

# 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

## Systems



### ENGLISH LANGUAGE ARTS

Text features, especially those found in informational text, form a system to help the reader locate important information in an efficient manner.

How do the following informational text features play a role in the organizational system of a text: Index, glossary, table of contents, headings, illustrations, diagrams, charts, fonts, captions, electronic menus and sidebars, icons, search terms and/or hyperlinks. What element of the system do you feel is most important? Why?

Using an informational text of your choice, pose a question about the topic and utilize the system of informational text features to help answer your question. Create a "How to" guide in the form of an article, YouTube video, or Powerpoint presentation to help others use this system to find information efficiently.



### SOCIAL STUDIES

Our governmental system has three main branches: executive, judicial and legislative. What are the principles and procedures that create the framework of our governmental system? How do these three branches translate to local government?

Dig in and find out. Create a flowchart of the local government system in your city. Consider the following:

- Where do you fit in as part of the system?
- Is there a part of your local governmental system you feel is stronger than the others? Why? What about weaker? Why?
- How could the strengths of the system be capitalized upon to fortify the weaker parts of the system?

Use this infographic to get started with your research: <https://www.icivics.org/static/naco-info.html>



### SCIENCE

How does poo help an ecosystem? Just ask the lemurs! On Madagascar, lemurs are saving the trees, and conservationists are saving the lemurs. Read more about how its working: <https://www.futurity.org/lemurs-madagascar-trees-seeds-1801232/>

If plants, like trees, are to survive, then their seeds must be scattered, or dispersed. Read more about this system: <https://www.kidsdiscover.com/parentresources/seed-dispersal/>

Pretend you're a plant. What would be your method for dispersing seeds? Create a drawing or act out your system.



### MINDFULNESS

One way to keep our mind and body connection healthy is to create a system and space to help calm yourself when needed.

Channel your inner mindful interior designer and think through what you need in a space to help you feel calm, with the following questions:

- Where should the space be located?
- Are there things that when you look, touch, smell, taste or hear them they immediately calm you? If so, add them to your space.

Finally, create a system of what you will do when you enter the space feeling upset. Perhaps there is a checklist of techniques that work for you, things that you need to think about, or a journal in which to write your thoughts/feelings. Post your system directions in the space so that when you're upset, you have a system to follow and space to enter.



## LOGIC PUZZLE

A cipher is a systematic way of writing in code. Pigpen cipher use simple geometric symbols as substitution for letters. Read the article "Pigpen Ciphers" from the October 2017 edition of *beans* magazine: <https://www.kidscodex.com/pigpen-ciphers/>

Take a look at the symbols and examples in the article, solving encrypted messages throughout. Try your hand at creating cipher encrypted messages using the Pigpen Ciphers system.



## FIELD STUDIES

A coding system is a system of signals used to represent letters or numbers in transmitting messages. There have been all kinds of coding systems throughout history. Read this article about "10 Codes and Ciphers Most Commonly Used in History" to learn more about them: <https://www.enkivillage.org/types-of-codes.html>

- What do you notice the systems have in common?
- What were the different reasons the coding systems were created?

Try to write a message in one of the codes discussed in the article. Perhaps you could invite a family member or friend to see if they can crack the code. Create your own original coding system and see if it too one day joins the list of "10 Codes and Ciphers Most Commonly Used in History."



## RESEARCH EXPLORATIONS

Our number system originated in India more than 1,000 years ago. This "Hindu-Arabic" system is called "base ten" because it has 10 symbols (0, 1, 2, 3, 4, 5, 6, 7, 8, 9) that can be used to represent any number. The "value" of the symbol depends on what "place" the symbol is in. So, it is defined as a "base ten place value" number system. This system is not the only system ever used, nor is it the only system in use today.

Research the Mayan number system (base 20), the Egyptian number system (a "face value" system), and the Chinese Number system (an additive base 10 system). Once you know more, create your own symbols and number system. Consider if your number system will be base 10 and place value, or more like the Egyptians, Mayans, or Chinese systems.



## MATH

*If I had a million dollars...What could you do with \$1,000,000?*

Brainstorm a list of things you would buy if you had a million dollars to spend. In this scenario, we will assume you had two million dollars and donated the first million. Now it's time to treat yourself, family, and friends.

As you brainstorm, make a prediction as to how much you think the item costs. Try to come as close to one million as you can. Once you think you have gotten as close as possible, start researching the actual cost of these items. How close were you in reality?

Reflect on this experience. Was it more or less challenging than you expected? What surprised you the most about this activity?



North Carolina Department of  
**PUBLIC INSTRUCTION**



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GRADES  
**K-12**

## 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>

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## Systems NC Standards Alignment

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