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2014-2015

ideas with IMPACT

idea packet

Extreme Makeover with Geometric Shapes & Technology

EXTREME MAKEOVER WITH GEOMETRIC SHAPES AND TECHNOLOGY

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The Education Fund

305-558-4544, Ext. 113

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GOALS AND OBJECTIVES

The purpose of this Discovery Measurement Project is to teach the U.S. Customary System and have the students measure different angles. Students learn mathematical techniques as they engage in viewing a video that teaches them the history of measurement, the students experience hands on activity while creating their Angle Home design and they're excited when writing their own lyrics to their measurement song. This project is an innovative way to teach measurement while using technology in the classroom. Students will apply and master measurement concept by converting measurements from one unit to another, geometry and spatial sense, identify three dimensional figures, concepts and operations. The students will also research engineering designs when building their angle home.

COMMON CORE STANDARDS

CCSSMP1: Make sense of problems and persevere in solving them.

Mathematically proficient students start by explaining to themselves the meaning of a problem and looking for entry points to its solution. They analyze givens, constraints, relationships, and goals.

CCSSMP4: Model with mathematics.

Mathematically proficient students can apply the mathematics they know to solve problems arising in everyday life, society, and the workplace

CCSSMP5: Use appropriate tools strategically.

Mathematically proficient students consider the available tools when solving a mathematical problem. These tools might include pencil and paper, concrete models, a ruler, a protractor, a calculator, a spreadsheet, a computer algebra system, a statistical package, or dynamic geometry software.

COURSE OUTLINE / OVERVIEW

I designed this project this year after attending the Discovery Digital Leadership workshops. I was inspired by all the different technology possibilities of introducing a lesson to the students and I took it upon myself to create this Measurement project. I received a very positive feedback from the students in regards to this lesson, the technology and the hands on model.

This project will teach your students how to measure using the appropriate measurement unit of length, weight, or capacity when given an object to measure. This lesson will also motivate the students as they think of ways to design and construct their own engineering angle house. The best feature this project has is that the students really get an understanding of why it's so important to know their measurements. The students are well aware of how measurements are used in their everyday life.

I would highly recommend this lesson for any age group. This project can be used in finding the area, perimeter, angles, Pythagorean Theorem, and geometric shapes.

LESSON PLAN

Subject: Math 6th Grade

Lesson: Measurement

Standards Addressed: MA6A2.1, MA.6.4.2, MACC.K12MP.1, MACCK12.MP.4, MP.5,

Objectives: The student will be able to learn the Customary System and use the appropriate tools to measure different angles.

Materials Needed: Computer, Discovery program, Math Reference Sheet, Accessories to build your home, protractor, Measurement Handout, Designing an Angle House Worksheet, Report Cover and lots of creativity.

Outline: Lesson Activity: Found in Discovery under Common Board titled: Measurement Project

First the students will view an animated measurement video. The students will use their Math Reference Sheet as they view this video while taking down notes. Secondly, the students will answer questions on a Measurement Handout.

In this handout, the students can use any strategy method of their choice to solve each problem. The students can also draw a model if necessary to solve their answers.

Thirdly, the students will play a measurement video song. After listening to the song, the students will create their own lyrics when writing their own unique measurement song. The fourth step is to view the history of measurement. This video gives the student a broad understanding of how measurement took place in ancient times (Excellent video). The fifth step in this project is a hand on design. The students will design a sketch and create their own Angle House as if they were an Engineer. The handout is for the students to draw their home floor plan and list the given angles 30, 45, 90, 120 and 150 degrees of their home. After, the students will create an actual model showing actual angles of this home. The students may use any material of their choice (showing lots of creativity). Lastly, the students will write an Expository Prompt: Minimum 1 page, typed, size font: 12, Font: Times New Roman, space: double. "Did you enjoy this project and explain how to choose a reasonable unit of length, weight or capacity when given an object to measure.

Activity: Measurement Project Found in Discovery under Common Board:

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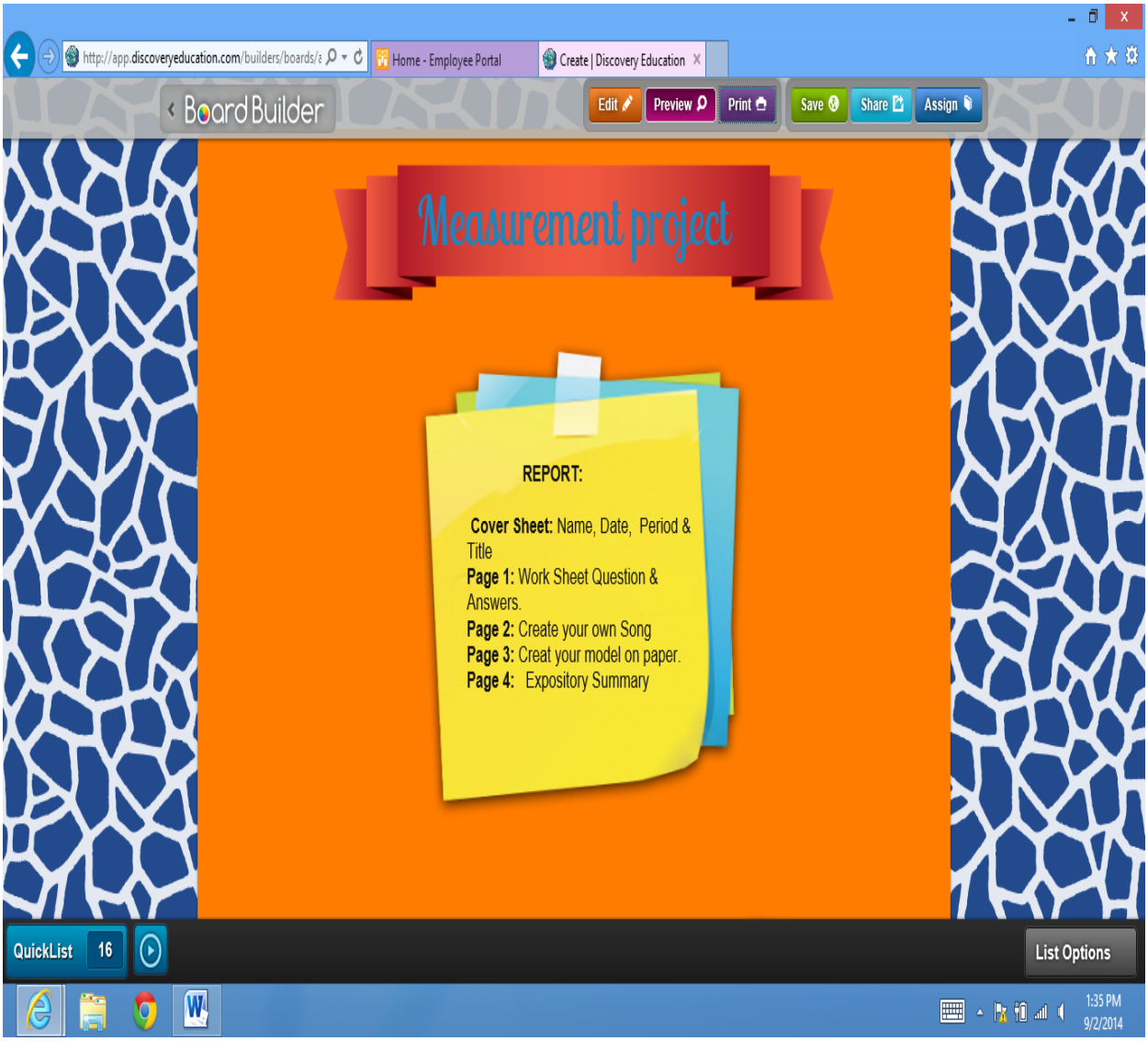

http://app.discoveryeducation.com/builders/boards/a
Home - Employee Portal
Create | Discovery Education
Board Builder
Edit
Preview
Print
Save
Share
Assign
Inches, feet (foot), yard, mile?
the pen is 5 inches long
the girl is 4 feet high
The class rode 15 miles to their field trip.
The school bus is 10 yards long
A inches
B yards
C miles
Click on video
Answer questions
QuickList 16
List Options
1:36 PM
9/2/2014

Measurement in the
in the U.S. Customary System

Name: _____

Date: _____

Use the method of your choice to solve each problem. Use a different method to check your answer. Show your work for both strategies used. Label your answer. Draw a model if necessary.

1. How many ounces are in 3 pounds?

2. A room is 8 yards wide. How wide is the room in inches? Hint: Write the width in feet first.

3. Grady makes 20 gallons of iced tea. How many 1-quart pitchers can he fill?

4. The hallway is 90 yards long. How long is the hallway in feet?

5. The cafeteria purchases 75 pints of milk. How many cups of milk does the cafeteria purchase?

6. How many cups are in 1 gallon?

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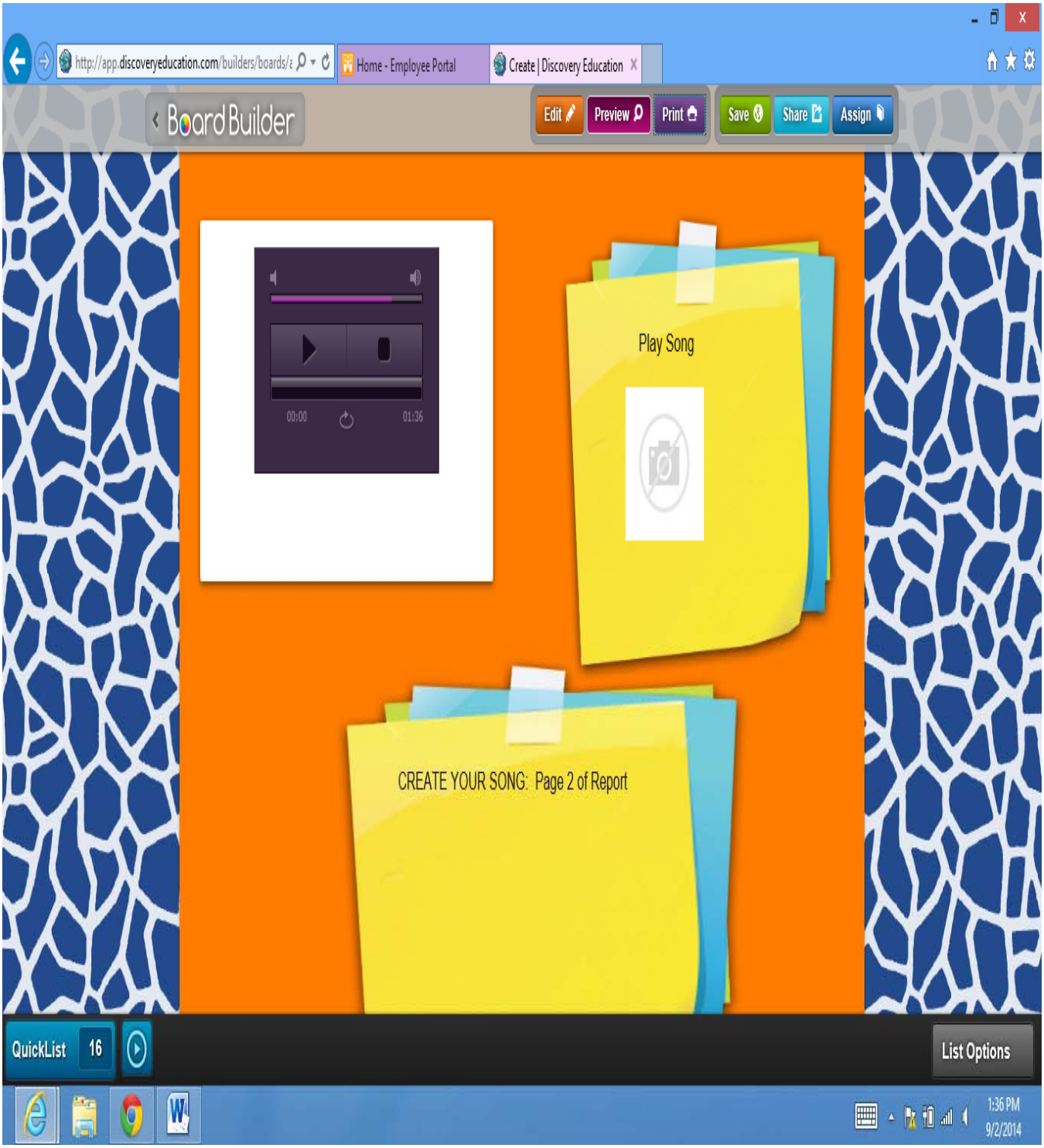
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Home - Employee Portal
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Board Builder
Edit
Preview
Print
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Share
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Play Song
CREATE YOUR SONG: Page 2 of Report
QuickList
16
List Options
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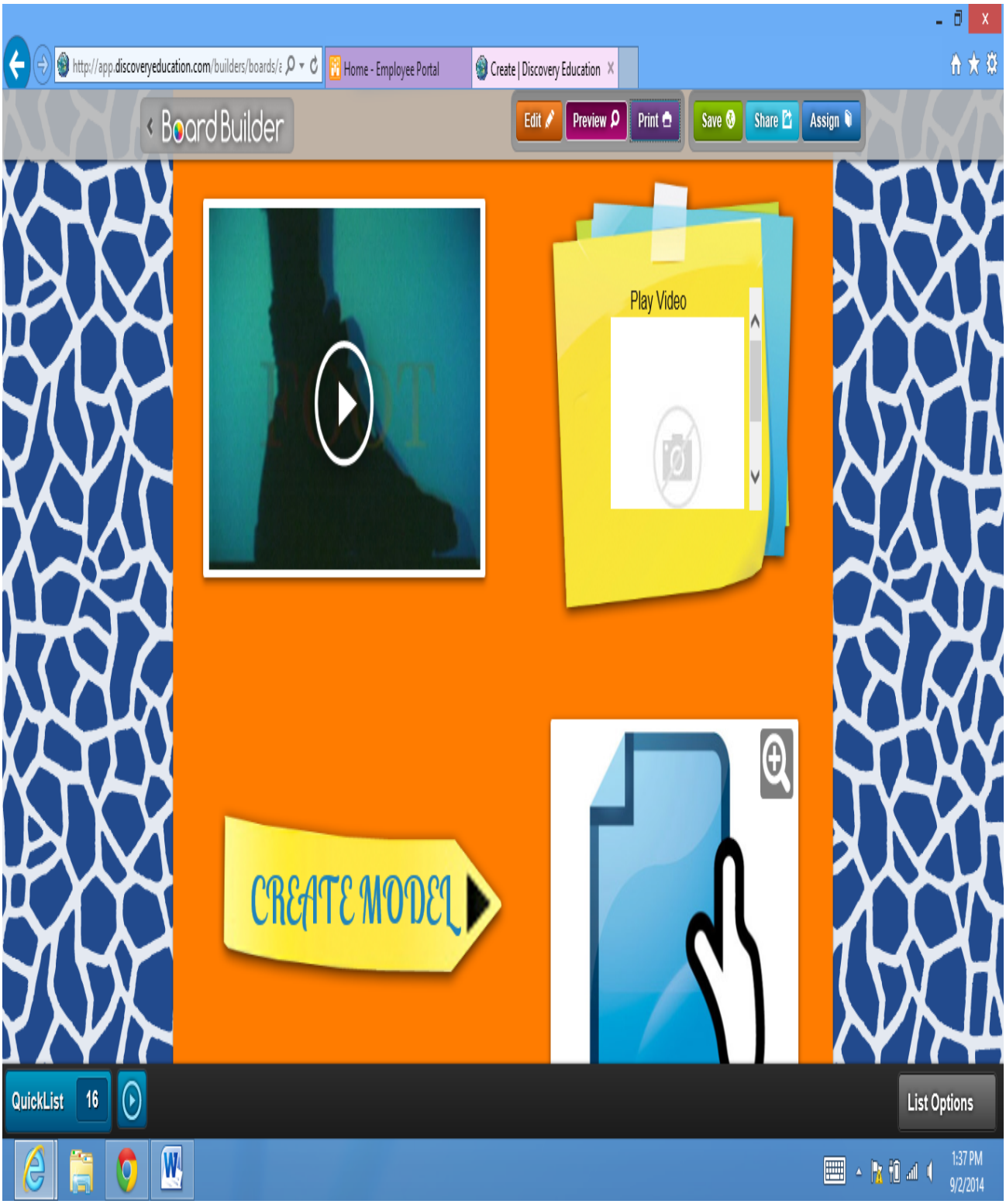
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Page 1 of 1 Listen docReader

Discovery EDUCATION

INSPIRING curiosity

Name: _____

Designing an Angle House

Date: _____

Mr. Angleman has hired you to design a home for him. He wants an original design with lots of different angles. Draw an exterior picture of a home that includes the following angles: 30°, 45°, 90°, 120°, 150°. Label each angle with its measurement.

QuickList 16

List Options

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http://app.discoveryeducation.com/builders/boards/a
Home - Employee Portal
Create | Discovery Education
Board Builder
Edit
Preview
Print
Save
Share
Assign
Last Page: Page 4
Write your Expository Prompt:
Did you enjoy this project and explain how to choose a reasonable unit of length, weight or capacity when given an object to measure.
Minimum 1 page
double space
Font: Times New Roman
Size: 12
QuickList
16
List Options
1:37 PM
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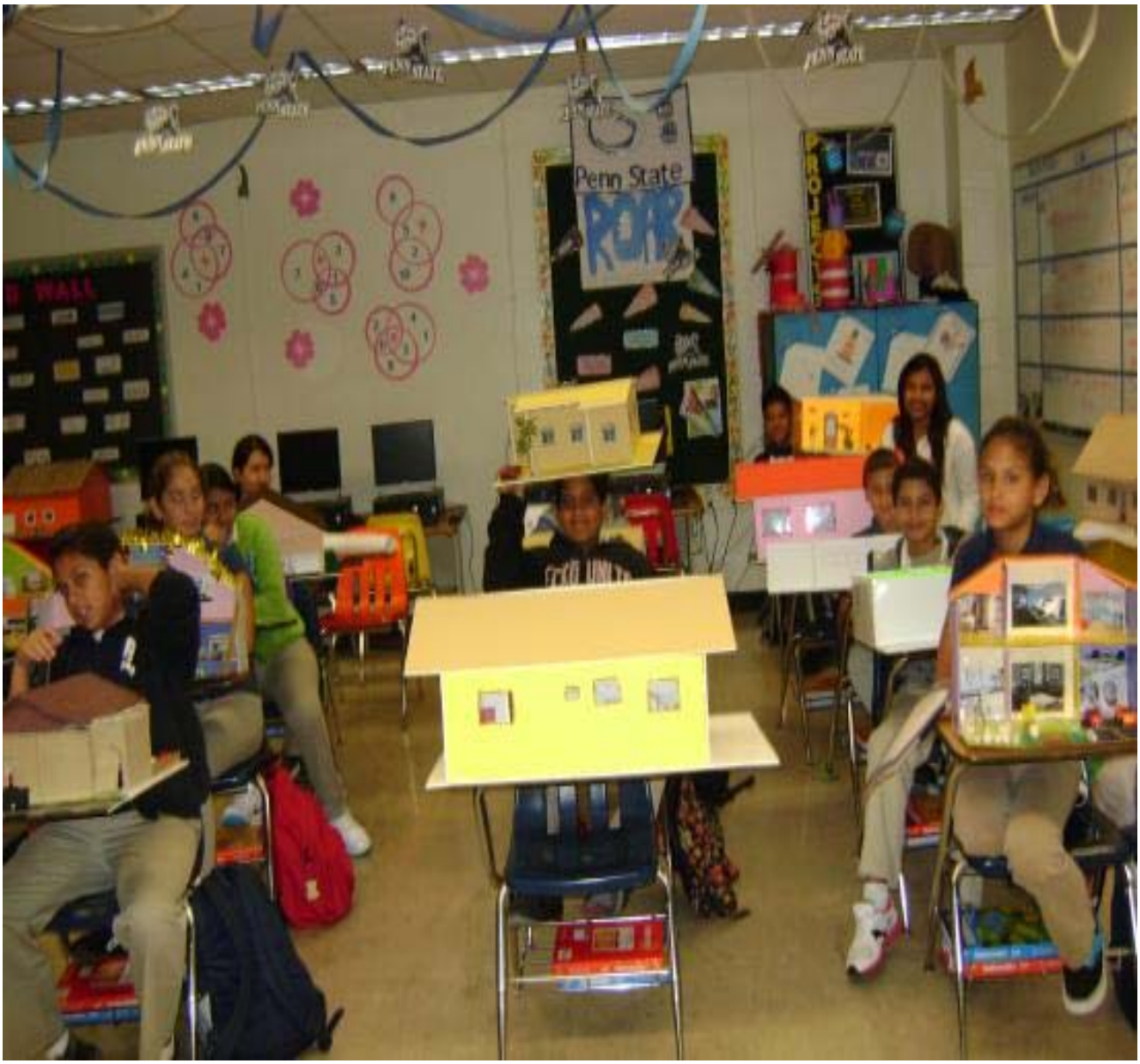
RESOURCES

Video from Discovery: Common Board Builder Measurement Project, Internet, Math Reference Sheet, Library, Engineering guest speaker, Media Center or Computer lab and Public Library if necessary.

STUDENT WORK SAMPLE



THE EDUCATION FUND

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APPLY FOR AN IMPACT II ADAPTER GRANT!

M-DCPS teachers, media specialists, counselors or assistant principals may request funds to implement an IMPACT II idea, teaching strategy or project from the Idea EXPO workshops and/or curriculum ideas profiled annually in the ***Ideas with IMPACT*** catalogs from 1990 to the current year, 2014-15. Most catalogs can be viewed at The Education Fund web site at www.educationfund.org under the heading, "Publications."

- Open to all K-12 M-DCPS teachers, counselors, media specialists
- Quick and easy reporting requirements
- Grants range from $150 - $400
- Grant recipients recognized at an Awards Reception

To apply, you must contact the teacher who developed the idea before submitting your application. Contact can be made by attending a workshop given by the disseminator, communicating via email or telephone, by visiting the disseminator in their classroom, or by having the disseminator visit your classroom.

Project funds are to be spent within the current school year or an extension may be requested. An expense report with receipts is required by June 15th.

APPLICATION DEADLINE:
December 10, 2014

Apply online at www.educationfund.org

For more information, contact:

Edwina Lau, Program Director
305.558.4544, ext. 113
elau@educationfund.org

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