

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

Balance



ENGLISH LANGUAGE ARTS

A common sight in U.S. courts is the image of Lady Justice - blindfolded, carrying a balance and a sword, and stepping on a snake and a book. She is the Ancient Roman personification (i.e., giving human traits to something nonhuman) of justice. Read more about Lady Justice's symbology: <https://civiconlineresourcecommunity.org/meaning-of-lady-justice> How does this impact us today?

Consider the idea of Lady Justice. What impact does the personification of justice as a woman have on citizens? Why use a woman instead of a man? State your claim and provide clear reasons and relevant evidence to support it.

Stories with personification: <https://www.goodreads.com/shelf/show/personification>



SOCIAL STUDIES

After World War II, the United States and Soviet Union engaged in a state of hostility called the Cold War. Unlike a hot war, with opponents firing at one another, the Cold War was marked by threats, propaganda, and encouraging other countries to join your side. Because each nation had nuclear weapons and knew that the other country also did, there was a balance of power known as mutually assured destruction (MAD). Learn more about the weapons here: <https://youtu.be/gVunlJOyfB0> Scholars believe that the U.S. and the Soviet Union came closest to engaging in hot war during the Cuban Missile Crisis. Listen to this TED talk to learn more: <https://youtu.be/bwWW3sbk4EU> In your journal, analyze the effect of the Cold War and the threat of MAD on life in the U.S. Did MAD bring balance or imbalance to the world? How does this impact us today?



SCIENCE

Any push or pull is a force. Forces that are equal in size but opposite in direction are called balanced forces. Balanced forces do not cause a change in motion. If you push against a wall, neither you nor the wall will move - the force is balanced. Unbalanced forces are not equal and opposite. For example, if a large dog and a small dog are both tugging at the same stick, then the stick is going to move toward the large dog. This is an unbalanced force.

Design a series of activities for a younger student using common items to help them understand the difference in balanced and unbalanced forces. Share your activities using a format of your choice (e.g., activity sheet, video, etc.).



MINDFULNESS

Living a balanced life has a nice sound to it but many students struggle with balancing all their responsibilities and relationships. Try mapping out the important parts of your life to help you decide if you need more balance. Follow the directions at this link, which also has an example for you: <https://docs.google.com/document/d/16rEvWd32mb5q4cW1SN8hSQIQ-H-KW8Ak9TTJdRRjto/edit>

What does your pie say about the balance in your life? Is it round and full or does it look like leftovers? If the circle was a tire on a car what would your ride feel like? Would it be smooth or bumpy? What areas of your life do you need to work on to attain balance? List 5-10 goals that will help you enhance the areas of your pie which need to be better.



LOGIC PUZZLE

An evil warden holds you prisoner but offers you a chance to earn your freedom. Your freedom will be decided by your ability to find a counterfeit coin.

Visit the Prison and Coins Logic Puzzle link: <https://docs.google.com/document/d/1GB982zBdG1B3B3CNxLM208wdu35jim0yhqznPxrTklo/edit?usp=sharing>



FIELD STUDIES

Balance in art refers to the sense of distribution of perceived visual weights that offset one another. Both symmetry and asymmetry can be used to create balance.

Read the article at the link to gain a more in-depth understanding of balance in art: <https://www.sophia.org/tutorials/design-in-art-balance-and-contrast>

Create a piece of art that shows balance using either symmetry or asymmetry.



RESEARCH EXPLORATIONS

Have you ever played or watched tug of war? If the forces on both sides are balanced, no one moves. If the forces are unbalanced, one team will win. Here is a video that gives some examples of balanced and unbalanced forces: https://youtu.be/L_TXu8ih668

A hovercraft uses air to propel itself across a smooth surface. Create your own hovercraft with a few simple objects. <https://youtu.be/tFmIJr8uel>

Experiment with the type of surface you have your hovercraft glide. Do some surfaces work better than others? How does the balance or unbalance of forces help the vehicle lift and move? Create a new sport which uses a hovercraft to play. Describe your sport. What are the rules? How is the game scored? How did balanced and unbalanced forces apply to your sport? Could you have played your sport on the moon?



MATH

A mathematical equation is like a balance. The two expressions on either side of the equal sign must remain equivalent. When solving an equation it is important to perform the same computation on both sides to maintain equivalency or balance.

Visit: <https://solveme.edc.org/Mobiles.html> and play with several different mobiles. The mobiles get more challenging as you progress.

After playing around with the mobiles (be careful this can be addictive), write the equation for five of the mobiles and solve them algebraically.

Be sure to try to build your own feature and have a friend or family member try to solve it.



North Carolina Department of
PUBLIC INSTRUCTION



Balance Reference Guide

2-3 Logic Puzzle:

Solution:

blue = 12; orange = 12

blue ball = 12; blue star = 4

blue = 12; orange = 6

blue = 12; green = 6

https://drive.google.com/file/d/0B624p_IrRSi0QzU3bGpBOWw5S0U/view

4-5 Logic Puzzle:

Solution: The "balance" and "spend" columns do not have to match, and in most cases, will not match. They are not always equivalent because you cannot compare them in that way. The amount in the "balance" is what is left over and depending on how much you "spend," equals what is left (the "balance") and therefore, if you only spend \$1 at a time, you will always have large numbers left over. Whereas, if you spend all of it at one time, you will have \$0 in the "balance."

6-7 Logic Puzzle:

Solution: If the coin picked by the warden is real then the scale would display 0 or an even number. If the coin is fake then the scale will display an odd number.

8-9 Logic Puzzle:

Solution: If the coin picked by the warden is real then the scale would display 0 or an even number. If the coin is fake then the scale will display an odd number.

10-12:

Logic Puzzle Solution: <http://www.bridbles.com/2011/10/hardest-balance-logic-puzzle.html>.

Math Solution: \$156.83

Work on more problems with IXL: <https://www.ixl.com/math/algebra-2/continuously-compounded-interest-word-problems>

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K-12

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NC Standards Alignment

Grade Span	English/ Language Arts	Social Studies	Science	Math
K-1	W.1.1	1.E.1.3 1.E.1.2 1.E.1.3	K.P.2.1 science K.MD.2 -math	NC.1.OA.4 NC.1.OA.7 NC.1.OA.2
2-3	RI.3.2	3.E.1.2 3.E.1.4	3.L.2.2	Mathematical Practice Standard 2
4-5	RI.5.8	5.E.2.2 5.E.2.1 5.E.2.2	4.L.1.1	Mathematical Practice Standard 2
6-7	W.6.1	7.H.2.1 7.H.1	7.P.1.2	NC.6.EE.7 NC.7.EE.4
8-9	W.9-10.2	8.G.1.1 8.G.1.3	8.L.5.2	NC.M1.A-CED.1 NC.M1.A-CED.2
10-12	W.9-10.2	AH2.H.4	PSc 2.2.4	AFM 2.01