

**The Research Workshop**  
Preparing Information Literate Students For the 21<sup>st</sup> Century

**Jordy Whitmer**  
Handouts @ <http://www.leftfootrightfoot.com/>

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**What's Happening In Schools?**

- ☛ More hardware is arriving
  - ☐ More machines
  - ☐ Faster machines
  - ☐ Networked machines
  - ☐ Scanners, digital cameras, digital camcorders
- ☛ More software is arriving
  - ☐ More drill and skill
  - ☐ More edutainment
  - ☐ More CD-ROM's
  - ☐ More productivity software
  - ☐ Grading programs
  - ☐ Attendance programs
- ☛ Email is here (8 billion a day)
  - ☐ For student learning
  - ☐ For professional communication
- ☛ The WWW has arrived
  - ☐ The amount of information is doubling every 120 days
  - ☐ The ease of accessing information is increasing
  - ☐ Misinformation is increasing
  - ☐ Teachers can make their own sites
  - ☐ On-line courses
  - ☐ Students can make sites

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**Are Teachers Prepared?**

- ☛ Buying the computers is not enough
- ☛ Only 1 in 5 teachers feel well-prepared to integrate technology - National Center for Ed Statistics
- ☛ Age is not a factor
- ☛ Teachers need lots of professional development
- ☛ Technology skills training is not sufficient
- ☛ Training on integrating technology has a greater impact than basic technology skills

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**Are Schools Prepared?**  
Literacy for the 21st Century

- ☞ The 3 R's are not enough, nor are science, social studies, music, or art
- ☞ Do you have a computer skills scope & sequence?
- ☞ Do you have a Technology Integration Plan, or just a Technology Plan?
- ☞ Have you considered how you will prepare students to be:
  - ☐ Information Processors/Knowledge Producers
  - ☐ Multiple Media Masters
  - ☐ Neural Networkers

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**Have You Designed Your Computer Curriculum?**

**Other Big Circles**  
☐ Info Literacy Standards  
☐ New Teaching Methods/  
Philosophy/Environment

☞ Programming  
☞ CNA  
☞ How-To Lessons

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**Will we be relevant?**

- ☞ Any teacher capable of being replaced by a computer deserves to be replaced by a computer
- ☞ Any school capable of being replaced by CD-ROM's and web pages deserves to be replaced by them
- ☞ Technology + Kids = Learning
- ☞ Kids + Educators + Quality Activities + Technology = Learning

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## New Schools for a New Age

### ☪ Educators' Roles

- ☐ Learner
- ☐ Futurist
- ☐ Curriculum Developer
- ☐ Process Instructor
- ☐ Guide
- ☐ Model
- ☐ Evaluator
- ☐ Wisdomkeeper

### ☪ Quality Activities

- ☐ Blend of traditional and new
- ☐ Shift to Process driven
- ☐ Based on research
- ☐ Dynamic student-teacher interactions
- ☐ Problem solving and decision-making
- ☐ Creative ☐ Cooperative
- ☐ Information Processing & Knowledge Producing

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## Learning Environments

### Traditional

Teacher-centered instruction  
Single sense stimulation  
Single path progression  
Single media  
Isolated work  
Information delivery  
Passive learning  
  
Factual, knowledge-based  
  
Isolated, artificial context

### New

Student-centered learning  
Multisensory stimulation  
Multipath progression  
Multimedia  
Collaborative work  
Information exchange  
Active/exploratory/inquiry-based learning  
  
Critical thinking and informed decision-making  
  
Authentic, real-world context

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## The Research Workshop

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**Inspirations**

- ☞ Writers workshop
- ☞ Interdisciplinary design
- ☞ Inquiry approach
  - ▣ Big 6
  - ▣ I-Search
  - ▣ Jamie McKenzie
- ☞ Project-based learning
- ☞ Brain Research

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**Context**

- ☞ Instruction on individual steps
- ☞ Transferred to other subjects and contexts
- ☞ As a piece of a larger unit
- ☞ As a unit in itself

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**Research Process Steps**

- ☞ Brainstorming
- ☞ Questioning/Defining Task
- ☞ Planning
- ☞ Information Gathering
- ☞ Sorting, Sifting, Analyzing
- ☞ Representing/Reporting
- ☞ Evaluating

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### Electronic Media Skills

- ☞ Electronic catalog
- ☞ On-line resources for articles
- ☞ Encyclopedias
- ☞ CD-ROM's
- ☞ WWW
- ☞ Email

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### Brainstorming

- ☞ KWHL Chart
- ☞ Brainstorming Web
- ☞ Question Starters

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### KWHL Chart

What We Know	What We Want To Know	How We Will Find The Answers	What We Learned
There are nine planets. The planets are: Pluto, Saturn, Neptune, Jupiter, Mars, Uranus, Venus, and Earth. The planets orbit the Sun.	How far is each planet from the Sun? How big is each planet? What colors are the planets? What natural features do the planets have? How do the planets compare to Earth? What dangers are present on these planets?	Search WWW sites Email astronomers Check the library and Blockbuster for videos Look for magazine articles and books Ask Mrs. Sanders	        

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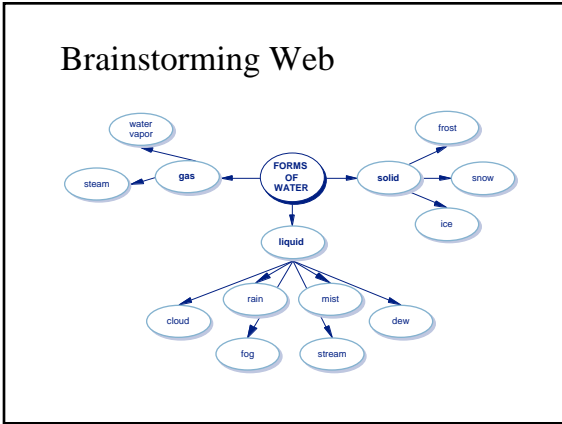
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### Question Starters

<b>Recall</b> Who is ...? How did ...? How many ...? Where did ...? What did ...? What is ...? When did ...?	<b>Cause/Effect</b> What cause ...? What are the effects of ...? Why did ...? Why do you think ...? What would have happened if ...? How did ... effect ...?
<b>Similarities</b> How are ... and ... alike? How was ... the same as ...? What is the same about ... and ...? Compare ... and ... ... and ... are alike in what ways?	<b>Differences</b> What are the differences between ... and ...? How is ... different from ...?
<b>Example to Idea</b> What kind of person was ...? What is the main idea of ...? What word best describes ...?	<b>Idea to Example</b> What are some examples of ...? What kinds of ...?
	<b>Evaluation</b> Do you agree with ...? Why? What was the most important ...? Should ...?

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### Questioning/Defining Task

- ☞ Introductory Paragraph
- ☞ Cluster Diagram

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## Introductory Paragraph

☞ It is the year 2010. You wake-up one morning and hear on the local news that a comet is about to enter Earth's atmosphere. Scientists are predicting that the effects of the comet will drastically change our weather and climate. The world is panicking. Fortunately, the government has prepared for this. The decision to transfer all existing life to another planet has been made. The Space Shuttles are about to launch. Suddenly you realize that you are not sure where you are headed, what life will be like there, or how they chose the destination. Come with us to find out ...

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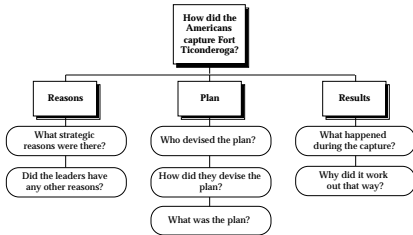
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## Cluster Diagram



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## Planning

- ☞ Linear Diagram
- ☞ Outline

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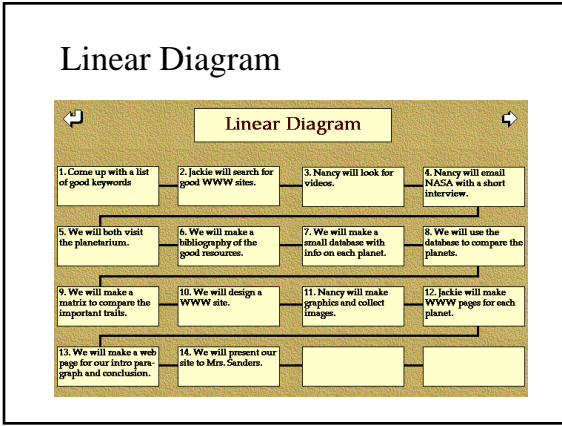
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### Information Gathering

- ☞ Resource List / Bibliography ➡
- ☞ Notefacts ➡
- ☞ Encourage sharing among groups

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### Resource List

RESOURCE LIST	
<p>1. <b>Title:</b> Welcome To The Planets  <b>Author:</b> NASA  <b>Publishing Date:</b> 1995  <b>Other:</b> <a href="http://pds.jpl.nasa.gov/planets/">http://pds.jpl.nasa.gov/planets/</a></p>	<p>5. <b>Title:</b> The Planets  <b>Author:</b> Derek Todd  <b>Publishing Date:</b> 4/23/97  <b>Other:</b> <a href="http://www.geocities.com/especnazera/lab/2683/marscmo.htm">http://www.geocities.com/especnazera/lab/2683/marscmo.htm</a></p>
<p>2. <b>Title:</b> Eyewitness Encyclopedia of Space and the Universe  <b>Publisher:</b> Dorling Kindersley  <b>Publishing Date:</b> 1995  <b>Other:</b> Keyword - Planets</p>	<p>6. <b>Title:</b> Discovering the Planets (Exploring the Universe)  <b>Author:</b> Jacqueline Mitton  <b>Publishing Date:</b> 1991  <b>Other:</b></p>
<p>3. <b>Title:</b> Mars  <b>Author:</b> Bill Arnett  <b>Updated:</b> 2/3/98  <b>Other:</b> <a href="http://www.seds.org/bills/tnp/mars.html">http://www.seds.org/bills/tnp/mars.html</a></p>	<p>7. <b>Title:</b> Facts About the Far Planets  <b>Author:</b> Donna Bailey  <b>Publishing Date:</b> 1993  <b>Other:</b></p>
<p>4. <b>Title:</b> Encerts  <b>Publisher:</b> Microsoft  <b>Publishing Date:</b> 1995  <b>Other:</b> Article - Solar System</p>	<p>8. <b>Title:</b> Facts About the Near Planets  <b>Author:</b> Donna Bailey  <b>Publishing Date:</b> 1993  <b>Other:</b></p>

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**Notefacts**

**NOTEFACTS**

<p><b>Mars</b></p> <p>On Mars there is evidence that there has been erosion. It is about 4 billion years old. A long time ago there were rivers and oceans. They think it was a planet similar to earth. Mars atmosphere is very thin</p> <p>Source #3</p>	<p><b>Mercury</b></p> <p>Mercury appears at first to look like the moon. The surface is covered with craters and plains. The craters are old, but have a pattern of bright rays.</p> <p>Source #4</p>
<p><b>Mars</b></p> <p>Although there is very little water vapor on Mars, clouds form whenever the atmosphere is cooled drastically. The two different clouds on Mars are cirrus and wave. Signs indicate that the clouds on</p> <p>Source #4</p>	<p><b>Mercury</b></p> <p>Although Mercury is closest to the sun, its temperature is 50° less than that of Venus. This is because of the little atmosphere there, so there is no greenhouse effect.</p> <p>Source #4</p>
<p><b>Mercury</b></p> <p>Mercury has a very thin atmosphere because of its low surface gravity. The atmosphere is made up of hydrogen and helium deposits on its surface by solar winds.</p> <p>Source #4</p>	<p><b>Mercury</b></p> <p>Mercury's atmosphere is very thin, mostly composed of small atoms. Mercury's surface is like the Moon's and is deeply cratered and solid. Some radar observations of Mercury's North Pole show evidence</p> <p>Source #3</p>

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**Sorting, Sifting, Analyzing**

- ☞ Grouped Notefacts ➡
- ☞ Graphic Organizer - Venn Diagram, Matrix, Concept Map, Linear String Diagram, Hierarchy Diagram, Flow Chart, Graph, Map, Etc.
- ☞ Database / Spreadsheet

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**Grouped Notefacts**

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### Representing/Reporting

- ☞ HyperStudio Stacks
- ☞ PowerPoint
- ☞ WWW pages
- ☞ Slide shows
- ☞ Word Processing
- ☞ Videotape
- ☞ Presentation

**Samples**

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### Evaluating

- ☞ Ongoing - Each step is evaluated
- ☞ Process and Product are evaluated
- ☞ Encourages self-evaluation
- ☞ Tool to improve student work
- ☞ Encourages recursive work
- ☞ Rubric

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### Resources

☞ From Now On - Jamie McKenzie <a href="http://www.eno.org/">www.eno.org/</a>	☞ HyperStudio 3.1 in One Hour - Vicki Sharp
☞ The Big Six - Eisenberg & Berkowitz <a href="http://www.big6.com">www.big6.com</a>	☞ Teaching Through Projects - Heidi Goodrich
☞ I-Search - Ken Macrorie <a href="http://www.edc.org/FSC/MIH/i-search.html">www.edc.org/FSC/MIH/i-search.html</a>	☞ Visual Tool for Constructing Knowledge - David Hyerle
☞ The Graphic Organizer - Greg Freeman <a href="http://www.graphic.org/">www.graphic.org/</a>	☞ Understanding by Design - Wiggins & McTighe
☞ Filamentality - <a href="http://www.filamentality.com/">www.filamentality.com/</a>	☞ Improving Student Thinking - Barry Beyer
☞ But How Do I Use HyperStudio with Kids? - Michael Muir	☞ Coming to Know - Nancie Atwell

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