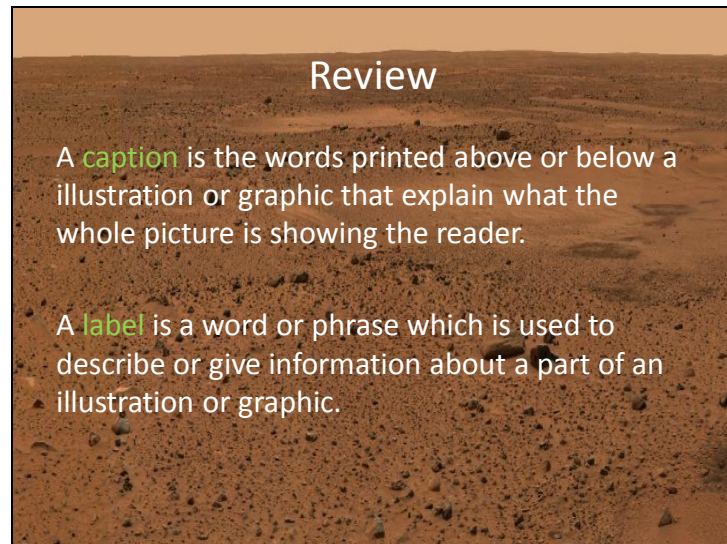




Today you will be creating the final sketch of your Mars rover. This step will make it easier for you to create an actual model (prototype) of your rover.

Your sketch will show the different pieces of equipment that you will need to carry out your mission. However, the function of each feature of the rover may not be apparent to other people who are looking at your sketch. To help them understand your drawing, you will need to create labels and captions to identify the key components. Today's mini-lesson will show you how to write effective labels and captions to help others understand exactly how your Mars rover will work.



Read or paraphrase the definitions.

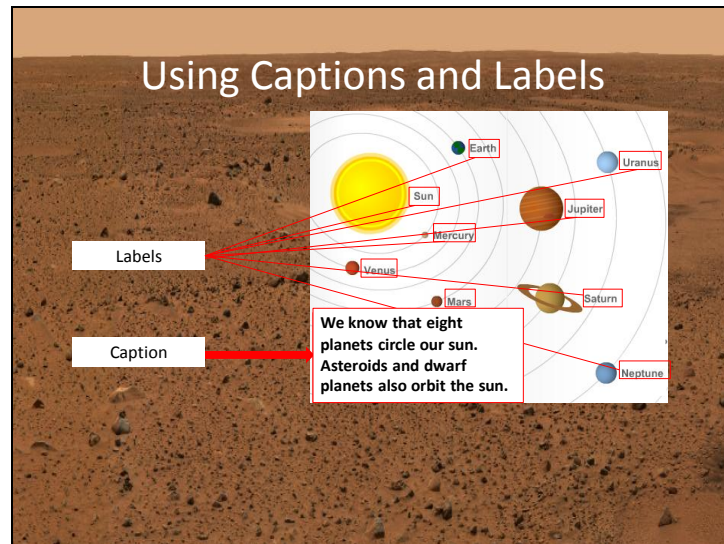


## Review

Captions and labels...

- are usually very brief
- are sometimes placed in boxes to make them stand out
- will sometimes have lines or arrows to direct readers' attention to the correct area and are placed so that the text doesn't cover any crucial part of the illustration
- Captions are usually written in complete sentences but labels are usually only a few words

Slide 4



This slide has 2 CLICKS of animation.

Here is an example of an illustration that has both labels and a caption. The labels have been placed on the illustration to the side of the planets so that they do not cover any crucial information. You can see that on this illustration, the labels are only one word long. CLICK

The caption is at the bottom of the page and explains what the illustration is showing. CLICK

Illustration Credit: <http://www.nasa.gov/audience/forstudents/k-4/stories/what-is-the-solar-system.html>



In this illustration from the NASA website, there is a caption but no labels. The illustration shows the Cassini-Huygens spacecraft which explored Titan, the largest moon of Saturn. Since the title of the caption mentions “Huygens Probe Landing” and the second sentence talks about the Cassini spacecraft in the background, there was no need to add captions.

The caption is sufficient for the reader to identify both spacecraft. Let me read this to you so you can see why the author did not add labels. (Read the caption to the students, pointing to each of the items it highlights—Titan’s surface, Saturn, thick atmosphere, Cassini spacecraft, Huygens probe—as you progress through the paragraph.)

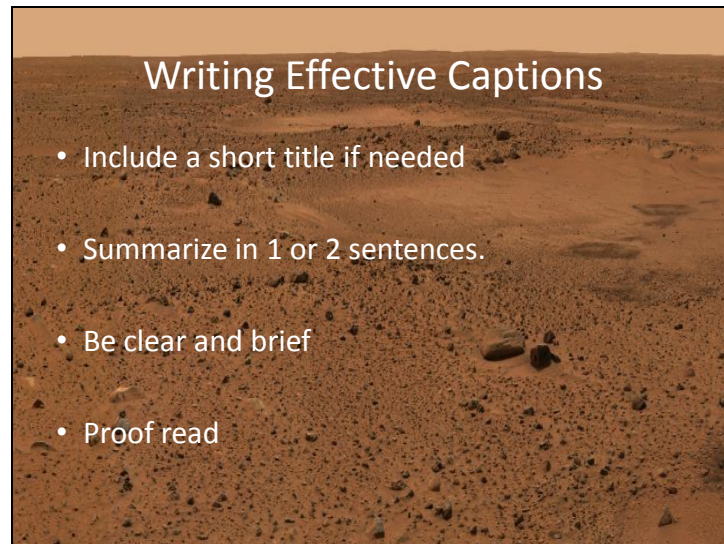
[http://www.nasa.gov/multimedia/imagegallery/image\\_feature\\_88.html](http://www.nasa.gov/multimedia/imagegallery/image_feature_88.html)





This is an illustration from the NASA website discussing the landing site of Apollo 11, the first manned mission to land on the moon. Since readers would already be aware that the illustration was about the landing site, there was no caption, but only labels of places discussed in the online article. The actual landing site is labeled, as is the Sea of Tranquility (which has no water) and some of the larger craters near the landing site.

[http://www.nasa.gov/mission\\_pages/LRO/multimedia/lroimages/lola-20100528-maretranquillitatis.html](http://www.nasa.gov/mission_pages/LRO/multimedia/lroimages/lola-20100528-maretranquillitatis.html)



When you include an illustration or a graphic in your writing, you have a reason for doing so. Illustrations and graphics are often used to show something that is difficult to explain in words or something that is difficult for your readers to visualize as they read. Graphics help to show complex information in an easy to understand format.

Your caption should help your reader understand why you decided to include it. There are several things to keep in mind as you write your caption.

First, consider including a title with your purpose if this will help you explain the illustration.

Write clearly and in complete sentences. A well-written caption can be understood by anyone, including people who have very limited knowledge of Mars or who haven't read the rest of your Mars Rover notebook.

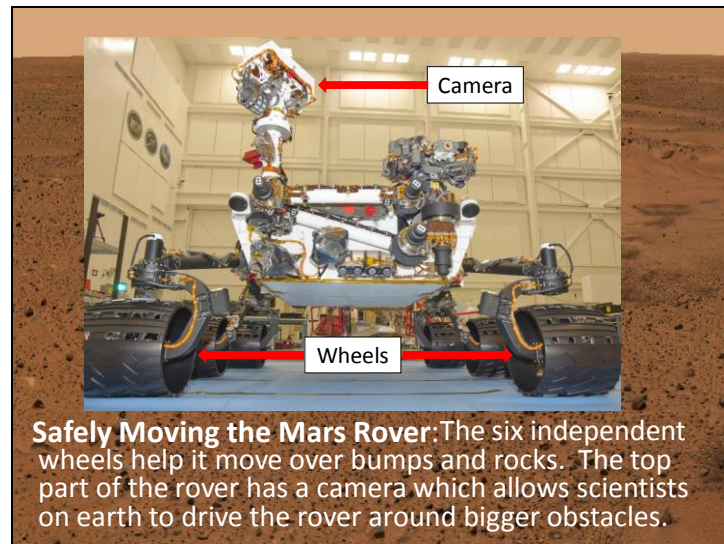
Be clear and brief. Most captions are just a sentence or two long. The caption summarizes the illustration and why you chose to show it to the reader.

Proof read what you write. Read it yourself to make sure it says what you want and says it in the way you want to say it. Then have a friend read it to ensure that they understand the caption exactly the way you want them to.

Let's look at a sample caption.





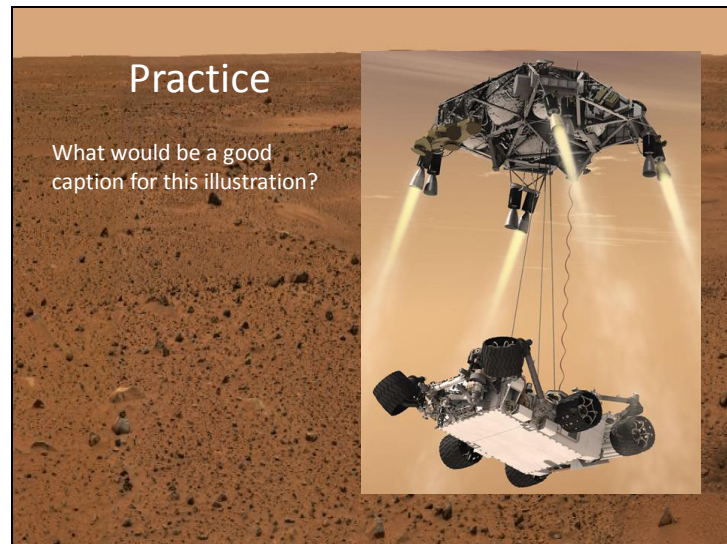


This slide has three CLICKS of animation.

Suppose I wanted readers to understand how my Mars rover would move around the planet without getting stuck or tipping over. Describing this in words would be difficult so I decide to include an illustration. I want my readers to know why this illustration is here. How could I say that in just a few words (Ask students to provide suggestions and once you have one that is correct, CLICK.) Right, I could write “Safely Moving the Mars Rover”. Then, in the rest of the caption, I could talk about the features I included on the Mars Rover to keep it safe.

(CLICK and read the rest of the caption.)

If necessary, you can then add a label and arrows so your readers can see exactly where these things are located. Be sure the labels don't cover anything important.



Let's pretend that I am going to include this illustration to show how I plan to land my rover on Mars. Let's think about the things we need to keep in mind as we write the caption.



This slide has one CLICK of animation.

Do we need a title for this illustration or will everyone already know what the picture shows, even people who know nothing about Mars?

Not everyone will know about Mars so we probably ought to write a title. What does the illustration show? Good, now, how can we say this in just a few words? When students are close to “Landing the Rover on Mars”, CLICK to bring up the text



✓ Short title (if needed): **Landing the Rover on Mars**

- Summarize in 1 or 2 sentences

It has rocket things burning so that it can fly in one place. Then the rover falls from that thing down out of the sky.

Now let's look at the next step in writing an effective caption. We want to write in complete sentences and we want people to know why we included the illustration.

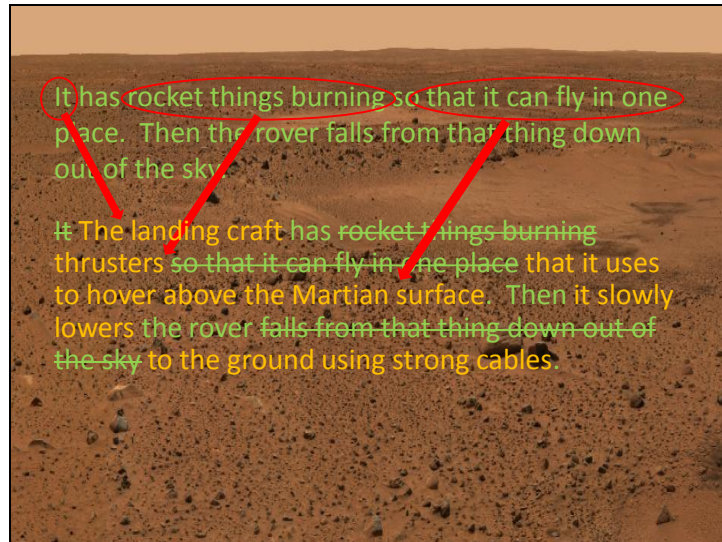
(Talk students through the illustration. Have them notice that the upper vehicle is hovering (stationary) in the sky and is firing thrusters to remain in place. Point out the cords that are slowly lowering the rover to the ground below. Then ask them how they might explain this in two sentences.

Very good, now let's pretend that when we wrote our caption, we came up with this... **CLICK** (Have students read the caption draft.)



I have checked off the second step because we did write 1 or 2 sentences that explain why I am showing the reader the illustration. The next thing we need to check is whether we were clear and brief.



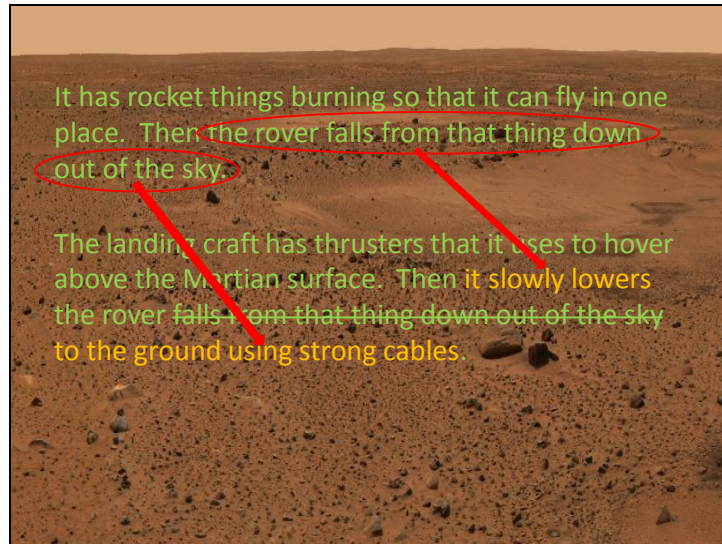


This slide has three CLICKS of animation.

As I read this over to myself, I realize I should rephrase the caption to clarify what I am trying to say. Let me show you what I mean.

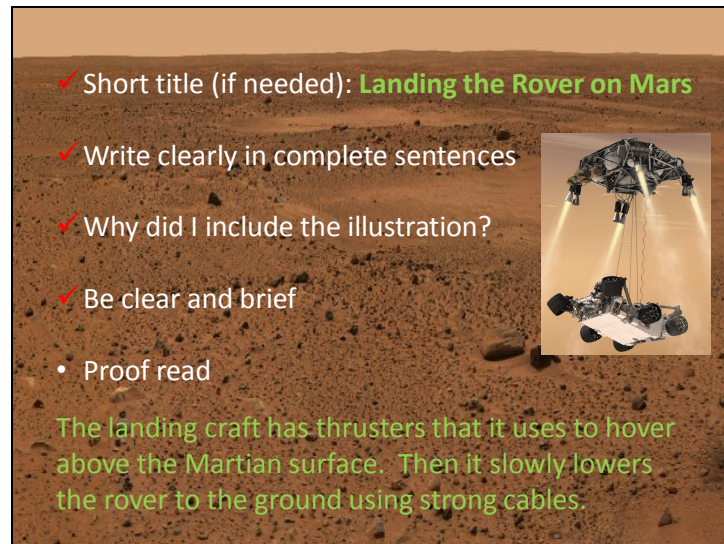
For example, the first word "it" is not very clear. I am actually talking about "the landing craft" so I will change that. CLICK. Then, I wrote about the "rocket things burning". Although this is easy to understand and to see in the illustration, I remember from my reading that there is a specific word in the research for these rockets, "thrusters". So I changed this in my caption. CLICK. The rest of my sentence says "so that it can fly in one place". However, I can think of a better way to say this. I know that helicopters fly in one place but when people talk about this they use the word hover. That sounds much better. I also haven't mentioned where it hovers but I know it is above Mars, so I can say "it hovers above the Martian surface". CLICK





This slide has two CLICKS of animation.

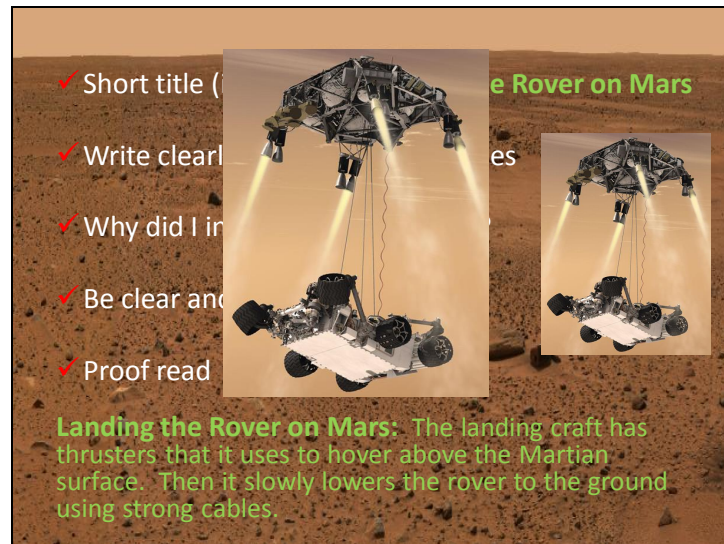
I never really liked my second sentence about the rover falling out of the sky but I didn't know how to say what was happening any other way. So, I asked a friend of mine and she suggested that I use the word lower because of the wires. And, since it doesn't fall quickly I added the word "slowly" to describe how the rover was lowered. CLICK Finally, I decided to change the "out of the sky" part of the sentence since that is very obvious. Instead, I decided to explain how the rover gets to the ground and changed it to "to the ground using strong cables."

The background of the slide is a photograph of the Martian surface, showing a reddish-brown landscape with small rocks and a hazy horizon. In the center-right, there is an inset image showing a Mars lander in the process of lowering a rover. The lander is a large, boxy vehicle with a complex structure, and it is using a system of cables and pulleys to lower a smaller rover onto the ground. The rover is a six-wheeled vehicle with a camera and various instruments. The lander has several thrusters visible, and the entire scene is set against the orange-brown sky of Mars.

- ✓ Short title (if needed): **Landing the Rover on Mars**
- ✓ Write clearly in complete sentences
- ✓ Why did I include the illustration?
- ✓ Be clear and brief
- Proof read

The landing craft has thrusters that it uses to hover above the Martian surface. Then it slowly lowers the rover to the ground using strong cables.

Our final step is to proof read. Here, we want to make sure that we have spelled everything correctly, used punctuation and that we didn't leave out any words we wanted to say. Read the final paragraph with me and so we can check to see if our caption is correct. (Allow students to comment—there are NO additional errors in this caption.)



✓ Short title (

✓ Write clear

✓ Why did I in

✓ Be clear and

✓ Proof read

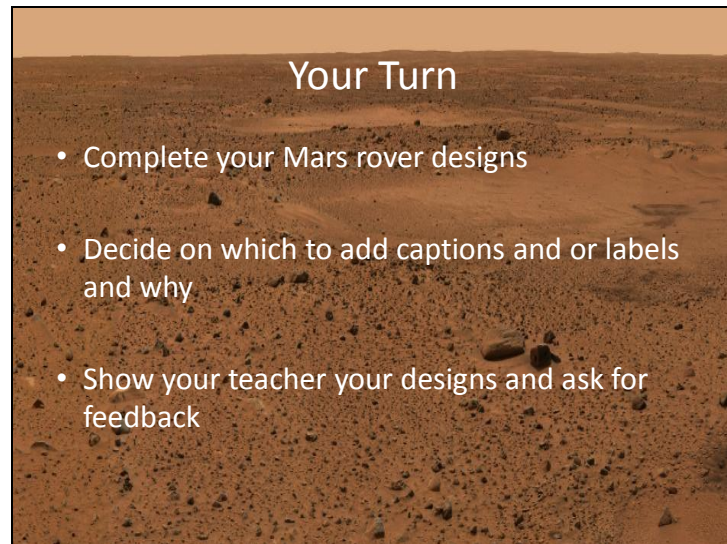
**Landing the Rover on Mars:** The landing craft has thrusters that it uses to hover above the Martian surface. Then it slowly lowers the rover to the ground using strong cables.

The slide features a background image of a Mars rover being lowered by a lander. The lander is a large, dark, boxy structure with several bright yellow thrusters. It is suspended by a series of cables. The rover is a smaller, white, six-wheeled vehicle. The background is a reddish-brown, rocky surface. The title 'Landing the Rover on Mars' is written in green text. The list of writing tips is on the left, and the caption is at the bottom. There are two images of the lander and rover: a large one in the center and a smaller one to the right.

This slide has one CLICK of animation

We check off our last step. The only thing left for us to do now is to decide whether or not we need any labels to go along with our caption. CLICK Let's read our caption one last time to see if labels are necessary for readers to understand our illustration or if our caption is enough by itself.

(TEACHER: After students read the caption, help them come to the conclusion that labels are probably not necessary for this illustration because the caption explains the illustration well.)

A background image of a Mars landscape, showing a reddish-brown, rocky terrain under a hazy, orange sky. The horizon is visible in the distance.

## Your Turn

- Complete your Mars rover designs
- Decide on which to add captions and or labels and why
- Show your teacher your designs and ask for feedback