

## 2009-2010 LEAP SYNOPSIS

### 3/4 UNITS

***Missing Persons:*** Students selected novels from the Learning Center and prepared “Missing Persons Reports” and clues to the identity of characters from the books. By doing this, they were introduced to literary elements in works of fiction including plot, setting, mood, point of view and figurative language. A field trip to see “A Christmas Carol” was included to provide a common reference point for character and story element analyses. The children then skimmed through the books others had read to connect clues to the books’ characters, uncovering the identity of the “missing persons”.

***Athenian Secret:*** Teams solved logic and math problems in a competition set in ancient Athens. Their ultimate goal was to solve the secret formula (the Pythagorean Theorem) and earn the title of Master Mathematician. This unit also included an introduction to ancient Greek mathematicians, philosophers, and mythology and a field trip to attend the performance of “Mathemagic”, which combined magic with the history of mathematics.

***Invent:*** Students in this interdisciplinary unit developed research skills as they investigated inventors and inventions and considered the ways in which inventions have changed our lives. This unit included a creative component as the children brainstormed, tinkered, and developed prototypes of their own inventions. We focused on the emerging need for green energy and technologies as a driving force for a new generation of inventors and visited GAIM Engineering, the factory of a modern-day inventor who recycles plastics for new uses.

***My Lights:*** Participants in this creative writing unit studied the format of well-known children’s magazines and created their own “My Lights” magazine. They developed the skills of prewriting, drafting, revising, elaboration, editing, and publishing to produce a variety of pieces and “sell” their work to the magazine publisher (Mrs. Kinsman). A creative writing field trip to Open Books, a non-profit dedicated to the promotion of literacy, was included. At Open Books adult volunteers, professionals in fields associated with writing, work one-on-one to coach students in their writing.

***King Lexicon:*** Students learned about medieval times in this language arts unit as they strove to advance from the rank of page to squire and, ultimately, knight. Unlike the knights of old, our weapons of choice were dictionaries. These mighty weapons taught the skills needed to advance in rank: alphabetizing, pronouncing, determining multiple word meanings, recognizing inflected forms of words, and studying word origins. After they had officially been dubbed as Knights of the Kingdom of Dictopolis, the children vanquished multiple errors from an official document of the Realm of Anne M. Jeans.

***Math Quest:*** Participants in this unit learned word problem solving strategies within the context of a race to collect riches in four mysterious mathematical worlds. These strategies were applied to the creation and solution of word problems. Skills included making charts, graphs, diagrams, tables, and pictures as part of the problem solving process. Emphasis was placed on the recognition that there may be multiple ways to solve a problem and that problem solving strategies can be applied to new situations. Our cafeteria director, Mrs. Kowalcze, joined us for a special session connecting math word problem solving skills to recipe conversions and food orders.

## **5/6 UNITS**

***Chasing Vermeer:*** Students learned about the mystery as a literary genre by reading and analyzing Chasing Vermeer by Blue Balliett, a story of an art theft set in Chicago. They did a thorough literary analysis of the book, including the elements of characterization, setting, conflict, mood, plot, theme, and point of view. The focus on analytical thinking was further developed through deciphering codes and solving puzzles integrated throughout the tale. A field trip to the Art Institute of Chicago helped the class to make direct, personal connections to scenes and art history references from the book.

***A-Maze-Ing Shapes:*** We studied the properties of specific shapes and angles in this geometry unit. Students used straight edges, protractors and compasses to study the properties of specific shapes and angles. They then applied this knowledge by creating a-maze-ing mazes for one another to solve. A field trip to attend the performance of “Mathemagic”, which combined magic with the history of mathematics, illustrated many of the geometric concepts covered in the unit.

***Be an Inventor:*** Students engaged in deep levels of thinking in this unit that explored the stages of the invention process. Following an examination of Leonardo da Vinci as an inventor and scientific thinker, participants were introduced to a technique known as Creative Problem Solving through which they found new uses for existing inventions, developed inventions to fill needs, and hypothesized possible inventions that known inventors might have developed. They also created their own inventions from sets of specified cast-off materials and took a field trip to GAIM Engineering, the factory of a modern-day inventor who recycles plastics for new uses.

***The Wright 3:*** This unit introduced students to the Prairie Style architecture of Frank Lloyd Wright as they read The Wright 3, a mystery set in Chicago involving the Robie House, a residence designed by Wright that is currently a national landmark. Unit activities explored aspects of art, math, and history and included a field trip to the Robie House. There was also a workshop on Wright's use of geometry in design by the Wright Preservation Trust. LEAP students were joined by others selected for enrichment by their math teachers for hands-on experimentation with the Froebel Blocks, educational toys that influenced Wright as a child.

***Poetry 1-2-3:*** This literary unit focused on an examination of poetry: what makes a poem a poem, instruction in poetic forms, and development of creativity using all of the senses. Students learned about sound devices, rhythmic patterns, rhyme, and compression of statement by reading the works of poets and writing their own poetry. They had the opportunity to compose and do oral performances of their poems when we took a field trip to Open Books for a spoken word poetry workshop.

***Number Systems:*** This math unit explored the development of number systems throughout human history including the Egyptian, Babylonian, Roman, Hindu-Arabic, Quinary, Binary, and Mayan systems. Students developed an understanding of the concepts of numerals as number symbols, as well as the principles that were used in conjunction with these symbols. We analyzed number systems to understand why some have survived into modern times while others have not and considered how calendars are also culturally based. LEAP parents Mrs. Cai and Mrs. Anees joined us to give

presentations on the Chinese and Muslim calendars and Mrs. Soni provided information on the Hindu calendar.

## **7/8 UNITS**

***Mystery Disease:*** This was an interdisciplinary problem based learning unit combining science, social studies, math, research, group collaboration, and communication skills. Students took on the role of public health officials to attempt to stop the spread of a mysterious disease. They examined evidence, made recommendations to save the lives of people who had contracted the disease, determined the most probable source of infection, and suggested steps to prevent the recurrence of a similar event. Dr. Mike Dupont (a LEAP parent) and a medical student from his practice joined us to review students' presentations and enhance their understanding of contagious diseases. Unit participants also taught younger students about food borne illnesses and their prevention.

***Web Page Design:*** Students designed a LEAP web page for the CCSD 180 web site. This unit was an introduction to computer programming because the web page was created using Hypertext Markup Language (HTML) rather than web page design software. Participants experimented with fonts, lists, tables, images (including Photo Shop software), and links to other web sites. The school district's Technology Director, Mr. Eliscu, served as a consultant on this project.

***Statistics and Polls:*** Students analyzed how statistics are used and misused to convey information in this interdisciplinary unit that combined math (measures of central tendency, percentages, graphic representation of data), critical thinking skills, and debate. We developed questionnaires, conducted an unbiased, scientific opinion poll, computed the results, analyzed and reported the findings. A field trip to the University of Chicago's National Opinion Research Center gave unit participants the opportunity to learn how professional pollsters and statisticians structure their investigations to ensure scientific integrity.

***Architecture:*** Participants in this unit were trained as "architects" in a series of preliminary activities in which they applied math skills to determine area

and perimeter, draw and construct objects to scale, and work as members of a project team. Their culminating project was the planning, design, and construction of three dimensional scale models of proposed additions to Burr Ridge Middle School. Students presented these projects and explained the rationale for their designs at a meeting of the Board of Education. Mr. Dave Gassen of Wight Architects joined the class to speak about his training and experiences and shared blueprints and computer generated designs from past and ongoing projects. Students also participated in the Frank Lloyd Wright Froebel Block workshop.

***Crime Scene Investigation:*** All 7<sup>th</sup> and 8<sup>th</sup> grade LEAP students ended the year with a series of Crime Scene Investigation (CSI) experiments. These experiments included analyzing blood splatters, food substances, tool impressions, fingerprints and handwriting. Students were also introduced to forensic anthropology. Detective Troy Agema of the DuPage County Sheriff's Office (a LEAP parent) joined us for a CSI presentation. He demonstrated equipment and techniques used in gathering and preserving evidence, related CSI anecdotes, answered our questions, and allowed students to experiment with some of the materials he brought.