

I have to teach how?
Preparing Science Teachers for the
Post-Pandemic Classroom

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Digital Sticky Notes



<https://bit.ly/3jLNMYG>



*What challenges are we facing now
in providing meaningful science
instruction?*

Respond at

pollev.com/bkiser

OR

text BKISER to 37607



What professional development opportunities should be available to mitigate these challenges?



*What best practices are effective
in the here and now?*



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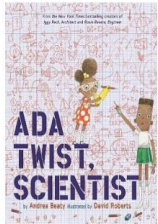
Pre-Service Teacher Work Samples



1ST GRADE



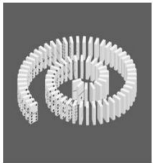
Energy is the ability to do work.



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1. Stand the dominoes/block an inch apart from each other.
2. Make a line of 5 or 6 dominoes towards the other pieces.

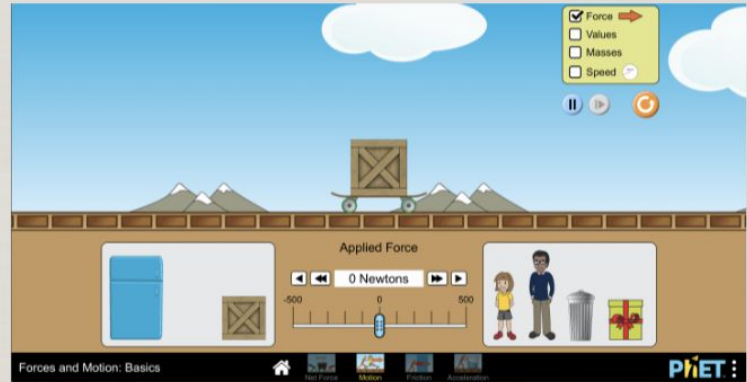
Did all the pieces fall over in a row? This is a chain reaction also called the **domino effect**.



What is happening? Each domino set up on its end has the potential to fall over. When the domino falls, potential energy in the first piece is transferred to the next and on and on until they all fall over.

BONUS Challenge: Try building a shape or picture with your dominoes!
For step-by-step instructions, watch the video at: [Domino STEM Activity](#)

- LAFS.1.RI.1.1 – Ask and answer questions about key details in a text
- Informational text – Energy by Melissa Higgins (Little Explorer book)
- SC.1.P.13.1 – Demonstrate that the way to change the motion of an object is by applying a push or a pull.
- Virtual Activity – Students will use the simulation to learn about push and pull
https://phet.colorado.edu/sims/html/forces-and-motion-basics/latest/forces-and-motion-basics_en.html
- Assessments – Using Flip Grid they will record demonstrate one way they can show kinetic energy by pushing or pulling an object and mention how it was described in the book they read.



PREDATORS & PREY: OWLS

The SCIENCE of RAPTORS (BIRDS of PREY):



Predators are animals that hunt other animals. The food being hunted is the **prey**. **Raptors** are birds with sharp beaks and talons used for hunting small animals.

➤ Raptors eat prey whole, but are unable to digest their feathers. These leftovers are cast out of their bodies as **pellets**. **Dissections** are a scientific way of

LITERACY CONNECTION:

[Hoot](#) by Carl Hiaasen is a tale of how a young boy and his father save some local owls. Don't have the book? Click the link below.

ACTIVITY: OWL PELLET DISSECTION

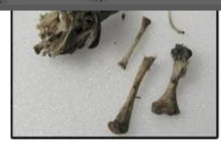
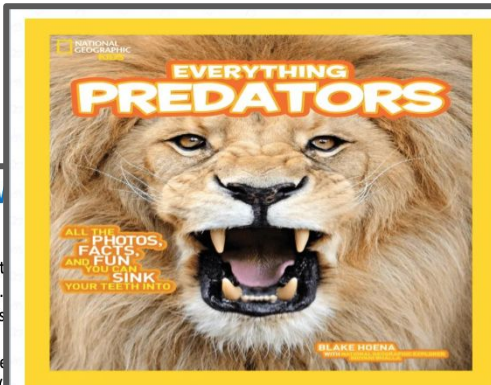
Materials: tray, toothpick, forceps (tweezers), [owl pellet](#) (optional – gloves, [pellet ID chart](#))

1. Carefully unwrap and inspect the outside of the pellet.
 2. Over the tray, gently pull apart the pellet (be careful not to lose any of the bones inside it). Use the forceps to remove the pellet from the fur or use a toothpick to separate the bones from the fur or feathers.
- TIP:** Be careful while removing the skulls and jawbones. They are what prey animals the owl ate.
3. Sort your bones into any groups you want.
 4. Group similar bones together. When you've finished grouping the bones, roll the last bits of fur between your fingers to find little bones or teeth that might have been overlooked.
 5. Once you've found all the bones, try to figure out what animals were eaten by using an [identification key](#).

Owls can eat more than one rodent before making a pellet, so you might find multiple bones that look the same.

Be sure to **WASH YOUR HANDS** when finished!

EXPLORE: How many different kinds of animals did you find evidence of in the pellet? What can you conclude about the eating habits of the owl that made your pellet?



4th Grade

- Reading Standard- (LAFS.4.RI.4.10) "By the end of year, read and comprehend informational texts, including history/social studies, science, and technical texts, in the grades 4-5 text complexity band proficiently, with scaffolding as needed at the high end of the range."
- Science Standard- SC.4.N.1.1, Raise questions about the natural world, use appropriate reference materials that support understanding to obtain information (identifying the source), conduct both individual and team investigations through free exploration and systematic investigations, and generate appropriate explanations based on those explorations.

(Florida State University, 2019)

Activity:

- students will use flippy app to first group animal categories then—in order— list the given predators, prey, producers, and decomposers in proper order.

Assessment:

- students will be put in groups and given a specific predator from the book. Each group will create a poster in the Glogster app to present their predator in class. They will have to explain the history of the predator, where it lives, what it eats, and how/why it is at the top of its food chain.



Learning Verification (I can statements):

I can understand the differences between night and day.
I can understand the differences between the sun and the moon.
I can identify the characteristics that make the day sky different from the night sky.

Mini Lesson:

The teacher candidate will begin the lesson by showing the students a picture (Sensory support 1: Photographs) (ESOL Strategy) of the moon and a picture of the sun. The teacher candidate will ask the students which object can be seen during the day and which object can be seen during the night. The teacher candidate will (Sensory Support 2: Manipulatives) (ESOL Strategy) show the students a yellow circled block (The Sun) and a grey circled block (the moon) and have the students pass it around the class so that they can touch and see it. Then, explain that the moon can be seen both during the day and night, but the sun can only be seen during the day. Make sure to explain why the sun can only be seen during the day, which is due to the rotation of the earth around the sun and how the earth spins on its axis. The teacher candidate will write all of this on the board. This will also be written in Spanish to accommodate ESOL & ELL students. Then, the students will watch a video about the sun and the moon (<https://m.youtube.com/watch?v=XLOEmPWZnf0>). (Graphic Supports 1: Videos) The teacher candidate will also label the words "rainbow, stars, clouds, fireworks, eagle, owl, bat and shooting star" for ELL's. The teacher candidate will give blank sheets of paper to the students and colored pencils and will ask the students to make a chart by dividing the paper in half by drawing a line down the middle with a pencil. (Graphic Support 2: Charts) (ESOL Strategy) The students will be asked to label one side Day Sky and the other side Night Sky. The teacher candidate will tell the students to draw everything they can think of that can be seen in the day sky, and to repeat this step for the night sky. ELL's can label theirs in both English and Spanish. (ESOL Strategy) While the students work, the teacher candidate will go around the room and answer any questions. Once the students are finished, they will share their drawings with the class in an organized manner.

The students will move to the circle as advised by the teacher candidate to listen to a reading of "What Makes Day and Night" by Franklyn M. Branley. For ESOL and ELL's, the book will be tape-recorded in Spanish, so they will listen to the read aloud once, and then listen to the tape recorded book in their native language (ESOL Strategy) (UDL 4.2: Optimize access to tools and assistive technologies). Occasionally, the teacher candidate will ask the students what objects they see in the pictures that show that the picture is of the day sky or the night sky. After the reading, the students will go back to their seats in an organized manner and wait.

Lesson

Lesson:

- The teacher will show a picture to the students virtually and ask questions (Inoa, 2018)
- Instead of utilizing the yellow block, the teacher will ask the students to find in their homes an object or picture of something that is yellow & gray and has a circle shape. The students can share what they found briefly. The teacher will also have a yellow & gray object & will explain to the students about the sun & moon. (Inoa, 2018)
- The teacher will have the information, visuals w/ Spanish text in a powerpoint that will be sent beforehand. All the labels for the video will be on the powerpoint. The video will have "Closed Captions" (translation) to Spanish. (Inoa, 2018)
- The teacher will have the students use the app "Kidspiration Maps" to create a Graphic Organizer about the "Day Sky" and "Night Sky". Instead of drawing the answers, students will either type out a few words or add stickers/pictures of the things they can find during the "Day sky" & "Night Sky". The teacher will have a timer to complete the activity (8 mins). Then, the students will share the information to the class (Inoa, 2018)



Graphic Organizer

The teacher candidate will conduct a virtual read aloud of the book "What Makes Day & Night". The teacher will have the book as a PDF document & will share the screen so students are able to see the pictures of the text. Since the book is in PDF, it will already have annotations made by the teacher candidate to some key words/vocabulary & translate it to Spanish for ELL's.



Thank you for participating!

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