



Birchwood Clipboard

The Lion's Roar

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Special Program Highlights

FIRST! A huge thank you to the parents for a successful auction and international festival. Auction items, raffle items, creative class projects, and delicious ethnic dishes. What a treat. The children's room was a happy place with the student-run booths. We appreciate the months of planning and preparation on the part of the parent committee. Staff, students and parents worked together to provide a warm and wonderful feeling of community. Thank-you parents for making it all possible!

Mr. Tom Davis, a Case Ph.D., retired chemist, engineer, logistics expert and businessman, spoke with the 5-8th grade students. In addition to describing his illustrious career, he talked with the children about the value of a broad education that is not only focused on a profession but also provides a rich foundation in literature, art, music, and sciences. Mr. Davis described his hobbies and projects ranging from reading 15 books per year to bird watching to engaging in philanthropic opportunities.

Kirsten Pianka, a Birchwood alum and recent graduate of Hathaway Brown, spent two days observing in the 3rd grade classroom. As a freshman at Bates College, she is currently exploring a minor in Education Studies. We always enjoy visits from our alumni.

Mrs. Kufahl's 3rd and 4th graders entered pieces for publication in the Creative Communications Writing and Art competition, and every single one was accepted! As a result, Birchwood School is considered a school in their highest merit category and Mrs. Kufahl is eligible for a grant for her writing program. Congrats to these fine writers! See inside this issue for more details.

Miss Brown took a large group to NASA for Young Astronaut Day. Birchwood students competed in various science challenges which called for creative problem solving. They fared quite well so be sure to see inside this issue for the results!

Mrs. Miller's upper grade students have completed the first stage in their 5 month long History Day research process: topic selection. This is, in itself, an arduous process involving critical thinking since students must preview 50+ topics and analyze how it could fit the yearly theme. See Mrs. Miller's article which lists all the selected topics. And if you know something about any topic, step forward to be interviewed!

The 5th-8th graders are putting the finishing touches on their show: *Welcome to the Land of Folklore*, a combined presentation by the reading, music and art classes. By the time you read this, the show will be done (Dec. 4). We are so proud of the hard work of these musicians, artists and folk-tellers!

The first round results of the Continental Math League contest and the Math Olympiads contest are in. See Math 5-8.



Class News

Art

10,000 Rockets is the latest Art contest on Artsonia. Several students from grades 1-6 entered Rocket drawings. Remember to go to www.Artsonia.com to register your child so they become available for prizes, comments and to purchase items for the Holidays. Items with your child's artwork include cups, bags, cards, magnets, t-shirts, mouse pads, stickers, key chains and more, 15% of sales go to Birchwood School for Art supplies.

K-Math

- Logical thinking problems, addition, and subtraction
- Number bonds and measuring objects
- Volume and geometry

K-Reading/Writing/Language

During the time of Working Centers, students read books according to their level and learn new words each day. Everyday we have Instructional Reading Time. During this time the children learn how to read new books. Tuesday and Thursday from 1:30 to 2:00 we have Independent Reading Time when the children sit on a beautiful rocking chair, which they painted, and read to the parents. We work on sight words every week. We memorize the spelling, then use the words in sentences, play a game, and complete activities in the mini book.

K-Science

Students worked on an experiment mixing water with sand and salt. They made predictions and stated conclusions.

K-Social Studies

The Kindergartners worked on vocabulary related to time and chronology including before, after, next, first and last. Some of the other themes they are learning about include: Native American characteristics; Wampanoag's; Language and oral traditions that reflect customs, regions, and cultures; The voyage of Columbus in 1492; Queen Isabella and King Ferdinand of Spain; The Nina, Pinta and Santa Maria; Columbus' mistaken identification of "Indies" and "Indians"; The New World; The Mayflower; Plymouth Rock; Thanksgiving Day celebration; and The pilgrims. An example of a relevant question for inquiry is "Why were the buffalo and corn important?"

K-Spanish

The children have learned two Spanish songs Las hojitas, and La naranja. They worked on greetings and vocabulary of things around the house. They counted in Spanish to the number 59 and heard and acted out bilingual stories.

1-2 Computer

We have been discovering websites that help us learn. A great site for building reading skills is starfall.com. We have also explored thatquiz.com and aplusmath.com to work on our math skills. We are continuing logic and problem solving in MicroWorlds Jr. It is a great way to create animations and designs.

1-2 Language Arts

At Birchwood, we believe that children learn to write by writing. In the first and second grades, we do a lot of writing. On Tuesdays and Thursdays we do journal writing, based on a given prompt. Wednesday is our creative writing day. It is very encouraging and rewarding to see how much progress the children are making in their writing ability.

1st Math

The first graders have had a very busy month in math class. First, we completed a unit on money. We began by identifying coins and distinguishing them by their physical features. We realized that *size* does not necessarily matter when it comes to value. Likewise, the *amount* of coins that are in a collection does not mean the value is high. This may seem obvious but, for a six year old, it can be a difficult concept to fathom. The children did a great job of naming coins and their values and even adding mixed coins together. This unit laid a good foundation for their future learning.

Recently, we began a new unit on time-telling. This is another concept that can be difficult and complicated, with distinguishing the clock hands, numbers, minutes, hours, etc. We are slowly working our way around the clock, identifying the top of the hour, half-hour, and quarter hour. The children are doing a wonderful job and are excited to be able to tell "what time it is."

2nd Math

In second grade math, the "blue group" recently completed a unit on time telling, including both clock and calendar time. They are now facing the challenge of learning multiplication. The children are already in various stages



of knowing multiplication facts, but the goal is that all can be brought on board and become proficient multipliers.

The “purple group” is becoming fluid with mental math. Every day they practice solving complicated addition, subtraction, and multiplication equations using “tricks” that make the computation easier. For example, they are learning to identify numbers that are known as “compatibles.” These are numbers that, when combined, make calculation easier.

1-2 Reading

“Who dun it?” This is the mystery the first and second graders are solving during their weekly literature class. We read short mysteries aloud and look for components of a mystery such as suspects, alibis, clues and red herrings. Our junior sleuths have the crimes solved before the period ends.

1-2 Science

Throughout the first quarter, the first and second grade students studied vertebrates. They made vertebrate books that highlighted the main features of each vertebrate group along with specific examples of each type. By observing animals both in the classroom and in the wild during our trips to the park, students are learning valuable lessons about habitats, life cycles, and food chains.

During the beginning of the second quarter, students became paleontologists as they studied dinosaurs. They can tell you the biggest dinosaur yet discovered, explain some of the theories on why dinosaurs went extinct, and name many different types of dinosaurs. From there, the focus shifted from dinosaurs to a general study of endangered and extinct animals along with the roles humans play in these animals’ lives.

During December and January, students will study invertebrates. We will also focus a bit more on different animal habitats. We’ll continue our monthly outings to the park to observe the changes in animals and plants as they transition to the winter months ahead.

1-2 Social Studies

The first and second graders have been studying about Native Americans. This month we have learned about tribes in the northeast and southeast parts of the U.S. and have started books to share what we have learned about them with others. A highlight of our unit was taking a trip to

the Cleveland Museum of Natural History for a gallery presentation. We viewed artifacts and dioramas of tribes from different regions. We enjoyed shaking a turtle rattle, feeling a beaver pelt and tossing a dried buffalo bladder.

3-6 Computer

We are learning the features in Excel. A few weeks ago the students charted skittles by color and preformed calculations to find the total number and average. We will also be working on a project to find data from online resources and putting it into a spreadsheet. Then they will create a graph of their data and share it with the class.

3-5 Language Arts

All third through fifth grade students entered the October *Cricket* writing contest. Students were asked to write a story about a special talent or power. Some composed science fiction pieces while others wrote about real events in their lives. The students are anxiously watching their mailboxes, since the results are due any day now.

Congratulations to the third and fourth grade classes. They entered an essay contest sponsored by *Creative Communications* early this fall. The choice of a topic was wide open—anything they felt was important to them. This contest usually accepts only 40% of the essays they receive, but our entire class of third graders and all but one of the fourth graders were accepted for publication. This qualifies Birchwood for a Writing Achievement Award, which is given to the top 10% of schools who entered the contest. I am very proud of these students, whose entries were of exceptionally high merit.

Throughout the month of November, the fifth graders have been preparing for the *Letters about Literature* contest sponsored by the Library of Congress. Each student chose a book that made an impact on his or her life, and wrote a letter to the author. These letters, along with the third and fourth graders’ *Pasta Tales* entries, will be sent in for judging in early December.

3rd Math

The third graders are polishing their computational skills in addition, subtraction, multiplication, and division. Although this not the most fun activity, the children are plugging away at it, reminiscent of the plowing ox that is represented in the Birchwood motto. Some have reached a goal of fifty “fast facts” in 2 ½ minutes; others are working their way there.



The “purple group” is practicing mental math strategies. Being able to effectively solve larger number problems, without pencil and paper, is a skill that has long-term value for the children.

4th Math

The fourth graders completed a unit on data, surveys, and graphs. They learned that different graphs can be used in different ways and for different purposes. By means of a survey of the children at Birchwood, they discovered that the favorite ice cream of *both* boys and girls is chocolate chip cookie dough. Each child made a double bar graph displaying the results of the school-wide survey. It was fun to see how the choices of boys’ and girls’ favorite ice cream flavors compared. If you would like to see the results, ask one of the children or, better yet, look for their bar graphs, which will be posted outside the 1-4 math room.

Congratulations to Yamenah A and William L They both earned a silver medal on the first round of the Continental Math League problem solving contest in November. Good work, you two!

3-4 Reading

We have been very busy in reading class this year! Each week we read, write, or speak poetry. The third and fourth graders love to read poems and share their favorite poems with the class. Earlier in the year the third and fourth graders wrote their very own haiku poems! Haikus are Japanese poems, which are usually written about a season, and must contain 5 syllables in the first sentence, 7 syllables in the second sentence, and 5 syllables in the third sentence. These are quite difficult poems to write, but the third and fourth graders were up to the challenge! The third and fourth graders have also been working on improving their reading comprehension. At the beginning of the year students were placed at a reading comprehension level, and have been working at their own pace through the different levels. Students are required to read a story and answer reading comprehension questions as well as word study questions. After answering all of the questions, students can check their work and move on to the next story. Each student has the motivation to work hard in order to move on to the next level. We will soon start reading and discussing Junior Great Book stories, which everyone is looking forward to!

The third graders have been gobbling up books during our fantasy unit. We have been reading, *Mr. Popper’s*

Penguins, which is a humorous book about a family who has penguins as house pets. While reading this book, the third graders have created a large timeline of all the main events that occurred in the story. Students also fill in a chart as they read in order to keep track of the setting, main idea, and something funny that occurs in each chapter. We have been having insightful discussions in class about the book, with 100% student participation. While students are reading the class book, they are also reading individual fantasy books at home. At the beginning of the unit each student set a reading goal to reach by the end of the unit. I was pleasantly surprised by how willing the third graders were to set high goals for themselves!

The fourth graders have started reading books by much loved author, Laura Ingalls Wilder. As a class we are reading *Little House in the Big Woods*, and students are also reading additional books by Laura Ingalls Wilder on their own. At first the 4th grade boys weren’t sure if they would enjoy reading books about pioneer life from a girl’s perspective; however after reading only the first chapter they were all hooked. In *Little House in the Big Woods*, Wilder gives detailed explanations about typical procedures that are done on a farm, such as making butter or smoking meat. As a class we have been carefully re-reading these sections and re-writing the steps in our own words. We have all been amazed with how hard Laura and her family had to work for simple things that we take for granted everyday. It helps to give you a new perspective on the challenges in your own life. We have also been taking note of the similarities and differences between our own families and Laura’s family. Already I am amazed with how quickly the fourth graders are reading through these books, once you start reading one of Wilder’s books you can’t stop!

3-4 Science

The third and fourth graders wrapped up their vertebrate studies at the end of the first quarter. Each of them did an amazing job on their whale brochure and end-of-quarter test. Since then, the scientists have really enjoyed learning about different invertebrate groups. (There are millions of invertebrate species, so there’s always something cool to discover!) The focus so far has been arthropods, including crustaceans, insects and arachnids. The young entomologists particularly liked observing various arthropods with a microscope.

We owe a big thank you to Mia Balic and Ms. Brown who have made it possible for the students to observe



invertebrates firsthand each day. Mia donated a fiddler crab (Drake) earlier this year, and Ms. Brown shared some of her darkling beetles with us, which provide us with a continuous repetition of the life cycle. We've held larva, pupa, and adults in our hands, and have even seen a few entering or emerging from the pupa phase. How neat!

We look forward to our next trip to the park in early December. In October, students found and identified many animal tracks in the mud, including horses, deer, raccoons, skunks, and dogs. In November, we collected leaves and "monkey balls" (the fruit of Osage orange trees). We're excited to see the many changes that have taken place since then!

5th-8th Math

November was the start of math competitions and here are the results:

Continental Math League

Gold Award

Christine B, Katelyn V, Kavya R, Clive C, Sue R, Sunny R, Vikas N, Alexander I, Sarah D, Zaeem M, Deepak K, Grant F, Nathan C, Shawki A, and Michael T

Silver award

Carlf C, Munim M, Clare P, Lu Lu S, Peter A, Hajira A, Nate C, Dhweeja D, Jorgen K, Cameron S, Shan S, Kareem T, Naomi W, Vinayak K, and Ammar M

Bronze award

Zach I, Miguel P, Ben W, Marla B, Amir F, Nicholas J, Prithvi P, Brad S, Hannah Y, Dayla A, Marco B, Anthony C, Mayla F, and Darius Z

Math Olympiads

Gold award

Munim M, Sue R, Sunny R, Joren K, and Pheby Liu

Silver award

Shawki A, Nathan C, Grant F, Clare P, Nardine T, Vikas N, Clive C, Kavya R, Christine B, and Nate C

Bronze award

Zaeem M, Carlf C, Sunny R, Hassan S, Marla B, Amir F, Brad S, Hannah Y, Alex P, A.J. S, Katelyn V, Naomi W, Cameron S, Hajira A, Kareem T, Dhweeja D, Darius Z, Vinayak K, and Maya F

Great Job!

5-6 Reading

We're in the final stretch for our Folklore Show. Your children have been working very hard to deliver wonderful performances. Wait 'til you see them shine! After their performances, both the 5th and 6th grades are looking forward to finishing our class read aloud, *When You Reach Me*, and beginning our wiki work on mrsjackson.org. We are finishing up our historical fiction and biography units (5th grade only) work, and will begin new units the second week of December.

5th Science

This month students had a chance to get their hands dirty as they built landforms and tested different factors, giving them a chance to model what their chapter talks about. Focusing on the science fair skills has been a major task. They have learned how to form a testable question (with testing that they can do), write a list of materials and procedure. They have practiced taking notes and then writing paragraphs from the notes. Most of them have decided with their parents (and teacher) what their science fair question will be.

6th Science

The ecologists have built two halves for their eco-column. So far we have had two escapees: a slug which was recovered and an earthworm which was out of the earth too long. After break we will add crickets. The aquarium portion is ready, but the fish had a hard time with cold temperatures. They will put their two parts together after break. Most 6th graders have decided on a testable question for the science fair, and are ready for note taking.

5th Social Studies

In the 5th grade class, the students recently finished up a unit on European explorers. After getting acquainted with Portuguese, Spanish, French, and English explorers, students chose one to do an in-depth research project on. Each one then compiled their information and produced wonderful brochures on their respective explorers and analyzed whether or not they were a great explorer. Now we're on to the 13 colonies and how they began.

6th Social Studies

The 6th grade class, students did in-depth research projects on one topic from Ancient Egypt. After finishing their research, numerous students did Power Point presentations on their topic while the rest did interesting books with illustrations. Students enjoyed learning about



a fascinating culture and presenting their findings to one another. Their current unit is on the countries of Asia. They are memorizing the countries and capitals of Asia (this year they memorize almost all the countries and capitals of the world) and will start a new group project this week looking for 1000 facts on their Asian country (we always run out of time before they quite reach a thousand).

7-8 Computer

The students are continuing to work on their blogs. They have learned how to embed content into the blog post. Then they have been working on using Web 2.0 tools to add content. We have used wordle.net, animoto.com and youtube.com to create and post some great content. We also started using Google docs to create surveys and have other students take our surveys. Then the results are tabulated in a spreadsheet. We will be doing a lot more with Google docs throughout the year.

7th Science

Students completed their study of the elements and the periodic table and have moved on to Motion.

They tested the effect that height had on the speed of a marble and a practice golf ball. Then they tested reaction speed by dropping a meter stick through each other's outstretched fingers. Another day they were able to spin straws in a circle by blowing into the straws—all in the name of science to explore "concepts of motion."

8th Science

Students moved from the general study of genetics to the modern study of genetics. During the process they built creatures using simple alleles. Next they tried Dragon Genetics, which simulates a single trait controlled by multiple genes.

7th Social Studies

In the seventh grade, students learn about early American history up to the Civil War. Currently, we are looking at the events leading up to the American Revolution, one of which was the Boston Tea Party. This event forced King George to close the port of Boston, leading to all manner of consequences. Students participated in a classroom debate on whether or not the king should have taken this action. After a rather vigorous debate, students had to then write an essay supporting their opinion concerning the king's actions. Next we'll be reading the Declaration of Independence and working to understand its meaning.

8th Social Studies

In the 8th grade, students study American history from Reconstruction through the 20th century. Currently, students are learning about the events that led to the United States becoming a world power at the beginning of the 20th century and a new era of imperialism. Students looked in detail at the events leading up to the annexation of the Philippines, focusing on the pro and con arguments from the time obtained from primary sources. As students wrestled with the moral issues regarding this matter, they learned how to articulate various viewpoints and present an argument. As always, the students are more than up to the task!

Science Olympiad, Grades 4-6

Ms. Brown and Ms. Tagliarina are pleased to announce the beginning of the Science Olympiad Club. Science Olympiad is "one of the premiere science competitions in the nation, providing rigorous, standards-based challenges to more than 5,700 teams in 48 states." Locally, the competition will be held at Cleveland State University on Saturday, March 20, 2010.

In the meantime, we need to build a strong team of up to 25 dedicated young scientists to represent Birchwood School. Interested students in grades 4-6 are invited to attend meetings after school each Thursday from 3:15 – 4:15, beginning December 3rd.

There will be a variety of events held at the competition, including "Aerodynamics," "Don't Bug Me," "Leaf and Tree Identification," "Mystery Powders" and more. Team members will begin specializing in specific areas soon.

If you'd like more information about the 2010 Science Olympiad, please visit

<http://www.csuscienceolympiad.org/>.

Veterans' Day Program

The Birchwood third through eighth graders were privileged to meet Mr. Allan Cawrse, a 95th Bomb Group tail gunner, who flew almost 30 combat missions over Germany during WWII. The students sat entranced as Mr. Cawrse related the story of his daily life as an aerial gunner. After his exciting presentation, the students peppered him with insightful questions. Some even lingered well into their lunch period to talk with him and thank him for coming to our school. Mr. Cawrse was so impressed with the students that he



wrote and thanked us for having him! In his letter he mentioned, "I have spoken to many and varied groups, but your students were the most attentive of any group." We are thankful to this fine gentleman for his service to our country and for his willingness to allow the Birchwood community to meet a real live hero and wonderful role model for our students.

National Chemistry Week

To celebrate National Chemistry Week (NCW), the American Chemical Society (ACS) sponsors a poster contest for students in Kindergarten – Grade 12. This year's theme was "Chemistry—It's Elemental". Students in grades 1-8 submitted posters to the local chapter. One poster will be chosen from each age group to continue to the national competition. Birchwood often has one or two poster winners, but this year's winners won't be revealed until February or March of next year.)

The Cleveland ACS also sponsors three contests for students in K-8. Each contest requires that students experiment, record observations, and organize his or her thoughts to answer age-appropriate questions. The 5th – 8th graders observed changes that occurred to pennies and other metals soaked in vinegar and salt over a three day period.

Young Astronaut Day at NASA Glenn

Birchwood Students soared at the Young Astronaut Day Challenge on November 7th. The "Pilot" Team (Marco, Katherine, Alexis, Vinny, Darius, Hajira, Christine, Clive, Dhweeja, Alex H, Jorgen, Kavya, Katelyn, and Naomi) won the first place ribbon for the Balloon Propulsion Competition, had the fastest time for the In-Space Repair Challenge, and a third place ribbon for the Wind Power Challenge.

The Commanders (7-12th grade) earned a special ribbon in the Aerodynamic Protection Competition and a ribbon for "most improvement in the Aerodynamic Drag Challenge. The Commanders Team was composed of Nicholas, Trevor, Prithvi, Sanjana, Susmita, Hassan, Brad, Hannah, Nathan, Deepak, and Munim. A big thanks to the adult mentors: Mr. Kurup, Mr. Zinolabedini, Mrs. Qadeer, Mrs. Ravichandran, Mr. Sprau, and Mrs. Towner (picture albums).

Geography Bee

Students in grades 4 through 8 participated in the National Geographic Geography Bee in their respective classrooms over this past week. As always, there was a wide range of questions ranging from United States geography to cultural geography across the world. After seven challenging rounds, two class winners in each grade were determined. Fourth grade – Claire and Amir; Fifth grade – Ammar and Marco; Sixth grade – Jorgen and Nate; Seventh grade – Alexander and Trevor; Eighth grade – Munim and Nathan. The competition for the school winner will be held the first week after winter break. Good luck to all!

History Day

The 7th and 8th graders (along with a few 6th graders) are off and running with their History Day research. The theme this year is *Innovation in History – Impact and Change*. Students spent a long time considering various topics, but after much narrowing down, final choices were made, groups formed, and tentative competition categories were chosen. As always, there is an interesting mix of topics which should lead to some stellar projects. In the 8th grade, five students will do a group documentary. Shawki, Grant, and Miguel are researching the Russian Revolution and the innovative political thinking that occurred. Munim and Deepak are looking at the development of the polio vaccine. Three students are considering doing an individual documentary. Ben is researching the printing press, Zach is researching the polio vaccine, and Mahmoud is looking at the invention and use of the atom bomb. Five students are currently planning on creating an individual website. Carl is focusing on Charles Hall and his discovery of an efficient way to create aluminum. Nathan is researching Alan Freed and the beginnings of rock and roll. Miranda is researching the beginnings of the Kodak camera. Lulu is looking at the creation of the Northwest Ordinance, and Nardine is researching the beginnings of the telegraph. In the performance category, Zaeem and Clare are planning on doing a group performance on the Marshall Plan, and Tia is doing an individual performance on the Civilian Conservation Corps. In the paper category, James is researching Les Paul and his guitar innovations.

In the 7th grade, there is a similar mix of categories and topics. In the paper category, Amir is researching Garrett Morgan and his numerous innovations, and Sam is looking at the development of the Gatling Gun. In the individual documentary category, Prithvi is researching Nazi



Germany's use of the Blitzkrieg, Sue is researching the discovery of DNA, Hassan is looking at the development of the first personal computer, and Marla is researching the building of the Suez Canal. In group documentaries, Nicholas and Vikas are researching the development of the electric guitar and Sarah and Hannah are researching the creation of the Metroparks. Brad is planning on doing an individual exhibit on the ongoing innovation of the roller coaster. In the performance categories, Trevor and Sunny are focusing on the innovative use of yellow journalism and Sean is researching the electric guitar. Three students are planning on developing an individual website. Alexander is researching integration in professional football, Abhijeet is researching Henry Ford's development of a mass produced car, and Alex is researching the Titanic.

This year, six 6th graders are taking on the challenge of participating in the competition. In the sixth grade, participation is extracurricular. Nate is researching the internal combustion engine and plans to do an individual exhibit. In the paper category, Kavya is looking at the creation of the Bill of Rights. Christine will be doing a performance on Alexander Graham Bell's invention of the telephone. On the same topic, Sachi is planning on participating in the website category. Also in this category, Jorgen is researching the innovative use of paratroopers and Hajira is researching Alexander Fleming's discovery of penicillin.

Look for information about the dress rehearsal for all their excellent projects sometime in early March. Good luck to all!



THE BIRCHWOOD SCHOOL PRESS RELEASE

Nov. 13, 2009

Contact: Jim Sukys, 216-251-2321

Birchwood School Students Excel in NASA's Young Astronaut Competition

CLEVELAND—At the NASA Glenn 17th annual Young Astronaut Day Challenge on Nov. 7th, Birchwood School soared by winning a first place ribbon for the Balloon Propulsion Competition. They also had the fastest time for the In-space Repair Challenge. In the Wind Power Challenge, they earned a third place ribbon for generating the most power from their turbine.

The day is filled with hands-on activities and competitions that are intended to stimulate an interest in aeronautics, space science and engineering. A total of 350 students from Greater Cleveland gathered at the challenge. The day's events started with a talk given by NASA astronaut Sunita L. Williams, a flight engineer aboard the International Space Station (ISS). During the talk, Birchwood 5th grade student Vinny K was chosen to model the distance of the ISS from the moon.

The students competed in a variety of engineering and scientific challenges. Birchwood's Pilot (5-6th Grade) team was composed of Marco B, Katherine B, Alexis H, Vinny K, Darius Z (5th Grade) and Hajira A, Christine B, Clive C, Dhweeja D, Alex H, Jorgen K, Kavya R, Katelyn V, Naomi W (6th Grade). This is the team that won the first place ribbon for the Balloon Propulsion Competition, had the fastest time for the In-space Repair Challenge and earned a third place ribbon in the Wind Power Challenge

The Commanders (7-8th Grade) team was made up of Nicholas J, Trevor L, Prithvi P, Sanjana and Susmita R, Hassan S, Brad S, Hannah Y (7th Grade), Nathan C, Deepak K, and Mohammed M (8th Grade). The Commanders earned a special ribbon in the Aerodynamic Protection Competition and also earned a ribbon for "most improvement" in the Aerodynamic Drag Challenge.



COMPETENCY AND MOTIVATION

Part III

Developing Higher Order Competencies

As we discussed last month, all children strive for competency. They want to get good at something and establish themselves as a capable person. But we also noted that if left solely to their own choice children may avoid pursuing challenging competencies that will best develop their personal potential. They dodge these tasks because often they are arduous, requiring more thought, effort, and time. They also pose the potential for failure. Hence, some adult intervention is necessary to provide children the support they need to face these challenges.

Take, for example, learning how to play the piano. It is not unusual for a six year old to express interest in learning how to play, and at first he may show enthusiasm for lessons. Learning at first is easy. But before long comes the necessity of drill and repetition, and there is no easy path to gain proficiency except through diligence and hard work. Maybe the child has to learn scales or memorize a short piece. In either case, the task is beyond the will power of a six year old child. Young children lack the maturity to tell themselves to focus, work hard and persevere. Adult intervention is needed and someone's support (usually Mom's) must provide an encouraging yet firm hand enabling the child to succeed. Once the child gains some degree of mastery, he experiences success and is inspired to continue. Of course we know the next challenge for the young pianist is right around the corner, one that extends beyond the child's strength of will (even if he possesses the capacity for advancement), and success will require the firm yet encouraging attention of Mom. In order for children to become highly accomplished pianists the cycle may continue into adolescence.

Mrs. Chu, our music teacher, tells me that among highly accomplished pianists, there comes a time when they are not only improving their talent but they begin to realize that an integral part of development is this process in which they recognize challenge, face challenge, and meet challenge becomes an integral part of their skill development. They actually thrive on the process as much as they enjoy the beauty of their music.

An academic parallel is learning to write expository essays, those which require not only good writing skills but also clear and logical reasoning. Unlike the experience of the aspiring pianist, the elementary school child may not even begin with the slightest interest in learning how to write clearly. A teacher can try to describe the personal satisfaction acquired through writing well, but the child won't buy it. How can writing be "fun?"

In this case it takes a few "hard nosed" teachers ready to provide not only writing expertise, but even more, the will power, the encouragement, the guidance, and the unrelenting support that compels children to build their compositions from atrocious first edits to exemplary final products. From my experience, I am not sure whether this process is more difficult for the teacher or the student because although the child is being compelled to do work that he does not want to do, the teacher on the other hand, must work with the student's resistance, the absence of skills, a negative attitude, and the incalculable amount of time and effort it takes to bring each child's writing from literary and logical mush, to clear, precise message (it is no wonder that teaching writing on this level is often neglected in most schools). Nevertheless, the reward at the end is great. Over time children discover the deep satisfaction of articulating their thoughts to specific audiences and seeing the impact their writing has on others. They learn to appreciate the value and rigor of good reasoning and logic, and they recognize the importance of being able to communicate clearly and effectively: a competency that provides lifelong value.