Role of the Elementary Science Teacher

Welcome

What Is The Role of the Science Teacher?

- Facilitate the learning process
- Teach the scientific method and key science concepts
- Provide an environment for exploration
- Expose students to real world tools and experiences
- Encourage high-level thinking skills
- Introduce students to online tools and resources
- Expose students to new experiences

Different Types of Learning Environments

Traditional Learning		New Learning
•Teacher-centered instruction	⇒	•Student-centered instruction
•Single-sense stimulation	⇒	•Multi-sensory stimulation
•Single-path progression	⇒	•Multi-path progression
•Single media	⇒	•Multimedia
•Isolated work	⇒	•Collaborative work

National Educational Technology Standards for Teachers, ISTE 2000

Different Types of Learning Environments

Traditional Learning		New Learning
•Information delivery	→	•Information exchange
•Passive learning	→	•Active/exploratory/inquiry-based learning
•Factual, knowledge-based learning	→	•Critical thinking, informed decision making
•Reactive response	→	•Proactive/planned action
•Isolated, artificial context	→	•Authentic, real-world context

National Educational Technology Standards for Teachers, ISTE 2000

What Are Some of the Challenges in Teaching Science?

- Limited time to cover the standards
- Locating resources and tools
- Integrating math with other subjects
- Variety of student ability levels
- Teaching to the standards
- And…..

Global Approach: Best Practices

- Best Practices in Education
  - URL: http://www.bestpraceduc.org/
  - Current projects
  - Message board

Professional Resources

National Science Teachers Association

- Professional Organization
  - http://www.nsta.org/

PBS TeacherLine: Science

Free online resources

http://teacherline.pbs.org/teacherline/resources/science.cfm

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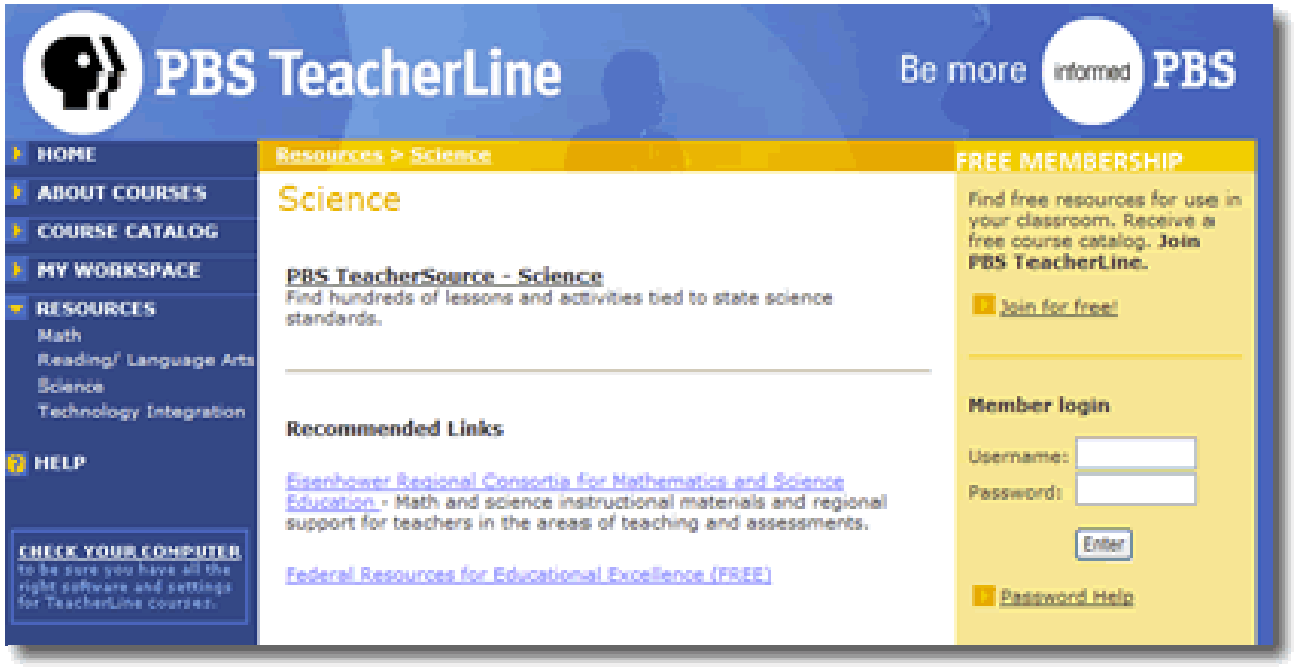
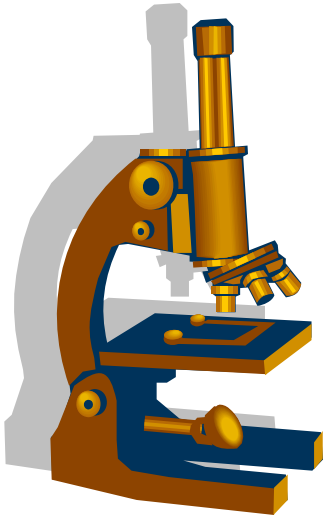


The NSTA Learning Center

- http://learningcenter.nsta.org/?lid=tnavhp
- Workshops, presentations and resources

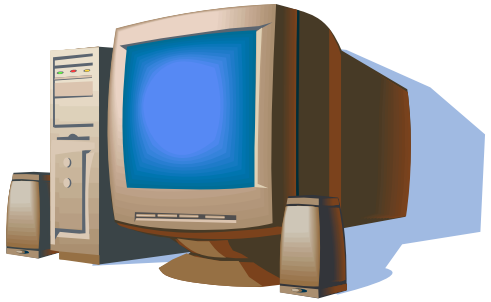
What Are The Tools of the Science Teacher?

- Offline
  - Textbooks
  - Worksheets/Lab sheets
    - AIMS
    - FOSS
  - Science tools and instruments
  - Lab supplies

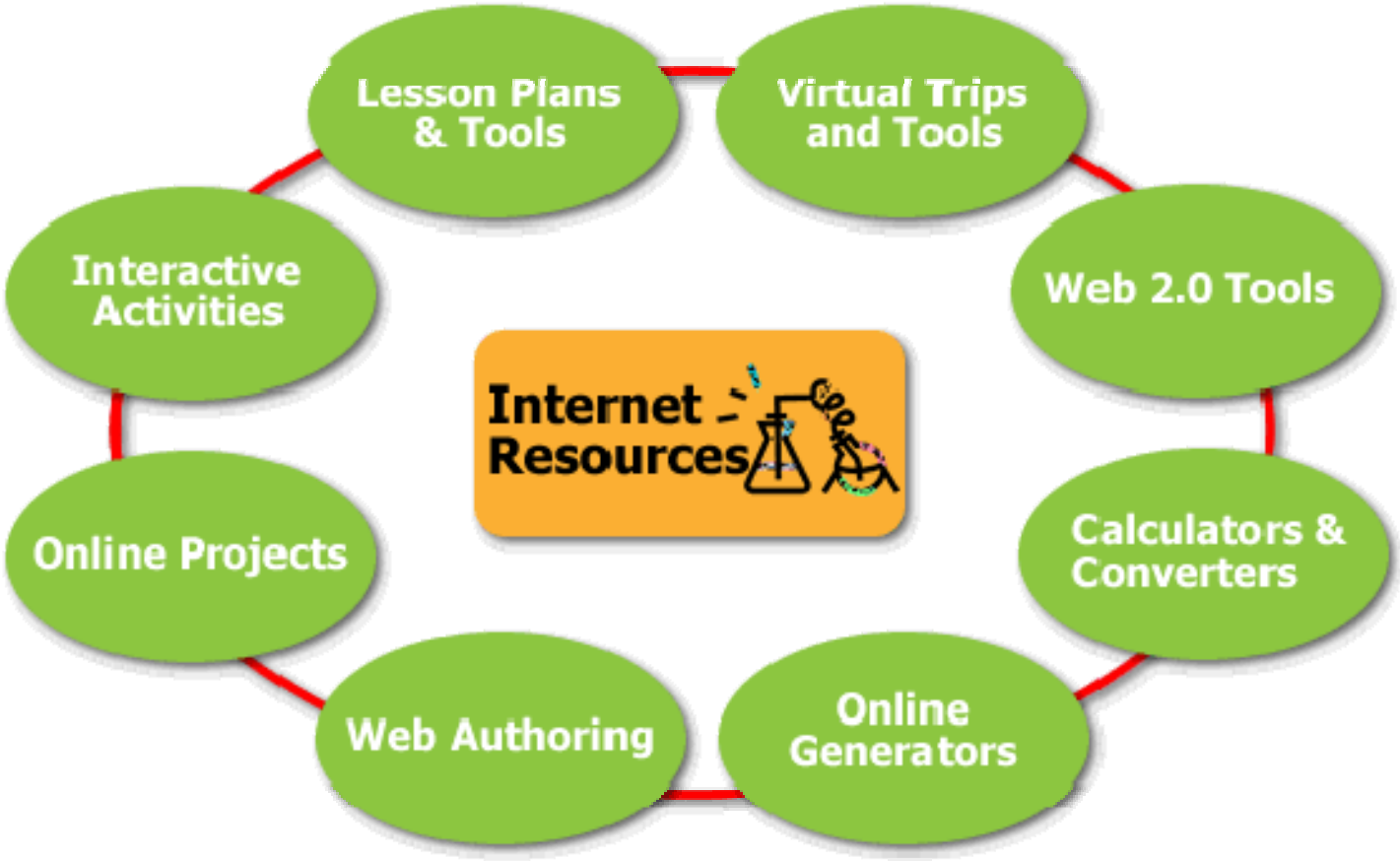


What Are The Tools of the Science Teacher?

- Online
  - Lesson plans
  - Calculators, converters and tools
  - Interactive activities
  - Drill and Practice resources
  - Projects (WebQuests)
  - Lesson plan development tools
  - Online generators
  - Web 2.0 tools



Big Picture


Lesson Plans & Tools
Virtual Trips and Tools
Web 2.0 Tools
Calculators & Converters
Online Generators
Web Authoring
Online Projects
Interactive Activities
Internet Resources

Where Does One Start?

- Scientific Method
  - http://school.discovery.com/sciencefaircentral/scifairstudio/handbook/scientificmethod.html

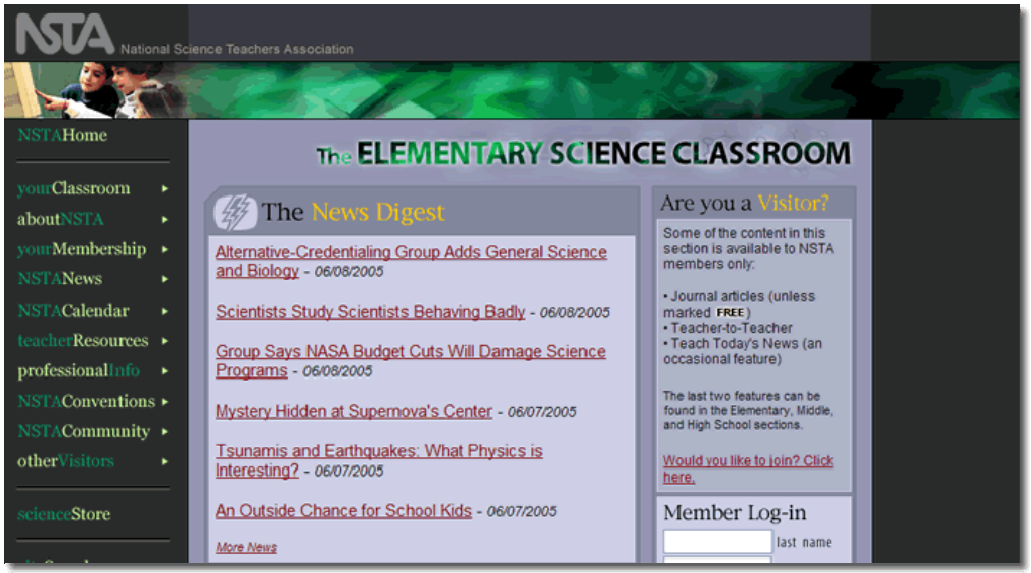
Curriculum, Standard and Key Science Ideas

National Science Teachers Association

http://www.nsta.org/

NSTA: Best Practices

- Elementary Science Classroom
  - http://www.nsta.org/elementaryschool
  - Best practices
  - Journals
  - Teachers resources
  - Teacher interaction

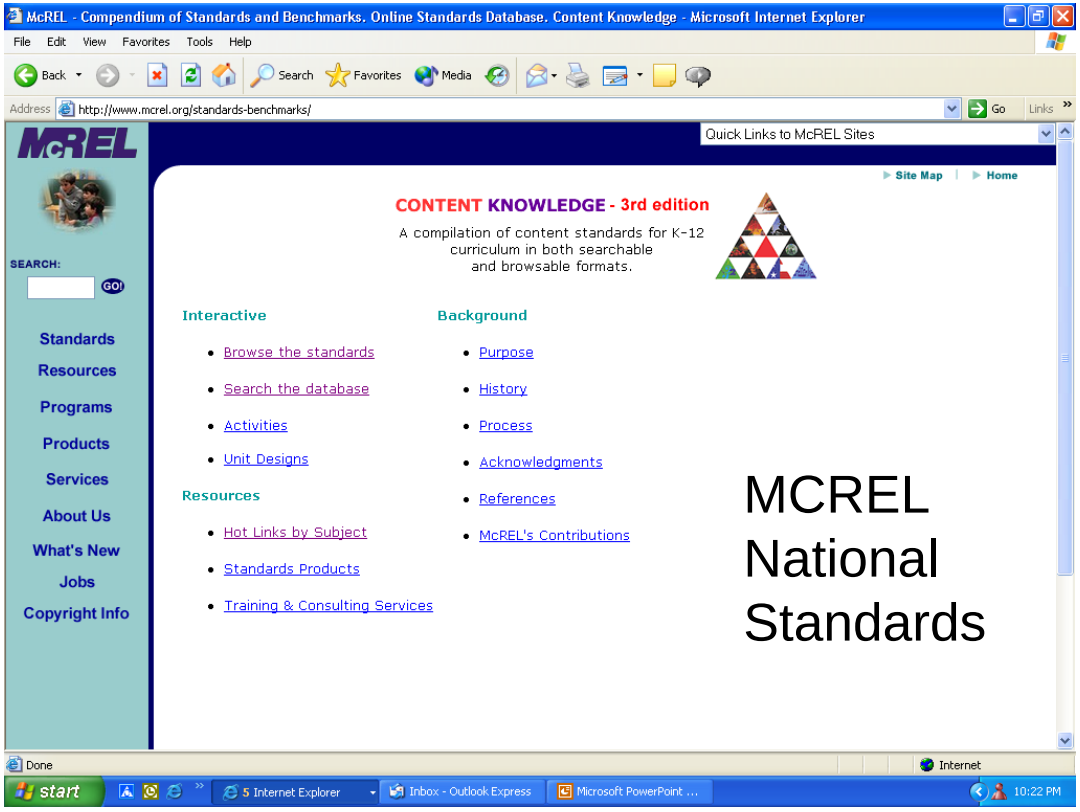


Education World

- State Standards
  - http://www.education-world.com/standards/state/index.shtml

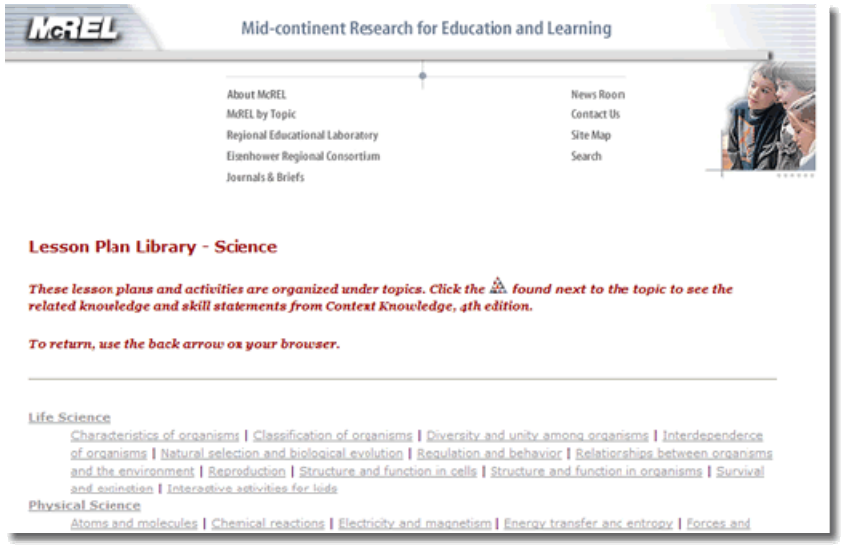
National Standards: MCREL

http://www.mcrel.org/standards-benchmarks/



MCREL: Lesson Plans

- Lesson plans aligned with National Standards for Science
  - http://www.mcrel.org/lesson-plans/science/index.asp



Lesson Plans and Worksheets

Blue Web'n

- Lesson plans
- Hotlists
- Activities
- Projects
- http://www.kn.pacbell.com/wired/bluewebn/index.cfm

Kathy Schrock's Guide to Science

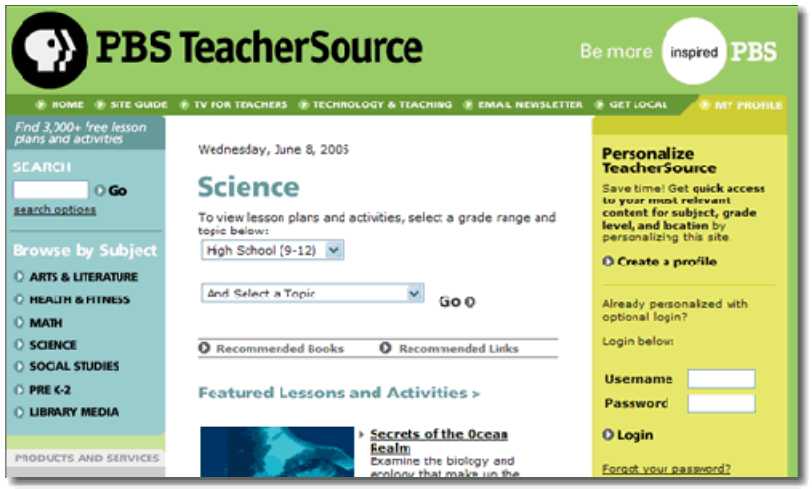
- Lesson plans
- Web resources
- http://school.discovery.com/schrockguide

Science Ideas

- Science Ideas
  - Science lesson plans
  - Resources and materials
  - http://www.teachingideas.co.uk/science/contents.htm#

PBS TeacherSource

- Lesson plans
- Web resources
- Best practices
- http://www.pbs.org/teachers/

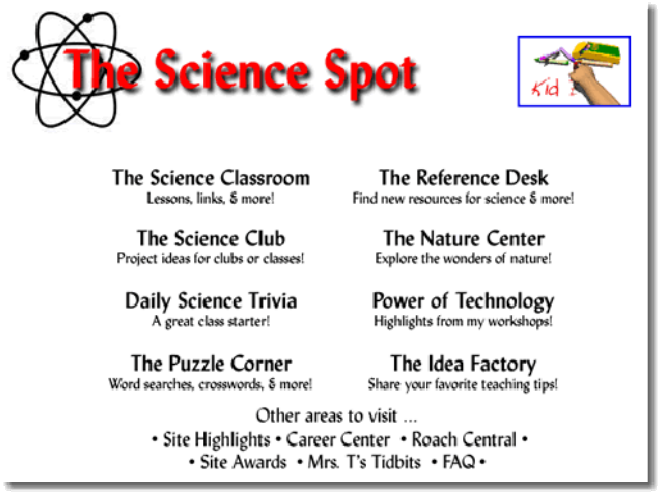


Science Worksheets

- Teachnology
  - http://www.teach-nology.com/worksheets/science/

Science Worksheets

- The Science Spot
  - http://sciencespot.net/
  - Activity Sheets
    - http://sciencespot.net/Pages/classwksts.html#Astronomy



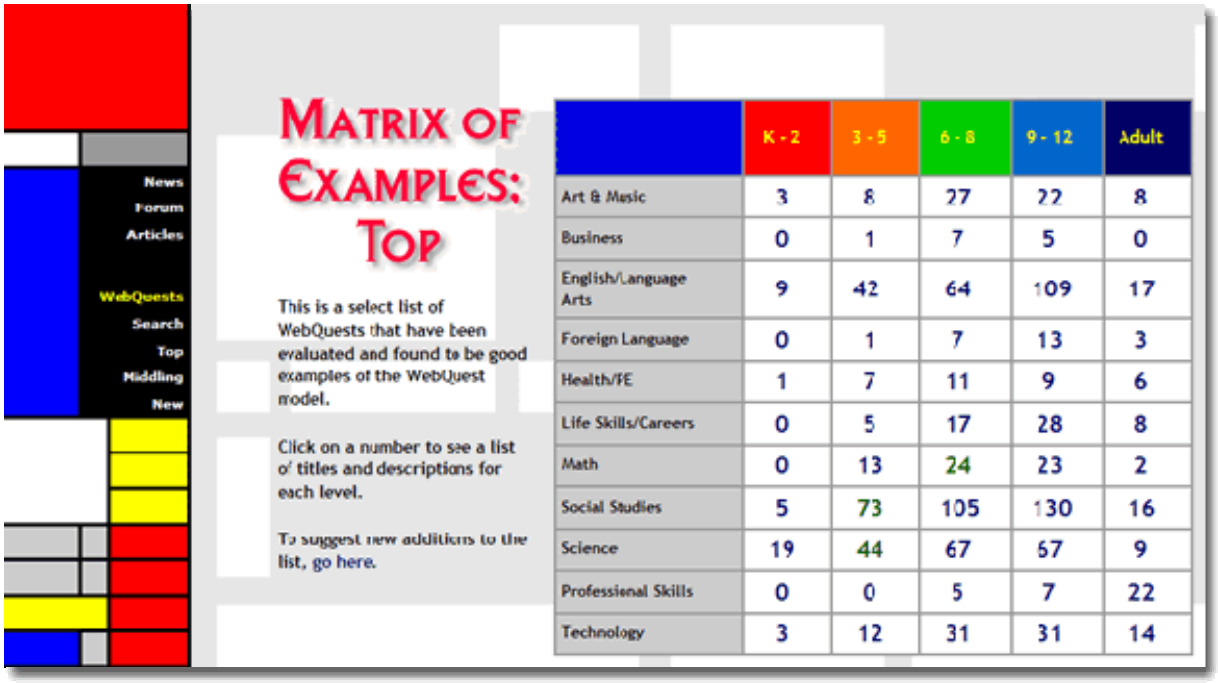
Online Projects: WebQuests

What Is a WebQuest?

A WebQuest is an inquiry-oriented activity in which most or all of the information used by learners is drawn from the Web. WebQuests are designed to use learners' time well, to focus on using information rather than looking for it, and to support learners' thinking at the levels of analysis, synthesis and evaluation. The model was developed in early 1995 at San Diego State University by Bernie Dodge with Tom March.

WebQuest Matrix

- WebQuest projects in science
- http://webquest.org/



	K - 2	3 - 5	6 - 8	9 - 12	Adult
Art & Music	3	8	27	22	8
Business	0	1	7	5	0
English/Language Arts	9	42	64	109	17
Foreign Language	0	1	7	13	3
Health/PE	1	7	11	9	6
Life Skills/Careers	0	5	17	28	8
Math	0	13	24	23	2
Social Studies	5	73	105	130	16
Science	19	44	67	67	9
Professional Skills	0	0	5	7	22
Technology	3	12	31	31	14

Student Resources and Activities

Great Plant Escape

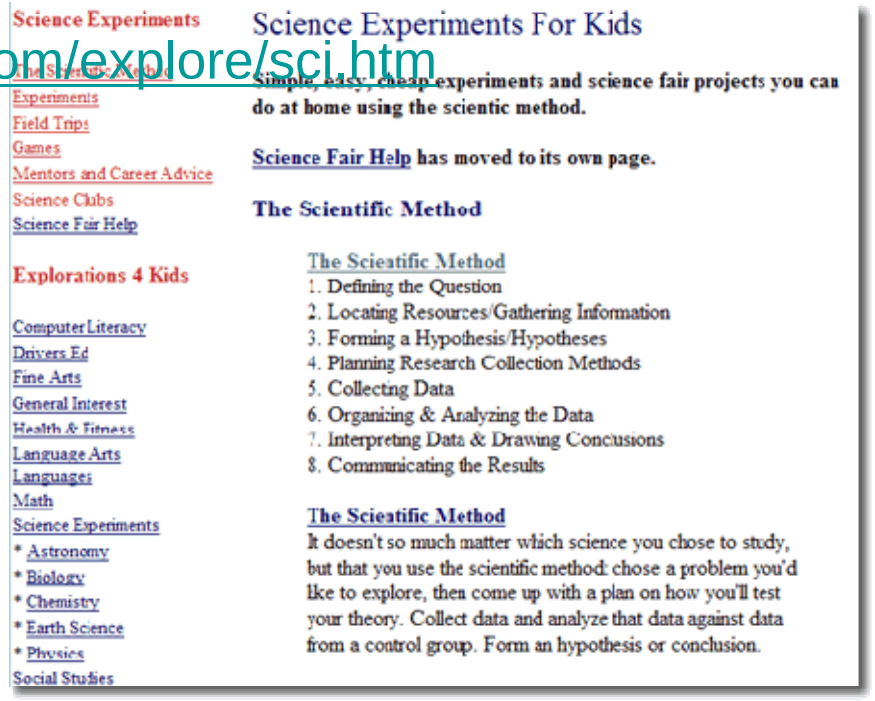
- Online activities and mysteries
- http://www.urbanext.uiuc.edu/gpe/gpe.html

CIESE Projects

- Collaborative projects
- http://www.k12science.org/currichome.html

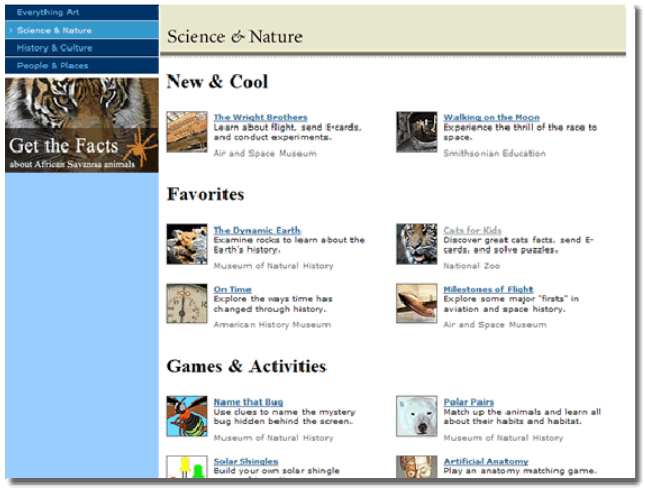
Explorations 4 Kids

- Experiments
- Scientific Method
- Online resources
- http://homeschooling.gomilpitas.com/explore/sci.htm



Smithsonian for Students

- Favorite sites
- Games and Activities
  - Science & Nature
    http://www.smithsonianeducation.org/students/explore_by_topic/science_nature.html



Any Questions

Houghton Mifflin Harcourt
http://www.hmlt.hmco.com/