

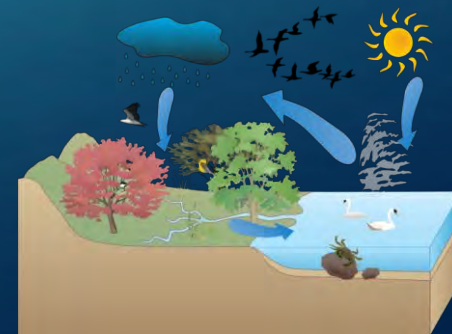
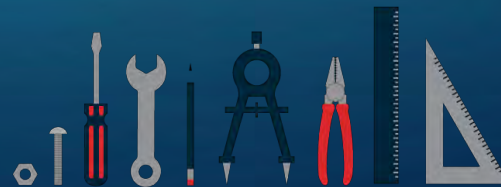
WELCOME STEM AMBASSADORS!

AUGUST 26, 2017

JIM CASLER, CAITLIN NOLBY, AND MARISSA SAAD

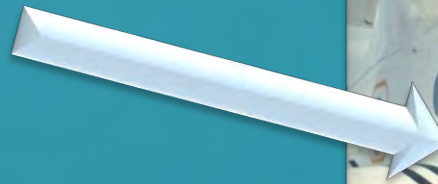
NORTH DAKOTA SPACE GRANT CONSORTIUM

$E=mc^2$



MEET THE SPACE GRANT TEAM!

- Director of Space Grant, Jim Casler
- Deputy Director, Caitlin Nolby
- Coordinator, Marissa Saad



INTRODUCTORY ACTIVITY

- You will likely be completing activities together, so let's get to know each other!
- Write down:
 - Name
 - Major and College
 - Favorite TV show/book and food
 - Fun fact
 - One expectation for today's training
 - One thing you're looking forward to as a STEM ambassador!



TRAINING DAY: LEARNING OBJECTIVES

You will be able to:

- Confidently conduct today's activities with K-12 students, teachers, and the general public.
- Understand the *SciGirls Seven* and how these teaching strategies can be incorporated into your position as a STEM Ambassador.
- Utilize the proper methods for reporting hours and reimbursement procedures (hey, it's important to get paid for your work!) 😊
- Conduct self-initiated outreach events and effectively lead STEM activities not included in today's training
- Get excited about your position as a STEM Ambassador!

WHAT DOES A STEM AMBASSADOR DO?

- Help students engage in areas of space exploration and general STEM, by using effective instructional strategies and educational resources, with engaging and inspiring content.



WHAT DOES A STEM AMBASSADOR DO?

- Conduct your own STEM outreach and/or our scheduled activities
 - In 2016-2017:
 - STEM Carnivals
 - Booth events
 - Library Outreach Events
 - Space Camps
 - K12 classroom visits



WHAT DOES A STEM AMBASSADOR DO?

- Teacher Workshops
- High Altitude Balloon Launches
- Super Science Day
- Tours of Human Space Flight Lab
- Star Parties at the Observatory
- Prep time for activities counts too!
- Travel time (only if out of town, e.g. Mayville to Grand Forks)
- Required course “credit hours” do not qualify for SA hours



You'll practice “creating things on the fly”

TIMESHEETS

- \$12/hour
 - Fill out your timesheet, reporting the hours you've worked
 - Timesheets need to include "title" of each activity we can refer to in Google sheet
 - Take pictures at events! If participants did not sign NASA media release form, take pictures of the backs of their heads
 - We will send out Google sheet to keep track of number of individuals reached with description of event (make sure this is up to date before sending in time sheet)
 - Stipends will be processed once this is filled out
 - UND students – Caitlin will sign it, email it to Bev Fetter (fetter@space.edu)
 - Non-UND students: your advisor will sign it, email it to Bev Fetter





HOURLY PAYROLL REPORTING FORM



University of North Dakota - Payroll Office - 312 Twamley Hall - 264 Centennial Drive Stop 7127, Grand Forks, ND 58202-7127

EMPLID	LAST NAME	FIRST NAME	M.I.	POS #
DEPT #	DEPARTMENT NAME		PERIOD BEGINNING	PERIOD ENDING

First Week						
Day	Date	In	Out	In	Out	Hours
Sun						
Mon						
Tue						
Wed						
Thu						
Fri						
Sat						

Week Totals		
Combo Code	Ern Cd	Hours

Second Week						
Day	Date	In	Out	In	Out	Hours
Sun						
Mon						
Tue						
Wed						
Thu						
Fri						
Sat						

Week Totals		
Combo Code	Ern Cd	Hours

Third Week						
Day	Date	In	Out	In	Out	Hours
Sun						
Mon						
Tue						
Wed						
Thu						
Fri						
Sat						

Week Totals		
Combo Code	Ern Cd	Hours

Fourth Week						
Day	Date	In	Out	In	Out	Hours
Sun						
Mon						

Week Totals		
Combo Code	Ern Cd	Hours

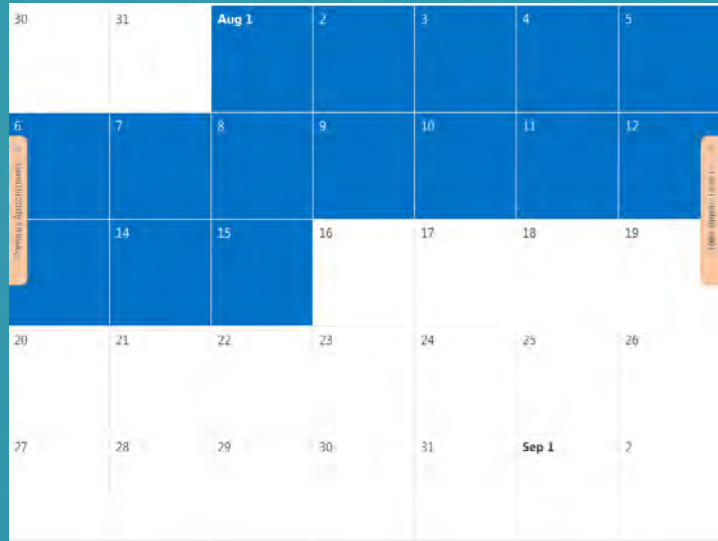
Total Pay Period Hours Worked <-----These Totals must Equal----->

Earnings Code (Ern Cd) List (Partial) - See Earnings Code list on Web for Complete List

H01 Regular Pay	H30 Sick Leave	H34 Holiday	H37 Jury Duty
H03 Overtime	H31 Dep Sick	H35 Funeral	H33 Comp Time Taken
H14 Workstudy	H32 Annual Leave	H36 Military Lv-Pd	H53 Comp Time Earned

Dept Contact Person Phone:

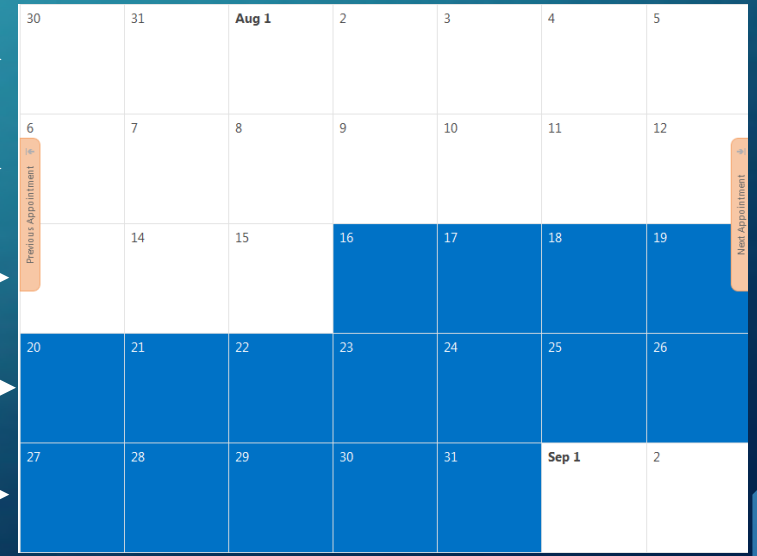
I certify that this is a true statement of hours worked for the University of North Dakota and leave taken during the payroll period listed.



← **First pay period of the month**

Second pay period of the month ↓

- 1st week** →
- 2nd week** →
- 3rd/1st week** →
- 2nd week** →
- 3rd week** →



What happens if you miss a pay period and don't report it?

EXAMPLE

- For example, today, 8-26 would look like this:
- Tips: try to split long sessions, so HR doesn't get mad about overworking students 😊
- After a session, fill out your tab on the reporting Google Docs: <https://goo.gl/EoFMU8>

UND **HOURLY PAYROLL REPORTING FORM** **HRMS**

University of North Dakota - Payroll Office - 312 Twamley Hall - 264 Centennial Drive Stop 7127, Grand Forks, ND 58202-7127

EMPL ID	LAST NAME	FIRST NAME	M.I.	POS #
999999	Watney	Mark	M	0001
DEPT #	DEPARTMENT NAME	PERIOD BEGINNING	PERIOD ENDING	
Mars	Solar System	August 16, 2017	August 31, 2017	

First Week							Week Totals		
Day	Date	In	Out	In	Out	Hours	Combo Code	Ern Cd	Hours
Sun									
Mon									
Tue									
Wed									
Thu									
Fri									
Sat									

Second Week							Week Totals		
Day	Date	In	Out	In	Out	Hours	Combo Code	Ern Cd	Hours
Sun									
Mon									
Tue									
Wed									
Thu									
Fri									
Sat	8/26/17	8:00 AM	12:00 PM	1:00 PM	5:00 PM	9.00	0	H01	9.00

Third Week							Week Totals		
Day	Date	In	Out	In	Out	Hours	Combo Code	Ern Cd	Hours
Sun									
Mon									
Tue									
Wed									
Thu									
Fri									
Sat									

Fourth Week							Week Totals		
Day	Date	In	Out	In	Out	Hours	Combo Code	Ern Cd	Hours
Sun									
Mon									
Tue									
Wed									
Thu									
Fri									
Sat									

Total Pay Period Hours Worked	9.00	<-----These Totals must Equal----->	9.00
--------------------------------------	-------------	-------------------------------------	-------------

Earnings Code (Ern Cd) List (Partial) - See Earnings Code list on Web for Complete List

H01 Regular Pay	H30 Sick Leave	H34 Holiday	H37 Jury Duty
H03 Overtime	H31 Dep Sick	H35 Funeral	H33 Comp Time Taken
H14 Workstudy	H32 Annual Leave	H36 Military Lv-Pd	H53 Comp Time Earned

Dept Contact Person: _____ Phone: _____

I certify that this is a true statement of hours worked for the University of North Dakota and leave taken during the payroll period listed.

TINA MONETTE

- STEM Ambassador paperwork



The image features a dark teal background with a subtle gradient. In the four corners, there are decorative white line-art elements resembling circuit traces or neural network connections. These elements consist of thin lines that branch out and terminate in small circles, creating a sense of connectivity and technology.

SCIGIRLS!

- To change how millions of girls (ages 8-13) think about STEM
- It's on PBS, Netflix, YouTube, etc.!



Produced by:



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Industries
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Mosaic
Company
Foundation



1. Girls benefit from **collaboration, especially when they can participate and communicate fairly.** (Parker & Rennie, 2002; Fancsali, 2002)



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1. Girls benefit from **collaboration**, especially when they can **participate and communicate fairly**. (Parker & Rennie, 2002; Fancsali, 2002)
2. Girls are motivated by projects they find **personally relevant and meaningful**. (Eisenhart & Finkel, 1998; Thompson & Windschitl, 2005; Liston, Peterson, & Ragan, 2008)



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3. Girls enjoy **hands-on, open-ended projects and investigations.** (Chatman, Nielsen, Strauss, & Tanner, 2008; Burkam, Lee, & Smerdon, 1997; Fanscali, 2002)



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3. Girls enjoy **hands-on, open-ended projects and investigations.** (Chatman, Nielsen, Strauss, & Tanner, 2008; Burkam, Lee, & Smerdon, 1997; Fanscali, 2002)
4. Girls are motivated when they can approach projects in their own way, applying their **creativity, unique talents and preferred learning styles.** (Eisenhart & Finkel, 1998; Calabrese Barton, Tan, & Rivet, 2008)



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5. **Girls' confidence and performance improves in response to specific, positive feedback on things they can control – such as effort, strategies and behaviors.** (Halpern, et al., 2007; Zeldin & Pajares, 2000; Blackwell, Trzesniewski, & Sorich Dweck, 2007; Mueller & Dweck, 1998)



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5. **Girls' confidence and performance improves in response to specific, positive feedback on things they can control – such as effort, strategies and behaviors.** (Halpern, et al., 2007; Zeldin & Pajares, 2000; Blackwell, Trzesniewski, & Sorich Dweck, 2007; Mueller & Dweck, 1998)



6. **Girls gain confidence and trust in their own reasoning when encouraged to think critically.** (Chatman, et al., 2008; Eisenhart & Finkel, 1998)



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5. **Girls' confidence and performance improves in response to specific, positive feedback on things they can control – such as effort, strategies and behaviors.** (Halpern, et al., 2007; Zeldin & Pajares, 2000; Blackwell, Trzesniewski, & Sorich Dweck, 2007; Mueller & Dweck, 1998)



6. **Girls gain confidence and trust in their own reasoning when encouraged to think critically.** (Chatman, et al., 2008; Eisenhart & Finkel, 1998)
7. **Girls benefit from relationships with role models and mentors.** (Liston, et al., 2008; Evans, Whigham, & Wang, 1995)



Produced by:



Made Possible by:



Additional Support from:

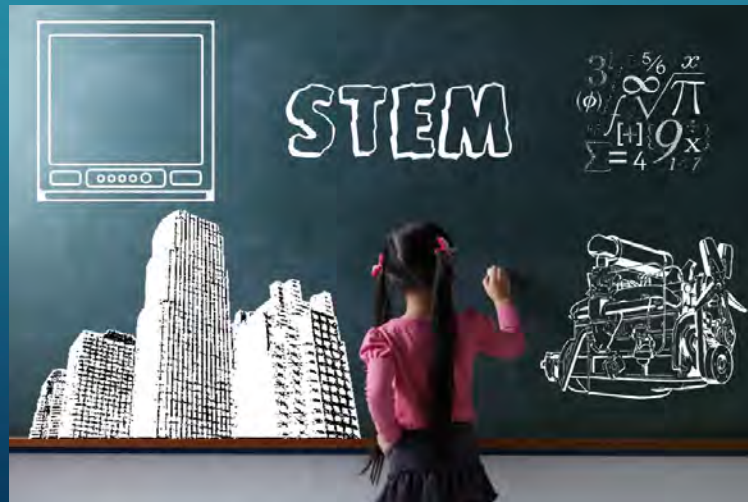


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SCIGIRLS SEVEN ACTIVITY

- Have you had any positive SciGirls Seven experiences in your life?
- Did any of your K-12 teachers make an impact on your academic career?
- Chose an approach and share your experience(s)!



DR. MARY BAKER, DR. RYAN SUMMERS

- Teaching and Learning advice



VISITING SCHOOLS



- Always check in with the main office
- Administration will either call the teacher, walk you down, or give you directions
- Wear visitor pass, if provided
- Most will offer lunch if you're there all day
- Ask to take images
- Space is fun! Remind students to raise hands, 321 Rocket, or other "tricks"

The image features a dark teal background with white, stylized circuit board traces in the corners. These traces consist of straight lines and right-angle turns, ending in small white circles that represent components or connection points. The traces are located in the top-left, top-right, bottom-left, and bottom-right corners, framing the central text.

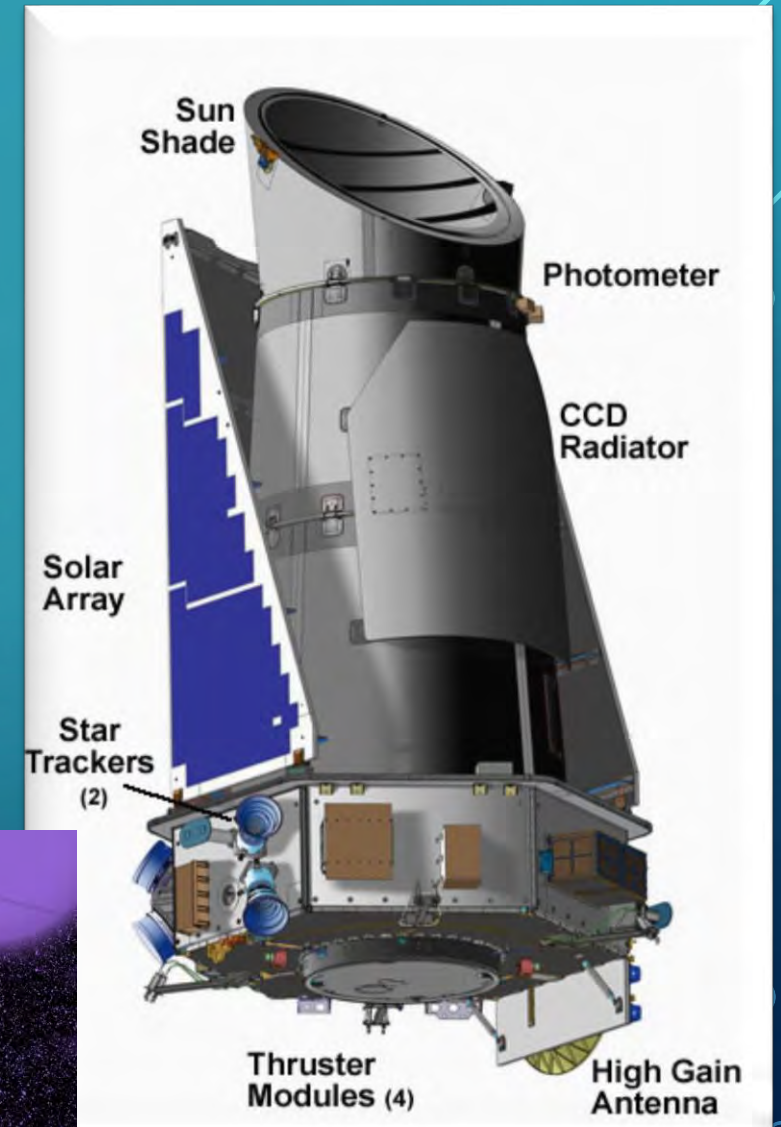
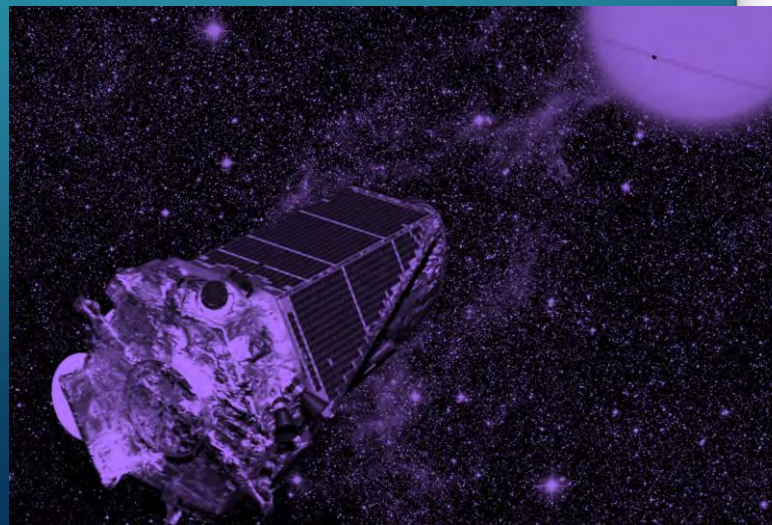
LET'S GET HANDS-ON!

The image features a dark teal background with a subtle gradient. In the four corners, there are decorative white line-art elements resembling circuit traces or data paths, with small circles at the end of the lines. The text "STRANGE NEW PLANET" is centered in a white, bold, sans-serif font.

STRANGE NEW PLANET

STRANGE NEW PLANET

- Work in NASA teams to collect data to plan missions and explore new worlds!
- [How Kepler Works](#)
- [NASA Spacecrafts](#)
- Sort students by NASA Center
- Assign student roles





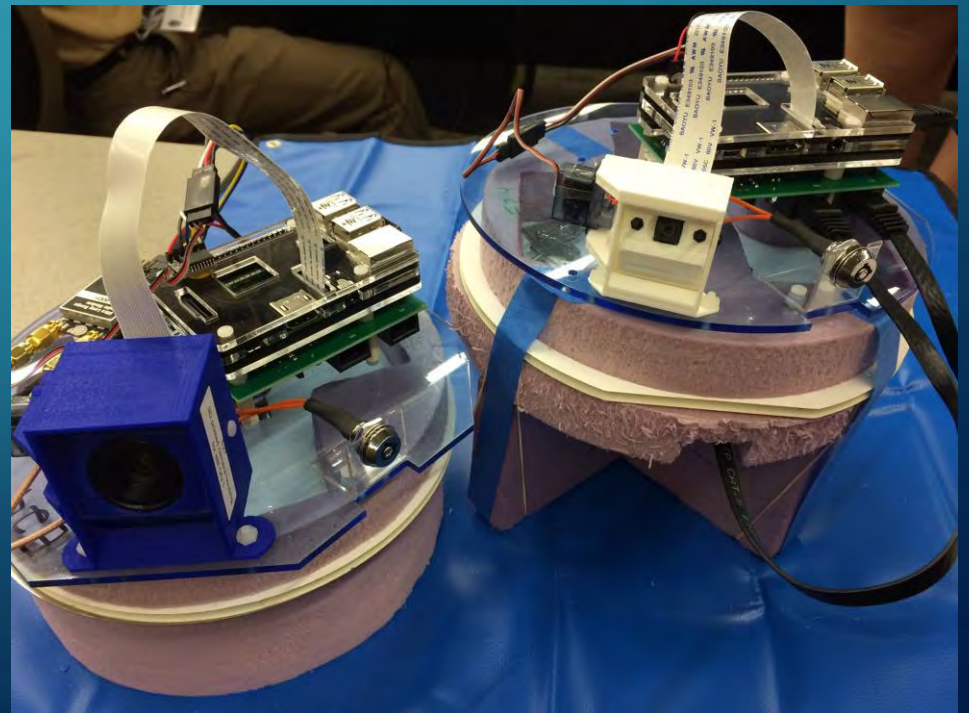
LUNCH

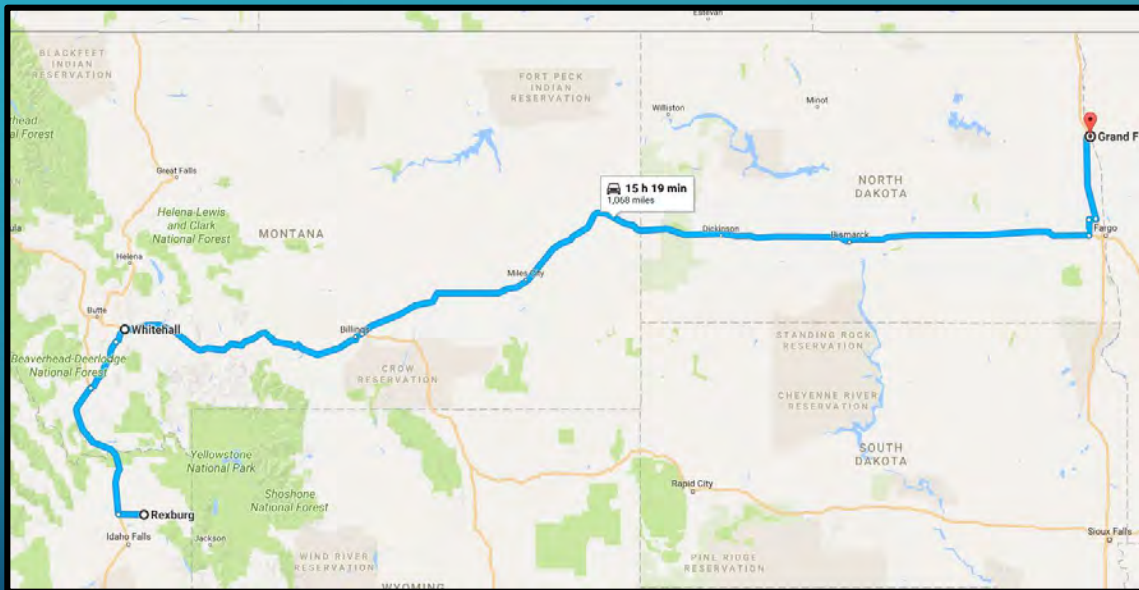
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AUGUST 21, 2017

















NEAR-SPACE BALLOON COMPETITION



LEARNING OBJECTIVES – SPOT CHECK

You will be able to:

- Confidently conduct today's activities with K-12 students, teachers, and the general public.
- Understand the *SciGirls Seven* and how these teaching strategies can be incorporated into your position as a STEM ambassador.
- Utilize the proper methods for reporting hours and reimbursement procedures (hey, it's important to get paid for your work!) 😊
- Conduct self-initiated outreach events and effectively lead STEM activities not included in today's training
- Lead engaging tours of the UND Human Space Flight Laboratory (UND students)

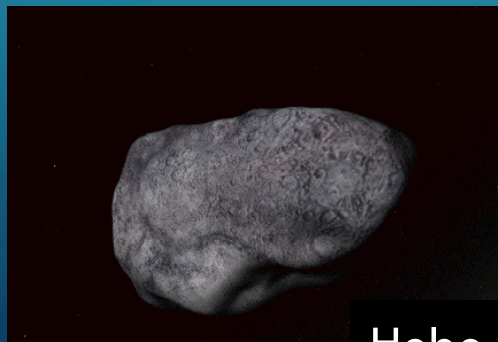
The background is a dark teal gradient. In the four corners, there are white line-art illustrations of circuit traces and nodes, resembling a stylized PCB layout. These elements are positioned in the top-left, top-right, bottom-left, and bottom-right corners, framing the central text.

SUPER SLEUTHS

SUPER SLEUTHS

All meteorites that are found on Earth originally came from a **Parent Body**, or their starting location. The top four parent bodies are:

- 6 Hebe
- 4 Vesta
- 3103 Eger
- Mars



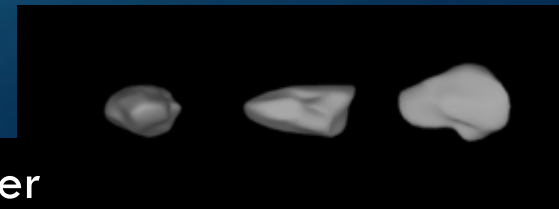
Hebe

Vesta



Mars

Eger



SUPER SLEUTHS

The activity:

You have found a meteorite in your backyard and want to know its parent body. NASA has generously allowed you to take samples from known parent bodies and it is your job to use the appropriate techniques to match your sample to the NASA sample.

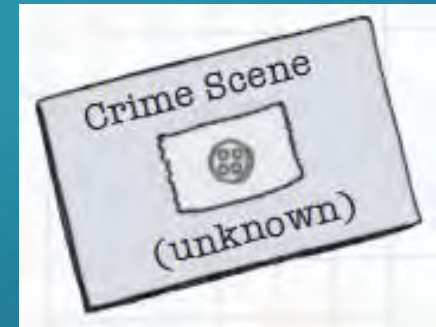
Things to consider:

- How will you collect your samples?
- How will you avoid cross-contamination?
- How will you identify the parent body (what characteristics will you examine)?

SUPER SLEUTHS

Students will match samples of glitter (asteroids) with its “Parent Body”. They will:

- Identify the problem
 - We found an asteroid (glitter) with an unknown parent body!
- Collect evidence
 - Students will use tape, microscopes, and tweezers
- Prepare slides
 - Students will use the tape to gather glitter evidence
- Observe and collect data
 - Match the characteristics of the sample to the parent body!
- Draw Conclusions
 - Students will explain which glitter is consistent with the unknown glitter



The image features a dark teal background with white, stylized circuit board traces in the corners. These traces consist of straight lines and small circles, resembling electronic components or data paths. The traces are located in the top-left, top-right, bottom-left, and bottom-right corners, framing the central text.

ROCKETS TO THE RESCUE









ROCKETS TO THE RESCUE

- Goal = Build and launch a rocket, keep your payload intact, and save Mark Watney!
- Launch your payload to Mars!
- What will be *your* team's strategy?

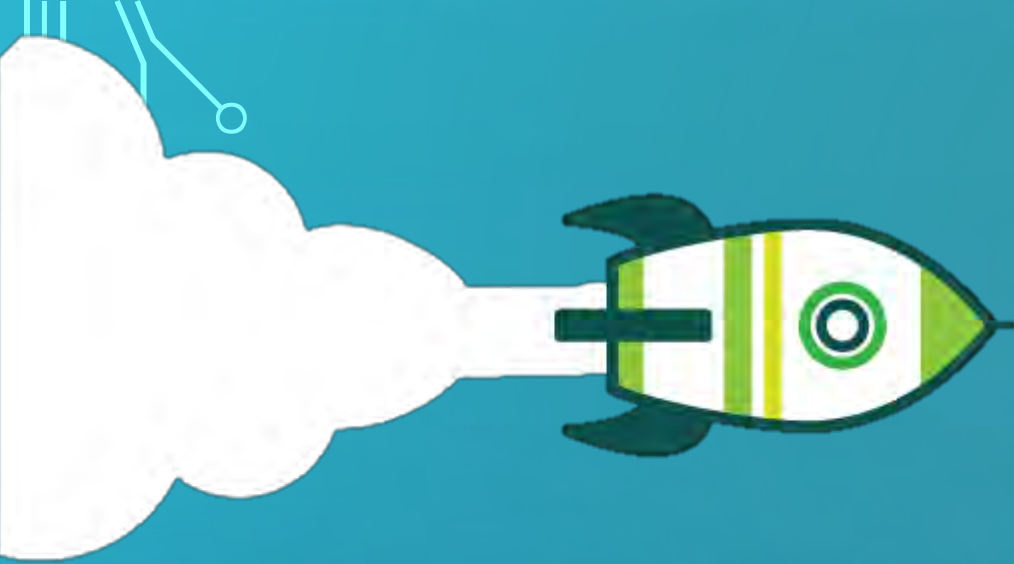


4-H
NATIONAL
YOUTH
SCIENCE DAY



4-H NATIONAL YOUTH SCIENCE DAY

ROCKETS
TO
THE **RESCUE**

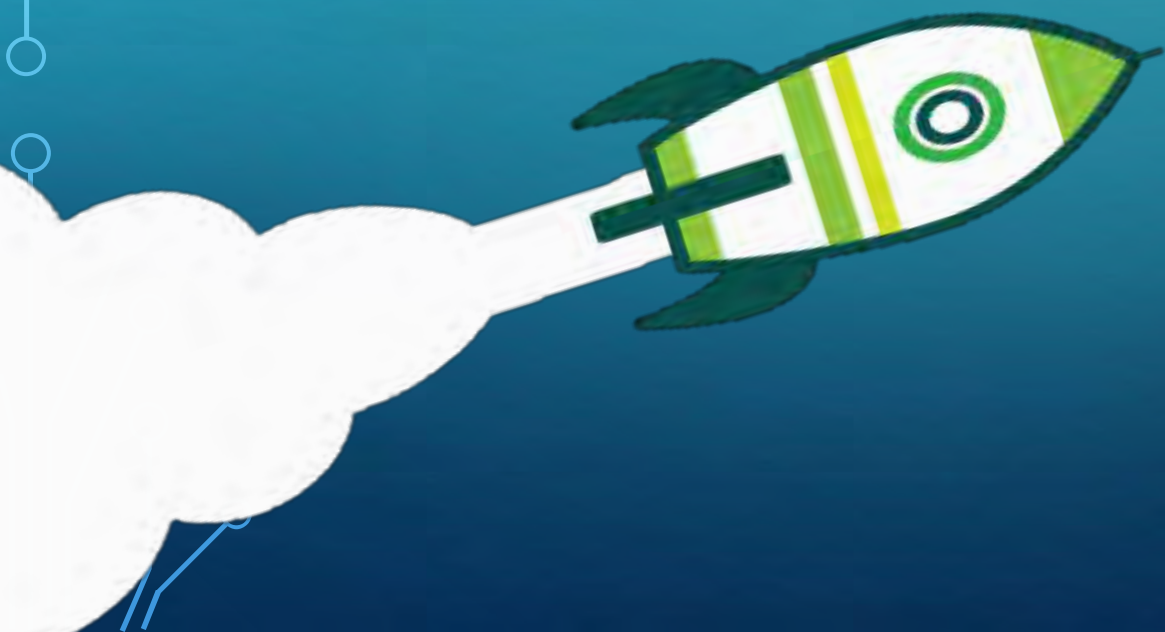


YOUR TASK!

- In your groups, chose a **NASA center!**
- Design your own **rockets** and **payload containers** to save Mark Watney!
- Think about:
 - What **shapes** are the most sleek and aerodynamic?
 - How will **gravity** affect your design?
 - How are you going to protect your **payload**?



BLAST YOUR ROCKETS TO MARS!



I'm hungry!

The background is a dark teal gradient. In the four corners, there are white, stylized circuit board traces. These traces consist of straight lines that turn at right angles, ending in small circles that represent components or connection points. The traces are more densely packed in the bottom-left and top-left corners, and more sparse in the top-right and bottom-right corners.

UV ASTRONAUTS

UV Radiation

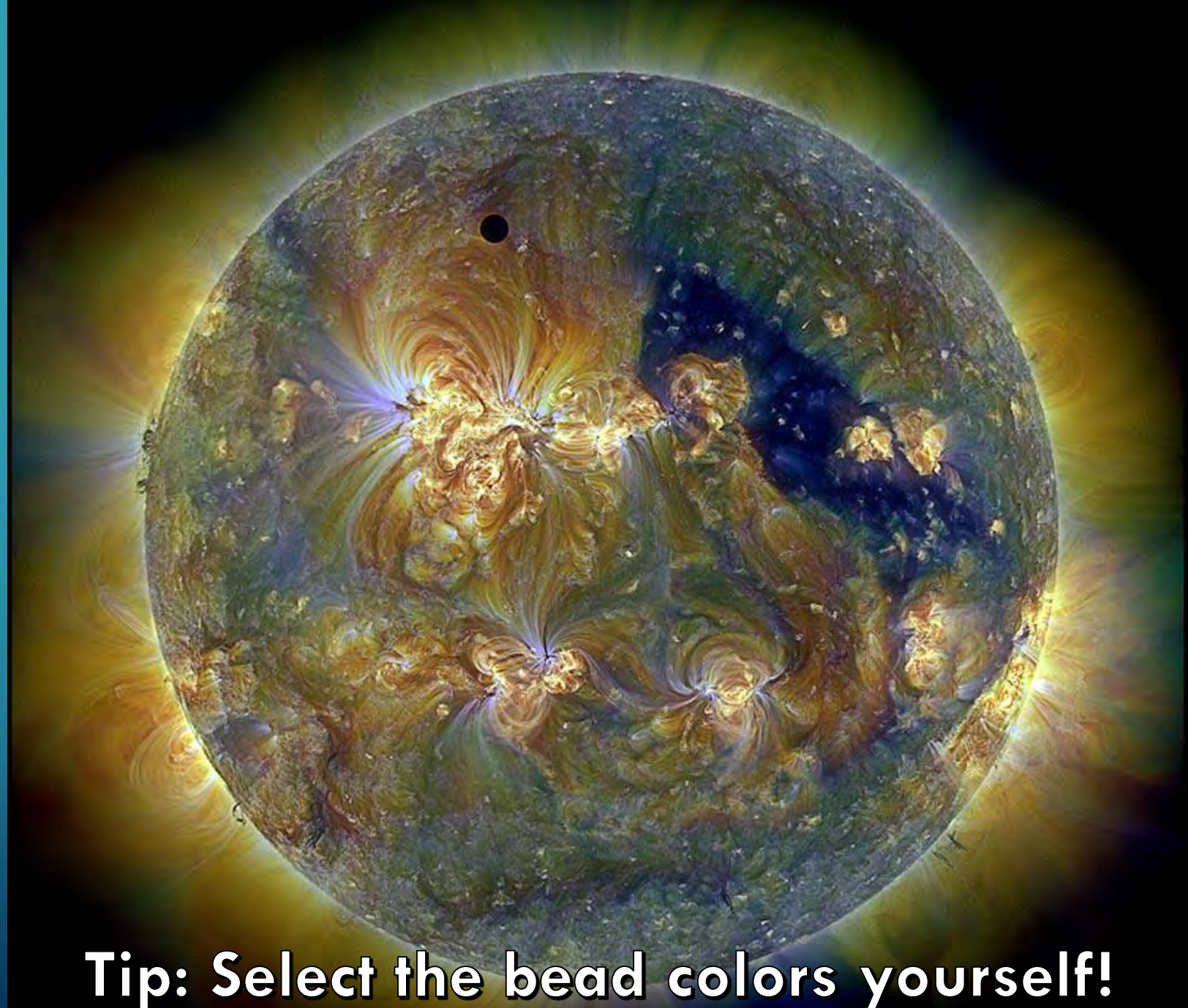
Easy, quick activity for all ages.
Light project to transport.

Materials: Beads, Pipe Cleaners,
Cloth, Saran Wrap, Tin Foil

Begin: Who knows what NASA
does? How do you get into space?
What do astronauts wear while in
space?

What do you wear in the summer?
Hats, sunglasses, sunblock...

“Will you help me find a space suit
that will protect astronauts?”
(I make “Sally” and say “her”)



Tip: Select the bead colors yourself!

POCKET SOLAR SYSTEM



The image features a dark teal background with white, stylized circuit board traces in the corners. These traces consist of straight lines and small circles, resembling electronic components or connections. The traces are located in the top-left, top-right, bottom-left, and bottom-right corners, framing the central text.

ENGINEERING ROBOTIC ARMS

ROBOTIC ARMS

- Used on the ISS
- Shuttle missions, food supply capsules, satellites, astronauts



HOW DOES THE END EFFECTOR WORK?

Follow the directions on your handout, and see what happens!

Was the pencil too slippery?

Were you successful?



The background is a dark teal gradient. In the four corners, there are white, stylized circuit board traces. These traces consist of straight lines that bend at 90-degree angles, ending in small white circles. The traces are arranged in a way that suggests a network or data flow, with some lines extending from the edges towards the center.

PARACHUTE PARADE

PARACHUTE PARADE

- You've been selected by NASA to design a parachute that will safely land their astronauts back to Earth! NASA has provided you with an assortment of parachute-building materials. Chose wisely, the lives of the crew are depending on you!



PARACHUTE PARADE

CRITICAL THINKING QUESTIONS

1. Did your Orion spacecraft land safely?
 - a. What caused it to land safely? (or) Why did your Orion crash land? What could you have done differently?
2. Take a look at other teams' parachutes. What materials did they use? Did their results differ from yours? Describe the outcomes.
3. What could be the real-life consequences of using a compromised parachute?
4. What should scientists consider when selecting parachute materials? (think of sizes, weight, composition of the atmosphere, etc.)
5. Extra consideration: Integrate this activity into the classroom – add budgets, weight restrictions, competition between NASA centers, etc.

CLOSING REMARKS

- Tour of Human Space Flight Laboratory and Space Studies Department
 - Recommended for UND students
- Questions on employment paperwork?
- Suggestions and/or opinions?
- **NASA Media Release Forms**
 - Remember to take pictures of your hard work! We'll upload these to NASA and our Aurora
- Have fun!

POSITION EXPECTATIONS

- Take pictures at events! If participants did not sign NASA media release form, take pictures of the backs of their heads
- We will send out Google sheet to keep track of number of individuals reached with description of event (make sure this is up to date before sending in time sheet)
- Work around your school schedule – classes/tests/homework comes first!
- Position can include summer of 2017 too!



LEARNING OBJECTIVES – WHAT DO YOU NEED FROM US?

You will be able to:

- Confidently conduct today's activities with K-12 students, teachers, and the general public.
- Understand the *SciGirls Seven* and how these teaching strategies can be incorporated into your position as a STEM ambassador.
- Utilize the proper methods for reporting hours and reimbursement procedures (hey, it's important to get paid for your work!) 😊
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- Lead engaging tours of the UND Human Space Flight Laboratory (UND students)

CONTACT INFO

MARISSA SAAD

- msaad@space.edu
- Cell: 617-462-0610
- Work: 701-777-4161

CAITLIN NOLBY

- cnolby@space.edu
- Cell: 763-843-6479
- Work: 701-777-4856

WHAT'S NEXT?

- Slides posted on Space Grant website
- Marissa will send out emails of upcoming outreach opportunities
- Highly encourage you to conduct activities without invitation of NDSGC – it expands our reach!
- If you are ever unsure if an activity counts for hours, just ask!
- Upcoming outreach:
 - Star parties – ask Amanda and Sean
 - GF Public Library booths – Laura Munski
 - Possible outreach shirts - \$15 (embroidered NASA logo above your name)
 - Send Marissa your address, shirt size, and color preference - - michaels.com



**Congratulations,
you are now a NDSGC
STEM Ambassador!**