

wings for Girl Scout JUNIORS

Day camp goes to Mars! Juniors launch a mission to Mars, and learn all about how day camp works in the process.



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To earn their Girl Scout Day Camp Wings, girls do all four of the following:

- 1 Drive a Mars Rover to explore Mars...and find a great place to hold the first Girl Scout Day Camp on Mars (see Wings #1).
- 2 Investigate all the different people, places, and resources that make a day camp awesome (see Wings #2).
- 3 Get creative as they work together to design Mars Day Camp, and share their works-in-progress with each other (see Wings #3).
- 4 Put the finishing touches on their day camps, and then create commercials to advertise the magic of Mars Day Camp to girls on Earth...and beyond! (See Wings #4.)

Check out the last page for Wings awards you can print out!



Junior Wings #1

Rover Romp

Time: 30 minutes

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Supplies:

- An object to be a “rover” (think big plastic truck, cardboard, etc.) - 1 per group
- Copies of rover map handout (1 per girl)
- Pens/pencils (1 per girl)
- Objects/natural features (like big rocks, stumps, etc.) to be John Klein rock, a rock to zap, and the location for the panorama
- A rope or other way to make the starting line
- Numbered cards for each starting point

Before Girls Arrive: Create a life-size “Gale Crater” that’s as close as you can get to what’s on the girls’ map. You don’t need to lay out the grid lines; just the objects (“rocks,” a place to take the pictures) and starting areas. Make it big enough so that 1 square on the map equals 1 big (girl-sized) step.

#1: Spark!

- Tell girls that this week, they’ll be blasting off into space, and heading for Mars! Mars is the next frontier for human exploration. Right now, NASA’s rover Curiosity is exploring Gale Crater on the surface of Mars. Someday there might be a space station on Mars, complete with kids. Because of this, this week we’ll make plans for what could be the first-ever Girl Scout Day Camp on Mars!
- Tell them that, just like on Earth, a lot of research goes into choosing the best site to hold a day camp. On Earth, we look at sites by going there and walking around. On Mars, we use big robots on wheels, called rovers, to explore an area first. Today we’ll be learning how to command a rover so we can look for a site for our Mars day camp.
- Give each girl a copy of the Welcome to Gale Crater handout.
 - Show them the map. Tell girls that each day, the rover mission team has the rover take a picture of what lies in front of the rover. This picture helps them create a plan for the next day. This map is the best picture we have of where our day camp exploration rover is going.
 - Point out the list of commands below the map. Tell the girls that first the mission team plans where the rover should go. Then, they tell the rover how to get there. They write out the commands in Rover Language, and then send them to the rover overnight. The next day, the rover does those commands.
 - Read the list of commands to the girls and explain what they mean. (Hint: “forward” or “back” means to go “forward” in the direction the robot is facing. If it’s facing the starting area, it will go that way. “Spin” makes the robot turn in place.)
 - Tell girls that their job is to create a sequence of commands that has the rover travel to at least one of three different places, to do these things:
 - Drill a rock at the “John Klein” rock to look for water and oxygen
 - Clean the dust off a rock in Yellowknife Bay, then zap it with the ChemCam laser
 - Spin the robot around in place, while taking pictures of Gale Crater

Turn the page for the rest of this activity!



Junior Wings #1

Rover Romp



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#2: Plan “What” and “How!”

- Have girls get into pairs.
- Tell each pair what number (on the map) their rover will be starting from.
- Give girls 10-15 minutes to write down what commands they want to “tell” their robot. If they get stuck, have them try out their commands with a pretend “rover” on their maps. If you have girls struggling with the activity, you can always have them focus on getting to just one or two locations. If you have girls doing well, have them try all three. Some struggle is okay!

#3: Do It!

- As girls finish up their first set of commands, have them come over to the real-life “Gale Crater” and see how their plans match up against reality.
- For each pair, have one girl be the commander and the other be the rover driver. The commander stands by the starting point and says the first command. The driver picks up the rover and “does” the command—moves it one step forward, turns it, etc. Sound effects make it more fun—like “bzzzzt!” for drilling, or “shazam!” for using the ChemCam.
- Have the girls take turns being the commander and driver. They keep going through all the commands—even if they don’t end up where they want to be!
- The girls can keep re-doing and re-trying their commands until you have 5 minutes left.
- If you have some girls who have gotten to all three locations, you can add obstacles they have to go around. Maybe a big “sandy patch,” say, that didn’t show up on their map but was there in real life. That’s the thing about planetary exploration—you never know what you’re going to find!

#4: Reflect!

- Regroup. Have each pair join up with another pair.
- Ask each girl to share these thoughts with the other girls in her foursome:
 - What she liked best about the activity
 - What was most challenging about the activity

Tips

- Some girls may figure this out right away; some might spend the whole time working on one challenge. That’s okay. The goal is for girls to have fun and get a taste of robot programming.
- When you set up the real-life “Gale Crater,” try to get it close to what’s on their map—but don’t worry if you can’t get it exactly right. You’ll never know what you’ll find on other planets!



Welcome to Gale Crater!

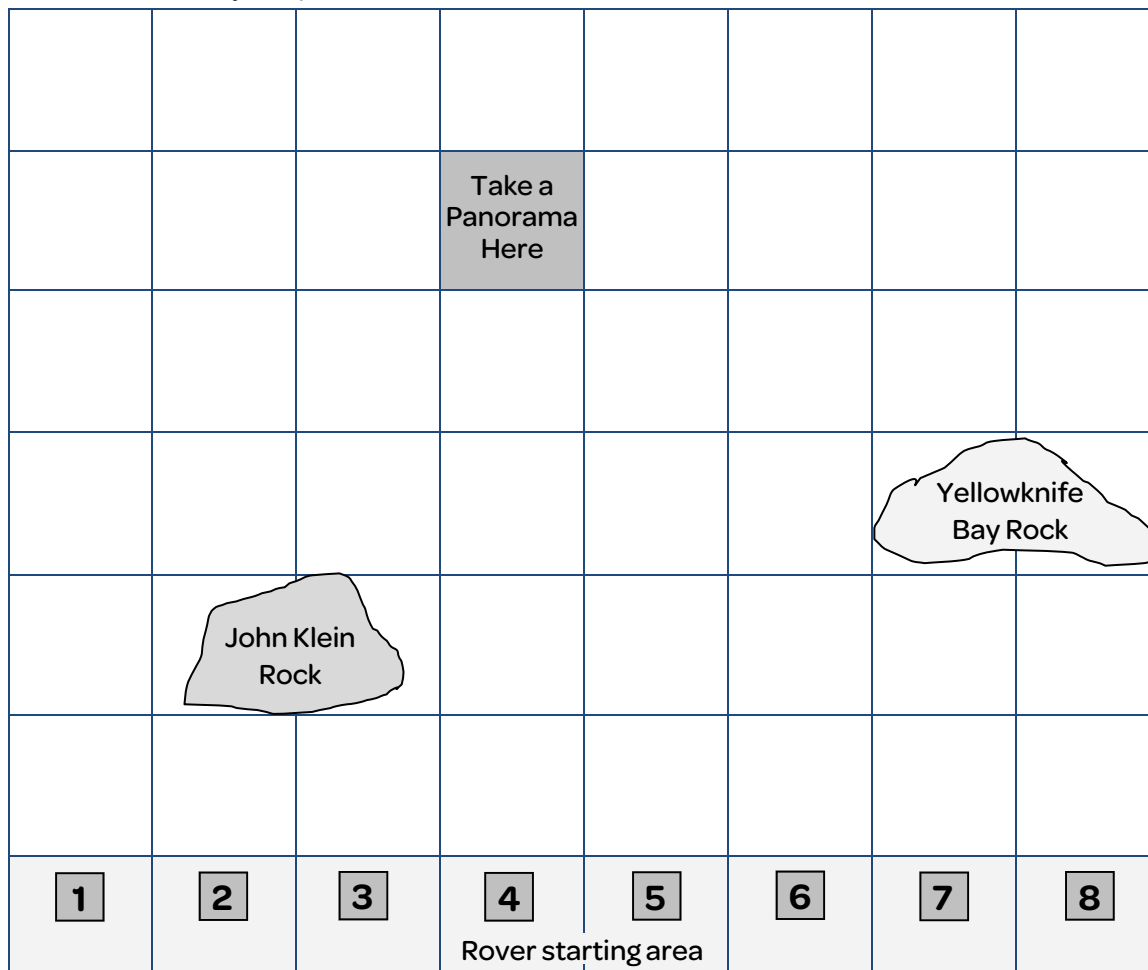
To: Curiosity Rover Drivers

Here's the map of where the rover is. The science team wants to do these things:

- Drill in the "John Klein" rock
- Clean off the rock in Yellowknife Bay, then zap it with the ChemCam
- Take a 360-degree panorama picture (spin 90 degrees, take a picture; repeat this 3 more times.)

Thank you! -Curiosity Mission Control

Current Curiosity Map



Rover-English Dictionary

Here's how to say different things in Rover Language:

Command	What it means	Command	What it means
forward	Move forward 1 square (1 step)	drill	Use the drill
back	Move backward 1 square (1 step)	clean	Clean off the dust
right	Spin right 90 degrees	zap	Zap with the ChemCam
left	Spin left 90 degrees	photo	Take a photo

Talk to the Rover

What do you want the rover to do first? Second? Write out the commands in order here:

1. 15.

2. 16.

3. 17.

4. 18.

5. 19.

6. 20.

7. 21.

8. 22.

9. 23.

10. 24.

11. 25.

12. 26.

13. 27.

14. 28.



Junior Wings #2

What Makes a Day Camp?

Time: 30 minutes

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Supplies:

- Paper to write questions on (and maybe a clipboard or hard surface to write on)
- Pens/pencils to write with
- An adult to go with each group of girls
- Willing adults to talk to, and who know you're coming!

Before Girls Arrive: Make sure the adults the girls will be visiting know that they're coming. It's also helpful to tell them the three questions we know the girls will ask (below). That way, they'll have some answers ready. Also, decide which adults/PAs will go with each group.

#1: Spark!

- Say: "Yesterday we drove rovers around on Mars to find a good spot to make our day camp. It turns out that Gale Crater—where you explored—is a good spot to make a camp: relatively flat, with old lake beds and a cool mountain (Mount Sharp) nearby."
- Tell girls that the next step in making a day camp is to figure out what a day camp needs. Today, they'll explore our own day camp, to see what parts go together to make day camp happen.
- Let them know they'll be split into teams to investigate different parts of day camp. Their job is to learn as much as they can about that part of camp.

#2: Plan "What" and "How!"

- Split girls up into four teams. Each team will learn about one area of day camp:
 - Site and facilities for the whole day camp—like bathrooms, shelters, water, fields, etc.. (Try talking to the director, assistant director, or someone else who can give the big picture.)
 - Health and safety (Go visit the first aid station/health center/etc.)
 - Units (Talk to their unit leaders, and go check out your unit's area.)
 - Activity stations (Visit an activity station or two and talk to the people there.)
- Give each team these questions to ask:
 - What kind of physical space do you need?
 - What kind of supplies do you need?
 - What kind of people do you need? How many? What background or skills do they need?
- Have each team add more questions they want to ask to the list. Remember, they're trying to figure out what needs to be a part of the first day camp on Mars.

Turn the page for the rest of this activity!





Junior Wings #2

What Makes a Day Camp?



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#3: Do It!

- The teams take off and check out their areas of camp. If your camp is very spread out, and the time to walk from one place to another is a big issue, consider having folks come to where you are. It's not as cool as getting to visit/tour the other spaces (other activity area, first aid station), but it's one way to deal with travel time if you need to.
- When the girls are interviewing the adults, have each girl take notes on their own piece of paper.
- The group that's doing Site and Facilities might walk around with the director and talk about the overall layout of camp, where things like water and bathrooms are, and what the day camp team looked for when selecting that site for day camp.
- Make sure girls have at least 10 minutes, preferably 15, to ask questions and tour the area.
- Have the groups return to your activity station 5 minutes before the end of your time together.

#4: Reflect!

- Regroup. In their groups, have girls share:
 - One thing they learned from the adult they interviewed
 - One thing that surprised them
- Let the girls know that tomorrow, they'll use what they learned today to start designing their own day camp!
- Have each girl put their name on their note sheet. Gather their sheets together and keep them somewhere safe until the next activity.

Tips for this Activity:

- This activity could be done as the first activity in the Wings series. If you want, you could have girls collect this information and do these interviews when they do their camp tours on the first day. If you did this, you would do this activity (#2) first, then the rover activity (#1), and then #3 and #4. When you're introducing activity #3, you may need to add some time to remind girls about what they did in this activity.





Junior Wings #3

Designing Mars Day Camp

Time: 30 minutes

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Supplies:

- Girls' notes from activity #2
- Big pieces of paper for the group to write lists
- Pens/pencils/crayons
- Something to write on (clipboards, tables, thick cardboard, etc.)
- EITHER: small cardboard boxes, plastic cartons, and whatever else you have in your recycle bin to make a 3-D model, plus thicker cardboard for the "base" and masking tape
- OR: markers and big sheets of paper (like easel sheet size) to draw out the day camp

Before Girls Arrive: Decide if you'll have girls build a 3-D model of their day camp, or draw it out on big paper. Also, decide which girls will be in which Mission Teams (see the Spark section).

#1: Spark!

- Say: "Now that you've learned what it takes to make a day camp, it's time to create our day camp on Mars. You'll work as part of a Day Camp Mission Team to make a list of all the things you want in your day camp, and then create a model of it to share with everyone."
- Split the girls into Day Camp Mission Teams. Each team should have at least one girl who learned about each area in activity #2. So, if you have 16 girls, you might have 4 teams. In this case, each team would have one girl who learned about site and facilities, one who did health and safety, one who did units and one who did activity areas. Try to have groups of 4-5 girls.

#2: Plan "What" and "How!"

- If you kept the girls' note sheets from the activity #2, hand these out now.
- Tell the groups that first they need to make a big list of all the things they want in their day camp. This list should include basic things like bathrooms and water. It should also list anything they want for health/safety, units, or activity areas.
- Also tell girls that, because they're on Mars, there are two unique things to deal with:
 - Atmosphere: the atmosphere on Mars doesn't have enough oxygen for us to breathe. Any part of the day camp will either need to be under a dome or structure that has oxygen in it, or girls will need special suits to venture outside the dome.
 - Gravity: the gravity on Mars is only 38% of what it is on Earth. Things won't float around on their own, like they would in the space station, but things will feel a lot "lighter" to girls coming from Earth. This might affect what games or activities you would do.

Turn the page for the rest of this activity!





Junior Wings #3

Designing Mars Day Camp



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#3: Do It!

- Let girls work on their lists. If need be, ask:
 - What else do you want or need in your day camp?
 - What ideas have you each shared?
 - What activity areas would be good for a Mars day camp?
 - What ideas do you have for dealing with the atmosphere? The gravity?
- Once girls have their lists, have them start making the 3-D model of their day camp, or drawing a map of it on paper. If they need help, ask:
 - Are there things on your list that need to be next to each other?
 - (If girls are having trouble with mapping) What would day camp look like if you were flying over it in your spacecraft?
 - What parts of the model/map have you each made?
 - What items on your list aren't on the map/model yet?
- When you have 5 minutes left, regroup. They may not be finished yet; that's okay.

#4: Reflect!

- Tell girls that we're going to have a tour of the day camp designs that have been done so far, so they can get ideas and inspiration from each other.
- Have each group designate one person to stay with their drawing/model. This girl becomes the "share-er."
- The other girls split up, with each girl going to a different drawing/model. These girls become the "idea finders."
- The "share-ers" give a quick tour of their design to the "idea finders." The other girls can ask questions until you run out of time.
- Tell girls that they can take any ideas they got from the other groups (or from people asking questions of the "share-ers") and they'll have a little time in the next activity to add them to their design.





Junior Wings #4

Sharing the Mars Day Camp Dream!

Time: 30 minutes

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Supplies:

- Girls' drawings/models from the activity #3
- Pens/pencils/crayons
- EITHER: markers and big sheets of paper (like easel sheet size) to draw out the day camp
- OR: small cardboard boxes, plastic cartons, and whatever else you have in your recycle bin to make a 3-D model, plus thicker cardboard for the "base" and masking tape

Before Girls Arrive: Set out the teams' drawings/models from the last activity, and any pens, pencils, paper, or other building supplies they might need. Write the 4 things their commercials need to cover (in the "plan" section below) on a card or piece of paper for each group.

#1: Spark!

- Tell girls that today they'll finish up their Mars Day Camps, and then get to share how awesome their camp is with everyone else!
- Have girls get back into their Day Camp Mission Teams.
- At the end of the last activity, the girls went around to look at the other designs. They now have 10 minutes to add in any ideas they got from looking at the other teams' designs. At the end of the 10 minutes, their designs need to be done so they can be submitted to the Interplanetary Day Camp Team (that's you!).
- It can be helpful to give time reminders, like "two minutes left!" so the girls know they need to finish up. Be sure to call "time!" after 10 minutes, or you won't have time left to do the next part of the activity. (Girls will need to be in their mission teams for the next part of the activity.)

#2: Plan "What" and "How!"

- Say: "You've just finished your designs for the first Girl Scout Day Camps on Mars! Now you get to take the final step: getting other girls on Earth and Mars excited about coming to day camp."
- Give teams 10 minutes to create a short (30 seconds to a minute long) commercial advertising Mars Day Camp on YouTube and MarsTube. Their commercial needs to show or talk about these things:
 - The kinds of activities they'll do
 - How your day camp will keep them healthy and safe
 - What the site and facilities are like
 - What their units will be like, and who the people are that will be running camp

Turn the page for the rest of this activity!





Junior Wings #4

Sharing the Mars Day Camp Dream!



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#3: Do It!

- After 10 minutes are up, gather the whole group together. Have a celebration where girls present their commercials—you can even pretend to film them (or really film them if you’ve got a video camera). Be sure to have a big round of applause after each one!

#4: Reflect!

- Once all the commercials have been “shown,” have all the girls stand in a circle. (If you have more than 16 girls, split into two circles.)
- Go around the circle, and have each girl share one thing that she loves about Day Camp that she hopes would make it to Day Camp on Mars.
- Because they have explored another planet, learned all about Day Camp, and created a fabulous Day Camp for other girls, you can now award them their wings! Hooray!





Wings Awards

Print these on cardstock, cut them out, and laminate. Poke a safety pin through one corner and ta-da! You can now give Juniors their Day Camp Wings.

