

Day One

Title: The Universe: Mapping What We Know

Objectives:

- Students will create a knowledge/question web using *Inspiration* software.
- Students will collate facts and information gained through group and independent study.

Materials:

- Non-fiction picture books
- Research folders
- Laptops
- *Inspiration* software

The unit began by discussing features of non-fiction text to facilitate fact-finding and information gathering. Teachers should allow 2-3 weeks of exposure to features of non-fiction. During this time, students may specialize in a discrete area or join a group for cooperative study. Some books we used are:

- Planets Series by Gregory L. Vogt
- 1000 Facts About Earth by Moira Butterfield
- Space by Robert Snedden
- Hubble Space Telescope by Paul Sipierra
- Magic School Bus: Lost in the Solar System by Joanna Cole
- Look into Space by Jon Kirkwood
- The Story of Astronomy by Carole Stott
- UFO Diary by Satoshi Kitamura
- Do Stars Have Points? Q&A About Stars & Planets by Melvin and Gilda Berger
- Black Holes: A True Story
- The Universe by Seymour Simon
- The Universe and Other Poems by various authors (Orbit Double Take)

Procedure:

1. Students listen to The Universe by Seymour Simon as a read-aloud. This book culminates all the students have been learning into a book that is easy to read and understand.
2. While reading, have students attend to new things learned as well as their prior knowledge of the universe.
3. The students will place students into pairs and assign them a laptop. Each pair will need their research folders, containing all relevant data they have collected so far. Books are available for student reference.
4. Student pairs will discuss their findings and decide on what information should be put on their knowledge webs.

5. Focusing on the knowledge web topics, students will create questions they would like to explore further on these topics.
6. Using *Inspiration* software, students will create a knowledge/question web that will serve as the basis for further study in the unit.
7. Students gather on the carpet to share their best work and discuss questions for further study.

Assessment:

- Students will be assessed based on answers to questions during the read-aloud.
- Students will be assessed based on individual conferences and group observation while engaged in the process of the project.
- Students will be assessed based on the quality of their knowledge/question webs

Day Two

Title: An Internet How-To: The Web is Your Friend

Objectives:

- Students will apply knowledge on non-fiction conventions to Internet articles.
- Students will take part in a Net Scavenger Hunt to assist them in navigating them in navigating their research.
- Students will gain a better understanding of effective Internet search methods.

Materials:

- Computers with Internet connection
- Digital Projector
- Worksheet #1
- Pens/Pencils

Websites:

- http://www.esa.int/esaKIDSen/SEMSZ5WJD1E_OurUniverse_0.html
- http://www.kidsastronomy.com/solar_system.htm
- <http://www.enchantedlearning.com/subjects/astronomy/>
- <http://www.google.com>

This lesson is completed over two days and thus comprises days two and three.

Procedure:

1. Teacher will model effective research techniques using the digital projector. Topics included are links, Google key word searches, and URL addresses.
2. Teacher will place students into groups of four and assign a laptop.
3. Student groups will take part in an Internet Scavenger Hunt using Worksheet #1 as a guide and to take notes
4. Teacher will assign two planets to each group that will serve as basis for PowerPoint presentation to be completed on following day.

5. Students will share their research and we will examine and discuss the PowerPoint rubric.

Assessment

- Students will be assessed based on conferencing during group work.
- Students will be assessed based on observations of methods used to search and navigate the Internet.

Day Three

Title: An Internet How-To, day 2: PowerPoint Presentation

Objectives:

- Students will continue their research, focusing today on planets assigned during previous lesson.
- Students will use research gained to create a PowerPoint presentation on their planets.

Materials:

- Computers with Internet connection and PowerPoint software
- Notes from Worksheet #1, focus on Website 3
- Pens/pencils

Websites:

- <http://www.enchantedlearning.com/subjects/astronomy/>
- <http://www.google.com>

Procedure:

1. Teacher reconvenes groups to review strategies for effective Internet searches. Questions will focus on links, Google search engine, and URL addresses.
2. Student monitors retrieve their laptop used in part one.
3. Using Website 3 from Worksheet #1, groups will continue their research focusing on their two assigned planets.
4. Using PowerPoint, groups will design and create a slideshow of their assigned planets. Students should attend to the rubric throughout.
5. Teacher will gather students on the carpet to discuss how the project went and to build excitement through a discussion of the field trip to the Rose Center for Earth and Space.

Assessment:

- Students will be assessed based on adherence to the rubric for their PowerPoint presentation.
- Students will be assessed based on individual conferencing and group observation.
- Students will be assessed based on the final product of their PowerPoint presentation.

Day Four

Title: Culminating Event Preparation

Objectives:

- Students will visit the Rose Center website and take virtual tours of some of the exhibits they will see.
- Students will generate a list of questions to be discovered on the field trip.

Materials:

- Computers with Internet access
- Digital Projector
- Worksheet #4
- Pens/pencils

Websites:

- <http://hubblesite.org/>
- <http://www.amng.org/rose/universe.html>
- <http://www.amnh.org/rose/hope/>
- <http://www.amnh.org/rose/vtours.html>

Procedure:

1. Teacher will show students images from the gallery on Hubble website. Images such as this will be seen in the space show, *Passport to the Universe*, part of our field trip.
2. Teacher will engage the class in a more detailed discussion of the Rose Center and the Museum of Natural History. Talk about how important it is to properly plan and organize prior to a field trip where discovery will take place.
3. Discuss extension activity (brochure) and how they will be taking notes throughout the trip to assist them in the creation of a brochure to a favorite exhibit.
4. Teacher will assign groups of four and laptops numbers. Student monitors retrieve laptops. Put URLs on the board.
5. Groups point their browsers to <http://www.amnh/rose/vtours.html>. Here students will take a virtual tour of two exhibits they will view at the Rose Center.
6. Focus student attention on generating questions they have about the areas they will be visiting on the field trip. They will now point their browsers to <http://www.amng.org/rose/universe.htm> and write questions on Worksheet #4 about each area of the exhibit.
7. Finally, groups point their browser to <http://www.amnh.org/rose/hope/> and repeat the process with the Gottesman Hall of Planet Earth.
8. Regroup and discuss questions that students produced and any ideas groups came up with for their brochure.

Assessment:

- Students will be assessed based on research abilities observed while conducting their study of the websites.
- Students will be assessed based on individual and group conferencing taking place during group work.
- Students will be assessed based on the depth of questions generated during the activity.

Rose Center for Earth and Space, AMNH Culminating Field Trip

To assist students in their practical research, they will use Worksheets #2 and #3 as guides for learning. Worksheet #2 will guide them through the Cullman Hall of the Universe and Worksheet #3 will steer their learning in the Gottesman Hall of the Planet Earth. Together with these notes and the questions answered from day four, students will be able to compile enough information for a top-notch brochure.

Extension Activity: Brochure

After the field trip, using their notes and sketches compiled on the field trip, students will utilize MS Publisher to create a 3-panel brochure. The project will place the group as a Public Relations company that has just been hired by the Rose Center to design informational brochures for some of its most popular exhibits. The students will employ their ideas gained throughout the field trip experience into this brochure. Groups will present their brochures to the class and discuss their exhibit. Question and answer follows.

Net Scavenger Hunt

First, visit each of these websites. Then, read the article/information on the site. Finally, answer the questions that follow to guide your understanding.

http://www.esa.int/esaKIDSen/SEMSZ5WJD1E_OurUniverse_0.html

1. About how many years ago do most astronomers believe the Big Bang occurred?
2. Describe in your own words what happened immediately after the Big Bang occurred. Use details from the article to support your answer.

http://www.kidsastronomy.com/solar_system.htm (click on the sun)

1. In the article, the sun is compared to a toaster. What does the author mean by comparing the sun to a toaster?
2. If the sun were hollow, how many earths could it hold?

<http://www.enchantedlearning.com/subjects/astronomy/> (will be turned into PowerPoint presentation)

1. Name of planet—What does the name mean? Who is it named after?
2. Position in the solar system—Where is the planet located from the sun?
3. Orbit—How long does it take for your planet to orbit the sun? How old would you be on this planet?
4. Size—How big is the planet?
5. Gravity—How much would you weigh on this planet?
6. Atmosphere—What is the chemical makeup of your planet? Could you survive on this planet?
- 7-10. Free Choice—Look at your knowledge/question web. Choose 4 questions that you agree to investigate further. These questions will make up the topics for numbers 7-10.

Assessment Rubric: PowerPoint Presentation

Criteria	Level 1	Level 2	Level 3	Level 4
Slides	- presentation includes two or fewer slides	- presentation includes at least 4 slides	- presentation includes at least 6 slides	- presentation includes at least 8 slides
Graphics	- presentation completely lacks graphics	- less than 50% of slides contain graphics, or graphics are completely irrelevant	- most slides contain relevant graphics; a few slides are lacking graphics or contain irrelevant graphics	- all slides contain attractive, relevant graphics
Text Elements	- the text is extremely difficult to read with long blocks of text and small point size of fonts, poor use of headings, subheadings, indentations, or bold formatting	- overall readability is difficult with lengthy paragraphs, too many different fonts, overuse of bold or lack of appropriate indentations of text	- fonts are easy-to-read, but in a few places the use of fonts, italics, bold, or long paragraphs detracts and does not enhance readability	- fonts are easy-to-read and point size varies appropriately for headings and text - use of italics, bold, and indentations enhances readability
Animation Effects And Slide Transitions	- no transitions and effects are placed on slides	- few if any transitions and effects are placed on slides	- transitions and effects work in only some of the slides	- all slides have transitions and effects that work
Backgrounds & Color Scheme	- no backgrounds were chosen to go on the slide; default font & color scheme used	- backgrounds and fonts do not look good together	- backgrounds look good with chosen font styles and color	- backgrounds look good with chosen font styles & color; color used in creative or unusual ways without detracting from presentation
Content	- the content lacks a clear point of view and logical sequence; information is incomplete, out of date and/or incorrect	- content is vague in conveying a point of view and does not create a strong sense of purpose; some inaccuracies	- the content is written with a logical progression of ideas and accurate supporting information	- content is written clearly and concisely with a logical progression of ideas and accurate, current supporting information
References	- no references provided	- references are incomplete or in improper format	- most references are provided in proper bibliographic format	- all references are provided in proper bibliographic format

Cullman Hall of the Universe

Visit each of five zones: Planets Zone; Stars Zone; Galaxies Zone; and Universe Zone. Take notes on the questions below to guide your understanding of the exhibits.

Planets Zone

- a. Sketch and describe the Willamette Meteorite.
- b. Why is this meteorite important?
- c. Sketch and describe the Ecosphere.
- d. What is so unique about the Ecosphere?
- e. What is the most interesting thing you learned in the Planets Zone?

Stars Zone

- a. After viewing the movie, how would you describe the difference between a low-mass star and a high-mass star?
- b. Sketch an image of each star as you visualize it.
- c. What is the most interesting thing you learned in the Stars Zone?

Galaxies Zone

- a. What is the shape of our galaxy? Sketch here.
- b. What is the name of our galaxy?
- c. In addition to spinning, how else does the galaxy appear to move?
- d. What is the most interesting thing you learned in the Galaxies Zone?

Universe Zone (after exiting Hoberman Sphere)

- a. How fast is our universe expanding?
- b. What happens to anything near a black hole?
- c. About how old is our universe?
- d. What is the most interesting thing you learned in the Universe Zone?

Gottesman Hall of Planet Earth

These five zones are broken down into questions to steer your attention toward important inquiries related to our Earth. As you go through each zone, enjoy it. Choose your favorite aspect of each zone. Sketch it out, and describe why it is your favorite.

Zone 1: How has the earth evolved?

Zone 2: Why are there ocean basins, continents, and mountains?

Zone 3: How do we read the rocks?

Zone 4: What causes climate and climate change?

Zone 5: Why is earth habitable?

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Zone 2 <i>Why are there ocean basins, continents, and mountains?</i>	
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Zone 5 <i>Why is earth habitable?</i>	

Worksheet #4

Virtual Tour #1	Virtual Tour #2
Cullman Hall of the Universe	Gottesman Hall of the Planet Earth

