Inspiring Student Research Process

Oral Histories

New York Student

Conducting our own research using the skills, procedures, and methodologies used by these individuals.

It is not the answers that enlighten us, but the questions.
Descouvertes De La Salle

California Students

Wondering, questioning, experimenting, recording, gathering, analyzing, concluding, predicting…and in some case trying to simply provide another perspective.

Analyzing the Work of Scholars and Practitioners

Ken Burns (1953)

Emily Dickinson (1830-1886)

Claude Monet (1840-1926)

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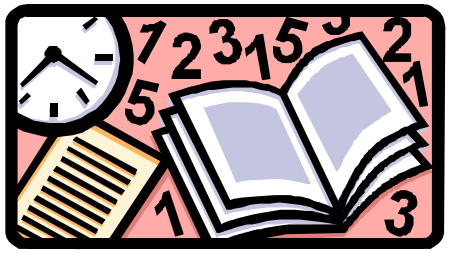
Workshop Agenda



- **Introductions**
- **Students as "Ologists"**
- **Steps for Guiding Student Research**
- **Student Research Examples**
- **Assessing, Finding, and Generating Student Interest**
- **Developing Research Questions**
- **Locating Resources**
- **Providing Methodological Assistance**
- **Providing Managerial Support**
- **Developing Products and Identifying Audiences**
- **Providing Feedback**
- **Evaluating the Process**
- **Celebrating Student Success**

Students' Projects

Your Successful Type III Stories

Why Independent/Group Investigations?

Why Independent Investigations?

Ten Trends: Educating Children for Profoundly Different Future **by Gary Marx**

Trend 4: Education Will Shift from Averages to Individuals

Trend 8: Knowledge Creation and Breakthrough Thinking Will Stir a New Era of Enlightenment

Why Independent Investigations?

People learn best what they most profoundly want to know. Hence, the materials of instruction must be selected in light of students' real interests.

- Phenix, P. (1964). *Realms of meaning*. NY: McGraw-Hill.

Are you an ologist?

Are you really curious about things around you?
Do you ask a lot of questions?
Do you like to explore mysteries?
Do you collect stuff?
If you can answer yes to the following questions, then you are an "ologist". The American Museum of Natural History has set up a website specifically for **YOU**.
Ology - The American Museum of Natural History presents an interactive primer of "ologies."

An Ologist is anyone who follows their curiosity about something and keeps at it until they get answers. And then they have a hundred new questions!

The part about space I like the most is the way you float around. I think that it would be fun to float around like the astronauts. I saw a space film where an astronaut blew liquid through a straw and it didn't spill -- the juice floated through the air. I thought that was really neat.

http://ology.amnh.org/

Steps for Guiding Student Research

- Assess, Find, or Create Student Interests
- Help Students Find a Question(s) to Research
- Develop a Plan of Action to Guide the Research
- Help Locate Multiple Resources
- Provide Methodological Assistance
- Develop a Research Question(s) to Answer
- Provide Managerial Assistance
- Help to Find Products and Audiences
- Provide Feedback/Escalate the Process
- Evaluate

Methodological Experience

Students predict and describe various viewpoints related to an environmental problem and use this information to understand the complexity of environmental issues.

In Mrs. Clay's class, students are reviewing the results of yesterday's experiment on water quality. Some students are finishing their laboratory notes and reporting the results of their completed experiment. A few students are still trying to display their data and interpret the results. Cody and Raquel have finished their experiment and are completing

a journal entry on the high costs of a clean environment. Specifically, they are asked to consider the point of view of a forest ranger, a tree, a rancher, a local business owner, a tourist, and a voice from the future (an unborn child). They are required to write a letter to someone from the past, present, or future, explaining the delicate nature of the ecosystems and the costs associated with environmental preservation of our natural resources.

Community Problem Solving Experience

Students examine a problem that exists and generate alternatives for the solution to this problem after researching the issues.

In Mr. Lopez's fourth-grade class, students examine ways that living things adapt to the environment and investigate ways in which humans and animals may share the natural environment. Students will use a problem-solving model to examine a current issue and present solutions to a targeted audience.

Ms. Smith's sixth grade students are studying the characteristics and habitats of wolves. They are also learning about the controversy regarding the reintroduction of the wolves to the greater Yellowstone area. Students use the research model to identify an underlying problem from their information and develop solutions to this issue which preserves the environment and respects the interests of landowners.

Independent Investigations

A student or a small group of students become interested in particular topics, questions, or problems that start the "itch that needs to be scratched.'

Aimee loves to tinker with objects to see how things work. In fifth grade, she became concerned with her grandmother's difficulties in weeding her garden due to arthritis. She showed a drawing to her teacher of an 'easy to grasp' garden tool for individuals with arthritis. She described her tool as a pressure sensitive device

designed to lock into several positions and simulate weeding motions. Aimee's interests are wide, but her true love is the study of natural phenomena. She enjoys hands-on science activities and describes her home experiments to her teacher. Her understanding, strong interest, and knowledge of science topics are advanced for her age.

Group Investigations

Students will investigate the work of professionals in a field, respond to a real community problem, and produce a work using professional procedures, tools, and applications.

At the middle school, student clubs meet once a week and students participate in student exploratories, or academies based on their interests. Mr. Washington offers students a chance to learn about architecture. Students have expressed interest in the work of 20th century architects, learn about design, examine blueprints for various local buildings, follow the construction of a new ice arena, and interview the planning commission.

During the course of the year, the county Park and Recreation Department has announced plans for a new facility which will be built next to an existing elementary school. Three students accept the challenge of meeting with elementary students and incorporating their ideas into a new playground design. The students draw blueprints and present their plans to the architectural firm and school board members. Some of the student ideas are eventually used in the playground design.

In an instructional unit, we could have students…..

- **Design an experiment to…**
- **Identity a problem that…**
- **Study the perspective held by…**
- **Identity a voice that is missing…**
- **Solve a problem**

- **Establish evidence for identifying a relationship, correlation, trend, prediction…**
- **Reveal the complexity of…the effects on….**
- **Appreciate the work that scholars have helped us to understand**

What Makes a Problem Real?

- A real problem must have a personal frame of reference.
- A real problem does not have an existing or unique solution.
- The purpose of pursuing a real problem is to bring about some change and/or contribute something new to the sciences, the arts, or the humanities.

Source: Renzulli, J. S. (1982). What makes a problem real: Stalking the illusive meaning of qualitative differences in gifted education. *Gifted Child Quarterly, 4,* 29-31.

Becoming Expert Practitioners in a Field of Study! The Story of Mrs. McQuerry and Her Students

Mrs. McQuerry is a middle school teacher who uses every opportunity she can to engage students in problem-based activities that introduce or extend the learning process in meaningful ways. She looks for newspaper and journal articles that highlight important concepts that her students are learning in their curriculum and tries to turn these ideas into problems for her students to solve. She has found that this way of teaching motivates her students and assists them in seeing the relevance of what they are learning to the reality of life. The project that her students worked on has been recently published into a book called, Nuclear Legacy: Students of Two Atomic Cities (McQuerry, 2000). This book was written by students from two communities: Richland, Washington, home of the Manhatten Project, and by students from Slavutych, Ukraine, home for workers at the Chronobyl site. Nuclear Legacy, written in English and Ukrainian, is an example of authentic collaboration between cultures that captures a perspective on nuclear culture seen from the first post cold war generation and gives us insight into what may be possible for our global future as nuclear cultures now work together. Student perceptions of the history of their communities and hopes for the future of our world tell the nuclear story from the perspective of those who will inherit its legacy.

Mrs. McQuerry and Her Students

This project became a way to help Ukrainian and American students connect what they are learning in school to a real product that would be valuable outside the walls of the classroom. The book includes first hand accounts by young people of the 1986 Chronobyl nuclear accident, and interviews with scientists and engineers who worked on the 1940's Manhattan Project in the United States. In this book, students of two countries explore the history, present, and future of their nuclear communities and discuss with fresh voices their hopes for the future.

The study began in a one semester elective course at Hanford Middle School in Richland, Washington, where students are given an opportunity to pursue a passion and given instruction in the inquiry method of research. This project was one of several conducted by the students. Each student is expected to become an active researcher by writing a project plan, taking and organizing notes and conducting original research. The class culminates with a presentation before a committee of "expects."

In this class, Mrs. McQuerry provides guidance to students as they select projects of interest. Students interact with practicing professionals, and design projects that require them to use the skills and modes of inquiry that fit particular disciplines. With the assistance of their teachers, these students have produced a book, written in English and Ukrainian, which reflects new knowledge that is personally relevant to them and to their generation.

Possible Investigations

- Study of local architecture. Students describe how the architecture of five buildings, representing a cross section of architectural history, reveals the economic aspects of that time. Archive the history of these places.
- Examining the local effects of national and international events (hypotheses testing). Students might generate testable hypotheses from their textbook study of national or international events, and then go out to the local community to test the fit between that "big picture" history and the perceptions and experiences of local folks. In terms of the larger historical framework, the Great Depression was an era of hard times and social disorder, but what was the experience of this community?

Possible Investigations

- Chronicling local events from oral sources. Students might embark on the study of a variety of "significant events" in community history. Every community experiences its share of these historical turning points--local trends and events that most older personas remember as meaningful, vivid and important. These might be a famous murder or murder trial in the past that changed the course of events, a natural (flood, tornado) or an economic disaster (the failure of cotton agriculture, the closing of the steel mill, etc.).

Making History, Your History: The Dunbar 6 and Dunbar Middle School Stop Six Investigation

Students connecting to their past to see how their community developed, how it has been shaped and influenced by political, social, technological, religious, and economic conditions, and how it has changed over time.

The purpose of this school-wide investigation is to **engage all students in a community project** that extends the **archival history of Stop Six** from its earliest history to the 1960s. Each class or subject area will participate in an investigation that is related to the history of Stop Six. The students will be asked to **conduct original research related to this topic and create authentic products and performances that will become a part of a permanent collection regarding the history of Stop Six.**

Implementation of these investigations will allow students to gain knowledge of their community, its history and heritage, and to develop an appreciation for the accomplishments of their ancestors and/or members of the Stop Six community.

4 Major Steps ....

➔ **Interest-Focusing**

➔ **Problem-Focusing**

➔ **Product-Focusing**

➔ **Audience-Focusing**

Assess, Find, and Create Interest

Investigations Stem from Many Sources:

- Individual interests
- Curricular units of study
- Problems that exist in the world (city, state, community, global, etc.)
- Unresolved questions
- Someone asking students to generate solutions to problems

Strategies for Interest-Focusing:

- Sharing articles from *Discover, Newsweek*, newspapers
- Guest speakers
- Student interest inventories/questionnaires
- Questions that students ask
- Student identified problems
- I wonder bulletin boards
- Interest centers

If I ran the school . . . . . .

Name _____ Grade_____Teacher_____

If I ran the school, I would choose to learn about these ten things.

I am really interested in:

- The Stars and Planets
- Birds
- Dinosaurs and fossils
- Life in the Ocean
- The Human Body
- Genetics
- Animals
- Outer Space
- Insects
- Chemistry
- Diseases

I am really interested in:

- Families
- Countries
- My Community
- Famous People
- Holidays
- Explorers
- Travel and Transportation
- Wars
- History of Long Ago
- The Future

Interest-A-Lyzers

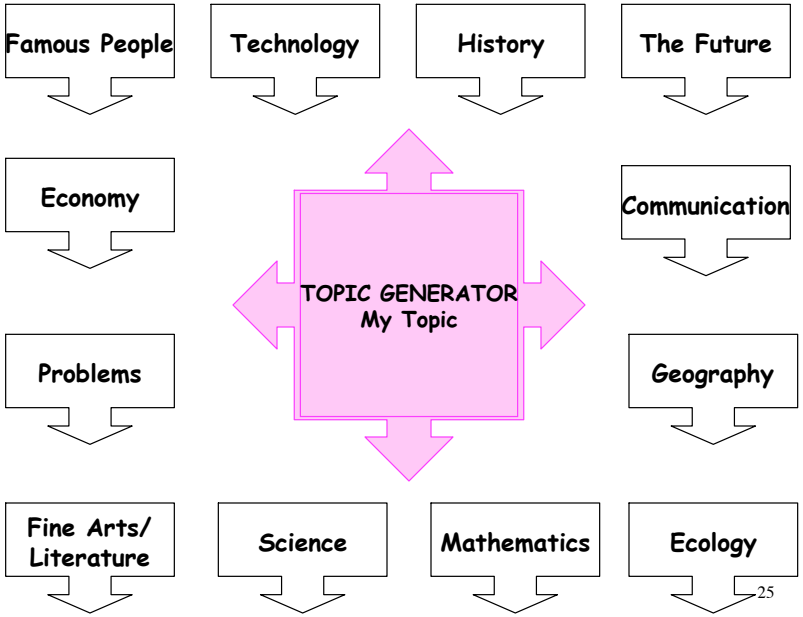
Interest-A-Lyzer Family of Instruments
Author: Joseph S. Renzulli
Copyright 1997
80 pages
ISBN: 0-936386-69-X
Grade Level: K-12
This manual describes the six interest assessment tools that comprise the Interest-A-Lyzer "Family of Instruments." Dr. Renzulli discusses the importance of assessing student interests and provides suggestions for administering and interpreting these instruments in the school setting. Sample pages from each interest assessment tool are included in the appendix.

http://www.creativelearningpress.com

Problem-Focusing

Students' interests are *too broad?*

- ➪ **webbing**
- ➪ **browse chapter titles, conten**
- ➪ **write down questions**
- ➪ **view filmstrips, films, CD's**
- ➪ **brainstorm possible investigative activities**



Who Does Research?

What kinds of questions would these people ask?

Person	*Questions They Ask?*
Doctors	
Newspaper Reporters	
Teacher	
Writer	
Historian	
Geographer	
Wildlife Biologist	

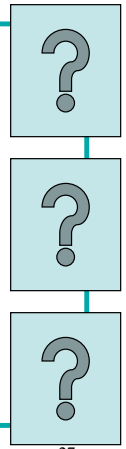
Name(s) _____

Questions, Questions, Everywhere

Researchers are always asking questions about the world around them. They notice things that are interesting, they make observations and wonder why certain things behave as they do, and they are sensitive to problems. Generate some of your own questions that you WONDER about.

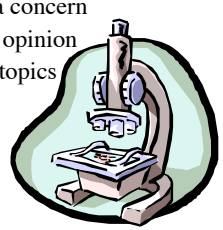
Categories

- Eating habits
- Rules
- Culture
- Community
- Friendship
- School
- Growing Up
- Beliefs
- Homeless
- Elderly



Help Students Find a Question(s) to Ask

- Listening to their questions
- Observing their actions
- As they begin to wonder why
- Their pattern of reading interests
- Favorite subjects
- Extracurricular activities
- When they mention a concern
- Casual statements or opinion
- Interest in particular topics



SCHOLARLY QUESTIONS

Purpose: to assist students in appreciating, applying, exploring and/or investigating a theory, concept, or principle.

Why would it be important for a _____to explore _____?
How would a _____explore the concept of _____?
Why is it important for a _____to determine the causes and effects of _____?
Under what conditions does ____exist?
What do we know about ____that would help us to understand ____?
Locate example(s) and non-example(s) of how _____is viewed in this context?
It is often said that _____. What does this mean? How could we investigate this _____?
How does _____help us to understand _____?
Why is this problematic?
How was _____discovered?
How would we explain, solve, investigate _____?
If we know that _____, how can this help us to explain _____?
What problems do _____explore?

SCHOLARLY QUESTIONS

Purpose: To encourage students to ponder, inquire, identify and pursue ethical and unresolved or unanswered questions in the field.

What problem(s) exist(s)?
What is the _____trying to resolve?
What factors led to this problem or event?
What were the effects of the ____?
What is the significance of this event?
What could happen as a result of _____?
Why is this issue so paradoxical to a _____?
What are the ethical issues that a _____would consider?
What questions would a _____ pursue?
What would cause a character to…?
What do you wonder about? What are you puzzled by?
What concerns you about …?
What issues does the author want us to be aware of?
What should we be investigating?
What is the purpose of _____? What are the consequences of it?

SCHOLARLY QUESTIONS

Purpose: To encourage students to ponder, inquire, identify and pursue ethical and unresolved or unanswered questions in the field.

In what way might this be problematic for _____?
If we were to _____, what might be the possible effects?
Historically, I wonder if, why, or how _____?
Why is this question so important to explore?
What assumptions were challenged by this _____?
Why was this such an important issue to be resolved?
What new problems exist as a result of _____?
What perspectives must be considered or revealed?
How will this understanding change our belief regarding _____?
What ethical issues, problems, concerns do _____ try to reveal or solve?
Whose voice is missing? Why is it missing?

SCHOLARLY QUESTIONS

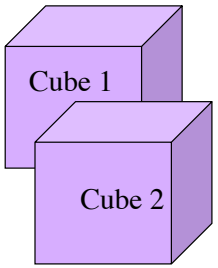
Purpose: to encourage students to use the tools, methods, and procedures scholars and practitioners use in the field.

How would a _____ solve this problem? How would a _____ study this problem?
What steps could we take to solve this problem?
How might we organize and record our findings? Where should we start?
How could we design a _____ that would _____?
What type of investigation could we design to help us answer _____?
How did _____ study this problem, event, or issue?
What is so unique about how _____studied/solved this problem or what he/she found out?
What tools and procedures would a _____ use to explore and investigate this problem, question, issue, or event? What strategies should we use?
How would a _____ gather information about this topic, problem, question, issue, or event?
What resources could we use to explore this problem, issue, event, or question?
What tools can we use to gather our information, evidence, or data?
What checks, tests, or criteria would a scholar use to judge the quality of his/her work? How do ____know if the methods they use are effective?

SCHOLARLY QUESTIONS

Purpose: To encourage students to use the tools, methods, and procedures scholars and practitioners use in the field.

What evidence do we have? What evidence do you have to suggest or explain_____?
What data can we collect?
How should the data be organized and communicated so others understand how we conducted our investigation?
How would a _____analyze the data gathered? What skills would they use?
What are the conclusions or implications of our findings?
What trends do we see? What patterns exist? What variables are correlated?
What differences did you find? How was the solution derived?
What changes took place? What conclusions can you draw?
What details help to explain? How was _____communicated, demonstrated, expressed or revealed?
What did you find revealing? Surprising? Paradoxical? Shocking?
What didn't you find that you thought you would find?
Who would benefit from knowing this work? Who might be interested in our research?
What types of products, services, or performances should we consider as possible ways to share our findings that are like those of *historians*?



Generating Research Questions

- **Roll the dice to generate beginning questions. Select one word from each cube to generate possible questions.**
- **Use research phrases to prompt possible research questions.**

It might be interesting to know if?
It might be interesting to know how?
It might be interesting to know why?
Historically, I wonder how or why?
I wonder if _____ is related to _____?
What factors influenced..?
If I _____, I wonder if _____will occur?

Cube 1 Words
Who, What, When, Where, Why, How, Which

Cube 2 Words
Is, Can, Will, Could (Should, Would), Might, Did

http://www.woodnshop.com/

QUESTION BOXES

FILL OUT THE BOXES WITH YOUR QUESTIONS.

	Is	Did	Can	Will	Might	Should, Would, Could
Who						
What						
When						
Where						
Why						
How						

Name(s) _____

Provide Methodological Assistance

- Shift from learning about to learning how to gather, categorize, analyze, and interpret data.
- Learn the different types of research conducted by professionals and the tools and methods they use to conduct their research.

- How to gather data from your questions
- Interviews (questioning individuals, asking open-ended questions)
- Surveys and questionnaires (make one)
- Recording notes
- Recording references
- Designing an experiment

Every Discipline Has Tools, Methods, and a Process for Guiding Their Research

1. There is **more to research** than simply asking questions and finding answers in books!
2. Each field of study has **methods and tools** to assist researchers in gathering data. Introduce these methods to students.
3. These **primary methods** help students gather their own data rather than just information from a book or journal.

Introducing Students to Research Tools and Methods

- How to conduct **interviews**
- How to design **survey questions**
- How to **construct a survey or questionnaire**
- How to conduct a **field observation**
- How to set up an **experiment**
- How to construct an **oral history**

For Example.....

http://www.mcli.dist.maricopa.edu/proj/res_meth/login.html

Sun River Valley Historical Auto Tour Guide

At the request of the president of a local historical society, nine seniors in the 1998-99 Honors English class at Simms High School researched, wrote, and designed an auto tour guide of their western Montana community. The brochure unfolds to feature a large, bright map of the region, color-coded by elevation, with brief historical summaries of the area's four main towns. The map locates 18 points of interest throughout the valley—such as Birdtail Rock and Ginger's Saloon and Historic Floating Dance Floor—giving a brief description and history of each. The reverse side presents an historical overview of the Sun River Valley and photographs of scenic vistas paired with poems students wrote about them. Grants from Travel Montana, The Montana Heritage Project, the National Endowment for the Arts, and the Liz Claiborne and Art Ortenberg Foundation helped cover the printing costs of 20,000 copies that continue to be distributed free of charge, by a Missoula tourism group, to locations throughout Montana, Idaho, and Wyoming. For copies of the touring guide, available for $5 shipping and handling, contact Dottie Susag at Simms High School, 406-264-5110 or dotsusag@3rivers.net.

Using Skills of the Discipline

MAKING SENSE OF DOCUMENTS

MAKING SENSE OF ORAL HISTORY

Oral history might be understood as a self-conscious, disciplined conversation between two people about some aspect of the past considered by them to be of historical significance and intentionally recorded for the record. Although the conversation takes the form of an interview, in which one person--the interviewer--asks questions of another person--variously referred to as the interviewee or narrator--oral history is, at its heart, a dialogue. The questions of the interviewer, deriving from a particular frame of reference or historical interest, elicit certain responses from the narrator, deriving from that person's frame of reference, that person's sense of what is important or what he or she thinks is important to tell the interviewer. The narrator's response in turn shapes the interviewer's subsequent questions, and on and on. . To quote Alessandro Portelli, one of oral history's most thoughtful practitioners, "Oral history . . . refers [to] what the source [i.e., the narrator] and the historian [i.e. the interviewer] do together at the moment of their encounter in the interview."

http://historymatters.gmu.edu/mse/oral/

Internet Sites….

Social Research Methods
http://www.socialresearchmethods.net/kb/survey.htm

SurveyMonkey.com
http://www.surveymonkey.com/

Veterans History Project
http://www.loc.gov/vets/

National Student Research Center
http://www.youth.net/nsrc/webs.**html**#anchor452617

What Kids Can Do
http://www.whatkidscando.org/index.asp

Montana Heritage Project
http://www.edheritage.org/

A Hotlist on Research
http://www.kn.sbc.com/wired/fil/pages/listresearchja1.html

A Graphic Organizer Descriptive Research

Purpose
Descriptive studies are primarily concerned with finding out "What is? Or How are things now?"

Questions
Do fifth graders hold favorable attitudes toward the new playground equipment?

Descriptive Research

Methodology
Observational and survey methods are frequently used to collect descriptive data.

Types of Studies
Determining the likes and dislikes of a group
Student opinion surveys
Recording the reactions to an event

A Graphic Organizer for Correlational Research

Purpose
An attempt is made to discover or clarify relationships that exist between and among variables.

Questions
Is there a relationship between the size of the wheels on a toy car and the distance it will travel?

Correlational Research

Methodology
Collecting data on multiple variables and correlating these to see if they have a relationship.

Types of Studies
The effect of one thing on another
Finding the strength of a relationship

A Graphic Organizer for Historical Research

Purpose
Search for facts relating to questions about the past, and the interpretation of these facts. By studying the past, the historian is trying to achieve a better understanding of present institutes, practices, and issues.

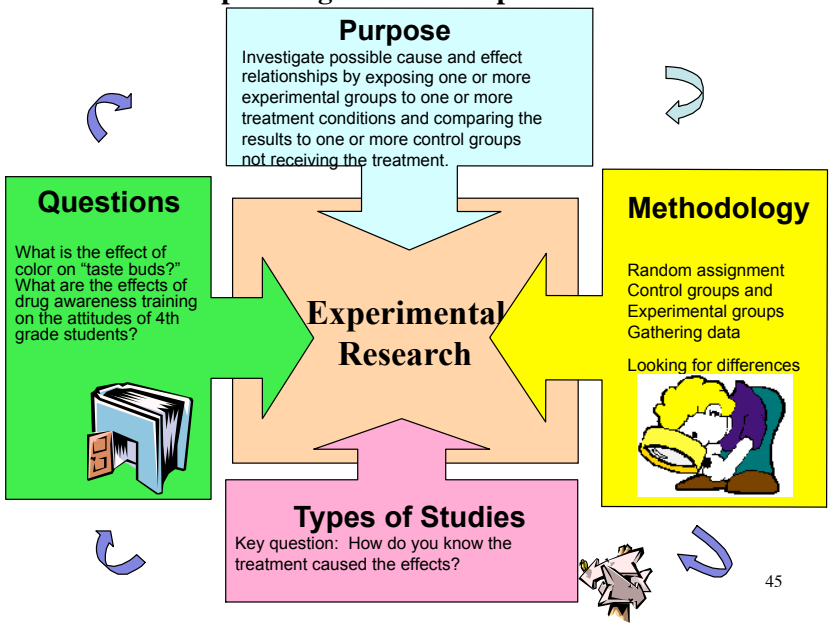
Questions
In what way has this school changed since it was built? What part did our town play in the war? How do jump rope jingles today compare to the past?

Historical Research

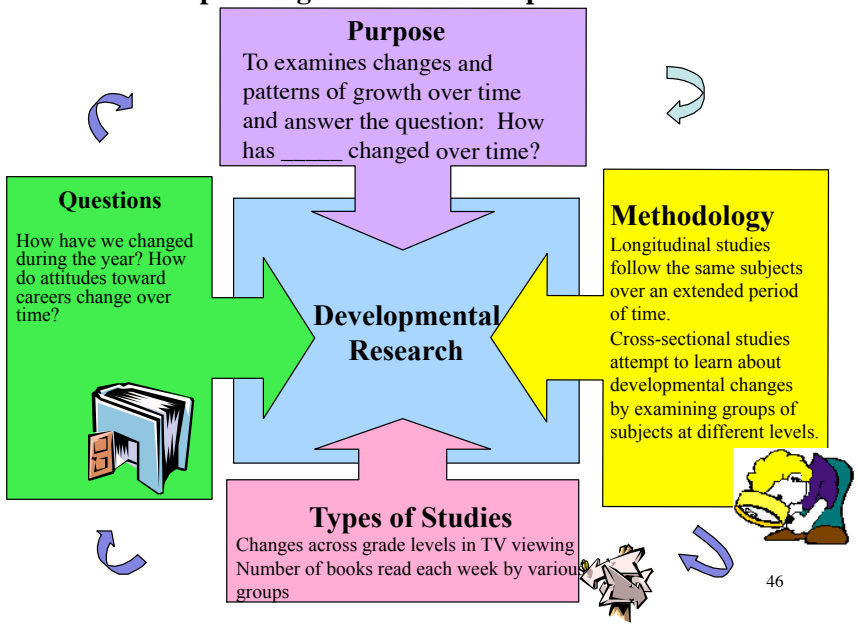
Methodology
Finding data through a search of historical sources such as diaries, official documents, and relics. Historians use primary and secondary sources.

Types of Studies
Causes and effects
Perspectives
Changes

A Graphic Organizer for Experimental Research



A Graphic Organizer for Developmental Research



Provide Managerial Assistance

- Provide access to people and equipment.
- Help students to design a way to gather data, organizing findings, and report findings.

Develop a Plan of Action *to Guide the Research*

WHAT: This is what I plan to research.	**RESOURCES:** These are the resources I need to conduct my study.	**STEPS:** Here are the steps I need to take to accomplish my plan.
PROBLEMS: These are the problems that I may encounter.	**AUDIENCE:** This is the audience who could benefit from my research.	**PRODUCT:** This is the type of product that I could create.

Research Planning Sheet

Name_____Date_____Class_____

Problem Finding: Identify the research problem or the area of interest you wish to investigate.

Problem Focusing: State the research question(s) that will guide your study.

Research Design: Identify the type of research that you will use in your study.

- ❑ Descriptive
- ❑ Correlational
- ❑ Historical
- ❑ Experimental
- ❑ Developmental
- ❑ Case and Field

Sample Selection: Explain the type of sampling that you will use.

Who:_____ How many:_____

How: Random Systematic Stratified Cluster

Data Collection: Identify how you will collect your data.

Observation Survey Experimental results

Interviews Document analysis Questionnaires

Data Analysis: Identify the type of research that you will use in your study.

- ❑ Qualitative
  - •Mean, mode, median, range, variance, standard deviation, frequency
  - •Chi Square
  - •T-Test
  - •Correlation
  - •Other
- ❑ Quantitative
  - •Domains
  - •Themes
  - •Taxonomies
  - •Other

Reporting Results: In what format will you report your results? Who will be your audience?

Research Questions

Question #1
Question #2
Question #3

- •Color code your question and answer cards so they match.
- •Glue computer disk holder on the back of the research folder.
- •Provide examples of how to cite sources on each reference page.

References

Books
Journals
Videos/CD/Films
Person
Newspapers

Data File

Research Folder Design

Name _____ Date _____

School _____ Homeroom _____

My Activities:

- • _____ _____ _____
- • _____ _____ _____
- • _____ _____ _____
- • _____ _____ _____
- • _____ _____ _____
- • _____ _____ _____

Evaluation:

- ❑ **I completed my goals.**
- ❑ **I used my time wisely.**
- ❑ **I did my best thinking.**

Something I learned today:

Next time I plan to:

ACCOMPLISHMENT PLAN

Help Locate Multiple Resources

- Books
- Magazines
- Individuals for interviews
- Places to write for information
- Historical documents
- Other researchers
- Use the "web" and other electronic resources

Help Identify Final Products and Audiences

- Products are authentic to the discipline
- Products show evidence of growth in content and in skill usage
- Products uses multiple references
- Products help to explain what has been learned

- Show evidence of increased problem-solving, planning, and decision-making abilities;
- Show evidence of increased proficiency with methodological skills;
- Show evidence of increased understanding of research procedures;
- Approximate the types of products that practicing professionals create in their fields.

Product-Focusing and Audience-Focusing

Different types of products?

- browse project idea books
- matrix in the SEM book
- study the field to see what types of products are created

What are some appropriate and authentic audiences?

- "outlets" folder
- matrix in SEM book
- "Who would be interested?"
- Project Fair
- Literary magazines, newsletters, papers, symposiums

Group investigations in pursuing similar problems like those of professionals.

Why Tease?!

Four Chicago area Girl Scouts, the entire membership of Senior Troop 161, wrote and illustrated this children's book to teach youngsters about the repercussions of teasing and bullying. Aged 15 to 17, Molly, Erin, Julie, and Annemarie got the idea for *Why Tease?!* from events like the Columbine shootings, from their own experiences, and from observing the hurtful behavior during Scout projects with younger kids. The story begins with a playground bully excluding another child from a dodge ball game, then illustrates a way to defuse such situations. To show that anyone can be teased, the girls drew all the book's characters from the waist down, faceless and featureless. They also prepared a teacher's guide and mail-in feedback survey. A grant they won from Youth Venture, a nonprofit supporting teens as active community participants, covered printing costs and offered technical assistance. The book is now part of the curriculum in dozens of Chicago area grammar schools, and the Girl Scouts recently instituted a Why Tease?! patch and program to raise awareness. For copies or further information, contact the Girls Scouts of Chicago at www.girlscouts-chicago.org or 312-416-2500.

Provide Feedback/Escalate the Process

Scholarly Attributes

- **Exercise their intelligence**
- **Take notes and store information**
- **Use many and varied resources**
- **Look at things from different points of view**
- **Always ask questions**
- **Ponder and think over time**
- **Speak a certain language**
  - **"According to..."**
  - **"All evidence indicates..."**
  - **"If _____, then _____"**
  - **"A different hypothesis might be..."**
  - **"If we were to break this problem down..."**
  - **"The effects of this situation were..."**
  - **"The ethical issues that may be challenged.."**
- **Use tools, methods, and a set of procedures to answer their questions and verify their results**
- **Always set new goals**
- **Appreciate the work of others**

Evaluate the Process

Modified from

Name of Student:
Title of Project:
Date Started: Date Completed:

1. Variety of Resources Used to Complete the Project .....
2. Level of Resources Used to Complete the Project .....
3. Level of Advanced Knowledge Gained While Completing the Project .....
4. Time and Effort Put Into Completing the Project .....
5. Authentic Methodology Used During the Project .....
6. Care and Attention to Detail in Completing the Project.....
7. Quality of Final Project in Comparison to Others His/Her Age.....
8. Task Commitment While Completing the Project .....
9. Independent While Completing the Project .....
10. Appropriate of Audience for the Project .....
11. Originality and Uniqueness of the Final Project .....

Scholarly Research Rubric

Attributes	Distinguished	Apprentice	Naïve
Research Questions	Used all of the questions to guide their research; developed new questions to guide the research.	Used most of the questions that they found interesting and testable; didn't develop any new questions to research.	Few if any questions were used to guide the study; didn't develop any new questions to explore.
Gathering Data	Used a variety of resources; developed an accurate and extensive bibliography; used sophisticated data gathering methods to further explore their ideas.	Used many resources; developed an adequate bibliography; tried to revise their study, but experienced difficulty in carrying out the research.	Used few resources; bibliography was incomplete; did not revise the research.
Recording Data	Complete and accurate records including supplementary data are kept in their notebooks and on data sheets.	Complete and accurate records are kept in their notebooks.	Missing or incomplete records are missing from their notebooks and data sheets.

Scholarly Research Rubric,continued

Analyzing the Data	Is skilled at using descriptive research methods to identify themes and make inferences.	Is developing a use of descriptive research methods to find themes and make inferences.	Is experiencing difficulty using descriptive research to find themes and make inferences.
Interpreting Findings	Explains data; accurate, logical explanations Sophisticated and thorough interpretation of events through perspective of those living in that setting. Interpretations and explanations are supported by the data.	Explains data; accurate, logical explanations. Indepth interpretation of events through perspective of those living in that setting.	Poor or missing explanation of data. An incomplete interpretation of historical events through perspective of those living in that setting
Reporting the Findings	Addresses most of the questions explored. Inferences are explained using the data they found. Uses skills of evaluation as well as synthesis and analysis. Supports claims with clear research evidence from valid sources.	Adresses some of the questions explored. Makes some inferences, although minor errors may exist. Comprehension is on an inferential level and the key skills are analysis and synthesis. Supports some claims with research evidence.	Addresses few questions explored. Makes few inferences. Inferences are weak. Answers deal with material on a concrete, literal level.

Scholarly Research Rubric,continued

Significance of the Findings	Students make meaning of the information and incorporate it into their own life by generating examples.	Students make partial meaning of the information and incorporate it into their own life by generating examples.	Students make little or no meaning of the information and do not incorporate it into their own life by generating examples.
Conceptual Understanding	Identified relationships between the concepts change and perspective that were sophisticated. Could identify causal relationships between the two concepts by providing examples. Moved beyond answering the main question(s) identified these relationships.	Identified relationships that mostly focused on the answers to the main question(s) identified for the research study. Relationships that were explained were descriptive only.	Identified relationships that have little or no connection to the questions.
Products	The performance or product is highly effective. The ideas are presented in an engaging, polished, clear, and thorough manner. The performance or product are developed with an audience in mind.	The performance or product is effective. The ideas are presented in a clear and thorough manner, showing awareness of the audience.	The performance or product is ineffective and unpolished, providing little evidence of planning, practice, and consideration of audience.

Celebrating Our Work
Annual Research Fair

1. Establish the date early in the year.
2. Provide an orientation session for the students.
3. Provide arrangements for a building and clear the date with the principal.
4. Produce a schedule of events for the evening and send announcements.
5. Send invitations to family members, school personal, and those who have supported the students (mentors, speakers, instructors, parent helpers).
6. Send publicity notice to the newspapers, radio, and television stations.
7. Have students indicate their equipment needs prior to the fair.
8. Have students rehearse their performances, presentations, etc.
9. Create a written program that lists the times and events.
10. Hire someone to videotape and photograph the fair's events. This can be used to recruit future volunteers.
11. On the day of the fair, ask for family support in setting up the area.
12. Arrange for classes to view the exhibits, displays, and products on the following day.
13. Send out thank you letters to individuals who have helped with the fair.
14. List improvements for next year's fair.

Ten Trends…Gary Marx

Great teachers will not only serve as subject matter specialists but will also become partners with students, helping them learn how to turn information into usable knowledge and knowledge into wisdom. Rather than simply dispensing information, 21st century teachers will become orchestrators and facilitators of learning.

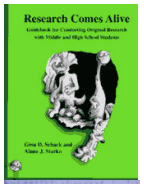
Resources, Resources, Resources

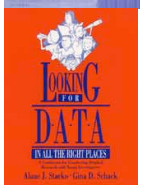
Veterans History Project	The Veterans History Project relies on volunteers to collect and preserve stories of wartime service through personal narratives, correspondence, or visual materials.
ISS EarthKAM www.earthkam.ucsd.edu Journey North www.learner.org/jnorth/ Project PigeonWatch Home Page www.birds.cornell.edu/ppw/ Student and Scientists Partnerships www.terc.edu/ssp/ssp.html Resources on Telecollaborative Projects http://www.uni.edu/currtech/teleproj.html Primary Source Learning http://www.primarysourcelearning.org/	A listing of students and scientists research partnerships and telecollaborative research projects on the web. Telcollaborative research can be used as a search word as you look for places for your students to conduct research. Another identifier on the net is the word "webquest." In the search box, if you type the unit topic you are teaching and then add the word webquest to it, many interactive activities will surface in your search. For example, if you type in "WWII webquests" in a search box, hundreds of webquests on this topic will be presented to you. Simply look at those that assist students in applying concepts and principles, those have have students assume roles in order to solve a problem, or identify webquests that have students come to appreciate the work by those in the discipline.
NCES: Create a Graph http://nces.ed.gov/nceskids/graphing/	Virtual graphs and charts students can use to communicate their findings.
National Library of Virtual Manipulatives http://matti.usu.edu/nlvm/nav/index.html	This is a three-year NSF supported project to develop a library of uniquely interactive, web-based virtual manipulatives or concept tutorials mostly in the form of Java applets, for mathematics instruction (K-8 emphasis).
What Kids Can Do http://www.whatkidscando.org/intro.html	Examples of projects kids are working on with adults in their schools and communities on the real-world issues that concern them most.
Hi-CE's Palm Pages http://www.handheld.hice-dev.org/	A collection of Palm Pilot applications for the classroom along with instructions for each.

History Matters http://historymatters.gmu.edu/	Excellent site to locate tools and methodologies of the practicing professional. Links to making sense of evidence, students as historians, past meets present, and many pasts (digital documents and photographs).
Do History http://www.dohistory.org/home.html	Excellent resources for teaching young people how to analyze primary documents. Simulations are available at this site to assist young people in understanding how historians use primary sources to uncover the truth behind events and the times.
Genetic Science Learning Center http://gslc.genetics.utah.edu/	This Internet site, maintained by the University of Utah's Genetic Science Learning Center, provides information on basic genetics, genetic disorders, and genetics in society. Current include special sections devoted to cloning and the truths and myths of biological warfare.
Illuminations www.nctm.org K-12	Website devoted to activities and investigations to support and demonstrate the new mathematics standards. A section called i-Math features ready-to-use, interactive mathematical investigations for students; these include teacher notes, discussion questions, and connections to mathematical principles.
Science Continuum of Concepts for Grades K-6 Books for Educator, Inc., 17051 SE 272nd Street, suite 18, Covington, WA 98042; 253-630-6908; www.books4educ.com	This book identifies important conceptual ideas in science for students to know and indicates what they should be able to do with that knowledge.
Ciece Online http://www.k12science.org/currichome.html	CIESE sponsors and designs interdisciplinary projects that teachers throughout the world can use to enhance their curriculum through compelling use of the Internet. We focus on projects that utilize realtime data available from the Internet, and collaborative projects that utilize the Internet's potential to reach peers and experts around the world.

The Truth About Science Grades 6-8 NSTA, PO Box 90214, Washington, DC, 20090, ($19.95)-(703-243-7100)	Forty activities designed to simulate the way scientists do research, including: research and development of a hypothesis, experimental design, experimental design, data analysis, and presentation.
Event-Based Science mcps.k12.md.us/departments/eventscience Grades 6-8	This web-site provides information about the Event-Based Science project as well as links to related Internet sites to support the curriculum. It uses noteworthy events to establish relevance of science topics; authentic tasks are designed to create a need to know more about those topics.
PathFinder Science: Creating Student Scientists, Not Just Science Students http://www.pathfinderscience.net/	The motto of this web site is inspiring--creating student scientists, not just science students. Pathfinder Science sets out to meet their goal by offering tons of collaborative research projects for students. Topics for projects include the ozone, stream monitoring, monarch migration, and how different varieties of cookies crumble. Most projects offer background information and a structure for students to follow in gathering, analyzing, and sharing data using the Internet. (grades 5-12)
Math and Science Education Center http://www.nwrel.org/msec/	Home to math and science inquiry models that can be used to guide student instruction.
Scientists and Thinkers http://www.time.com/time/time100/scientist/index.html	People who overthrew our inherited ideas about logic, language, learning, mathematics, economics and even space and time.

Dateline Troy Paul Fleischman Candlewich Press, Cambridge, MA ISBN: 1-56402-469-5	Paul Fleischman juxtaposes his retelling of the Trojan War story with newspaper clippings of modern events from the First World War to the Gulf War. Students can use a similar technique in creating products that help them identify the connections across time and culture as they investigate an event.
The Phiilosophers' Club Christopher Phillips Tricycle Press, Berkeley, CA ISBN: 1-58246-039-6	A book that encourages children and adults to engage in Socratic dialogues. It shows that engaging in Socratic dialogues is not something to be researched simply for philosophers.
Starry Messenger Per Sis Farrar, Straus, Giroux, New York ISBN: 0-374-37191-1	A book depicting the life of Galileo, famous scientist, mathematician, astronomer, philosopher, and physicist. Explains how Galileo kept careful notes and made beautiful drawings of all that he observed. A wonderful book to share how one's ideas can shaped the next generations beliefs.
Amelia and Eleanor Go For A Ride Pam Munoz Ryan Scholastic Press, New York ISBN: 0-590-96075-X	This picture book celebrates the pioneering spirit of two friends whose passion for life gave them the courage to defy convention in the name of fulfillment, conviction, and fun.
Tibet Through the Red Box Peter Sis Farrar, Straus, Giroux, New York ISBN: 0-374-37552-6	The story explains how Peter Sis returns home to find an old lacquered box that contains the diary of his father's detailed entries describing when he was lost in Tibet in the mid-1950s. A priceless book that reveals the importance of primary sources.
Ten Thousand Children Anne Fox & Eva Abraham-Podietz Behrman House, West Orange, NJ ISBN: 0-874-41648-5	True stories told by children who escaped the Holocaust on the Kindertransport.





Resources to Guide the Process

Research Comes Alive!
Authors: Alane J. Starko and Gina D. Schack, 1998. ISBN: 0-936386-75-4

A Student's Guide to Conducing Social Science Research
Authors: Barbara Bunker, Howard Pearlson, and Justin Schult, 1999. ISBN:0-936386-78-9

Looking for Data in All the Right Places
Authors: Alane J. Starko and Gina D. Schack, 1992. ISBN: 0-936386-60-6

Creative Learning Press
http://www.creativelearningpress.com