

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

Perspective



ENGLISH LANGUAGE ARTS

A pun is a joke that is funny because it includes a word that has multiple meanings. For example, "the spider went to the computer to check his website," is funny because web has two meanings. Understanding the pun depends on your perspective.

Listen to "The Hallow-Weiner" by Dav Pilkey and note the puns you hear:

<https://www.youtube.com/watch?v=Alh9dBiaKgU>

- What makes the puns you heard funny?
- What strategies did you use to figure out the meaning of the puns-context clues, word parts, or word relationships?
- What about Oscar's unique perspective was important in the story?
- How did the dogs' perspective of Oscar change from the beginning to the end of the story?

Write your own sentence, riddle, joke, or story using puns.



SOCIAL STUDIES

Learning about traditions is a way we can gain new perspectives about a culture. Watch this illustrated video of a Cambodian folk song, and consider what perspective you gain about Cambodian culture:

<https://thekidshouldseethis.com/post/flower-dance-cambodian-folk-song-animation-music-video>

Think of a song that has become a part of your traditions and consider what perspective it presents about your culture. Discuss with your family.

- What similarities do you find between the two songs?
- What differences do you find?
- How can music help you see things from a new perspective?
- What other traditions can help us learn about a different culture?



SCIENCE

Watch this video and see a year in the life of our planet Earth from space: <https://thekidshouldseethis.com/post/one-year-on-earth-seen-from-1-million-miles>

<https://thekidshouldseethis.com/post/one-year-on-earth-seen-from-1-million-miles>

- How does Earth look different from space compared to when you are on Earth?
- How does the Moon look from Earth? What would it look like if you were an astronaut on the Moon?
- If you were close to the Sun, what would it look like? What does the Sun look like from Earth?

Some people say, "Earth is a marble in Space." This is called a metaphor which compares two things that are not alike, but share a similar characteristic. Create other metaphors for Earth, the Sun, or the moon.



MINDFULNESS

Things that impact our moods and attitudes can be influenced by our perspectives.

Watch this video about Mojo's perspective on a field trip his class is taking:

<https://www.youtube.com/watch?v=y2ePf66zne8>

- What type of mood was Mojo experiencing?
- How did Mojo's perspective influence his mood?
- What did Mojo learn about moods?
- What are some strategies Mojo could use to get in a better mood?

Share a time when your mood changed as a result of changing your perspective.

Perspective



LOGIC PUZZLE

Solving these analogies will require you to look at the shapes from a new perspective. In each puzzle the first two figures are related to each other in some way. Draw a figure that is related to the third figure in the same way.

1. A blue circle is to a black circle, as a blue square is to ____.
2. Right is to Left, as Down is to ____.
3. An empty box is to a full box, as an empty bowl is to ____.
4. A small triangle is to a large triangle, as a small diamond is to ____.

Create a new shape analogy for someone else to solve.



FIELD STUDIES

Consider ordinary things from a new perspective. Watch this video of animals drinking water:

<https://thekidshouldseethis.com/post/animals-drinking-water-underwater-bucket-cam-field-lab-texas>

- How is the perspective different from how you would observe the typical way animals drink water?
- What are other activities that would look different if you viewed them in a new way?

Create a simple drawing. Find a mirror and hold it so that you can view the drawing you made.

- How is this perspective different from looking at the drawing directly?
- What careers require workers to view things from multiple perspectives?



RESEARCH EXPLORATIONS

There are many details all around us that we cannot see because they are too small for our eyes to perceive. Watch this video to see the details of a butterfly's wing:

<https://thekidshouldseethis.com/post/45801134976>

Take a nature walk. Safely collect some items such as a leaf, rock, pinecone, flower, or bug. Examine them closely. If you have a magnifying glass, use it to zoom in on the tiny details of your items.

- What do you notice?
- What do you wonder?
- Describe what you see up close in your science notebook.
- How does your perspective change your observations during scientific exploration?



MATH

Venn Diagrams are a tool for sorting. Objects can be sorted in a variety of ways based on your perspective.

Make two large circles out of yarn so they overlap:

- Cut out assorted shapes in a variety of sizes.
- Color each shape using at least three different colors. You don't need to color all the same shapes the same color.
- Think about the attributes you could use to sort them (shape, color, size).
- Put one set of shapes into the left circle. Put a different set into the right circle.
- Do any of the shapes in each circle share a common attribute? If so, move them into the shared space in the middle.

Challenge: Try sorting the shapes from a different perspective into new categories and re-sort them into new categories.



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GRADES

2–3

Perspective



ENGLISH LANGUAGE ARTS

One way to gauge a character is to think about what motivates or is most important to the character.

Become a "life coach" for one of the main characters in a book that you are currently reading or have read. Analyze the following areas that impact the character's point-of-view, creating a "vision board" for the character with notes, pictures and symbols analyzing the following:

- age, race, and gender
- experiences, beliefs, and culture
- actions, thoughts, and words

This analysis can be used as evidence of the character's point-of-view and values.

Challenge: Create your own vision board, analyzing yourself according to the same criteria. Think about how you and the character are similar. Different?

From where did your perspective originate and what motivates you?



SOCIAL STUDIES

Important time periods and events throughout history involve many people, which means that the stories should be told from many different perspectives.

Choose a time period or event in our nation's history such as The Great Depression or Civil Rights Movement. Listen to at least three narratives told from different perspectives regarding the time period or event. Use the following interviews from the Library of Congress and Civil Rights Digital Library to get started:

- <https://bit.ly/39W9SVd>
- <https://bit.ly/2OAXsrG>
- <https://bit.ly/30h2lpX>

Create a triple Venn diagram like the example here, (ex: <https://bit.ly/30sHmr5>) comparing the point-of-view from which the story is told, including the facts, experiences and feelings expressed in the stories.

What are commonalities that run through all three stories? What are the differences in perspective?



SCIENCE

The last time the United States experienced a total solar eclipse was on August 21, 2017. The ability to view any type of eclipse depends on your perspective, or where you are located, on Earth. A solar eclipse occurs when the moon is between the sun and Earth and blocks sunlight, which casts a shadow on Earth.

Who experiences solar eclipses? How often do they occur? Does everyone experience the same shadow?

Read more about eclipses on the NASA website:

<https://spaceplace.nasa.gov/eclipses/en/>

Use this video link to create your own solar eclipse viewer: <https://youtu.be/EM2pg-f6ORs>

Calendar of dates and sites for eclipse viewing:

<https://eclipse.gsfc.nasa.gov/solar.html>



MINDFULNESS

Take pictures this week of simple things you might often overlook and examine them from a new perspective that focuses on gratitude. Your photos should focus on a different theme each day, such as food, family, the outdoors, toys, art, friends and music.

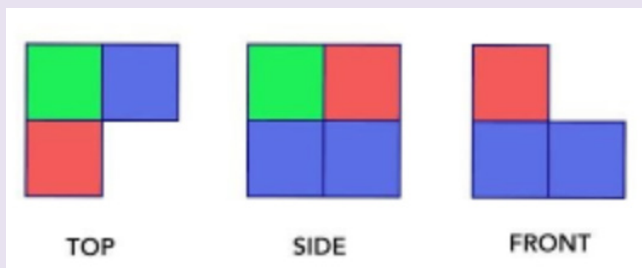
At the end of the week, look through your pictures and create a photo album, slide show, or journal that shows how you can develop an appreciation for everyday things by looking at them with a new perspective.

Share the album with a family member or friend and explain why you're grateful for these things. Challenge them to look at things from a new perspective and create their own gratitude albums.

Perspective



LOGIC PUZZLE



Three views of a stack of colored, cube shaped blocks are shown above.

Question: How many blocks of each color are in the stack?

Question: How are the blocks stacked together? See if you can draw the stack or recreate the stack with blocks.



FIELD STUDIES

Visit the Museum of Modern Art (MoMA) in Manhattan, N.Y., by clicking here: <https://www.moma.org/audio/> and choose an art piece that you like.

Before you read or listen to the explanation of the piece, look closely at the piece (zoom in if you're able) and do the following:

- List what you see with your eye.
- Next, consider what you think might be happening based on what you've seen and write it down.
- Then record what you wonder, asking broader questions that extend beyond what can be seen.

After analyzing the piece, has your perspective changed? If so, how? Now, read about the art piece and listen to the explanation. How does this impact your perspective?



RESEARCH EXPLORATIONS

Optical illusions are images that use color, light, and pattern to "trick" or deceive our brains. Our eyes take in light and special cells that communicate to our brain that tells us what we are seeing. For this to happen quickly, scientists say our brains take "shortcuts." Optical illusions occur when our brains can't quite make sense of what is happening. Therefore, we see movement when there is not any, or colors that are not there.

Art is one way to create an optical illusion. Perspective art is a type of 2D art that appears to get closer to you or farther away. Create your own perspective art using this link:

<https://www.youtube.com/watch?v=WXlg8bgQeqU>

See more optical illusions at this link:

<https://www.amnh.org/explore/ology/brain/optical-illusions-and-how-they-work>



MATH

Perspective is the way one looks at something. Numbers can be used to express your perspective, but it's also important to think about what the numbers represent.

Consider this scenario:

Jamal and his little sister Kyndra have screen time each Sunday evening before bed starting at 7p.m. Last Sunday, Jamal spent $\frac{1}{2}$ of his time watching a movie, and the other half on his iPad. Kyndra spent $\frac{3}{4}$ of her free time on her iPad, and $\frac{1}{4}$ of her time watching her favorite show. The next day, Kyndra and Jamal argue about who spent more time on their iPads.

Mom confirms that Jamal spent more time on his iPad. But how could this be? Jamal only spent $\frac{1}{2}$ of his screen time on the iPad and Kyndra spent $\frac{3}{4}$ of her time. Under what circumstances would $\frac{1}{2}$ be more than $\frac{3}{4}$? What are other examples where $\frac{1}{2}$ is more than $\frac{3}{4}$?



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GRADES

4–5

Perspective



ENGLISH LANGUAGE ARTS

Perspective is impacted by many things such as age, gender, race, experiences, beliefs and culture. A narrator's or speaker's point of view influences how events are described.

Choose two novels you've already read, or two that you'd like to read, that take place during the same historical time period, such as The Great Depression, World War II or the Civil Rights movement. Analyze the age, gender, race, experiences, beliefs and culture of the narrator of each story.

Using your notes, create a historical mural through the eyes of the narrators of each story.



SOCIAL STUDIES

Read about the life of American Indian groups in North Carolina before and after European exploration here:

<https://www.ncpedia.org/american-indians/before-europeans>

After reading, "step inside" the perspective of an American Indian living in NC before the Europeans arrived. Place yourself within this context and "become" this person as you write, reflecting upon the following questions: What can you see or notice around you? What do you know or believe? What do you care deeply about? What do you wonder about?

Complete the same reflective writing exercise from the perspective of an American Indian in NC after the Europeans arrived, asking the same questions from this new perspective. Compare the two perspectives. How are they similar? Different? Create an image to represent each perspective.



SCIENCE

Rainbows are circles? Yes! From our perspective we see an arch because the ground absorbs the bottom half of the circle of light. However, rainbows are not the only phenomenon that occur naturally in the sky. Sun Dogs, or parhelia, occurs in winter when the sun's light refracts off ice crystals. Have you seen a sun dog?

Learn more about sun dogs here:

https://www.weather.gov/arx/why_halos_sundogs_pillars. Share what you have learned about sun dogs with your family. Although the term "sun dog" has

been around for a long time, scientists are not exactly sure where it came from.

Create a story to explain the term from the perspective of a scientist who is seeing one for the first time.



MINDFULNESS

Gratitude is the expression of appreciation for what one has. Recognizing that something has value separate from monetary worth sometimes requires a change in perspective.

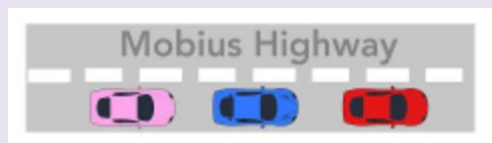
Journal through photos this week, using the perspective of gratitude. Your photos should focus on a different theme each day: energy, people, nature, play, beauty, comfort and music. At the end of the week, look through your pictures of simple, everyday things that, with a change in perspective, aren't so ordinary to you anymore.

Create a presentation using the photos you collected. Include a poem that captures how this exercise changed your perspective on gratitude. Share your presentation with a family member or friend.

Perspective



LOGIC PUZZLE



Three cars (pink, blue, and red) drive on a highway twisted into a Mobius strip, as shown below. If each car stays in its lane and if they all drive exactly the same speed, what will happen? Will the cars meet each other?



FIELD STUDIES

Visit Tate Gallery in London and choose an artist or style of art that you would like to learn more about on the following website:

<https://www.tate.org.uk/kids/explore>

Before you read or listen to the explanation of the piece you selected, look closely and do the following:

- List what you observe with your eye.
- Record what you think might be happening based on what you see.
- Then list what you wonder, asking broader questions that extend beyond what can be seen.

After analyzing the piece, has your perspective changed? If so, how?

Now, read about the art piece and listen to the explanation. To learn more, spend some time researching the artist. How does this impact your perspective?



RESEARCH EXPLORATIONS

Our individual perspectives shape our opinions and how we view the world. However, our perspective can create bias, including in the way we interpret data. People often confuse "correlation," a relationship or connection between two variables and "causation," when one thing causes another.

For example, if every time I flipped a quarter with my right hand, it landed on heads, does this mean flipping the quarter with my right hand caused it to land on heads? What if I told you I only flipped the quarter once? Is that convincing? What if it happened 1,000 times? More convincing?

Discuss with a friend or family member this example and others where bias is a factor in the interpretation of data and shaping each of our perspectives.



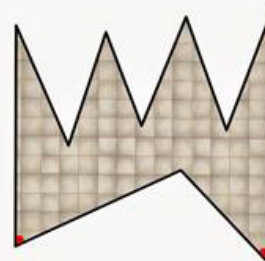
MATH

The Museum Problem

The diagram below shows the floorplan of an art museum.

Two guards stand in corners of the room (where the red dots are).

What part of the room can't the guards see from where they stand? Assume they can see 360 degrees around but (obviously) not through walls.



Is it possible to place the two guards so that they can see the entire museum? If so, where should they stand?



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GRADES

6–7

Perspective



ENGLISH LANGUAGE ARTS

Select a novel or short story to read. While you are reading, analyze what different characters do, say, and think throughout the text to determine how the author has developed and communicated his/ her unique perspective.

Track the characters using a chart. Label the columns: character, character's perspective, and how the author develops that perspective. After you have collected this information and analyzed it, evaluate what techniques the author used to develop different perspectives.

Was it effective? Why or why not? Explain in a short essay.



SOCIAL STUDIES

Sometimes our perspective on historical figures changes over time. For example, North Carolina Governors Zebulon Baird Vance and Charles Brantley Aycock were both popular and successful governors. Both have many schools named after them, both of their childhood homes are historic sites you can visit, and Vance even has a county named for him.

In the 21st Century, however, they have not been viewed as favorably as they once were. Many citizens have advocated for their names to be removed from monuments and schools. Research why the perspective on these two individuals has shifted over time.

Could individuals we honor today be considered inappropriate for honor in another hundred years? Record a podcast discussing this controversy and how perspectives shift over time.



SCIENCE

Imagine you are a farmer who grows large crops of corn to sell. You must decide if insecticides, herbicides, and fertilizer will be used to address issues such as pests, weeds, and soil infertility. Consider the impact of your choices.

Read the information on the following website and learn to see how common these practices are in the United States: <https://www.ers.usda.gov/topics/farm-practices-management/crop-livestock-practices/pest-management>

If you choose to use these products, what will happen to these chemicals when it rains? Could your neighbors be impacted? If your crops fail, how will this impact people who shop for fresh corn?

Create a diagram or chart recording the different stakeholders involved and their opinions on how corn is grown. Which stakeholder's perspective should be followed, if you are prioritizing the health of humans as your deciding factor?



MINDFULNESS

Artist Alex S. MacLean takes photos from a different perspective. As a pilot, MacLean spends a great deal of time looking at the world from the air. Watch this video about MacLean's work: <https://bit.ly/2CE4ARV>

See more of his artwork on this website: <http://www.landslides.com/>

After viewing MacLean's artwork, decide what you like or do not like about it. Why do you think MacLean chose to express himself in this way? How does the perspective change MacLean's art?

Take a picture or draw one from an unusual perspective, from up close or from far away, from above or below the object. Be sure it is not taken from the perspective that you normally view the object. Keep your art in a place as a reminder to look at things from all perspectives.

Perspective



LOGIC PUZZLE

What makes a maze difficult to solve? Is it possible to look at a maze mathematically or does it depend on the perspective of each person?

The eye can easily become lost in a set of parallel passages. Are you looking down on the maze, solving it using your eyes? With a pencil? What if you're walking around inside the maze? Try this one:

<https://bit.ly/3hwKBmP>

Make your own maze using the online coding program, Scratch: <https://scratch.mit.edu/>

For further guidance, follow the instructions on the video here: <https://bit.ly/3eSQucu>



FIELD STUDIES

When we look up in the clear night sky, we see stars, airplanes, maybe the moon, planets, possibly the International Space Station, and sometimes meteors (e.g., shooting stars). What would Earth look like from a different perspective? Study the photos on the following websites:

- Historical photos: <https://go.nasa.gov/3hkpe8q>
- Satellite image: <https://epic.gsfc.nasa.gov/>
- Livestream from the International Space Station: <https://www.youtube.com/watch?v=xRPjKQtRXR8>

What do you notice from the images? What surprises you? Can you see landforms? Weather systems? Can you determine where one ocean ends, and another begins?

Reflect on these questions as you write a poem or create a piece of art that shares what you have noticed about your view of Earth from a different perspective.



RESEARCH EXPLORATIONS

How has space flight changed the men and women who have taken this unique journey? Listen to former NASA astronaut and NFL linebacker, Leland Melvin, talk about how traveling to space changed his perspective on life: <https://youtu.be/le-UZ5MR7F4>

Read the testimonials from NASA scientists about how man's journey into space has changed their perspectives and influenced their careers on the website below: <https://earthobservatory.nasa.gov/features/EarthPerspectives>

Create a book for children that tells the story of how seeing Earth from space is an experience that changes people's perspectives on life. Include illustrations in your children's book that will engage the reader.



MATH

Watch the video below to learn how to create a perspective drawing with one vanishing point. Practice drawing prisms from different angles.

https://www.youtube.com/watch?v=zrLBNYAKNE&feature=emb_logo

Once you have practiced drawing, plot the points $(-3, 4)$, $(-3, 10)$, $(-8, 4)$, and $(-8, 10)$ on a coordinate grid. Use the x-axis as the eye-level line and use the origin as the viewpoint. Use your new skill to create a perspective drawing for the rectangle you plotted.

Reflect the original rectangle over the y-axis and the x-axis to create more perspectives. How are your drawings similar? Different? Add to your drawing to create a piece of art.



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GRADES

8–9

Perspective



ENGLISH LANGUAGE ARTS

When analyzing literature, consider the difference in point of view and perspective. Point of view is the narrator's position in the story while perspective is the lens or attitude through which we see things.

Read "The Gift of the Magi" by North Carolina native William Sydney Porter, who wrote using the name O'Henry at this link:

<https://www.classicshorts.com/stories/magi.html>

Use a Venn Diagram to compare and contrast what either Della or Jim knows, thinks, and feels to what you know and feel as the reader. Include evidence from the text to support your thinking.

- How do these different perspectives (i.e., that of the character and that of the reader) affect the mood of the text for the reader?
- Was the author successful at creating suspense or humor? Explain.



SOCIAL STUDIES

Primary documents help us gain a deeper understanding of different perspectives in history.

Complete this lesson published by the New York Times in collaboration with the Smithsonian's National Museum of African American History and Culture. Through a series of artifacts and primary documents (the essay), consider the perspective of the individuals who were enslaved. In your journal, reflect on the questions posed in the lesson.

Website to access the Lesson: <https://drive.google.com/file/d/1N0n02yHUe5EOwt2KTsoh8K5mfirbLX3z/view?usp=sharing>



SCIENCE

A study in 2017 in a rural county in Alabama showed 35% of septic systems were failing and 15% of these homes were straight piping raw sewage into streams, creeks, or ditches. Raw sewage contains pathogens that contaminate local ecological systems and sickens humans and animals.

A homeowner can receive a hefty fine for purposefully dumping raw sewage, but repairing a failing septic system can cost more than \$20,000. For most Americans, this is not an affordable cost, which is why they may be at risk for paying a fine.

Research this situation. Propose a solution to the problem so that water quality can be preserved without bankrupting citizens. Prepare a presentation to a stakeholder who can help to implement your plan.



MINDFULNESS

Gratitude journals are a great tool to help you keep track of the good things in your life. Journaling is a simple way to provide a new perspective on what is important to you and what you truly appreciate in your life. The difference between a mindful gratitude journal and just journaling is the focus on gratitude.

Engaging in the practice of gratitude journaling works best only if it's done a few times a week. Before you begin journaling, take time to think about what you are grateful for. Start with just one to three things each time you journal. Be sure to include why you are grateful. Reflect on what your life might be like without the blessings you are writing about.

Perspective



LOGIC PUZZLE

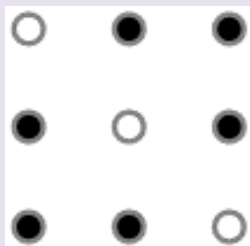
Minarets are towers from which Muslims are called to prayer. The oldest minaret dates back to 724 and was built in Tunisia in North Africa. Minarets in the utopian downtown of New Istanbul were built to be so beautiful that it was the law that from every minaret, every other minaret may be seen. When the downtown was small this was relatively easy.

Here is the problem for you to solve:

<https://bit.ly/3fVFkVF>

As the city grew, the building of the minarets became more complicated. You can see an incorrect way to place eight minarets. Can you find one of two correct placements of the minarets?

Create a placement design for 10 minarets in a 20 x 20 grid. What is the maximum number of minarets you can place?



FIELD STUDIES

Prior to the Renaissance, European paintings were symbolic rather than realistic. Important figures were shown as larger than other figures in a painting. Starting in the 1400s, artists began using perspective to create an illusion of space and depth.

There are several kinds of perspective:

- Linear - using converging lines and vanishing points that make objects appear smaller the farther away from the viewer they are.
- Aerial - painting things in the distance with a lighter or cooler hue.
- Foreshortening - making an object recede into the distance by shortening its length.

Create two drawings or paintings of the same subject. Create one using the technique of perspective and one without perspective. For additional information, visit this link: <https://bit.ly/2CXwbNS>



RESEARCH EXPLORATIONS

Forced perspective is an illusion used to make an object seem farther away, closer, larger, or smaller than it actually is. Search Google images for examples of forced perspective images. Were you able to determine how the illusions were created?

Watch the video on the following website to learn about the mathematics behind forced perspective:

https://www.youtube.com/watch?v=pl4ah_HvWkg

Watch to see how to use forced perspective to create a scene from The Hobbit:

<https://www.wired.com/2012/12/how-to-make-a-hobbit-with-forced-perspective/>

Research different ways to create a forced perspective illusion. Use your research to create several photos. Create a gallery of forced perspective art to share with others.



MATH

Veronica is making patchwork cushions. She uses material cut into triangles and squares in the pattern shown in the picture. The backs of the cushions are made of plain material and are not patchwork.

Veronica makes many other sizes. For a visual of her cushions, use this link: <https://bit.ly/2OL6XF5>

Write a function to help Veronica determine the number of triangles she needs for different sizes of cushions. Explain how you solved it. Write a function to help Veronica decide the number of squares for different sizes. How does your function model the cushions Veronica is making? Create a function with a different structure. The new function should give you the same result but should be written in a different format.

Which function best models Veronica's cushion-making situation? Explain your reasoning.



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GRADES
10-12

Perspective



ENGLISH LANGUAGE ARTS

Choose a selection written by a British author after 1950. Highlight words in the text that engage you in different ways, including words that create vivid imagery or make you want to read more.

Write a letter to your English teacher about these word choices and how your perspective of the text would be different if the author had chosen other words.

How did these word choices contribute to the meaning of the text? What language did you find particularly engaging? What made this language engaging?

Would the meaning of the text change if you rewrote it from your perspective by replacing the previously selected words with modern or slang verbiage?



SOCIAL STUDIES

Select a conflict or compromise from American History. Be sure to examine primary sources such as oral histories or historical documents to ensure historical accuracy in the following task.

Create a comic based on your analysis and perspective of the importance of a conflict or compromise in American History.

A great resource for primary sources is the Library of Congress website: <https://www.loc.gov/>

Your comic strip should contain:

- 4-6 panels
- Explicit statement of the conflict or compromise you are researching.
- Statement of how this conflict or compromise has shaped American politics, economics, or culture.
- A Works Cited page that includes at least 2 primary sources.



SCIENCE

Research the importance of the ant population in a local ecosystem.

- How have they sustained themselves over time?
- Why are they an important contributor?
- What is your perspective on the importance of the ant population?

Write a speech or song from the perspective of an ant, persuading others of its importance in the local ecosystem. Be sure to include how you have contributed to the stability of your ecosystem and kept your ecosystem stable for centuries.

Observe a typical day in the life of ants: <https://www.youtube.com/watch?v=cLVrCAFq1VU>



MINDFULNESS

Create your own "My Perspective Map." Use this as a graphic tool to help you gain a better understanding of what shapes you as an individual.

1. Write your name in the center of a sheet of paper and circle it.
2. Write the answers to these questions around your name on the paper:
 - Who am I?
 - What describes me?
 - How do I portray myself to others?
 - What do others think of me?

After your map is complete, reflect on the following questions:

1. What could change on my map, based on the previous questions you answered?
2. How much control do I have over these changes?
3. How might changes on my map affect decisions I make in life?

Record your answers in a journal.

Perspective



LOGIC PUZZLE

A Ping Pong Ball in a Hole

Your last good ping pong ball fell down into a narrow metal pipe, embedded in concrete, one foot deep.

How can you get it out undamaged, if all the tools you have are your tennis paddle, your shoelaces, and your plastic water bottle, which does not fit in the pipe?



FIELD STUDIES

Many consider the life and work of designer Eva Zeisel captivating.

Use her motifs and patterns as inspiration to design your own tessellating pattern using a potato stamp and acrylic paint. Follow the directions from the Smithsonian Design Museum here:

<https://s.si.edu/2CuKhXd>

After completing your potato art, answer the following questions:

- How do you feel about Eva's perspective when you think of tessellating patterns and usefulness of her artwork?
- What do your pattern and color selection say about your perspective?

Search to learn more about Eva Zeisel and her artistic perspective by visiting the Museum of Modern Art site here: <https://www.moma.org/>



RESEARCH EXPLORATIONS

Search for items that interest you such as figurines, pages from an old book, rocks, etc. Create your own "World in A Box" using these items that symbolize your unique perspective. You will need a box, glue, tape, and interesting odds and ends.

This link provides examples:

<https://hirshhorn.si.edu/explore/a-world-in-a-box/>

On an index card answer the following questions:

- Why did you include the items that you selected?
- Analyze these items. What do they reveal about your perspective on things that are important to you?
- What does this perspective tell you about yourself?

Tape your index card on the back of your box for future reference. Share what you learned about yourself with a friend or family member.

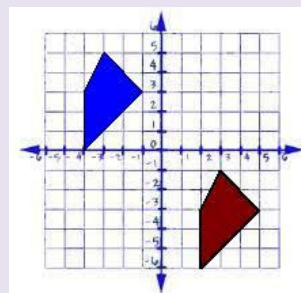


MATH

Perspectives can change in mathematics, through transformations. Begin with a parallelogram ABCD that has coordinates A(4,-4), B(8,8), C(15,3) and D(8,-1). Consider the following transformations and predict how the lengths, perimeter, area and angle measures will change:

1. A rotation of 270° counterclockwise about the origin.
2. A dilation of scale factor 5 about the origin.
3. A translation to the right 6 and down 4

How does your perspective change with each transformation? Which transformations preserved the size and/or shape, and which did not? Generalize: Which types of transformation(s) will produce congruent figures?



Perspective Reference Guide

2-3 Logic Puzzle:

Solution: If we assume that the blocks are stacked without any glue, then this is the configuration of the blocks, with 3 blue, 1 green and 1 red.

If we assume that the blocks are fastened together in some way, then we don't need one of the blue supporting blocks from the bottom layer.

4-5 Logic Puzzle:

Solution: The blue car and red car will crash into each other. They are in the same lane going in opposite directions. The pink car is safely in the other lane.

One way to see this is to cut the two lanes apart. You end up with a single strip of paper, but this time it is twisted twice, so it is no longer a Mobius strip. (It has 2 sides rather than 1.) You can see from the photo that the red and blue cars are on one side of the strip, heading toward each other.

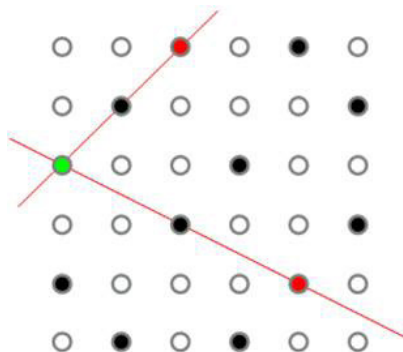
4-5 Math:

Answer: https://drive.google.com/file/d/13csWWKfqDkr_NvB2d8-yW3-3kpEyBi8m/view?usp=sharing

Source: <https://www.1001mathproblems.com/search/label/2D%20spatial%20reasoning>

8-9 Logic Puzzle:

Solution:



10-12 Logic Puzzle:

Solution: All the tools are random things that are not going to help you. All you have to do is pour some water into the pipe so that the ball swims up on the surface.

ADVANCED LEARNING LABS

Collaboration between NC Department of Public Instruction and AIG Teachers across the state
TO ENGAGE, ACTIVATE, AND GROW OUR STUDENTS

PERSPECTIVE

NC STANDARDS ALIGNMENT

Grade Span	English/ Language Arts	Social Studies	Science	Math
K-1	L.1.4	1.C.1.1	ESS.1.1.1	NC.1.G.2
2-3	RL.3.6	3.H.1.3	ESS.3.1	NC.3.NF.4
4-5	RL.5.6	4.H.1.2 4.H.1.5	PS.4.3	NC.4.NF.1
6-7	RL.7.6	6E.1.1	ESS.6.3	NC.6.NS.8
8-9	RL.8.6	8.H.1.3	ESS.8.3.2	NC.M1.A.SSE.b NC.M1A.CED.1
10-12	RI.11-12.4	AH1.H.4	LS.Bio.4.2	NC.M2.G-CO.5

