THAT IT COULD FILM

88

00:02:00,687 --> 00:02:01,788

THE ACTUAL FIRST STEPS

89

00:02:01,788 --> 00:02:03,122
ONTO THE MOON. WE WANT 'EM--

90

00:02:03,122 --> 00:02:04,257
WE WANNA DOCUMENT EVERYTHING

91

00:02:04,257 --> 00:02:05,458
AS WELL AS WE CAN,

92

00:02:05,458 --> 00:02:07,327
SO, LOTS AND LOTS OF CAMERAS.

93

00:02:07,327 --> 00:02:10,163
[LAUGHS]

94

00:02:10,163 --> 00:02:11,030
>> RAPID FIRE.

95

00:02:11,030 --> 00:02:12,365
HOW OLD IS THE MOON?

96

00:02:12,365 --> 00:02:13,066
>> THE MOON'S ABOUT FOUR

97

00:02:13,066 --> 00:02:14,300
AND A HALF BILLION YEARS OLD.

98

00:02:14,300 --> 00:02:15,702
IT WAS ACTUALLY FORMED FROM-

99

00:02:15,702 --> 00:02:16,669
FROM PARTS OF THE EARTH,

100

00:02:16,669 --> 00:02:17,871
SO THEY'RE ABOUT THE SAME AGE.

101
00:02:17,871 --> 00:02:19,906
>> DO YOU LIKE MOON PIES?

102
00:02:19,906 --> 00:02:20,707
>> I DO ACTUALLY

103
00:02:20,707 --> 00:02:21,508
LIKE MOON PIES.

104
00:02:21,508 --> 00:02:23,109
NICE MOON PIES AND RC COLA.

105
00:02:23,109 --> 00:02:23,910
>> HOW MANY CRATERS

106
00:02:23,910 --> 00:02:25,144
ARE ON THE MOON?

107
00:02:25,144 --> 00:02:28,248
>> OH, CAN I GET MY GLOBE?

108
00:02:28,248 --> 00:02:30,350
THE MOON IS FULL OF CRATERS.

109
00:02:30,350 --> 00:02:31,351
THERE ARE SO MANY CRATERS

110
00:02:31,351 --> 00:02:32,285
THAT IN MANY PLACES,

111
00:02:32,285 --> 00:02:33,152
EVERY TIME A NEW CRATER

112
00:02:33,152 --> 00:02:34,287
COMES IN, IT OBLITERATES

113
00:02:34,287 --> 00:02:35,221

AN OLD ONE.

114

00:02:35,221 --> 00:02:36,222

>> OH, WOW.

115

00:02:36,222 --> 00:02:37,257

WHAT'S YOUR FAVORITE MOON SONG?

116

00:02:37,257 --> 00:02:38,091

>> YOU KNOW WHAT?

117

00:02:38,091 --> 00:02:39,225

I LIKE "MOON RIVER."

118

00:02:39,225 --> 00:02:39,959

>> WHAT IS THE DARK SIDE

119

00:02:39,959 --> 00:02:41,060

OF THE MOON?

120

00:02:41,060 --> 00:02:41,995

>> THERE IS NO ACTUAL

121

00:02:41,995 --> 00:02:43,062

DARK SIDE OF THE MOON.

122

00:02:43,062 --> 00:02:44,430

BOTH SIDES OF THE MOON

123

00:02:44,430 --> 00:02:45,164

SEE THE SAME AMOUNT

124

00:02:45,164 --> 00:02:46,933

OF NIGHT AND DAY.

125

00:02:46,933 --> 00:02:48,801

>> WHEN IS THE NEXT FULL MOON?

126
00:02:48,801 --> 00:02:50,370
>> OH, I SHOULD KNOW THAT.

127
00:02:50,370 --> 00:02:51,137
I ALWAYS KNOW THAT,

128
00:02:51,137 --> 00:02:52,005
AND I DON'T.

129
00:02:52,005 --> 00:02:52,805
>> I GUESS WE'LL CHECK OUR

130
00:02:52,805 --> 00:02:53,873
LUNAR CALENDAR.

131
00:02:53,873 --> 00:02:55,241
[LAUGHS]

132
00:02:55,241 --> 00:02:55,842
DOES THE MOON

133
00:02:55,842 --> 00:02:57,343
HAVE AN ATMOSPHERE?

134
00:02:57,343 --> 00:02:58,444
>> SO, THE MOON DOESN'T REALLY

135
00:02:58,444 --> 00:02:59,279
HAVE AN ATMOSPHERE.

136
00:02:59,279 --> 00:03:00,346
ITS ATMOSPHERE IS SO THIN,

137
00:03:00,346 --> 00:03:01,014
IT'S SOMETHING WE CALL

138
00:03:01,014 --> 00:03:02,115

AN EXOSPHERE, WHICH IS

139

00:03:02,115 --> 00:03:03,116

WHEN THE MOLECULES

140

00:03:03,116 --> 00:03:03,917

ARE SO FAR APART,

141

00:03:03,917 --> 00:03:05,285

THEY NEVER RUN INTO EACH OTHER.

142

00:03:05,285 --> 00:03:06,719

>> IS THE MOON BEAUTIFUL?

143

00:03:06,719 --> 00:03:07,086

>> OH, MY GOSH,

144

00:03:07,086 --> 00:03:08,454

THE MOON IS SO BEAUTIFUL.

145

00:03:08,454 --> 00:03:09,255

>> I HEARD YOU'RE AN ARTIST,

146

00:03:09,255 --> 00:03:09,989

IS THAT RIGHT?

147

00:03:09,989 --> 00:03:10,957

>> I AM.

148

00:03:10,957 --> 00:03:11,758

>> WHY DID YOU PAINT

149

00:03:11,758 --> 00:03:13,059

THE MOON AND MARS?

150

00:03:13,059 --> 00:03:14,394

>> I FIND OUR SOLAR SYSTEM

151
00:03:14,394 --> 00:03:15,795
SO BEAUTIFUL AND INSPIRING,

152
00:03:15,795 --> 00:03:17,330
I JUST HAVE TO PUT MY BRUSHES

153
00:03:17,330 --> 00:03:19,165
TO CANVAS, AND, YOU KNOW WHAT,

154
00:03:19,165 --> 00:03:20,066
HOPEFULLY IN A FEW YEARS,

155
00:03:20,066 --> 00:03:20,967
WE'LL HAVE PAINTINGS LIKE THIS

156
00:03:20,967 --> 00:03:21,868
WITH PEOPLE ON THEM.

157
00:03:21,868 --> 00:03:22,535
THIS ONE TOOK

158
00:03:22,535 --> 00:03:24,604
A REALLY LONG TIME.

159
00:03:24,604 --> 00:03:25,805
>> IS THAT CURIOSITY?

160
00:03:25,805 --> 00:03:26,639
>> YES, IT WAS ONE OF THE--

161
00:03:26,639 --> 00:03:28,341
ONE OF ITS SELFIES.

162
00:03:28,341 --> 00:03:29,809
I AM SO EXCITED FOR GOING

163
00:03:29,809 --> 00:03:30,944

TO THE MOON AND THE-THE NEW

164

00:03:30,944 --> 00:03:31,811

E-- SCIENCE THAT-

165

00:03:31,811 --> 00:03:32,445

THAT WE'RE GONNA SEE

166

00:03:32,445 --> 00:03:33,646

AND-AND LEARN ABOUT.

167

00:03:33,646 --> 00:03:34,814

I-- YES.

168

00:03:34,814 --> 00:03:37,784

[LAUGHS]

169

00:03:37,784 --> 00:03:38,618

>> DO YOU HAVE A QUESTION

170

00:03:38,618 --> 00:03:39,485

FOR NASA?

171

00:03:39,485 --> 00:03:40,286

SEND YOUR QUESTIONS