

**ELEMENTARY SCHOOL STUDENT ONSITE WORKSHEET**

**1. Take a closer look**

Check out the four giant space and Earth images on the large graphic panels in the exhibition: *Antarctica*, *the Sun*, *Enceladus*, and *the Sombrero Galaxy*. Draw a picture of one of these amazing places and circle a part that you would like to see close up. Write down the name of the image and why you want to zoom in for a closer look. What do you think you will see?

**2. Tour around the solar system**

Find three different objects in the solar system pictured on the top of stools spread around the exhibition. Write down the planet's name, the colors you can see in the image, and one word you would use to describe it to a friend.

NAME	COLORS	ONE WORD DESCRIPTION

**ELEMENTARY SCHOOL STUDENT ONSITE WORKSHEET**

**3. You are the spacecraft engineer**

Draw a picture of the spacecraft you built at the Design, Build, Test table and name it. Where will it go? Write a place in space within the DESTINATION BOX.

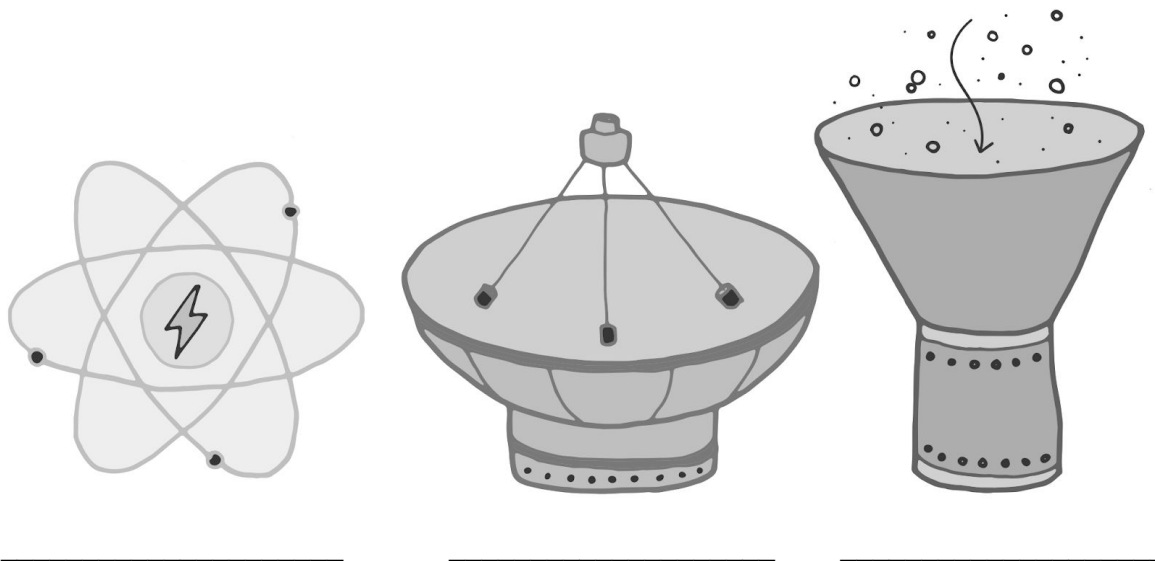
**YOUR SPACECRAFT NAME:** \_\_\_\_\_

**DESTINATION:**

**4. Spacecraft tools**

Name these tools from the Design, Build, Test table and circle ones you used on your spacecraft.



**ELEMENTARY SCHOOL STUDENT ONSITE WORKSHEET**

**5. Use tools to detect the invisible**

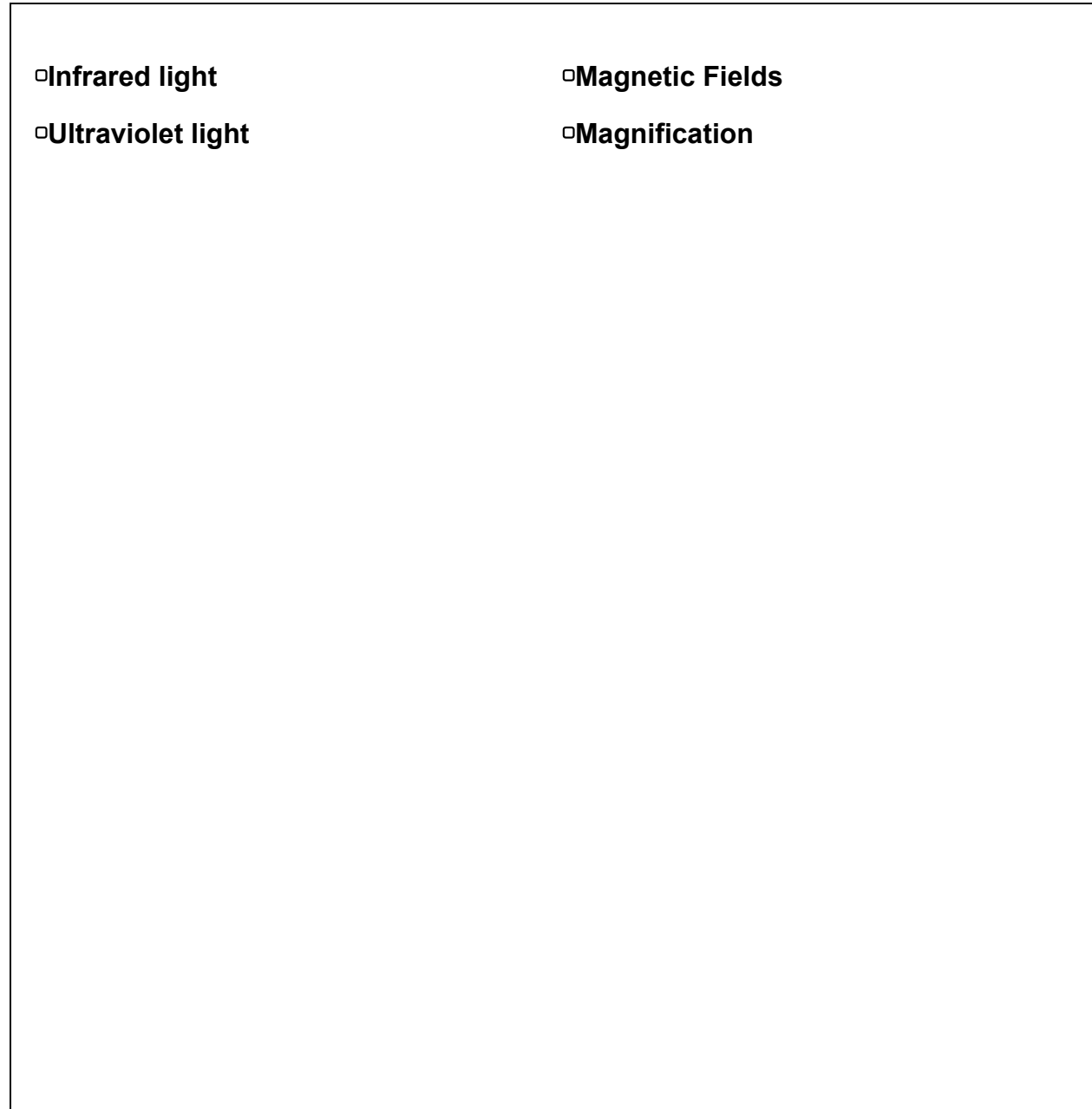
What was the best thing you saw when you used the tools to look at invisible images and messages on the block tiles? Check off the tool type you used and draw a picture of what you saw.

Infrared light

Magnetic Fields

Ultraviolet light

Magnification



**ELEMENTARY SCHOOL STUDENT ONSITE WORKSHEET**

**6. The search for life in the universe**

Look closely at the giant image of the many galaxies in a small section of the universe. Imagine finding life in one of these far off places! How would you feel if life was discovered out there? Would you be happy, scared, excited? Draw a picture of one galaxy you can see in the image and write down how you would feel if life was discovering there.

**I WOULD FEEL \_\_\_\_\_**  
**IF LIFE WAS DISCOVERED IN ANOTHER GALAXY.**

**7. The changing Earth**

Look at the flip picture under the giant image of Earth. Some change on Earth is due to humans and some is natural. Can you circle and write down what changed in this image?

 <p>2012</p>	<p><b>WHAT CHANGED HERE?</b></p>
-------------------------------------------------------------------------------------------------	----------------------------------

**ELEMENTARY SCHOOL STUDENT ONSITE WORKSHEET****1. Take a closer look**

**Various drawings of Antarctica, the Sun, Enceladus, and the Sombrero Galaxy.**

**2. Tour around the solar system**

<b>NAME</b>	<b>COLORS</b> <i>(responses could vary)</i>	<b>ONE WORD DESCRIPTION</b>
<b>Mercury</b>	<b>grey, black, white</b>	<b>various</b>
<b>Venus</b>	<b>orange, yellow, brown</b>	<b>various</b>
<b>Earth</b>	<b>blue, white, brown, green</b>	<b>various</b>
<b>Mars</b>	<b>red, brown, white</b>	<b>various</b>
<b>Jupiter</b>	<b>white, brown, yellow, orange</b>	<b>various</b>
<b>Saturn</b>	<b>beige, grey, brown</b>	<b>various</b>
<b>Uranus</b>	<b>blue, grey, white</b>	<b>various</b>
<b>Neptune</b>	<b>blue, white</b>	<b>various</b>

**3. You are the spacecraft engineer**

**Various responses**

**4. Spacecraft tools**

**(left to right) Nuclear generator, Dish antenna, Particle collector**

**5. Use tools to detect the invisible**

**Various responses**

**6. The search for life in the universe**

**Various responses**

**7. The changing Earth**

**Artificial islands were constructed in the Persian Gulf near Dubai.**

**MIDDLE SCHOOL STUDENT ONSITE WORKSHEET****1. Scientists ask questions about Earth and space**

Check out the four giant space and Earth images on the large graphic panels in the exhibition: *Antarctica*, *the Sun*, *Enceladus*, and *the Sombrero Galaxy*. Pick one object and read all the tiny text notes on the graphic. Write down one question you want to ask about your chosen object. Why does this question interest you? All NASA missions start with a question.

**Your question:**

**Why did this question interest you?**

**2. Representational color**

Scientists often use color to show data in Earth and space images. Look closer at the *We ask questions about the solar system* large graphic panel with a colorful image of Saturn. Fill in the blanks below on what the specific color represent in each of the images below.

- **BLUE** in the image of **Saturn**  
represents its icy \_\_\_\_\_
- **RED** in the image of **Neptune**  
represents its hazy \_\_\_\_\_
- **RED** in the image of the **Mars**  
represents higher \_\_\_\_\_
- **PURPLE** in the image you create of **Venus**  
represents low \_\_\_\_\_ on its surface
- **RED** in the hurricane image on **Earth**  
represents higher \_\_\_\_\_

**MIDDLE SCHOOL STUDENT ONSITE WORKSHEET**

**3. You are the spacecraft engineer**

Draw a picture of the spacecraft you built at the Design, Build, Test table and list all the tools you added. Where will it go and what will it explore? Assign a destination and mission to your spacecraft under the drawing. Look around at the images in the exhibition to get inspired!

<b>POWER:</b> _____	
<b>COMMUNICATIONS:</b> _____	
<b>NAVIGATION:</b> _____	
<b>SCIENCE:</b> _____	
<b>DESTINATION:</b>	<b>MISSION:</b>

**MIDDLE SCHOOL STUDENT ONSITE WORKSHEET****4. Solar maximum and minimum**

The flip pictures under the *We ask questions about the Sun* graphic panel show the Sun in an active state (solar maximum) and a calm state (solar minimum). Pick two types of light (Infrared, Visible, Ultraviolet, or X-rays) and write down how the active and calm images of the Sun are different. Do you see more or less spots, flares, or other solar activity?

Type of light	How are the active and calm images of the Sun different?
1.	
2.	

**5. The changing Earth**

Look at the flip picture under the *We ask questions about the Earth* graphic panel. Some change on Earth is due to humans and some is natural. Write down one thing you noticed in the changing flips. Were you surprised? Why?

<p><b>What was one thing that you noticed?</b></p>          <p><b>What surprised you?</b></p>
-----------------------------------------------------------------------------------------------------------------------------



**MIDDLE SCHOOL STUDENT ONSITE WORKSHEET****6. Use tools to detect the invisible**

What was the most surprising thing you saw when you used the tools to look at invisible images and messages on the block tiles? Check off the tool type you used and describe what you saw.

**Check one tool:**

Infrared light

Magnetic Fields

Ultraviolet light

Magnification

**What did you see?**

**7. The search for life in the universe**

Look closely at the image from the Hubble telescope in the *We ask questions about the universe* graphic panel. This one small section of the universe has many galaxies, each with millions or even billions of stars within. How would you feel if life was discovered on a planet around one of these distant stars? Would you be happy, scared, excited? Why?

**How would you feel if alien life was discovered?**

**Why?**

**MIDDLE SCHOOL STUDENT ONSITE WORKSHEET**

**1. Scientists ask questions about Earth and space**

**Various questions on Antarctica, the Sun, Enceladus, and the Sombrero Galaxy.**

**2. Representational color**

- **BLUE** in the image of Saturn represents its icy **RINGS**
- **RED** in the image of Neptune represents its hazy **UPPER ATMOSPHERE**
- **RED** in the image of the Mars represents higher **GRAVITY**
- **PURPLE** in the image you create of Venus represents low **ELEVATION** on its surface
- **RED** in the hurricane image on Earth represents higher **TEMPERATURE**

**3. You are the spacecraft engineer**

<b>POWER: Solar Panel &amp; Battery or Nuclear Generator</b>	
<b>COMMUNICATIONS: Antenna or Dish Antenna</b>	
<b>NAVIGATION: Compass or Gyroscope</b>	
<b>SCIENCE: Camera, Particle Detector, or Spectrograph</b>	
<b>DESTINATION:</b> <b>Various responses</b>	<b>MISSION:</b> <b>Various responses</b>

**MIDDLE SCHOOL STUDENT ONSITE WORKSHEET****4. Solar maximum and minimum**

Type of light	How are the active and calm images of the Sun different? <i>(descriptions could vary)</i>
<b>Infrared</b>	<b>Larger light and dark areas.</b>
<b>Visible</b>	<b>More dark spots, or sun spots, are visible at solar maximum.</b>
<b>Ultraviolet</b>	<b>More coronal loops, flares, and mass ejections at solar maximum.</b>
<b>X-rays</b>	<b>More active solar atmosphere at solar maximum.</b>

**5. The changing Earth****Various responses****6. Use tools to detect the invisible****Various responses****7. The search for life in the universe****Various responses**