

ADVANCED LEARNING LABS

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

TO ENGAGE, ACTIVATE, AND GROW OUR STUDENTS

GRADES

K-1

Systems



ENGLISH LANGUAGE ARTS

Language is a system made up of the words we write and speak. We can sort words by creating a system for organizing them.

Write or draw a picture of 15 words you think of when you hear the topic "Inventors." Sort the words into at least 3 categories with 3-5 words in each category. Give each category a name. Try reorganizing them into new categories with different names.

- How is understanding the meaning of words important in this activity?
- How did you choose the names you gave each category?
- How did thinking about the attributes (characteristics) of each word help you re-sort them?
- What new or big ideas do you now have about Inventors?



SOCIAL STUDIES

Systems provide an organized way of doing things. Rules are a system that provides procedures by which humans live. They govern our homes, schools, and communities.

- Are rules important? Why or why not?
- What rules do you follow in your home and at school?
- Are there any rules that you think are unnecessary?

Make a list of rules you follow at school. Rank them from least to most important. Why did you rank them that way? Create a list of rules that establish a system for interactions with your friends. For example, you might say, "Listen to each other."

- Why did you choose these rules?
- How will they help your friendships?
- Do you think your friends should have input on the rules too? Why or why not?



SCIENCE

The earth, sun, and moon are in a system together. We can observe this system in our daily lives. The sun and the moon move across the sky as viewed by us, here on the earth. This is why the moon appears to change shape. Watch this video to learn more about this system and some special occurrences that can happen: <https://bit.ly/2Clx5gP>. Listen for science words and pay attention to the diagrams in the video.

After watching the video, draw your own diagram of the sun, earth, and moon system. Draw lines to represent how they move around each other. Label the parts of the system. Draw another diagram to show the positions of the sun, moon, and earth during an eclipse.

How are the diagrams similar and different?



MINDFULNESS

The way our feelings and emotions interact throughout our bodies can be compared to a weather system. We can describe our feelings by using weather words. For example, we might use sunny to mean happy or foggy for tired.

Lie on the floor and close your eyes. Breathe slowly and deeply. Think about what you are experiencing in each area of your body and how it relates to a weather system.

- What weather words can you use to describe a few parts of your body.
- Draw an outline for your body. Create a weather map that illustrates your body's weather system. For example, if your heart is troubled, you might draw a cloud over your heart.
- How are emotions like a weather system?



LOGIC PUZZLE

Systems can be helpful in solving logic puzzles. Find the cost of each item in the puzzle.

stickers	erasers	stickers	= 3.25
stickers	erasers	peppermints	= 2.25
peppermints	erasers	stickers	= 2.25
= 3.50	= .75	= 3.50	

- Which item did you find the cost of first? Why?
- After you found the cost of one item, how did you use it to help you solve the rest of the puzzle?

Challenge: Create a logic puzzle for someone else to solve. Discuss what system they used.



FIELD STUDIES

There are many systems that help our communities run smoothly. Have you ever thought about how mail makes it from the sender to the recipient?

Watch this video to learn about how the United States Postal Service works: <https://thekidshouldseethis.com/post/united-states-postal-service-systems-at-work>

- How does this video make you think about systems in a new way?
- Can you think of other things in your community that are run by a system?

Write a letter to someone you love. Mail the letter. Think about the system that piece of mail will go through to reach its destination. Describe the system to a family member.



RESEARCH EXPLORATIONS

A system is made of elements (parts), boundaries (limits or edges), interactions, input, and output. Watch this video to explore human body systems: <https://bit.ly/3glB7Vp>

- What are the elements of each system?
- What are the boundaries?
- What interactions happen between the parts?
- What goes in the system?
- What comes out of the system?

Pick one of these systems: kitchen, library, garden. Draw and label a diagram with the parts of the system or make a chart that organizes your thoughts.

- What big statement can you now make about systems?
- Can you think of examples of things that are NOT a system?



MATH

Numbers are a system we use to help us understand and communicate about quantity and value in our world. How many ways are there to represent a number?

Pick a number between 1 and 100. Show this number in as many different ways as you can.

- Can you use words? Numerals? Objects?
- Which way is the easiest to communicate the number to someone else?
- Are different situations better for using different ways to show a number?
- How is each individual number an important part of our number system?

Take a picture or make a piece of artwork showing all the different ways you discovered to represent the number.



North Carolina Department of
PUBLIC INSTRUCTION



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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
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	FPC&G.3.4	Phy.2.3.3	NC.M1.S-ID.1