

Teacher Instructions

Galactic Vacation -- TEACHER INSTRUCTIONS

Title: Galactic Vacation – Touring the Planets

Grade Focus: 4, 5, 6, 7, 8, 9

Subject: Science

Integration Activity: Imaging, PowerPoint Presentations, Discovering the Internet, Spreadsheets

Recommended Time to Completion: Three to four weeks (three to five hours per week)

INTRODUCTION

Students will work in groups to research and compare planets to Earth. They will analyze the unique qualities of each planet and determine which planet they'd choose for a "Galactic Vacation." Specific areas of emphasis include the physical characteristics of the planets, distances in space, and compatibility for life.

PREREQUISITE EXPERIENCE:

Students should be able to conduct research online and use a word processor.

They will use a spreadsheet, like Excel, to organize data.

Prior PowerPoint or other presentation software tool experience would be helpful.

Experience with image editing software (i.e. Photoshop or Paint) and the ability to capture images from the computer will also be helpful.

TEACHER PREP TIME: 1 - 2 hours

Review the identified Web resources in *Explore* and these training videos from **Nortel LearniT**

- **Discovering the Internet**, http://nortellearnit.org/technology/Discovering_the_Internet/
- **Imaging**, <http://nortellearnit.org/technology/Imaging/>
- **PowerPoint**, <http://www.nortellearnit.org/DiscoveriT.aspx>.

PROJECT:

Students will use the Web to conduct their research and an Excel spreadsheet to organize this information. They will use PowerPoint or another presentation software to present findings and demonstrate their applied understanding through the creation of a visual travel brochure.

They will add digital images to their final project to help visualize the differences between the Earth and the other planets of the Solar System.

ASSESSMENT / GRADING:

Using a presentation rubric, the student PowerPoint presentations will be evaluated on their content, their application of analytical skills, and their demonstration of tools to convey their applied understanding.

TIME MANAGEMENT TIP:

Students should complete some research individually as a homework assignment.

Limit the number of slides students create in their final projects.

It's best for students to work in pairs or teams of three for this lesson.

Engage

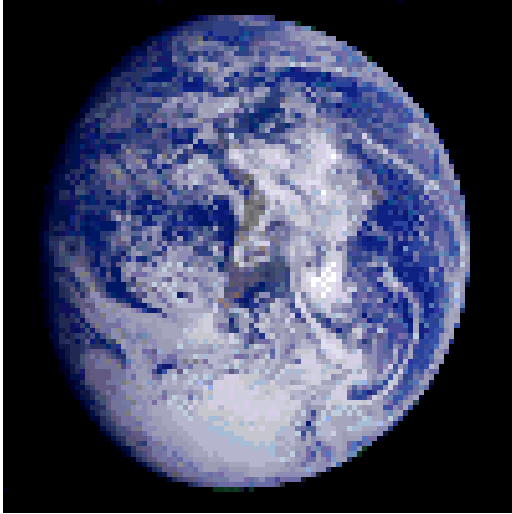


Photo credits: NASA/JPL

What are the unique qualities of the Earth? Why is Earth the only planet that seems to support life, as we understand life?

If you could travel to another planet, where would you go? Why?

You and your team are going to plan a “galactic vacation.” Before you plan your trip, you’ll need to learn more about the planets and compare them to Earth.

You’ll be randomly assigned one planet to study in more detail. You’ll create a visual travel brochure for your planet to entice others to join you on your galactic vacation.

Explore

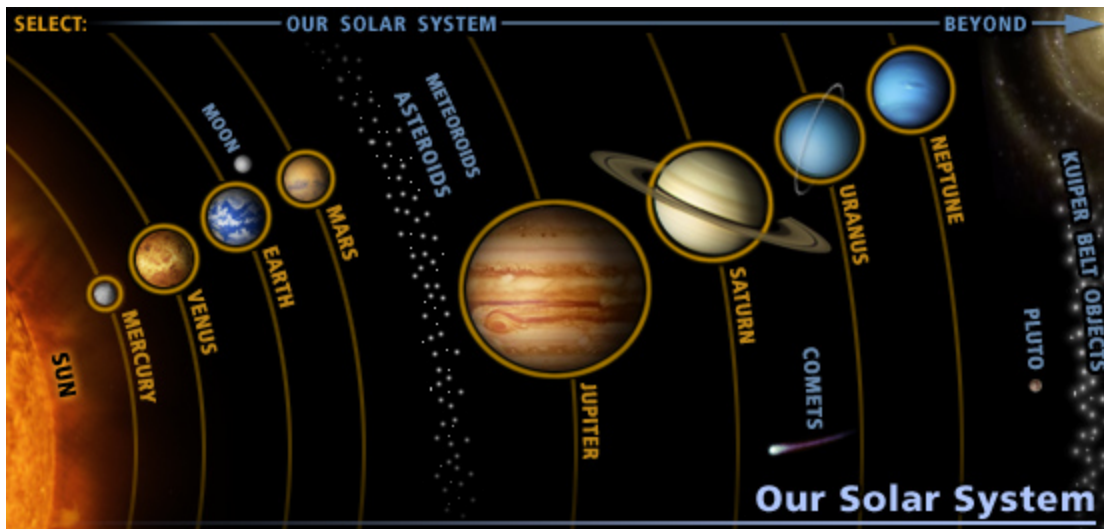


Photo credits: NASA/JPL

1. To complete this project you'll need a computer with a spreadsheet program (Excel is one example), a presentation software program (PowerPoint is one example), and Internet access.

2. Before you begin your research, you may want to review this **Nortel LearnIT** training video:

- **Discovering the Internet,**
<http://www31.nortel.com/webcast.cgi?id=3181>

3. Find out more about the planets. To organize this information, create a spreadsheet that will help you compare the Earth to the other 7 planets of the solar system. Note: Pluto is no longer considered a planet.

Include these categories in your spreadsheet.

- Size
- Distance from the Sun
- Atmosphere
- Land formations
- Temperature

- Gravity
- Unique qualities
- Could life, as we know it, survive on this planet?
- Others?

Before starting your individual research, learn more about all of the planets by viewing the NASA SCIFiles™ program, The Case of the Galactic Vacation.” You can stream this video at:

[http://nasa.ibiblio.org/selection_page.php?videoid\[\]=6410&videoid\[\]=6411&videoid\[\]=6412&videoid\[\]=6413&videoid\[\]=6414&videoid\[\]=6415&videoid\[\]=6516&videoid\[\]=6417&videoid\[\]=6418&videoid\[\]=6419&videoid\[\]=6420&videoid\[\]=6421&action=list](http://nasa.ibiblio.org/selection_page.php?videoid[]=6410&videoid[]=6411&videoid[]=6412&videoid[]=6413&videoid[]=6414&videoid[]=6415&videoid[]=6516&videoid[]=6417&videoid[]=6418&videoid[]=6419&videoid[]=6420&videoid[]=6421&action=list)

You can also find out more about scale models and how astronomers determine the scale of the solar system through viewing this NASA CONNECT™ program, Venus Transit at:

[http://nasa.ibiblio.org/selection_page.php?videoid\[\]=6063&videoid\[\]=6064&videoid\[\]=6065&videoid\[\]=6066&videoid\[\]=6067&videoid\[\]=6068&videoid\[\]=6069&action=list](http://nasa.ibiblio.org/selection_page.php?videoid[]=6063&videoid[]=6064&videoid[]=6065&videoid[]=6066&videoid[]=6067&videoid[]=6068&videoid[]=6069&action=list)

4. Use the list below to begin your research about your planet. These Web sites offer some of the most current information and images. Keep in mind that scientists are learning more about the planets each day. Be sure to “consider the source” and evaluate each site for accuracy and reliability.

Solar System Exploration

<http://solarsystem.nasa.gov/planets/index.cfm>

Solar System Exploration: Kid’s Eye View

<http://solarsystem.nasa.gov/planets/profile.cfm?Object=SolarSys&Display=Kids>

Welcome to the Planets

<http://pds.jpl.nasa.gov/planets/>

NASA’s Planetary Photojournal

<http://photojournal.jpl.nasa.gov/index.html>

The Solar System

<http://www.solarviews.com/eng/solarsys.htm>

Photo Gallery

http://nssdc.gsfc.nasa.gov/photo_gallery/

Solar System Simulator

<http://space.jpl.nasa.gov/>

StarChild: The Planets

http://starchild.gsfc.nasa.gov/docs/StarChild/solar_system_level1/planets.html

The Space Place: Planet and Moon Sizes

http://spaceplace.jpl.nasa.gov/en/kids/sse_flipflop2.shtml

If you are unfamiliar with how to use a presentation software like PowerPoint, review the PowerPoint training videos from Nortel LearnIT at sites:

<http://www.nortellearnit.org/educatormain.aspx>

Explain

1. As a class, pool what you know about the Earth and add this information to the spreadsheet you've created. If you are unsure about any details, your teacher will assign individuals to find out what you need to know. During team presentations, you will add details to this spreadsheet for each planet.
2. Your teacher will randomly group you and one or two other students into a research team. Your team will complete a study of one of the planets.
3. Each team member should choose a specific topic for more detailed research. In addition to gathering information, each student will also be responsible for finding or creating images to help visualize this information. Topics might include:
 - Size and distance compared to the Earth's size and distance from the Sun; travel time
 - Atmosphere
 - Landforms
 - Gravity
 - Suitable for life?
4. Consider what you might be able to "do" on your planet that would be different than what people normally do on vacation here on Earth. How will your planet's gravity affect your "leisure activities?"
5. You may want to choose another way to create your visual travel brochure. Discuss other options with your teacher such as podcasts and Web site creation.

TIP: When you decide what images (pictures), sounds or text that you want to use in your PowerPoint slides, be sure to check for a copyright notice ©. Some Web sites want you to use their materials for educational projects while others don't. A good practice for you should be to look for an email on the Web page you want to use materials from and use it to send a request for permission to use it in your class PowerPoint project.

It is also important that you identify materials that you use completely in your PowerPoint presentation. This is called "making a citation" of someone else's work. The format that is typically used is as follows:

Last Name, First Name of Author (if known). "Title of work/article/page." *Title of Complete Document* (if applicable). Date last modified. URL (date visited).

6. Work as a team to decide what information should be used and the best way to present this information. Consider the interests of your audience as you make choices.

1. Each team member will create two to three PowerPoint slides about the research findings. These will be combined into a travel brochure that will “entice” the other students to choose your planet for their next galactic vacation. Remember to be persuasive, yet factual, as you present this information.

2. Before you begin your production, you may want to review the **Nortel LearniT** training video about digital imaging:

- **Digital Imaging Project**, <http://video.google.com/videoplay?docid=-939683545412310982&hl=en>

3. Before you begin creating your own PowerPoint slides, you might want to take a look at a Nortel LearniT video tutorial to get some good tips and tricks on making a great presentation.

<http://tinyurl.com/m2mtm>

4. As a team, use a PowerPoint Story Board to creatively organize your slides into a persuasive travel brochure.

http://www.nortellearnit.org/Deliver/Word/Storyboard_kica.doc

5. Pictures and sounds will be very important in helping your audience visualize your planet. Help your audience imagine that they are really on your planet. What will they do for “fun” on this planet?

Download images and sounds to your hard drive, or save the URL as a ‘Favorite’ in your Web browser.

6. Put a descriptive title screen, credits and references at the end of the PowerPoint presentation. Using the multimedia (pictures, images, sounds etc.) throughout the presentations will help you to communicate your key information.

Tip: Remember to ONLY use images or sounds that you have permission to include in your presentation. To learn more about copyright (and copy wrongs!) be sure to watch the Nortel LearniT video tutorial at <http://tinyurl.com/s2pvb>

7. The final step in your project is to for your team to share your travel brochure with your class. Practice your presentation and consider ways to add interest to your work. Perhaps you might want to dress up as tourists for your presentation.

Evaluate

PowerPoint Project Evaluation Rubric

Criteria	Unsatisfactory	Needs Improvement	Satisfactory	Exemplary
Research	Limited research, from limited sources	Somewhat well researched from somewhat varied sources.	Well researched, from various sources	Thorough research from varied sources presenting different points of view
Storyboard / planning	Limited planning evident	Some planning evident	Planning evident	Thorough planning evident
Content	Lacks detail	Some detail	Good detail	Excellent detail
Technology Use to Demonstrate Understanding	Technology use with little purpose	Technology use with some purpose	Technology use with purpose	Intuitive technology use with specific purpose
Overall Final Project	Inconsistent and inappropriate aesthetics and technical functionality	Somewhat consistent and appropriate aesthetics and technical functionality	Consistent and appropriate aesthetics and technical functionality	Consistent, creative and appropriate aesthetics and technical functionality

Group evaluation: What did each of you contribute to the task. How did you divide the work?

Self Evaluation: What did you learn? What do you know about your planet that you did not already know?

Complete the spreadsheet including information learned during student presentations.

Extend

Consider some of these ideas for extensions:

1. You may want to choose different technology to create your visual travel brochure. Discuss other options with your teacher such as podcasts and Web site creation.
2. Create a videotape travel log depicting your experiences as you travel to your planet.
3. Astrobiologists study the origins, evolution, distribution, and future of life in the universe. Design a creature adapted to life on your planet. Visit these sites for some interesting ideas relating to life on other planets.

Ask an Astrobiologist

http://nai.arc.nasa.gov/astrobio/astrobio_questions.cfm?qtype=life_other

Astrobiology Roadmap

<http://astrobiology.arc.nasa.gov/roadmap/g2.html>

Life on Other Planets

http://kp12m.as.arizona.edu/new_articles/life_on_planets_2003.htm

Astro-Venture (Search for and design a habitable planet!)

<http://astroventure.arc.nasa.gov/>

4. Design and videotape a "fashion show" for the solar system. Working with other groups, create fashions suited for each planet. Interview students wearing these fashions, giving the students a chance to model and explain the latest adaptive clothing.
5. Share your work with parents, families, and other students.

