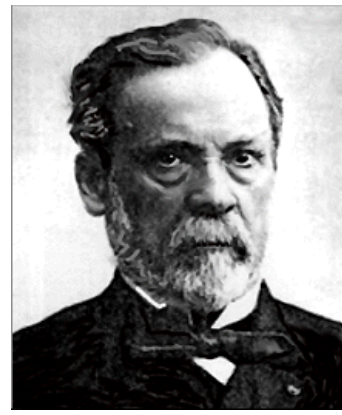
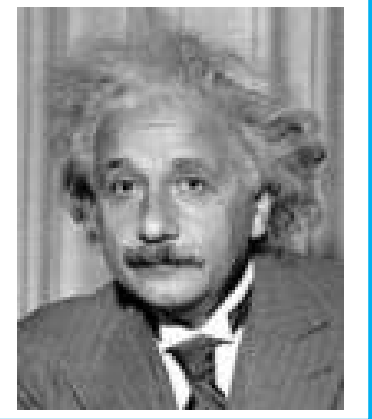




Sir Isaac Newton



Louis Pasteur



Albert Einstein

A
SCIENCE
Winter
Inquiry
Land

Grade 5

Winter 2011-2012



Miami-Dade County Public Schools
Curriculum & Instruction

THE SCHOOL BOARD OF MIAMI-DADE COUNTY, FLORIDA

Perla Tabares Hantman, Chair

Dr. Lawrence S. Feldman, Vice Chair

Dr. Dorothy Bendross-Mindingall

Carlos L. Curbelo

Renier Diaz de la Portilla

Dr. Wilbert “Tee” Holloway

Dr. Martin Karp

Dr. Marta Pérez

Raquel A. Regalado

Hope Wilcox

Student Advisor



Alberto M. Carvalho

Superintendent of Schools

Milagros R. Fornell

Associate Superintendent
Curriculum and Instruction

Dr. Maria P. de Armas

Assistant Superintendent
Curriculum and Instruction, K-12 Core

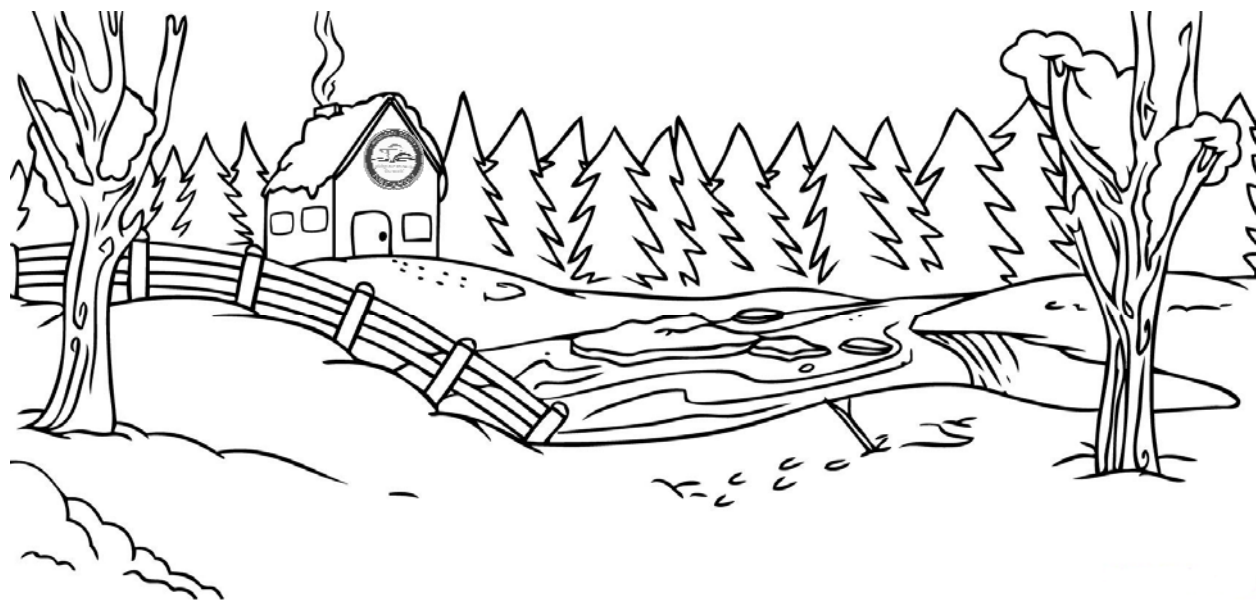
Beatriz Zarraluqui

Administrative Director

Division of Mathematics, Science, and Advanced Academic Program

Table of Contents

Welcome to <i>A Science Winter Inquiry Land</i>	I
A Penny for Your Thoughts	1
Dirty Penny	2
Chemical Changes (Enrichment)	3



WELCOME TO A SCIENCE WINTER INQUIRY LAND

The activities and reading passages in this packet were selected to allow young people to experience the relevancy of science in a fun and engaging way. As they navigate through these activities, they will realize that science is not limited to the classroom but that it is in their everyday lives. Science can be done away from school and can explain many of the phenomena encountered in life. Additionally, each activity addresses a specific Next Generation Sunshine State Standards benchmark. Targeted benchmarks are identified at the end of each activity.

I Included as part of this packet, is a link to the Miami-Dade County Public Schools Student Portal. Log on to this site just as you do at your school and go to Links to Learning for additional online activities. Individualized student learning paths have been designed based on FCAT scores and are aligned to the District's Pacing Guides. These online activities are supplemental and, as such, are not to be assigned or graded. All online activities are provided as a resource to both parents and students to engage learning using technology. Please log on to the link below just as you do at your school.

<http://www.dadeschools.net/students.asp>

Enjoy!

Activities

Children learn by doing, by trying new ideas and challenging old ones. This doesn't just happen in school. You can help your children learn by providing them with safe, interesting learning experiences in a supportive atmosphere.

The activities that follow are designed for you to use with your child at home and in the community. The activities are intended to show your child that science plays a part in many everyday activities and that it is used in many places and environments. They also show that learning science doesn't require expensive equipment and complicated experiments.

Safety First

Read through each activity before you try it with your child. Adult supervision is important especially with any of the activities that involve heat, chemicals or sharp instruments.

Also make sure that your child understands any safety precautions that may be necessary for these—or any—science activities. In particular, you should:

- Teach your child not to taste anything without your supervision;
- Insist that he wear goggles whenever something could splash, burn, or shatter and endanger his eyes;
- Teach them to follow warnings on manufacturers' labels and instructions for toys and science kits;
- Keep toxic or other dangerous substances out of the reach of your child;
- Teach them what he can do to avoid accidents; and
- Teach them what to do if an accident occurs.



<http://www.ed.gov/pubs/parents/Science/Home.html>

Who Were They?

Sir Isaac Newton was a physicist, mathematician, astronomer, alchemist, and natural philosopher. He is best known for his explanation of Universal Gravitation and the three laws of motion. He was also able to prove that the reason of both the motion of objects on Earth and of celestial bodies is controlled by the same Neutral laws. These findings would make a revolutionary change in the development of science. His invention of the reflecting telescope was his great contribution in optics.

Louis Pasteur was a French chemist and microbiologists and one of the most famous and influential contributors in medical science. He is remembered for his remarkable breakthroughs in the causes and preventions of diseases supported by his experiments on the germ theory of disease. He also created the first vaccine for rabies and anthrax. Pasteur also invented the method of “pasteurization”, where harmful microbes are stopped from causing sickness in food.

Albert Einstein is the greatest scientist of the twentieth century and the most notable physicist of all time. He was born in Germany but eventually migrated to America to take a teaching position at Princeton University. It is told that he had a learning disability in his childhood. He could not talk till he was three and could not read till he was eight. Despite such problems, in 1921 he became the noble prize winner for his contributions to Physics. His *Theory of Relativity* is considered a revolutionary development of Physics.

A Penny for Your Thoughts

(This activity has been adapted from Scott Foresman Science)

Background

What happens to wood when it burns? It gives off heat, of course. But that is not all; it also goes through a chemical change. The wood combines with oxygen and changes to new substances. Some of the wood turns into gases that goes into the atmosphere. Much of the wood is changed to ashes. When you put out a campfire, you are looking at another chemical change.



In a chemical change, one kind of matter changes into a different kind of matter. A chemical change happens when bread is baked. “The batter is a mixture of ingredients. But the heat of the oven causes chemical changes to happen. Then a new substance, bread, is formed. It is a chemical change because you cannot get the ingredients back because a new substance is formed.

After water freezes into ice, the ice can melt back to water. Each change is a physical change. Unlike a physical change, materials that have gone through a chemical change usually cannot be changed back to the original kind of matter.

Compare a cracked open raw egg in a bowl to a fried egg in a pan. Do you think any physical changes take place when you **cook** an egg?

(Answer: There are changes in color from clear albumen to white, and a change in shape from a liquid that takes the shape of its container to a solid with a definite shape.)

Big Idea 9: SC.5.P.9.1 Investigate and describe that many physical and chemical changes are affected by temperature.

Dirty Penny

Materials

safety goggles; dirty, tarnished pennies; metric measuring cup; plastic container; fresh with vinegar; water; plastic spoon

Procedure

1. Measure 100 ml. of vinegar and pour it into the container.
2. Measure 25 ml. of water. Pour it into the same container and stir with a spoon.
3. Describe the penny. Draw a picture and color the picture. Make sure that you color the penny the same as it appears.



4. Drop the penny into the vinegar and water solution.
5. Observe the penny after 5-10 minutes.
6. Keep the penny in the solution overnight. Compare your results.
7. Describe the penny after 5-10 minutes in the solution.
8. Describe the penny after leaving it in the solution overnight.
9. What changes did you observe in the penny?
10. Is this a chemical change or a physical change? Explain your answer.

(Answer: A chemical change is taking place. When the bubbles form, this is evidence that a new substance which is a gas is being produced.)

Big Idea 9: SC.5.P.9.1 Investigate and describe that many physical and chemical changes are affected by temperature.

Chemical Changes

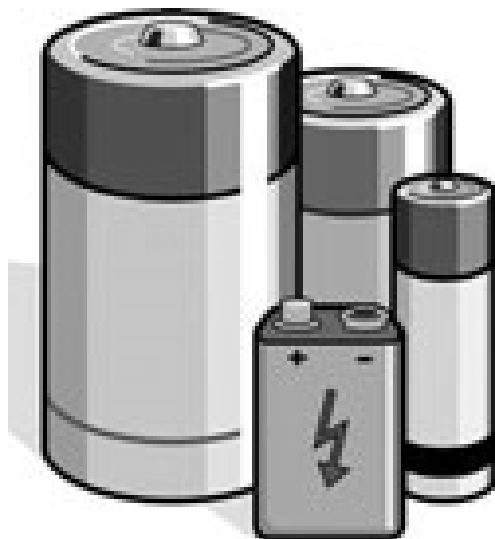
Background

We use chemical changes every day, from eating pizza to watching a fireworks display. Chemical changes in batteries release electricity that appliances use to function. In 1800, Count Alessandro Volta invented the one cell battery.

Commercial applications of the battery did not become practical until the development of the alkaline batteries around 1900. These are the batteries we still use today. Since the invention of the battery in 1800, its uses have changed dramatically.

What to Do

Research some of the ways that batteries have changed and how it has affected our lives. Prepare your findings using a timeline, diagram, display etc.



Big Idea 10: SC.5.P.10.1 Investigate and describe some basic forms of energy, including light, heat, sound, electrical, chemical, and mechanical.

ANTI-DISCRIMINATION POLICY

Federal and State Laws

The School Board of Miami-Dade County, Florida adheres to a policy of nondiscrimination in employment and educational programs/activities and strives affirmatively to provide equal opportunity for all as required by law:

Title VI of the Civil Rights Act of 1964 - prohibits discrimination on the basis of race, color, religion, or national origin.

Title VII of the Civil Rights Act of 1964, as amended - prohibits discrimination in employment on the basis of race, color, religion, gender, or national origin.

Title IX of the Educational Amendments of 1972 - prohibits discrimination on the basis of gender.

Age Discrimination in Employment Act of 1967 (ADEA), as amended - prohibits discrimination on the basis of age with respect to individuals who are at least 40.

The Equal Pay Act of 1963, as amended - prohibits gender discrimination in payment of wages to women and men performing substantially equal work in the same establishment.

Section 504 of the Rehabilitation Act of 1973 - prohibits discrimination against the disabled.

Americans with Disabilities Act of 1990 (ADA) - prohibits discrimination against individuals with disabilities in employment, public service, public accommodations and telecommunications.

The Family and Medical Leave Act of 1993 (FMLA) - requires covered employers to provide up to 12 weeks of unpaid, job-protected leave to "eligible" employees for certain family and medical reasons.

The Pregnancy Discrimination Act of 1978 - prohibits discrimination in employment on the basis of pregnancy, childbirth, or related medical conditions.

Florida Educational Equity Act (FEEA) - prohibits discrimination on the basis of race, gender, national origin, marital status, or handicap against a student or employee.

Florida Civil Rights Act of 1992 - secures for all individuals within the state freedom from discrimination because of race, color, religion, sex, national origin, age, handicap, or marital status.

Veterans are provided re-employment rights in accordance with P.L. 93-508 (Federal Law) and Section 295.07 (Florida Statutes), which stipulates categorical preferences for employment.

Revised 9/2008