

Ryan Rogge

Oct 13th 2020

Lab Practicum

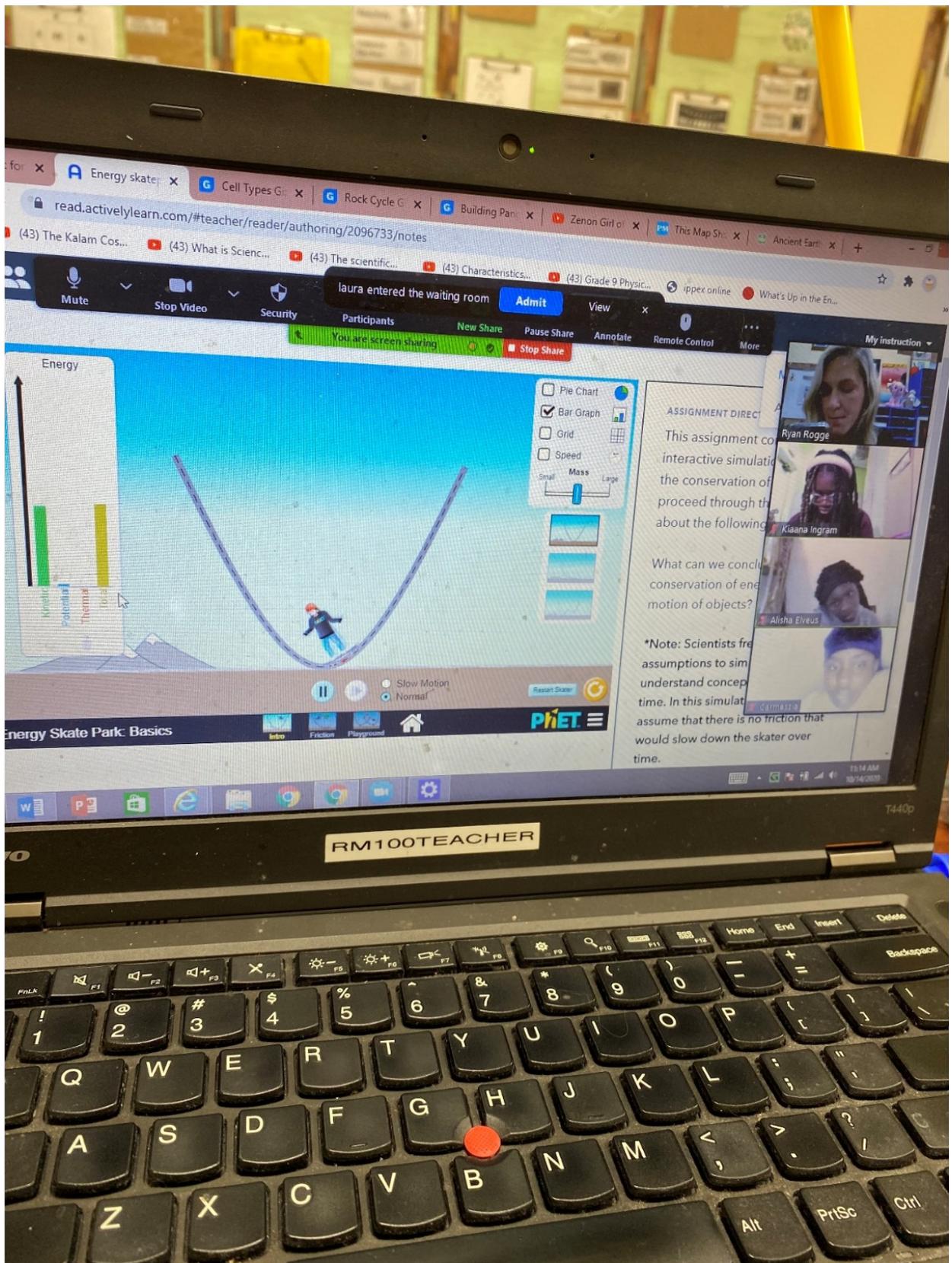
Lab Experience: phET Energy Skate Park:

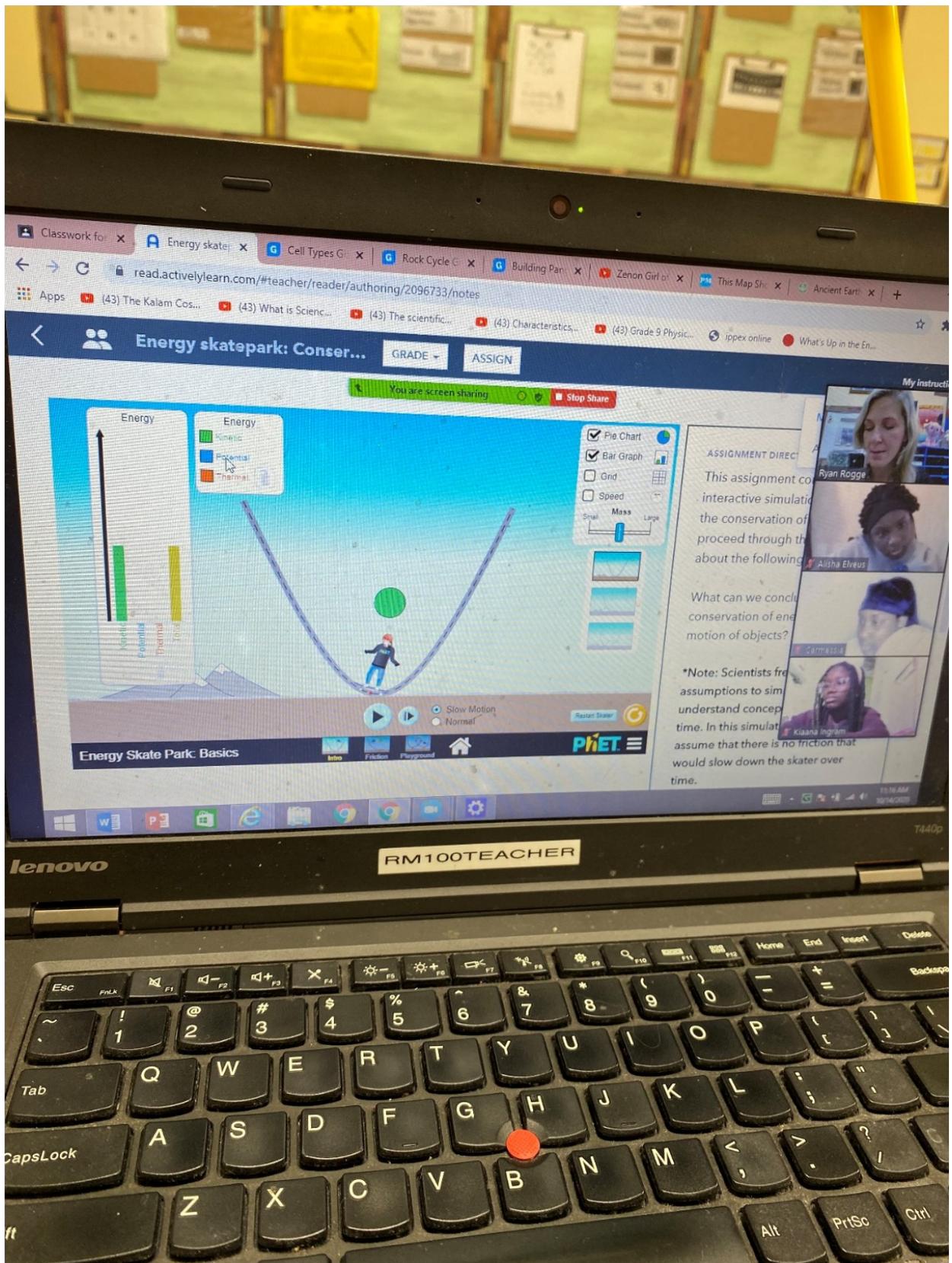
This lab simulation explores the conservation of energy, kinetic energy, potential energy, and friction. Students will focus on how energy is converted from one form to another without disappearing. The 1st simulation allows students to watch a skater on a $\frac{1}{2}$ pipe that has no friction. The students can manipulate the skater's mass and put them in slow motion to watch the energies data change in the bar graph and speed easier. The bar graph allows students to see how the total energy transfers from kinetic to potential energy while always keeping the same amount of energy. When friction is added, then they can watch energy also be transfers to thermal energy. A pie chart is available to allow students to see this energy transfer directly over the skater's head. Students can then put the skater on three different tracks to see how each track affects energy transformation. Finally, students can create their own track to test how initial potential energy affects how much kinetic energy can be used during the skaters run. Being able to manipulate the mass and friction will allow students to truly test how friction affects energy and possibly validate the law of energy conservation.

Teacher Reflection:

Teaching the law of energy conservation and physics has its challenges in person and even more virtually. I did this lesson with 100% of my students virtual on zoom. To keep the class moving and the students engaged, I asked them to answer my questions in the private chat in real-time. The private chat on zoom is easily printed for data or later grading. I explained some of the simulation's buttons and features. Then I let the students explore on their own. Then I asked them to predict the answers to a few questions before they ran some teacher-led simulations. One of the questions I asked students was how friction and mass would affect total energy and speed. They also needed to explain to me how this simulation could validate the law of conservation of energies. We had a short discussion on what they learned and how these principles apply in other areas of life. I ended the class by allowing the students to create ramps and runs while trying to achieve the greatest speed.

(Photos Below)





Classwork for x Energy skate x Cell Types G x Rock Cycle G x Building Par x Zenon Girl o x This Map Sh x Ancient Earth x

read.activelylearn.com/#teacher/reader/authoring/2096733/notes

Energy skatepark: Conser... GRADE ASSIGN

You are screen sharing Stop Share

Energy

- Kinetic
- Potential
- Thermal

Energy

- Kinetic
- Potential
- Thermal

Assignment Direct

This assignment co
interactive simulati
the conservation of
proceed through the
about the following

What can we conclu
conservation of ene
motion of objects?

*Note: Scientists fre
assumptions to sim
understand concep
time. In this simulat
assume that there is no friction that
would slow down the skater over
time.

My instructi

Ryan Rogge

Aisha Elreus

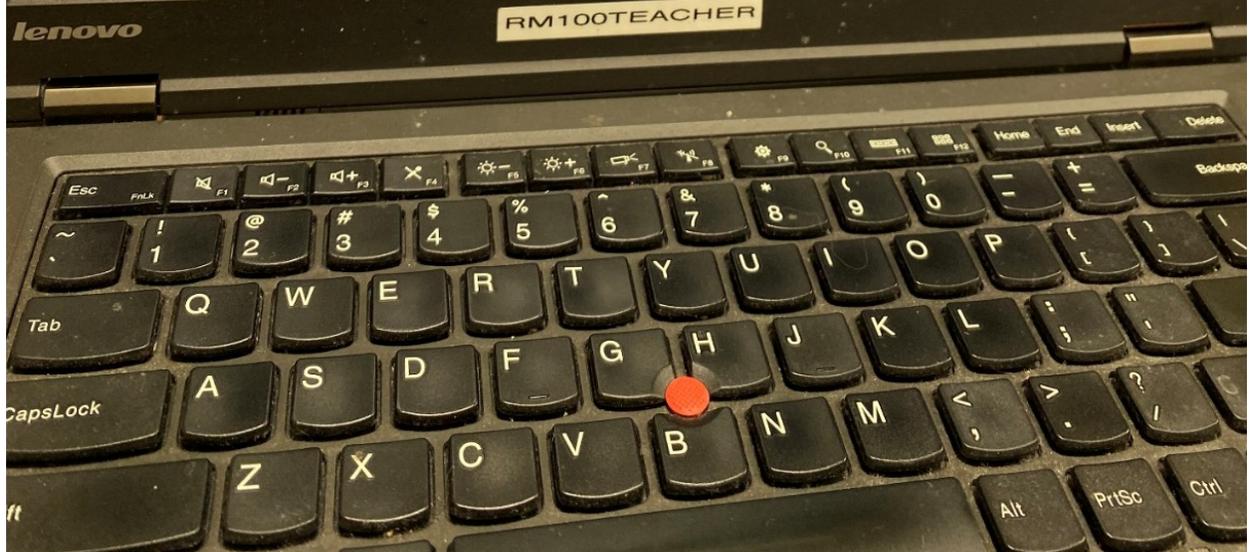
Garmessa

Kiaana Ingram

Energy Skate Park: Basics

Info Files Playground

PIET



Chat

From Travis -- to Me: (Privately)
it stayed the same

From kendrick to Me: (Privately)
The total energy decreased

From Carmessia to Me: (Privately)
decrease

From Leah Barberena to Me: (Privately)
the energy went up

From krissia to Me: (Privately)
her energy go up

To: Travis -- (Privately)

Type message here...

My instruction

Berthaud

krissia

kendrick

What can we conclude about the conservation of energy in the motion of objects?

*Note: Scientists frequently use simplifying assumptions to simulate real-world situations to understand concepts. In this simulation, we assume that there is no friction that would slow down the skater over time.

PHET

TEACHER

T440p

11:22 AM
10/14/2020

Panc x | Ze Chat - [x] + - [x] +

From Travis -- to Me: (Privately)
friction will effect the big and the small girl speed

From mabelis n. to Me: (Privately)
The friction will keep the big girl the same as the small girl

From Alisha Elveus to Me: (Privately)
The fiction will be the same as the little girl

From Carmessia to Me: (Privately)
the friction will slow down the fat girl speed

To: Travis -- (Privately)
Type message here...

What can we conclude about the conservation of energy and the motion of objects?

*Note: Scientists frequently make assumptions to simplify their models to understand concepts. In this simulation, we assume that there is no friction that would slow down the skater over time.

Stop Share

My instruction

krissia

Remind

PHET

11:26 AM 10/14/2020