

Recap of 2014-2015 ACCEerator Grant

Student Created Science iBook

Corinna Nelson

I am so thankful for the opportunity that you provided for my students to develop their STEM skills through the ACCEL grant! It has not been taken for granted and I think that you will be very happy with your investment. These students really benefitted from this project and I truly believe that they are better prepared for careers in STEM fields because of it. The project has gone very smoothly and has exceeded my original expectations.

With the money from the grant we purchased the technology that we needed to create an iBook that will soon be available on the iBook store. The book will be called "Fun Science with the Noble Knights." We are in the final phase of editing the book and the plan is for it to be published by the time that school releases for the summer.

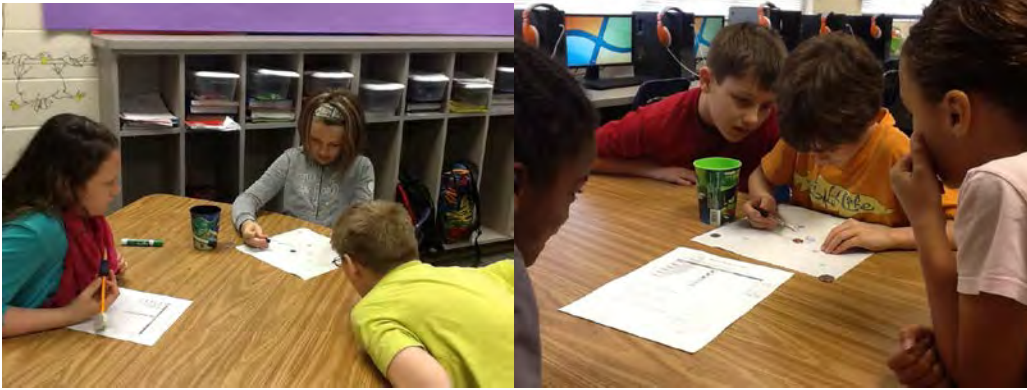
The book is a compilation (done completely by the students) of writing, audio, and video that expresses what the students learned in our 4th grade science curriculum. It covers topics such as the job of a scientist, space, rocks and minerals, matter and its properties, energy, heat, forces and motion, life cycles, and environments. As we studied these topics the students did a multitude of experiments and activities to practice the science. They used the iPads and apps to record what they were doing and create various different ways to express their learning. They took all of their creations and put them together in iBook Author to make a book.

Some of the things that you will see in the book are:

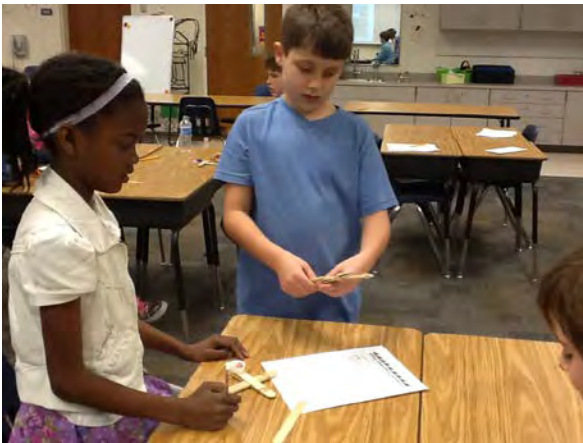
- Student created videos (using a green screen) that are fully written, recorded, and edited by the students;
- Student created art pieces and diagrams showing scientific concepts such as moon phases, life cycles, the rock cycle, and other scientific concepts;
- Student created comics to display scientific concepts done on an app for the ipad;
- Videos of science experiments and investigations conducted;
- Student reports; and
- Student data collection sheets.

One great aspect of this project is that it incorporated so many different domains. In order to gain the knowledge they needed to write this book, they had to develop their math, science, art, writing, reading, and technology skills. It truly was multi-disciplinary. Another great thing about the project was that it addressed the learning styles of all learners. They were able actually "do" rather than just read about the sciences. Then they had to find acceptable and entertaining ways to express what they learned for the book. It really taught them to think outside of the box and the typical ways that we do things in school.

Again, thank you so much for believing in us and supporting us with your donation! I hope that you enjoy our book.



Students seeing how many drops of water various coins can hold. Learning about conducting a valid scientific experiment.



Students learning about potential and kinetic energy by creating “marshmallow catapults.”



Students learning about the states of matter by making oobleck.

“Imagination is more important than knowledge. For knowledge is limited to all we know and understand, while imagination embraces the entire world, and all there will ever be to know and understand.”-Albert Einstein
Example pages of the iBook:

Fun Science with the Noble Knights



COLLABORATION BY MRS. NELSON'S 4TH GRADE CLASS OF 2015

We are Scientists!

This year we embarked on a journey to become the best fourth grade scientists that we could be! It was so much fun. We got to experiment and collect data just like real scientists do. This was so much better than just reading a text book. As we learned our scientific content, we recorded our process and results through videos, photos, writing, and drawing. We took all of that and put it together in this iBook for you to enjoy. Then we enhanced our book by using our favorite apps, widgets, and websites to create cool ways to display what we learned. We invite you to read on and see what we learned this year!



Chapter 1 Studying Science
Review by: Aysia, Brianna, and Devin

In this chapter we learned about different types of scientists and how they use data.

What do scientists do on a daily basis? They make observations, ask questions, do experiments, and investigations. Last, scientists share their results as evidence.

*We made the comic above to show some of the things that a scientist does each day.

We started off learning about how scientists work. We knew that we wanted to do science just like the professionals do. We learned that there are many different types of scientists and they all work together in a community gathering and sharing what they learned. That way, they can learn from each other and help each other to make discoveries that will help the world.

Some of the different types of scientists that we learned about are:

astronomers (studies stars), geographers (studies the surface of the earth), meteorologists (studies weather), life scientists (studies living things), paleontologists (studies fossils), and many more. We now know that becoming a scientist could mean many different things.

There are many jobs that scientists can do. Some important jobs that scientists have are:

- finding new medicines
- curing diseases
- predicting bad weather so that we can avoid disasters
- studying space so that we can explore new frontiers
- studying the earth and its resources so that we can make sure to take care of it for the future
- studying the past to see what was successful
- exploring oceans

Scientists make observations by using their five senses to collect data. Scientists ask questions about their observations. In order to answer those questions, they investigate and perform experiments.

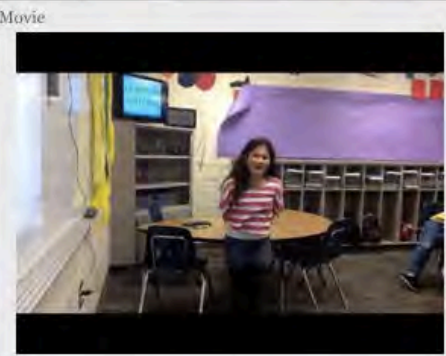
We learned that in order for experiments to be valid, they must be replicable. Replicable is a word that means repeatable. So, you have to perform an experiment more than once and be able to get the same results.

We practiced doing a valid scientific experiment. We made a hypothesis about how many drops of water could fit on a penny, a dime, and a quarter. Of course, we repeated our experiment three times to make sure that our data was correct. Like all good scientists, we shared our data with our classmates (fellow scientists) to see if they had similar findings. Our experiment was replicable so it was valid.

We recorded a video telling you what we learned about experiments. We have also included some pictures of us doing our experiment and an example of the sheet that we collected our data on.



Movie



Movie

Watch some of the videos that the students made (using the iPads) for the iBook at the following links:

<https://www.youtube.com/watch?v=d6kvombH78c>

<https://www.youtube.com/watch?v=OyyBkHg20DM>

<https://www.youtube.com/watch?v=ViksfnKRLAA>

https://www.youtube.com/watch?v=NmeRtZnee_o

<https://www.youtube.com/watch?v=03aTiEDLmEE>

<https://www.youtube.com/watch?v=EUXMesLOL-k>

May 15, 2015

Post Evaluation of NDIA Grant

The program was everything I could have hoped for. The following objectives were accomplished:

- Promotes interest and passion in science
- Makes science more fun to learn
- Demonstrates real life application of science
- Exposes students to representative science career fields
- Significant use of “hands on” activity
- Age of students to benefit – 11 and 12th grade anatomy and physiology students
- Number of students to benefit: there were 120 students benefiting from this program.

Twelve labs in One! The students will build a Human Body from ground up.

The program encouraged students to apply for a scholarship in pre-med at Florida’s Universities. We were able to accomplish the 12, full-lab as based according to body functions, and focuses on the body working together to promote homeostasis. For approximately 120 individuals - 11th through 12th graders in Advance Anatomy and Physiology pursuing careers in the health professions, this 12 in one lab contain concise synopses of broad anatomical and physiological topics. Essential laboratory exercises included hands-on lab experience by combining each system into one “Human Being.” Key terms with phonetic pronunciations help build vocabulary. This ongoing lab provides practice through several types of activities and games for learning from building the anatomy and physiological body. Instant feedback helps the student learn more quickly by explaining why an answer is correct or incorrect with hands on building of the human body and its 11 systems. There was an increase in science EOC scores from the previous year. I believe there is a correlation in the interest that this program stimulated to increasing the science scores in the upper level programs. The following instructional strategies were able to employed helping the student learn the material as students are building the human body. Direct instruction, Indirect instruction, Interactive instruction, Experimental learning, Guided and independent study, Chapter Exams, Application, Inquiry approach, Simulations, Questioning skills, and Case Histories. During this session, we consider the increasing levels of complexity of the human body, beginning with the basic structure of atoms, and progressing to molecules

and molecular processes; how the molecules are organized to form cellular organelles, how the organelles function together to form the smallest living unit – the cell; organization of cells into tissues which combine to form organs. We will begin our study of organ systems with the integumentary, skeletal, muscular, nervous and sensory systems. Because of this project, the engineering university of Emory Riddle donated a smart board to our class to assess the computer end of science with building the mechanical man. Thank you to NDIA for allowing this opportunity to bring science in a realistic manner to our students and continuing the progress in developing other science majors. The funds distributed were used but because of the influx of students supplies had to be increased concerning the number of pigs. Ink cartilages were increased using less toothpicks and supplies left over from the year before. I asked school finance to send a copy of funds used. I adjusted approximately 100.00 into the pig specimen. I have students taking my class to help them with the IB program and college anatomy.

Sincerely,

Ms. Mikel RN. BSN. Anatomy Instructor

Choctawhatchee H.S.

