

## Interactions

### Grades K-1

#### English Language Arts

Picture books combine illustrations and words to tell a story. Their interactions give us clues about the story and both the words and the pictures are important to our understanding.

Choose your favorite or a new to you picture book. Read it!

- If there were no pictures, how would that change the story?
- If there were no words, how would that change the story?
- How do the illustrations and words interact to make the story more interesting?

Challenge: Design your own picture book; use words and illustrations to tell your story.

#### Social Studies

How do people interact with the environment? Choose two places in North Carolina from the 360cities website: <https://bit.ly/3fGAxY1>

Look at the pictures of the places you selected. Consider how these places have been impacted by people.

- What do you see in the pictures that is natural?
- What do you see that is made by humans?
- How do people help and harm the environment?

Think about your own neighborhood. Draw a picture or make a list of ways people interact with the environment where you live. Some examples are planting, cutting trees, construction, and feeding birds.

#### Science

How do substances interact? Ask your parents to help you with this activity to find out.

1. Collect two empty plastic water bottles. Fill one with  $\frac{1}{4}$  cup water. Fill the other with  $\frac{1}{4}$  cup vinegar.
2. Gather two balloons. Put two tablespoons of baking soda into one and two tablespoons of sugar into the other.
3. Carefully attach the balloons around the mouth of each bottle - baking soda with vinegar, sugar with water. Don't let the baking soda or sugar drop into the liquids.
4. Make a prediction.
5. Lift the balloons so the baking soda and sugar drop into the liquids.
6. Record your observations.

Consider the water, vinegar, sugar, and baking soda. Use your senses to describe the properties of each substance.

Which interaction caused a chemical reaction?

### Mindfulness

How do your senses help you interact with your environment?

Take a walk in your backyard or neighborhood. Use your senses to help you explore.

- What do you see?
- What do you hear?
- What do you smell?
- How does the ground feel beneath your feet?

When you go back inside, draw a picture or write in a journal about your walk. Show how your senses helped you interact with the things you encountered. How does your body feel after your walk?

### Logic Puzzle

Even numbers can be divided into two equal groups. Odd numbers have one left over. For example can 5 be split into equal groups? No, it cannot. This means 5 is an odd number! Which numbers between 1 and 10 are even? Which are odd?

After you have determined which numbers are odd and which are even, think about how they interact.

- If all the odd numbers are silly and all the even numbers are serious, will an odd number plus an even number be silly or serious?
- What about an even plus an even?
- What about an odd plus an odd?
- What big statement can you make about how odd and even numbers interact?

### Field Studies

Humans interact with animals in many ways. How do people interact with their pets? One type of special relationship a dog can have with a human is as a service animal. Watch this video to learn about service animals: <https://www.youtube.com/watch?v=aXTX88WKHaE>

- What is something you learned in this video?
- What do you wonder after watching it?
- Why are service animals important in our world?
- How can interactions between humans and animals affect humans?
- How can interactions between humans and animals affect animals?

Make a cause and effect chart that illustrates the interactions between animals and humans. Use illustrations and words.

## Research Explorations

Code interacts with a computer and tells it what to do. Can your family play this game to interact like a computer and a coder?

1. Select a room in your home to be the starting room. Blindfold Player 1 (the computer). Both players know where the game starts.
2. Player 2 (the coder) gives Player 1 clear detailed directions to lead them to a new room.
3. Player 1 goes to the new room (the end of the code) and tries to guess where in the house they are located.

What is the fewest number of directions you can give to get to a certain destination? What did you learn about how a coder interacts with a computer? Do you prefer being the computer or the coder?

## Math

Katie has a number machine. Numbers interact with the machine and come out a different number.

- When she enters the number 2 in the machine, the number 4 comes out.
- When she enters the number 5 in the machine, the number 10 comes out.
- When she enters the number 10 in the machine, the number 20 comes out.
- When she enters the number 100 in the machine, the number 200 comes out.

What happens to numbers when they go in the machine? How do you know? Pick a few more numbers and determine what happens when they enter the machine.

Create a rule about patterns.

## Grades 10-12

### English Language Arts

*"I am lonely, yet not everybody will do. I don't know why, some people fill the gaps and others emphasize my loneliness."* – Anaïs Nin

When people think about human interactions, very few pay attention to social isolation and loneliness. Imagine a friend or loved one writing the quote. Write a letter to him/her addressing loneliness and offer support. While you are composing your letter, consider the following:

- How do you explain the importance of social interactions?
- Does the person find comfort in his/her loneliness?
- How will the person feel about receiving the letter?
- What resources can you provide?

If you know someone personally who is experiencing loneliness, share the letter with him/her.

## Social Studies

The United States has interactions with countries all over the world, forming bilateral relationships. A bilateral relationship is when two sovereign states agree to diplomacy to conduct various relations. Visit the archived (<https://bit.ly/32s9Anh>) and current (<https://bit.ly/30jQ9KF>) U.S. Bilateral Relations Fact Sheet.

Select a country and compare its relationship with the U.S. in 2016 and 2020. Make a two-column list to answer the following questions:

1. What was the nature of the relationship between the U.S. and your selected country (allies, adversaries)?
2. What were the U.S. objectives vis-a-vis this country in 2016 and in 2020?
3. How have both countries impacted each other culturally and economically?
4. What was the role of the U.S. in offering assistance and national security?

## Science

Viruses are the most common biological entities on Earth. Viruses contain nucleic acid, which can be either single- or double- stranded RNA or DNA.

Viruses can only survive in the environment for a period of time, therefore they rely on the cells of other organisms to mutate and reproduce.

Select a viral disease from the site: <https://www.healthline.com/health/viral-diseases>

Create a flowchart explaining how the virus interacts with the human body from initiation to vaccination. Include a description of each phase and the effects on the host.

- What part of the body does your virus interact with and what happens once it is infected?
- Is there a vaccine? If yes, how does it impact the virus?
- How can we prevent contact with the virus?

## Mindfulness

Being around people who make us happy is relatively easy. What about being around those who are a bit challenging? They too, deserve our best selves. It's easy to get frustrated, but it's harder to calm down and forgive. Take a moment to practice some mindful meditation with this video, which includes an exercise to practice compassion with difficult people: <https://youtu.be/oEplqZYUUVk>

Reflect on a negative interaction you've had with someone. How could the exercise from the video have helped you handle it differently? In your journal, write 3 other scenarios that often happen during high school.

How can you use this and other mindful meditation strategies to increase the odds of having more positive interactions with others?

## Logic Puzzle

The Antisocial Club meets every week at Jim's Diner. Since they are so antisocial, however, everyone always sits as far as possible from each other, and no one ever sits right next to another member. Because of this, the 25-stool diner counter is almost always less than half full and unfortunately for Jim, the members who don't sit at the counter don't order any appetizers.

Jim, however, is pretty smart and makes up a new rule to maximize his profits:

The first person to sit at the counter has to sit at one of two particular stools. If this happens, then the maximum number of members will sit at the counter. Which stools must be chosen?

*Assume the stools are numbered 1 to 25 and are arranged in a straight line.*

## Field Studies

Meet The BLT. Not bacon, lettuce, and tomato. The bear, lion, and tiger known affectionately as Baloo, Leo, and Shere Khan at Noah's Ark Sanctuary: <http://www.noahs-ark.org/animals/?category=1>

Discovered by Atlanta authorities during a raid in 2001, they continue to thrive together, but individually, they have an interesting story to tell. Baloo, Leo, and Shere Khan interact with each other as a family unit despite their differences. The relationship formed between a bear, tiger, and lion doesn't happen naturally in the real world.

After you visit the sanctuary, consider these questions:

1. What does this interspecies interaction say about wild animals versus domestic animals?
2. How did human interaction impact the animals' survival?
3. What can humans learn from this interaction?

## Research Explorations

Social distancing has become the norm to prevent the spread of COVID-19. The world is now looking for innovative ways to connect again. What is your proposed solution (product, service, or combination) to reintroduce human interaction while social distancing? Research the CDC guidelines about social distancing: <https://bit.ly/2OSvrwe>

Propose a written plan that will allow people to safely interact again. Your plan should include each of the following:

- Overview
- Purpose
- Targeted audience
- Design and development
- Financial factors

Present your plan to community officials.

## Math

The world runs on water for daily survival, but due to human interactions, water stress levels have become a national crisis. According to the World Resources Institute, “more than a billion people currently live in water-scarce regions, and as many as 3.5 billion could experience water scarcity by 2025.” Overpopulation, along with climate change, reduces the availability of freshwater and impacts once thriving ecosystems.

Study the graph provided by New York Times about water stress levels in populated areas around the world: <https://bit.ly/3fEnwyf>

- What can you determine about the water stress levels from analyzing the graph?
- Predict water levels in 5 years. 10 years.
- What factors contribute to some countries having lower levels?

List 3 solutions for highly populated areas to lower their water stress levels. Explain the impact.

## Reference Guide

### K-1 English/Language Arts:

Ideas for great picture books:

Where the Wild Things Are- written and illustrated by Maurice Sendak  
Hair Love- written by Matthew A. Cherry illustrated by Vashti Harrison  
Miss Rumphius written and illustrated by Barbara Cooney

A Big Mooncake for Little Star written and illustrated by Grace Lin

### K-1 Logic Puzzle:

Odd plus an even = odd (silly) Even plus an even = even (serious) Odd plus an odd = even (serious)

### 10-12 English/Language Arts:

Additional information on loneliness: <https://www.healthline.com/health/how-to-deal-with-loneliness>

### 10-12 Logic Puzzle:

Solution: The first person must take either stool 9 or 17 (because of symmetry, it doesn't matter which). Assume they pick seat 9. The next person will pick seat 25, since it is the furthest from seat 9. The next two people will take Seats one and 17. The next three will occupy 5, 13, and 21. The next six will occupy 3, 7, 11, 15, 19, and 23. This seats the maximum of 13 people, and no one is sitting next to another person. If a seat other than 9 or 17 is chosen first, the total diner patrons will be less than 13.

<https://www.braingle.com/brainteasers/teaser.php?op=2&id=5159&comm=0>