

ADVANCED LEARNING LABS

Collaboration between NC Department of Public Instruction and AIG Teachers across the state

TO ENGAGE, ACTIVATE, AND GROW OUR STUDENTS

GRADES

2-3

Energy



ENGLISH LANGUAGE ARTS

Words are powerful and have the ability to impart energy...causing people to think, to feel and to act. What is a topic that you feel strongly about? What would you like to see people start doing or stop doing for the betterment of a cause, person, or place?

Once you choose a topic, plan and write an opinion piece that takes a position on the topic, supporting your opinion with reasons that ultimately energizes the readers and encourages them to act.

Your opinion piece could be in the form of a letter to the editor of a newspaper, magazine or blog. The topic and format you choose are completely up to you and depend upon your own interests and energy.



SOCIAL STUDIES

Energy is a combination of a person's physical and mental powers, typically as applied to a particular task or activity. How can citizens' energy contribute to the well-being of a community's natural environment?

Brainstorm ways citizens in your community can use both their physical and mental energy to benefit the local natural environment. Then create an "environmental energizer work-out plan" for yourself choosing items from the list that utilize both your mental and physical energy.

Take before and after pictures of the physical environment you're helping and then advertise your "environmental energizer work out plans" to others to encourage them to help contribute to the well-being of your community's natural environment.



SCIENCE

Static electricity is the buildup of electrical energy created when rubbing two objects together. How do you measure this type of energy? An electroscope is one instrument used to measure energy in the form of electricity.

Use this guide to create your own electroscope: <https://www.scientificamerican.com/article/static-science-how-well-do-different-materials-make-static-electricity/>

Then test the ability of different materials to make static electricity. Record your observations in your science notebook.



MINDFULNESS

Your energy can be grounded when it is too much, just like a fixture in your home is grounded as a safety measure. Through the mindful practice of grounding your energy, you can calm your body when you are too positively or negatively charged, and return to a neutral state. One way to ground your energy is to take time to notice things around you and be mindful of your surroundings.

Find a quiet place to help you focus on your surroundings and ground your energy through the five senses. In your mind or on paper, list 5 things you can see, 4 things you can touch, 3 things you can hear, 2 things you can smell, and 1 thing you can taste.

After creating your list, put it to work, being mindful of your energy and how you feel afterwards.



LOGIC PUZZLE

WindToys Logic Puzzle

Figure out each student's favorite toy using the following clues:

- Roberto does not like bubbles.
- Meng-Wei likes the sky.
- Mariam does not like to throw.
- Jeremy does not like spinning things.
- Roberto likes to throw and catch.

NAME	KITE	BUBBLES	PINWHEEL	FRISBEE
Roberto				
Mariam				
Meng-Wei				
Jeremy				



FIELD STUDIES

Music has a direct impact on the energy level and mood of many people. Upbeat, fast-paced music gets them pumped up and energized, while quiet music helps them feel calm and relaxed. How does music impact your energy level and mood? Create two playlists: one with fast-paced songs and one with slower-paced songs. Set a route (a circular route works best) and see if any family or friends want to join in your field study.

- Week one: run the route with no music, record everyone's times, distance, etc.
- Week two: run with fast-paced music and record the data.
- Week three: run the route with slower-paced music and record the data.

Did the faster-paced music energize people? Make them run longer? What about you personally? Did one type of music energize you? Design an experiment to test what type of music helps to best lower your energy and calm you.



RESEARCH EXPLORATIONS

Static electricity was first discovered around 600 BC by the Greek philosopher Thales of Miletus. He noticed that if amber was rubbed hard enough, particles of dust would start to stick to it. Some 2,000 years later, the word "electricity" was first used, based on the Latin word "electricus" meaning "like amber." These days, static electricity is used in copy machines, in air fresheners, to paint cars, and to control pollution of smokestacks. You can read more here: <https://www.loc.gov/everyday-mysteries/item/how-does-static-electricity-work/>

Despite static electricity being energy and not magic, watch this video for ideas on how to create your own magic show using static electricity: <https://www.youtube.com/watch?v=ViZNqU-Yt-Y>



MATH

Energy comes in many forms, but how do you access it? One way we "get" energy is from the food we eat. Here's a recipe for "Peanut Butter Energy Bites:" <https://tasty.co/recipe/peanut-butter-energy-bites>

Research and add up the costs to buy each of the ingredients (though you will not need a whole bag of chocolate chips, you will have to buy a whole bag).

Once you have the total cost of all ingredients (you can round the cost), divide by the serving size (16) to calculate the cost to make one serving (*note: the actual cost will be a little less because for most ingredients you'll have some left over*).

Decide how to price each energy bite to make a profit (profit=difference between amount earned and amount spent).

Give your energy bites a unique name and make a poster advertising them for sale.



North Carolina Department of
PUBLIC INSTRUCTION



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K-12

Energy Reference Guide

6-7 Logic Puzzle:

Solution: Light both ends of rope A and one end of rope B. After 30 minutes, rope A will be completely burned up and there will be 30 minutes of rope B left. Light the other end of rope B; it will burn up in 15 minutes. Total time elapsed since starting the ropes on fire: 45 minutes.

8-9 Logic Puzzle:

Solution: Number the switches 1, 2 and 3. Switch on number 1 for 1 minute, then switch it off. Switch on number 2. Go upstairs and examine the lights. The light that is on is connected to switch 2. The light that is off and warm is connected to switch 1. The light that is off and cold is connected to switch 3!!

8-9 Field Studies:

If you are interested in learning more about how nuclear energy works, visit:

<https://www.nationalgeographic.org/video/what-nuclear-energ>

10-12 Logic Puzzle:

Solution: 28

Each day he makes it up another meter, and then on the twenty-seventh day he can leap three meters and climb out.

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Energy NC Standards Alignment

Grade Span	English/ Language Arts	Social Studies	Science	Math
K-1	RL.1.2	1.G.2.1 1.G.2.2 K.H.1 1.G.2	1.L.2	NC.1.MD.4
2-3	W.3.1	3.C&G.2.2 3.I.1.11 3.G.1.2	3.P.3.1	NC.3.OA.8
4-5	W.5.1	5.C&G.2.4 5.C&G.2.1	4.P.3.1	NC.5.NBT.7
6-7	W.7.3	6.H.1.1 6.G.1.4 6.G.1.4	7.P.2	NC.7.G.4
8-9	W.9-10.1	8.G.1.3 8.G.1	EEn.1.1.3 EEn.1.1.4	NC.MI.A-CED.4
10-12	W.11-12.5	AH2.H.2	EEn.2.2	NC.M1.A-CED.1