ADVANCED LEARNING LABS

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

TO ENGAGE, ACTIVATE, AND GROW OUR STUDENTS

GRADES 6–7

Systems

ENGLISH LANGUAGE ARTS

Most people have systems (routines or processes) for what they do - how they make a peanut butter and jelly sandwich, how they study for a test, or how they get ready for school in the morning. Think about one of your systems. What are the individual steps in the process? What would someone else need to know to follow your system?

Write a detailed explanation of your system or process for accomplishing this task. Be sure to include all the necessary details so that someone who cannot see you but only read your words, can still envision in their mind exactly what they need to do.

To check your effectiveness, ask someone to read and follow your directions. How successful were they? Reflect on your process and make any clarifying changes.

SOCIAL STUDIES

Throughout time, societies and civilizations have created different systems of social structures. Numerous countries in Europe and Japan in Asia had feudal systems. Watch these videos to learn more about these feudal systems:

European feudalism: https://www.khanacademy.org/humanities/world-history/medieval-times/european-middle-ages-and-serfdom/v/feudal-system-during-the-middle-ages

Japanese feudalism: https://www.khanacademy.org/humanities/world-history/medieval-times/medieval-japan/v/shoguns-samurai-and-the-japanese-middle-ages

Summarize each feudal system, and then create a diagram showing how they were alike and how they were different.

SCIENCE

The human body is made up of eleven major organ systems. All of these systems must interact with each other to sustain life. Using a book or internet resources, summarize the general function of each system.

Next, select five or more of the body systems and create a visual that shows how each of the systems interacts with the other four to sustain life. You can choose to use your own creativity to design a visual of your choice or you can use the sample one provided.

Sample Chart : https://docs.google.com/document/d/1snl5zKgsVtpra0zWG-NeP8oz8Zv1DAA9094DwNQGCMk/edit?usp=sharing

MINDFULNESS

Your immune system is a collection of structures and processes that helps protect against disease or potentially damaging foreign bodies. Read about the benefits of meditation to the immune system at the following site: https://bit.ly/2W4oj3S

Try this easy meditation activity to help relieve stress. Find a comfortable spot and close your eyes. Imagine going to that special place. It could be a place where you have vacationed, a relative's home, or a place you've always wanted to visit.

Let your mind wander and pretend that you are on a vacation- a mental vacation. When you're ready, open your eyes and return home. You can do this anytime without packing a suitcase. Meditating for just a few minutes a day helps you feel balanced, focused, and in control.

LOGIC PUZZLE

Adam is trying to develop a system to pull out socks from a drawer while in the dark. Adam needs to pull out a pair of black socks.

There are 53 socks in the drawer:

- 21 identical blue
- 15 identical black
- 17 identical red

What is the minimum number of socks Adam must pull out to be 100% sure he has at least two black socks? Explain your reason.

FIELD STUDIES

The first law of thermodynamics, also known as the Law of Conservation of Energy, states that energy can neither be created nor destroyed; energy can only be transferred or changed from one form to another.

Using the Khan Academy video, study how energy flows through ecosystems: https://www.khanacademy.org/science/high-school-biology/hs-ecology/trophic-levels/v/flow-of-energy-and-matter-through-ecosystems

Select a particular ecosystem, such as rain forest, desert, tundra. Use a creative format of your choice, such as a song, skit, poster, or another format to explain to a younger student how energy flows through that ecosystem.

RESEARCH EXPLORATIONS

Weather systems are simply the movement of warm and cold air across the globe. These movements are known as low-pressure systems and high-pressure systems. High-pressure systems are rotating masses of cool, dry air. High-pressure systems keep moisture from rising into the atmosphere and forming clouds.

Watch the video at the link to find out how these pressure systems create different types of weather: https://www.youtube.com/watch?v=aiYyCurh_SU

Use the information at the *Boy's Life* website to create a weather barometer: https://boyslife.org/hobbies-projects/projects/143865/make-a-weather-barometer/

Use your new barometer to collect data over the period of a month. Be sure to note the weather each day in your science notebook. How did your barometer help predict the weather?

MATH

Weather is created by systems of low and high pressure systems moving across our globe. Knowing how the systems move and interact helps meteorologists predict the weather. Use this chart to track weather predictions and actual weather: https://bit.ly/2PyuN7u

Organize your temperature data in a double box and whisker plot to compare the predicted to actual temperature for each day. Write about what the plot reveals regarding the data, making sure to discuss the measures of center and variability for your data sets.

What percent of the time was the prediction correct? Find out what it means to predict a 40% chance of rain by visiting the site: https://weloveweather.tv/what-40-chance-rain-means/

Email your local meteorologist, copying your teacher or parent. Politely report your findings and ask how they use math to predict weather.

North Carolina Department of
PUBLIC INSTRUCTION

AIG
ALL DAY, EVERY DAY

Systems
Reference Guide

For more information on creating infographics, visit this site: https://www.canva.com/create/infographics/

K-1 Logic Puzzle:

Solution: Erasers=$.25; Stickers= $1.50, Peppermints= $.50

6-7 Logic Puzzle:

Solution: Adam must pull out 40 to guarantee he pulls out two black socks. He could pull out 21 blue plus 17 red plus 2 black.

8-9 Logic Puzzle:

Solutions can be found at the Brainzilla site: https://www.brainzilla.com/logic/logic-grid/

10-12 Logic Puzzle:

Solutions:

1. The answer is three rotations in total. Two because of the ratio 10:5, one more because of the movement of the smaller cogwheel. https://www.puzzleprime.com/brain-teasers/insight/cogwheels/

2. After 18 rotations of the smaller gear and 11 rotations of the bigger gear, the marked teeth will be together again. https://aplusclick.org/t.htm?level=12;q=3938

Systems

NC Standards Alignment

Grade Span	English/ Language Arts	Social Studies	Science	Math
K-1	L.1.5	K.C&G.1.1 1.C&G.1 1.C&G.1.1 K.C&G.1 1.C&G.1.1	1.E.1	NC.1.NBT.7
2-3	RI.3.5	3.C&G.1.3 3.C&G.1.1	3.L.2.2	NC.3.NBT.2
4-5	L.5.4	5.E.1.2 5.E.1.3	5.L.1.2	NC.4.MD.1
6-7	W.6.2	6.C.1.3 6.B.1.2	7.L.1.4	NC.7.SP.3 NC.7.SP.4
8-9	RI.9-10.8	8.E.1.3 EPF.MCM.1.1	8.P.1	NC.M1.A-REI.6 NC.M1.A-REI.12
10-12	W.9-10.3 W.11-12.3	FP.C&G.3.4	Phy.2.3.3	NC.M1.S-ID.1