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Hats Off to You!

HATS OFF TO YOU!!!!

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GOALS AND OBJECTIVES

The purpose of this Discovery Hat Project is to understand Pi as a ratio and the meaning of circumference. Students explore mathematics as they engage in viewing a video of the Mystery of Circles while learning about the circumference, diameter and radius. In using their observation from the video, the students will answer questions from the Hands on Activity. In this activity, the students will explore the relationships between different parts of a circle. They will use an activity sheet to gather data and record their findings. Lastly, the students will create and design their own unique hat. This project is an innovative way to teach the meaning of circumference while using technology in the classroom. Students will apply and master solving problems skills in a real-world context involving Pi.

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 was very much inspired after attending my 2nd year "Discovery Digital Leadership Training" and created my "Hat off to You!!!" project. I was excited to introduce this lesson by creating a Board Builder which gave students the capabilities to explore different types of technology while learning a new concept. As a teacher, we all want our students to be engaged and learn the concept while making the learning fun. Students really enjoy this project and master the concept while applying it to real-world. At the end, I have received positive feedback from the students in regards to this lesson, the technology and the hands on model. Try it yourself and you will also take your Hat Off to Them :)

This project will teach the students how to understand Pi as a ratio, know what's the diameter and radius of a circle and find the meaning of circumference while solving problems in a real-world context involving Pi. This lesson will also motivate the students as they think of ways to design and construct their own unique hat. The best feature this project has is that the students really get an understanding that you can't put a ruler inn one ear and out the other in order to measure the diameter of your head. The students have to think backwards to be able to come up with ways of finding the circumference of their head. The students are forced to design a mathematical model to be able to solve an abstract situation in order to create the measurement of their hat.

I would highly recommend this lesson for any grade level higher than 2nd grade and can be adapted to the student's content level. This project can be used in finding the circumference, Ratio, diameter, numeric approximation of Pi, radius and solving real world problems when modeling with mathematics.

LESSON PLAN

Subject: Math 6th Grade

Lesson: Circumference

Standards Addressed: MAFS.6.RP.1.2

Objectives: The student will be able to learn and understand Pi as a Ratio, meaning of circumference, and find the diameter and radius of a circle.

Materials Needed: Computer, Discovery program, Math Reference Sheet, Accessories to build your hat, string, compass, glue, Report Questions, Report Cover and lots of creativity.

Outline: The students will go to Discovery and open the Board Builder "Hats off to You!!!!" https://app.discoveryeducation.com/builders/boards/assetGuid/05D3CC26-F200-8590-A23B-87DF0492116A/?edit=true#mode=edit.

The students will select the tab - Watch a Video and Answer Question. Select and complete Investigation 1 only. In this section, they will read about The Mystery of Circles and then view Stone Circle video segment. The students will use their Math Reference Sheet as they view this video while taking down notes. Secondly, the students will answer questions on Make Conjectures on Circles and hit submit. Thirdly, the students will answer the handout Hands on Activity: Measure Circles. In this handout, the students will explore the relationships between

different parts of a circle. They will use the activity sheet to record their findings. The fourth step is to answer the questions "Making Conclusions about a Circle" and hit submit. Lastly, the students are to answer the last two questions, 1. What have you discovered about circles now that you've had a chance to investigate some of their properties? 2. What would you still like to find out?

In the Second Tab, the students will complete the Report Cover Sheet for their report. After measuring with a string the circumference of their head, the students will then answer 10 questions.

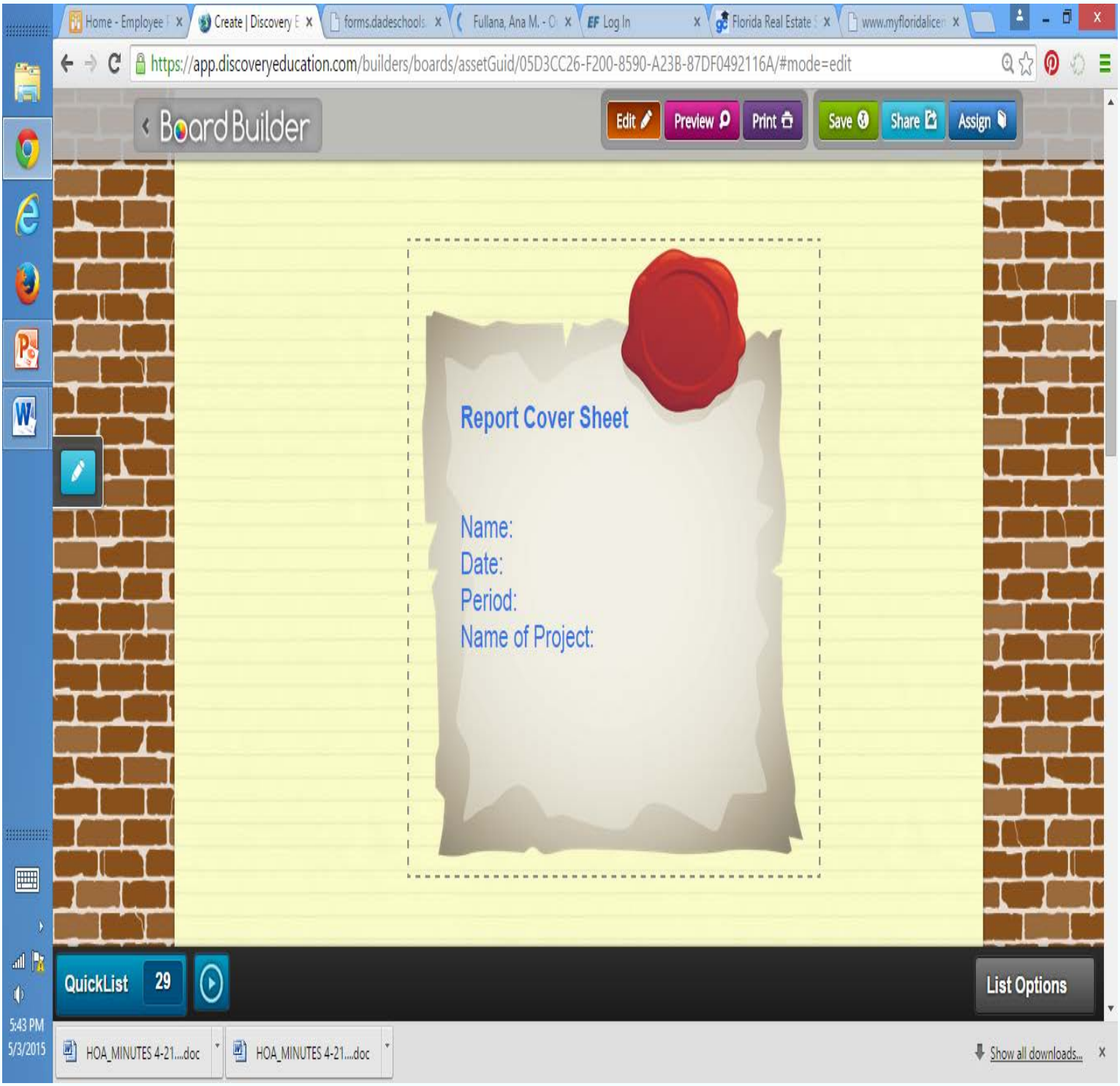
In the Third Tab, the students will draw a sketch of their hat. The students will label with measurements the circumference, radius and diameter of the hat.

In the Fourth Tab, View Fun Hat Images Link: http://www.google.com/search?q=fun+hat+images&safe=active&es_sm=93&tbm=isch&tbo=u&source=univ&sa=X&e. **This link will give the students ideas for creating their hat.**

The last Tab is Create a Model of their hat. The students use the circumference measurement of their head that was recorded in the report to build their hat. They will build their hat using any materials they desire to construct their hat. The students need to be creative when accessorizing their hat.

Activity: Found in Discovery Common Board:

https://app.discoveryeducation.com/builders/boards/assetGuid/05D3CC26-F200-8590-A23B-87DF0492116A/#mode=preview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Board Builder
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Preview
Print
Save
Share
Assign
Report Cover Sheet
Name:
Date:
Period:
Name of Project:
QuickList
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HOA_MINUTES 4-21....doc
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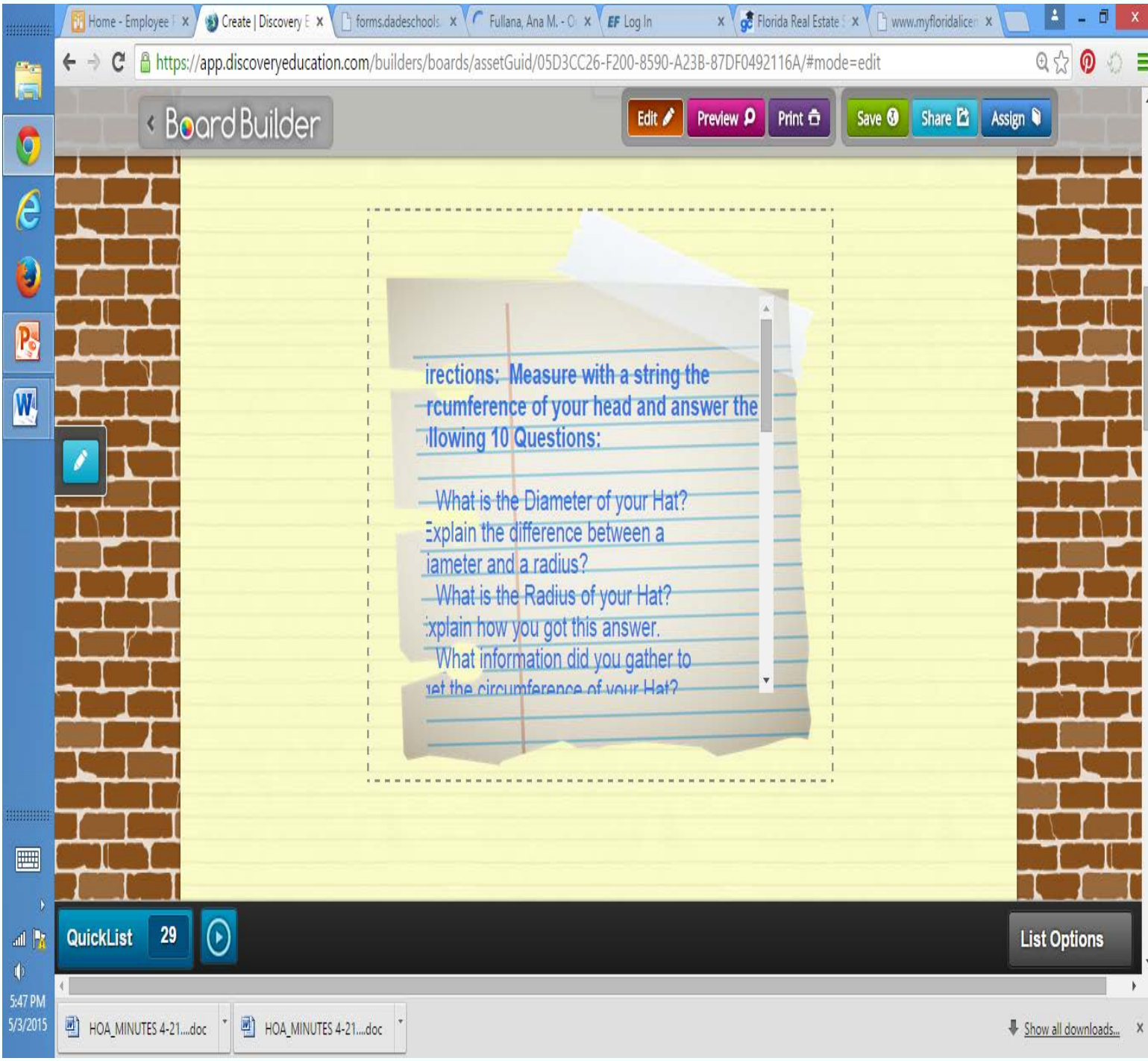
Board Builder
Edit
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Assign
irections: Measure with a string the
rcumference of your head and answer the
llowing 10 Questions:
What is the Diameter of your Hat?
Explain the difference between a
iameter and a radius?
What is the Radius of your Hat?
xplain how you got this answer.
What information did you gather to
et the circumference of your Hat?
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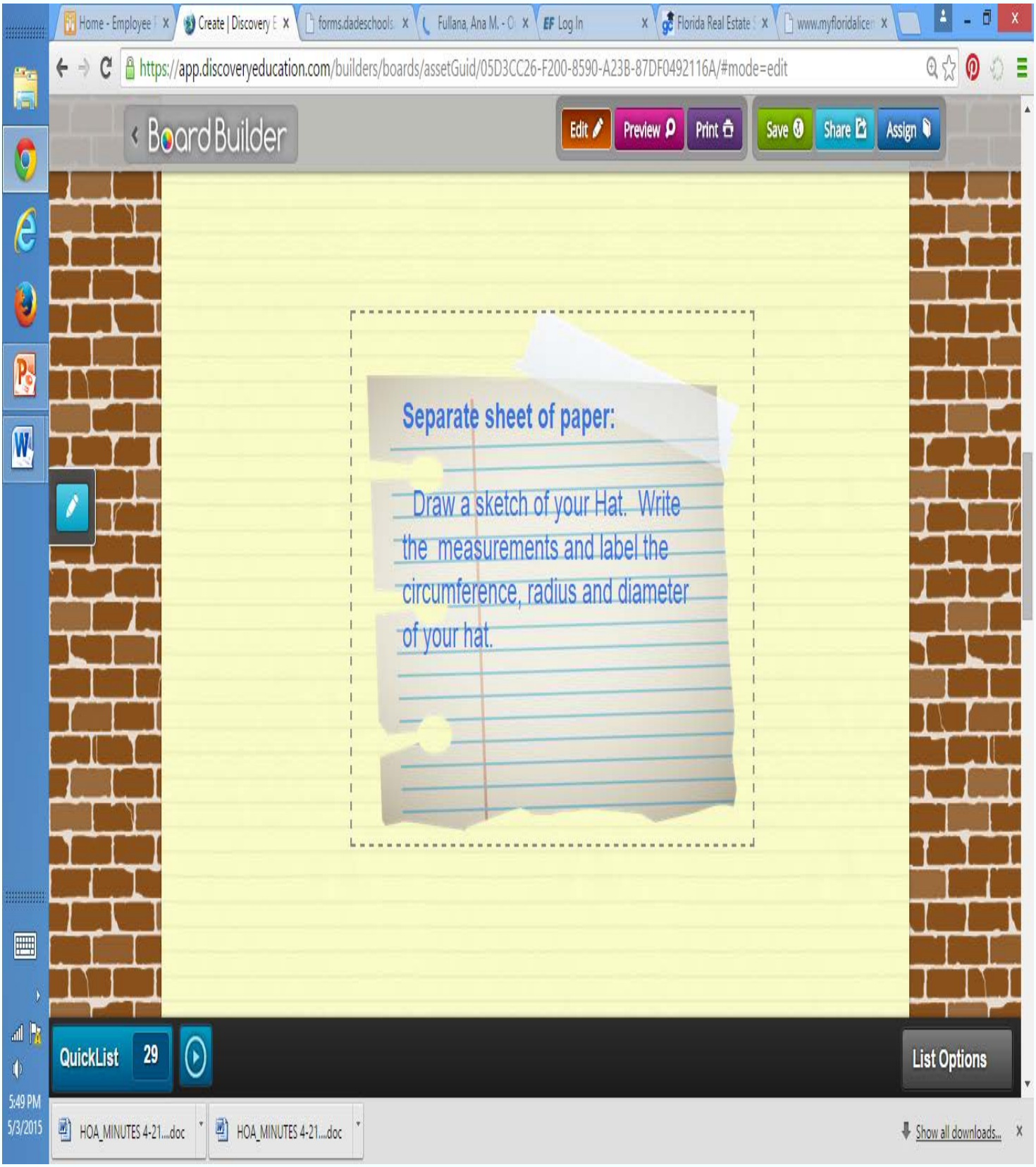
Board Builder
Edit
Preview
Print
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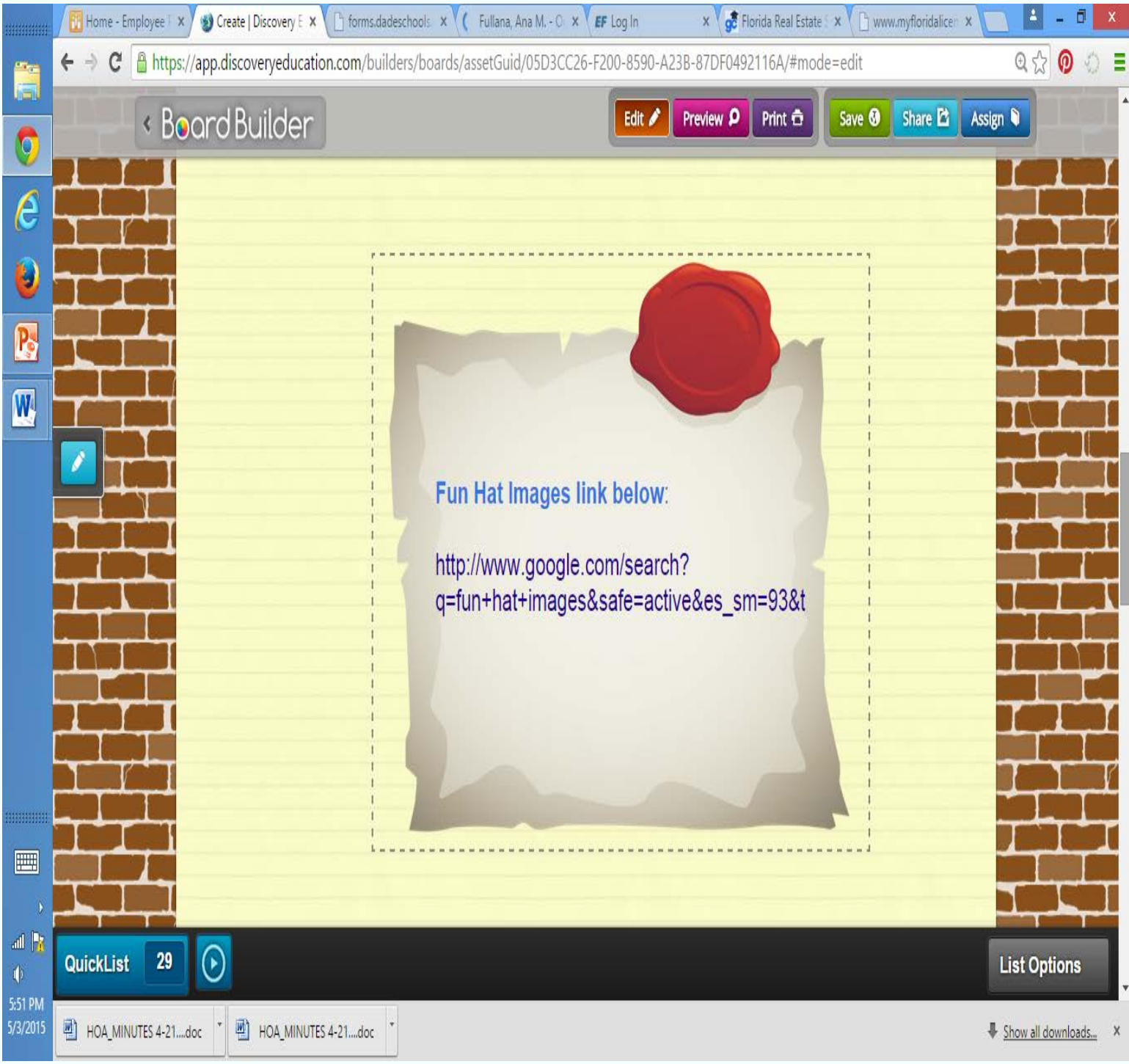
Share
Assign
Separate sheet of paper:
Draw a sketch of your Hat. Write the measurements and label the circumference, radius and diameter of your hat.
QuickList
29
List Options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Fun Hat Images link below:
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q=fun+hat+images&safe=active&es_sm=93&t
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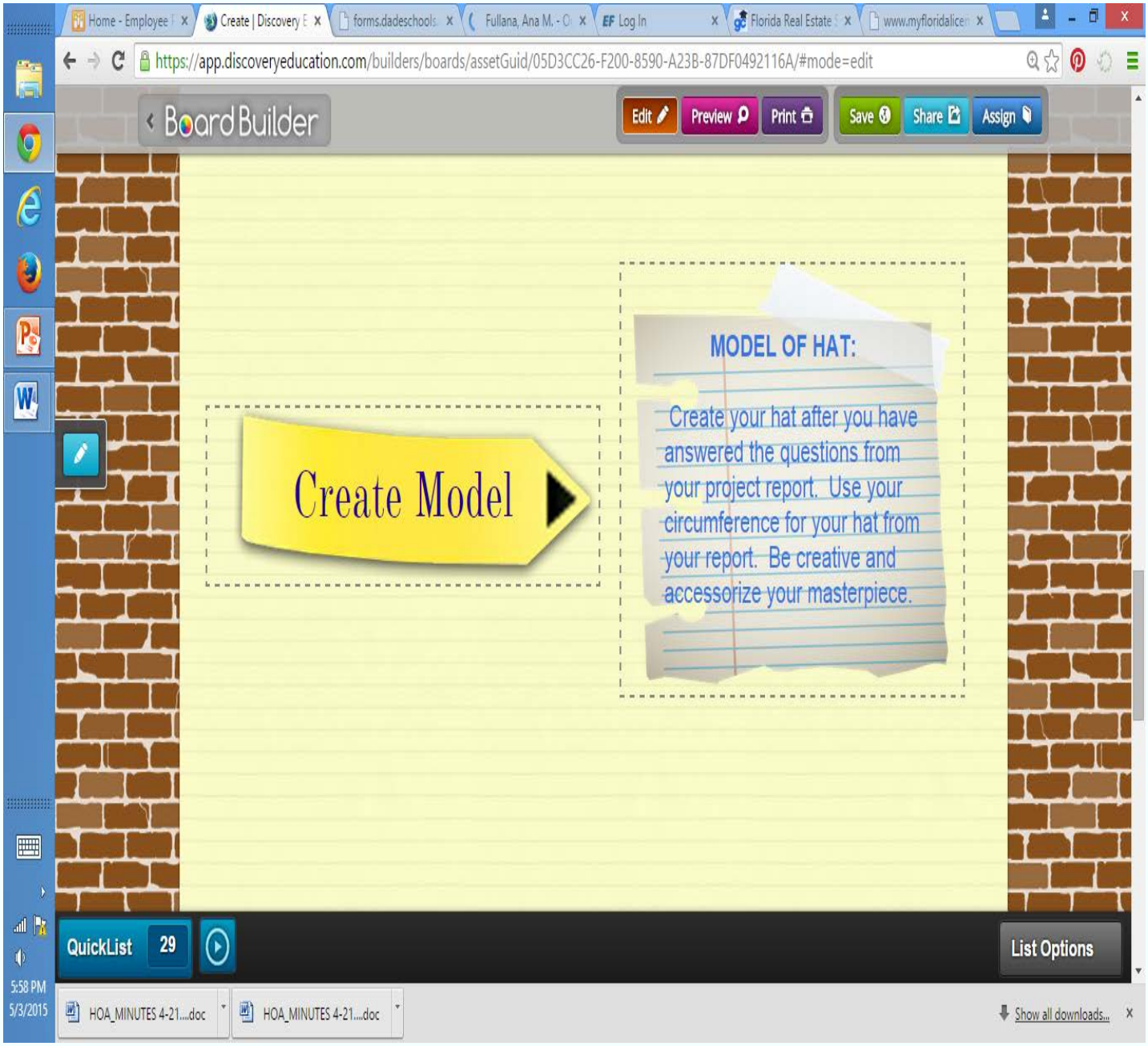
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https://app.discoveryeducation.com/builders/boards/assetGuid/05D3CC26-F200-8590-A23B-87DF0492116A/#mode=edit
Board Builder
Edit
Preview
Print
Save
Share
Assign
Create Model
MODEL OF HAT:
Create your hat after you have answered the questions from your project report. Use your circumference for your hat from your report. Be creative and accessorize your masterpiece.
QuickList
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Board Builder
Edit
Preview
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Share
Assign
HAVE FUN :)
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RESOURCES

Video from Discovery: Common Board Builder: Hats Off to You!!!, Internet, Math Reference Sheet, Library, tape measure, string, Materials to accessorize hat, Construction, cardboard paper or material to create hat, Media Center or Computer lab and Public Library if necessary.

STUDENT WORK SAMPLE

iPrep math

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, 2015-16. Most catalogs can be viewed at The Education Fund website 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 May 2, 2016.

APPLICATION DEADLINE:
December 11, 2015

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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The Education Fund's IMPACT II program offers teachers new ways to engage South Florida students.

Ford salutes your efforts to create a stronger, more innovative future for your classroom.

www.community.ford.com

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