

Mars Base Camp – Landing Zone *Surveyor*

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00:00:08.910 --> 00:00:19.650

Torey Earle: Hi everybody, my name is Torey Earle, and I am an Extension Specialist for 4-H Youth Development with the University of Kentucky College of Agriculture, Food and Environment Cooperative Extension Service.

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00:00:20.220 --> 00:00:27.210

Torey Earle: We're here today to introduce you to this year's 4-H National STEM Challenge which is called Mars Base Camp.

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00:00:28.350 --> 00:00:44.640

Torey Earle: If you hadn't noticed this year, we're doing the 4-H STEM Challenge training, just a little differently. This first segment is on the Mars Base Camp landing zone survey or activity from the 4-H STEM Challenge.

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00:00:49.980 --> 00:00:51.870

Torey Earle: The landing zone survey or activity.

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00:00:53.130 --> 00:01:05.280

Torey Earle: Goes through several different phases as you would do it. You've got your launch crews and approach phase where he would encourage teammates to count down from launch and if they miss their target or land off the map.

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00:01:06.870 --> 00:01:14.610

Torey Earle: Are some more they land on a grid square that someone's already landed on they'll just pick their land or backup move around to the backlog and start again.

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00:01:15.330 --> 00:01:23.580

Torey Earle: On their orbit entry and descent for the landing phase to land on the target. They're going to determine what grid squares, they land on

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00:01:26.040 --> 00:01:36.360

Torey Earle: The grid squares on the corners, a one, a four day. One day for are considered in orbit around Mars. They have not actually landed. So, they are going to be orbiters

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00:01:37.140 --> 00:01:50.640

Torey Earle: And if they land on all of the other any of the other squares on the surface. They are going to have to determine if they had a safe landing or not. So in that safe landing, you would

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00:01:51.510 --> 00:02:01.680

Torey Earle: After they get on the grid square before they would get a landing card. They are going to roll a die and depending on what number comes up is, depending on if they had a safe landing or not.

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00:02:02.490 --> 00:02:10.260

Torey Earle: In your Facilitator Guide on page 16 it gives you the number choices for the different landing scenarios that they could have

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00:02:12.000 --> 00:02:22.110

Torey Earle: So some of the things that you can do or you can ask different questions and discovering information about their landing cards that they would have

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00:02:23.130 --> 00:02:26.880

Torey Earle: Landing cards are designated for each of the grid squares.

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00:02:28.320 --> 00:02:36.420

Torey Earle: And just ask them questions about what they discovered from their, their landing card or what they discovered from their orbiter.

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00:02:38.190 --> 00:02:47.130

Torey Earle: For example, find out the ones that went into orbit and then asked him about the name of their orbiter. There are four different ones and

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00:02:48.960 --> 00:02:53.430

Torey Earle: When did it go into orbit around Mars. Is it still there. Is it still sending back information.

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00:02:54.600 --> 00:02:58.410

Torey Earle: Other questions you can ask them, are who has a landing site with ice.

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00:02:59.640 --> 00:03:09.960

Torey Earle: Who has a site with a volcano and all of this information will be on their landing cars so they should be able to tell you if they have discovered what's going on. What, what is on their card.

19

00:03:11.760 --> 00:03:26.340

Torey Earle: The reflection stage of the landing zone activity give everyone a chance to talk about what they learned based on either their card or their experience getting the land or to Mars.

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00:03:27.480 --> 00:03:32.070

Torey Earle: They could share things about what they noticed or learned about Mars during the activity.

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00:03:33.900 --> 00:03:38.790

Torey Earle: We're all the landing sites, the same are did each one of them have kind of different features to it.

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00:03:39.840 --> 00:03:50.310

Torey Earle: They could reflect on what do you think about what do you think makes some of the places different what caused them to be different over the time that they were being formed.

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00:03:51.600 --> 00:03:59.370

Torey Earle: Do an L information about the different landing sites ahead of time, or do we learn that as we get there.

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00:04:00.780 --> 00:04:01.410

Torey Earle: So,

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00:04:02.760 --> 00:04:18.990

Torey Earle: If you were planning a mission to Mars. What do you think would be a good place to try to land rover, ask them that apply what you think would be a good spot to build a base camp. What would be some of the characteristics of that to to build your base camp.

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00:04:23.130 --> 00:04:32.430

Torey Earle: The first step in setting up the landing zone surveyor is to designate your launch site the launch site should probably be from three to five feet away from the map.

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00:04:32.730 --> 00:04:43.500

Torey Earle: Right now we've got about five feet from our blue line over to our mark my app if you're working with younger youth ages eight to 10 you might want to move a little closer but 11 and over

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00:04:44.520 --> 00:04:54.690

Torey Earle: You might even make it a little more challenging challenging for them and move it further away, but then you're going to take your Lander, which is the parachute toy and

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00:04:56.400 --> 00:05:06.660

Torey Earle: You can toss it in any way that you would want to toward the map. The first method that I'm going to try is holding it by the top of the parachute and tossing it toward the map.

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00:05:08.100 --> 00:05:23.190

Torey Earle: And that wasn't very successful. So it did not land on the map. So you would let the next person take a turn and move back around. So now what I'm going to do is tried folded like this and tossing it toward the map.

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00:05:25.020 --> 00:05:29.460

Torey Earle: And the parachute itself landed on grid d one

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00:05:31.050 --> 00:05:33.300

Torey Earle: What we would then do is go to

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00:05:34.590 --> 00:05:38.130

Torey Earle: Our landing zone cards and we will pull out the one

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00:05:39.600 --> 00:05:54.930

Torey Earle: That d one, the grids designated d one A one, A four and D for are actually considered going into orbit around Mars. So this would be

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00:05:55.890 --> 00:06:14.070

Torey Earle: Designated as the Mars Odyssey rover our orbiter. Excuse me, and it gives you information about the Odyssey orbiter. And at that point, the that participant would be done with

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00:06:15.090 --> 00:06:19.680

Torey Earle: Their turn. We're going to see if we can land on a different grid square on Mars.

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00:06:21.330 --> 00:06:33.030

Torey Earle: And we landed on see for now. See, for if we look at our flow chart we have landed on the surface, we're going to

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00:06:35.340 --> 00:06:44.850

Torey Earle: Go through our entry and landing descent phase. And then we roll our die to see if we had a successful landing

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00:06:46.050 --> 00:06:51.210

Torey Earle: Or if we're going to have to go back and try again. So

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00:06:52.260 --> 00:07:09.630

Torey Earle: Let's roll the die out. There it is. It comes up on a five. I don't know if you can see that very well, but five we go to our flow chart. And that is an unsuccessful landing. So at this point, they would not get to pick up a landing card.

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00:07:10.710 --> 00:07:16.950

Torey Earle: They would have to go take another turn and retry their landing. So as you would go through this

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00:07:18.000 --> 00:07:28.470

Torey Earle: Successful landings. You could take the post it notes and put on each marker. If you have a large number of youth participating because you want to land on

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00:07:30.030 --> 00:07:49.620

Torey Earle: A grid square that has not been landed on before. So keeping in mind, you may try a couple of times and see if they get close, or if they get the landers on the map itself. And if you say that's not working. Move the map a little closer to the landings are to the launch site.

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00:07:51.240 --> 00:07:53.970

Torey Earle: This is a good activity to

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00:07:55.410 --> 00:08:04.950

Torey Earle: Start to study the features of Mars and start to study what different things would make good landing sites or good base camp sites.

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00:08:06.270 --> 00:08:12.780

Torey Earle: And as you would do this, it encourages them to try to try to strategize where they would want to land on their to

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00:08:13.950 --> 00:08:23.820

Torey Earle: The parachute. It's gonna, it's going to be the, the kind of variable factor in this because if there's any air movement in the room. It's going to move it around.

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00:08:24.210 --> 00:08:37.260

Torey Earle: And they may not get to land where they want to, but each one of the landing zone cards has information about the site. It could be the topography of the site. It could be information about

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00:08:38.640 --> 00:08:49.380

Torey Earle: Does it look like there might have been water there before. Does it look like it might be a good building site. Does it look like it has got some rough terrain that that might make it

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00:08:49.980 --> 00:09:03.420

Torey Earle: A problem for their rover to cross. So each one of these would tell them a little bit more about the surface of Mars and what they're going to be experiencing to build their base camp.