

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

Time



ENGLISH LANGUAGE ARTS

Time influences our schedule every day. It starts when we wake up and ends when we go to bed.

- Do you have a bedtime set by your family?
- Do you think kids should have a set bedtime?
- Is the time you go to bed important, and who should make this decision?

Decide if kids should or should not have a bedtime. Create one advertisement to convince parents and one advertisement to convince kids about your opinion on bedtimes. Be sure to include at least three reasons that will convince your audience.



SOCIAL STUDIES

Communities change over time. Examine this photograph from the past of a bookmobile in Rockingham County, NC: <https://digital.ncdcr.gov/digital/collection/p249901coll36/id/576>

What do you notice? What do you wonder?

Compare this photo to your school or town library.

- What is the same? What is different?
- Why do you think some things have changed?
- How might the perspectives of the librarians and the children be different?
- What might libraries be like in the future?

Design your dream library of the future by drawing a picture, a diagram, or writing about your idea.



SCIENCE

Seasons are a way we mark the passage of time in a year. Watch this time lapse video of a year in a forest: <https://thekidshouldseethis.com/post/a-forest-year>

Watch the video again and pause when you notice the season is changing.

- What clues from nature show that the season is changing?
- Would you like to live in this place? Why or why not?

Adopt a tree in your neighborhood to observe for a year. Each week, write and draw detailed observations about your tree in a science notebook.

Make notes of changes including, animals you observe, the weather, and what you smell, hear and feel. At the end of the year reflect on the changes your tree has made over time.



MINDFULNESS

Mindful eating is a practice that helps us have better control over our eating habits. The time we spend chewing our food is rarely something people think about but slowing down can allow you to experience food you are eating in a new way.

Find a food you like to eat. Before you begin eating, pause to smell it. Put it in your mouth, but before you begin chewing, close your eyes, chew slowly, and consider its taste and texture. Swallow your bite, and notice what flavors linger in your mouth.

- How is eating different when you go slowly?
- When you stopped to notice your senses, how did it change the experience of eating?
- What would be the benefit of spending more time eating all of your meals?
- What foods do you think would be most enjoyable in practicing mindful eating?

Time



LOGIC PUZZLE

Challenge 1:

At what exact times during the day are the hour and the minute hand pointing to the same number on the clock? This means the hands are covering each other. Is there a pattern?

Starting point hint: One time this happens is at 12:00 when both hands are pointing towards the twelve.

Challenge 2:

At what times during the day is the time on a digital clock a palindrome? A palindrome is the same when you read it forward and backward. Examples include 12:21 and 5:05.

Tip: Look at a clock or use a play clock to help you figure these out!



FIELD STUDIES

Use the following link to visit a clock repair shop:

<https://vimeo.com/34254295>

- What do you notice? What did you wonder?
- How did Mr. Sutton learn to take care of clocks?
- Is this a career you would be interested in having? Why or why not?

What types of clocks do you have in your home? Choose one to observe for 5 minutes. Record your observations by writing and/or drawing.

If you have a broken clock or watch, ask an adult if they can help you take it apart. Taking apart unused things helps us understand how they work. Describe what you find inside by writing and/or drawing.

- What did you learn about how clocks work to tell time?
- How do you think clocks will change in the future?



RESEARCH EXPLORATIONS

How does a shadow change over time? Measure your shadow throughout the day.

1. Go outside every hour and stand in the same place.
2. Have a helper trace your shadow with chalk.
3. Mark the time by each tracing.
4. Measure your shadows and record your data on a piece of paper. (Example 9:00-10 inches)

What can you say about how the time of day changes your shadow?

- At what time was your shadow the tallest? Shortest?
- Did your shadow change in other ways?
- Why do you think your shadow changes as the day goes by?
- Do humans use shadows to measure time? Describe a time you have seen this.



MATH

Use the following diagram to show how you spend time during a school day. Color the hour blocks:

- *sleep-blue
- *activities-green
- *school-yellow
- *family time-red
- *free time- purple

12	1	2	3	4	5	6	7	8	9	10	11
12	1	2	3	4	5	6	7	8	9	10	11

- How many hours do you sleep? How many hours are left?
- How many hours do you go to school? Is that more or less time than you spend with your family?
- What activity are you participating in the most? The least?
- If you could change one thing, what would you change about how you spend your time?

Share your findings with family members. How do your findings compare with how your family members spend their time?



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2–3

Time



ENGLISH LANGUAGE ARTS

Reading is a wonderful way to spend time learning, relaxing and even escaping the current time. It is also a way we can make connections about what we learn to ourselves and to the world around us.

Choose and read a fiction or informational book. As you read, think about personal connections you can make to your life and experiences, other texts you have read and the world around you by creating a mind map.

Record the connections you make in these areas and continue to add to your map as you complete the book.

To learn more about mind mapping for students, visit this link: <https://www.mindmeister.com/blog/students-guide-to-mind-mapping/>



SOCIAL STUDIES

A historical narrative is a story of a historical event or time period. It is a powerful vehicle that shows change over time and offers a glimpse into past events, people and places. The art of storytelling is a historical narrative in and of itself.

Read the book, *I am a Story* by Dan Yaccarino (or listen to the story here: <https://youtu.be/XVScmY-hroA>) and/or this article "The Evolution of Storytelling:" <https://reporter.rit.edu/tech/evolution-storytelling>.

Create a timeline on the history of storytelling using pictures or by acting out various storytelling methods and changes. Share this timeline with others. Take it a step further and research a topic that interests you. Create a timeline of how the topic has changed over time (include the past, present, and future of your topic.)



SCIENCE

One of the jobs of the National Hurricane Center is to keep track of hurricane data. On their website, <https://www.nhc.noaa.gov/climo/>, you can observe hurricane data that dates back to the 1800's.

As you scroll through the various graphs, what patterns do you notice? Where do hurricanes tend to form? What months are typically part of "hurricane season?" What other questions do you have about the patterns of hurricanes that can be answered by examining these graphs?

Track this year's hurricane season and record your observations.

- Did this season follow the usual hurricane patterns?
- Is there anything that occurred that did not follow the pattern?



MINDFULNESS

Socrates, an ancient Greek philosopher, had three principles of life he thought were the most important goals of philosophy. One was to be a good person. The other two principles are to care for your soul and discover and pursue your life's purpose. He believed that taking time to care for ourselves leads us to care for others and taking time to pay attention to our own thoughts and attitudes through self-reflection and meditation leads to an ideal state of being.

Today, set aside some time for self-care; spend some time doing something that you love, gives you energy, or makes you happy.

Designate a time in your day for self-reflection. Find a quiet, calm space to sit and breathe and think about you. Reflect on how taking time for self-care and self-reflection impacted the quality of your day and your interactions with others. Are there ways to make time for yourself every day? Record your thoughts in a journal.

Time



LOGIC PUZZLE

Time Marches On

How many times during a day do the hour and minute hands of a clock point in the same direction?

Make a prediction.

Now, get a clock and check your guess. What did you discover?



FIELD STUDIES

A time capsule is a container storing a selection of objects that are typical of the present time, buried for discovery in the future. It's a snapshot of a moment in history that can offer a glimpse into the past.

Watch this video from National Geographic Kids to learn about a 100-Year-Old time capsule that was finally opened: <https://youtu.be/6btpDxGI748>

Now it's time to make your own time capsule. It can be a capsule about your own life or one that focuses on the current time period in our state, country, world, or all of the above. Hide or bury the time capsule and designate a time in the future to open it and examine its contents.

Here are some ideas to get started:

<https://www.joincake.com/blog/time-capsule-ideas/>



RESEARCH EXPLORATIONS

Three dimensional, or 3D, are the units of length, width, and height. When you factor in the unit of time, you get four dimensions. Spacetime continuum is credited to Albert Einstein, but some say it was his teacher, Hermann Minkowski who connected space and time, two ideas previously believed to be unrelated. Read more about Einstein, Minkowski, and spacetime. Make sure to investigate what NASA says about our ability to time travel; you might be surprised.

- <https://www.wonderopolis.org/wonder/what-is-the-space-time-continuum>
- <https://bit.ly/32Bwzwwg>
- <https://spaceplace.nasa.gov/time-travel/en/>

Share what you've learned with your family. What part of time, past or future, would you and your family like to travel to and why?



MATH

The World Meteorological Association has established a hurricane naming procedure where there are 6 lists of names that are alternated every 6 years (on the 7th year, list number 1 is used again).

Due to the severity of certain storms, names have been "retired" over time. See a list of these names on the National Hurricane Center's website:

https://www.nhc.noaa.gov/aboutnames_history.shtml

Choose a ten-year time span and create a bar graph that shows how many names were retired each year. Examine the list further on the webpage and identify the names in alphabetical order. This time create a bar graph that shows retired names by the first letter.

For fun, create your own list of Hurricane names, one for each letter A-W.



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4–5

Time



ENGLISH LANGUAGE ARTS

Reading is a wonderful way to spend time, especially when we connect what we read to ourselves and the world. Choose a fiction or informational book that interests you. As you read, relate to the text in the following four ways, writing your thoughts in each section:

- Connections: What connections can you make between the text and your own life?
- Challenge: What ideas or positions do you want to challenge in the text?
- Concepts: What key concepts or big ideas are important from the text?
- Changes: What changes have you made in your own thinking, attitudes or behaviors or those of others?

Download the graphic organizer to record your thoughts: <https://bit.ly/32CCK35>

Share your thoughts in a video diary or journal.



SOCIAL STUDIES

A transition is the process of changing from one state, stage, subject, place, or condition to another. Our lives are full of transitions, some minor and some major.

Brainstorm a list of minor and major transitions that people go through in their lives. Ask friends and family to help you brainstorm even more. Analyze the list you created and reflect on the role time plays in explaining when and why people make certain decisions.

A generalization is a statement that is true all the time or nearly all the time. Make three generalizations about time and transitions from your list and analyze the relationship between the two. What does your analysis reveal?



SCIENCE

The Farmer's Almanac, in print for over 200 years, is similar to a weather time machine. The almanac predicts weather far into the future and contains weather data from the past.

Visit *The Farmer's Almanac* online to observe a year of weather predictions and check to see how accurate they have been in the past.

<https://www.farmersalmanac.com/on-the-money>

Compare daily and seasonal changes in weather conditions, including wind speed and direction, temperature, and precipitation. Look for patterns. Track the weather for a week.

- What similarities and differences do you see between the forecast of a local news station and that of *The Farmer's Almanac*?
- Which proved to be more accurate?
- How does this affect your perception of the news cast or almanac?



MINDFULNESS

Leo Tolstoy wrote in *War and Peace*, "The two most powerful warriors are patience and time."

Although you can experience benefits of meditation in a short period of time, research shows that the more time you dedicate to cultivating mindfulness, the more effective the result. How might this relate to the above quote? How might patience also relate to the idea of mindfulness?

Create a "battle plan" that utilizes the warriors of time, patience, and mindfulness in an effort to win the war against stress and achieve a sense of inner peace.

Time



LOGIC PUZZLE

Can you measure exactly 9 minutes using hour glasses that are 7 minutes and 4 minutes? Make sure you follow the BEST approach. To interact with the puzzle online, visit:

<https://www.youtube.com/watch?v=KM5KUlyAJ9I>



FIELD STUDIES

Time is measured in many ways, but how can it be captured? A time capsule is a container storing a selection of objects that are typical of the present time, buried for discovery in the future.

Click on the website below for interesting examples of time capsules from around the world:

<https://www.littlethings.com/crazy-time-capsules>

Now it's time to make your own time capsule. It can be a capsule about your own life or one that focuses on the current time period in our state, country, world, or all of the above. You can choose to bury it in your own yard, create one virtually or share it with others. Learn more about students who created a time capsule to capture life during the COVID-19 Pandemic:

- <https://www.wmcactionnews5.com/2021/05/25/tennessee-students-create-pandemic-time-capsule/>
- <https://www.msn.com/en-us/news/crime/students-write-letters-about-their-covid-19-experiences-for-pandemic-time-capsule/vi-AAKl7wR>

Capture this time of your life!



RESEARCH EXPLORATIONS

Do wormholes exist? As of now, there is no proof that they do or do not exist. In theory, a wormhole is like a tunnel that connects two places that you could use to step between two places in very little time.

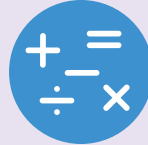
Think about how much time you would save each day if you could take a step to get from one far-away place to another. Have you ever wanted to travel to Europe? Step inside this wormhole and you're there!

After researching more about wormholes, discuss your findings with your family.

- <https://bit.ly/2DxzxXX>
- <https://academickids.com/encyclopedia/index.php/Wormhole>

Brainstorm together how you would use wormholes in your everyday life. How would things improve? What would you do with all the time you save each day?

What could be problematic about using wormholes?



MATH

Weather changes over time, and *The Farmer's Almanac* keeps track on the "Weather History" page:

<https://www.farmersalmanac.com/weather-history>

Here, you can find historical data for weather going back as far as 1949! Your task is to locate the weather for the same date for 15 consecutive years. Record the high and low temperatures for each of those days.

Make a line graph, with two different colored lines: one color to show the high temperatures for the last 15 years and the other color to show the low temperatures. Label your graph appropriately.

Find the mean, or average, high and low temperatures for those 15 years.

What, if any, patterns do you notice? What other observations can you make using the two graphs?



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6–7

Time



ENGLISH LANGUAGE ARTS

It is interesting to consider how authors use time in their stories. In *The Glory Field*, Walter Dean Myers tells the story of one family through five generations over 241 years. In this story, their ties to family and a piece of land stay strong over time.

In the short story "A Rose for Emily," the narrator moves between different time periods requiring the reader to read closely as the chronological order of the story is constructed.

What other story examples can you think of that include the use of time? Write a narrative of your own or take a familiar story such as a fairy tale, and write it in a different way, manipulating time for effect. Can you use it to build suspense? Can you use it to impact the story's mood? How does manipulating time impact the story overall?



SOCIAL STUDIES

Demographic trends can lead to conflict, negotiation, and compromise. For example, population spikes can lead to conflict over scarce resources.

From the link below, use the World Bank's databank to study trends in population growth:

<https://data.worldbank.org/indicator/SPPOP.TOTL>

Which countries have a steep rate of increase? Which ones have leveled off? Which have seen radical changes to population over time?

Choose two or more countries with trends that are radically different than most, and research why.

Construct a chart or graph to display the trends and share your learning about what impacted them and how they affected life in that area.



SCIENCE

Choose an object around your house that moves. Examples could be the tip of the minute hand on an analog clock, a ball that you can bounce, or a frisbee that you can throw.

Create a graph that shows how the object moves over time. You will need to conduct numerous trials before you begin to graph. The x axis of your graph should measure time, but you will need to determine the units. Decide what the y axis will graph. Distance? Speed? Velocity?

Be sure to label your graph so that your results can be read clearly by someone else. Share your graph with others.



MINDFULNESS

Set a timer for one minute. Close your eyes and try to determine when a minute has passed.

Quietly look at your timer when you think one minute has passed. The goal is to get as close to exactly one minute without looking at the time.

- What senses feel heightened?
- What thoughts of the past/future were abandoned for the present moment?
- How can this apply to other life scenarios?
- Was a minute longer or shorter than what you thought?

Time can feel very different depending on what activity you are doing. One great stressor for students is the feeling of not having enough time. Research some great time management techniques for teens. Create a blog to help other teens with the stress of time management.

Time



LOGIC PUZZLE

You may have heard the saying “Even a stopped clock is correct twice a day.” What does this mean?

Try this classic time puzzle.

What time comes next in this sequence? 1:05, 2:11, 3:16, ...

What steps did you follow to solve the puzzle?



FIELD STUDIES

As an amateur social scientist, research an area of the humanities that interests you and see how it has changed over time. For example, you could look at how life expectancy has changed in various countries over the last hundred years, or you could study literacy rates, infant mortality rates, access to electricity, or anything else of interest. Check several sources and be sure to cite them.

Once you have located the data, design a map, chart, or graph that will display your information. Be sure to label it. Make a hypothesis that explains the data trends; include the hypothesis under your display.

Here are some potential data sources:

- <https://www.cia.gov/the-world-factbook/field/life-expectancy-at-birth/>
- <https://catalog.data.gov/dataset>
- <https://data.worldbank.org/>



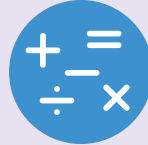
RESEARCH EXPLORATIONS

How does distance affect the time it takes an object to hit the ground? You have experienced walking down a hill and the pull of gravity. What happens to your speed as you go down the hill? Do you speed up or slow down? How does the steepness of the hill affect your speed?

Create an experiment to determine what happens to the speed of a marble as it travels a longer distance on a sloped surface. See the link below for some ideas:

<https://www.scientificamerican.com/article/speedy-science-how-does-acceleration-affect-distance/>

Create a graph of the results of your experiment. You can put time on the x-axis and distance on the y-axis. What does your graph tell you about the relation between time and distance?



MATH

How many times does your heart beat in a lifetime? Think about the question and make a guess. Would it be possible to determine an exact answer? Why or why not?

The problem presented is called a Fermi problem, named after the famous physicist Enrico Fermi. A Fermi problem requires you to make a rough estimate for quantities that are difficult or impossible to measure directly.

Design a strategy to determine the number of times your heart has beaten in your lifetime. Present your solution and the steps you took to determine the answer in a medium of your choice. Be sure to include an analysis of your answer.

- Is your answer reasonable?
- How would it compare with others your age?
- How were your heart rates adjusted for varying activities?



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8–9

Time



ENGLISH LANGUAGE ARTS

Time travel is a plotline of many stories: *Twain's A Connecticut Yankee in King Arthur's Court*, Wells' *The Time Machine*, and Dickens' *A Christmas Carol* all involve time travel. Washington Irving's short story "Rip Van Winkle" (1819) also relates to time. In the 1820s, people began calling North Carolina "The Rip Van Winkle State."

Read this short story and explore how Irving manipulates time to move his plot forward: <https://www.gutenberg.org/files/60976/60976-h/60976-h.htm>

- How would the story be different without the time shift?
- Determine the theme of the text.
- How does the use of time impact the theme?

Think about why North Carolina would have been given this nickname. Create a movie trailer for this story. Be sure to include the role time plays in the story, but don't give away the ending.



SOCIAL STUDIES

Life insurance protects loved ones from financial hardship after the insured person's death. There are many types of life insurance policies, and it can be confusing. As you study these differences, you will notice that time plays an important role in them.

Policies can change over time, and some are only applicable for a certain time period. Explore the differences in Term and Whole/Permanent Life Insurance.

Use the link to learn about the types of Term and Whole/Permanent life insurance policies: <https://www.iii.org/article/what-are-principal-types-life-insurance>

Would one type of policy be better to purchase in your twenties, while another would be better to purchase in your sixties?

Construct a chart of the various types, showing important information about each.



SCIENCE

Weathering is a process that happens over time. There are three types of weathering:

- physical (also called mechanical)
- chemical
- biological

In this lab, you are going to explore mechanical and chemical weathering and determine how these natural actions impact our earth over time. The only item you will need to conduct the lab is a cracker and your science notebook.

Complete the lab including the Analysis and Conclusion Questions using the link below.

<https://www.soils4teachers.org/files/s4t/lessons/weathering.pdf>

Now design your own lab to teach younger students about the impact of weathering over time.



MINDFULNESS

Teens need 8 to 10 hours of sleep each night. At the same time, their biological sleep patterns indicate it is natural to stay up later. It is not surprising that most teens are sleep-deprived with only 15% reporting sleeping 8 ½ hours or more on school nights.

Read the article about sleep for teens: <https://www.sleepfoundation.org/articles/teens-and-sleep>

What is the solution? Create a plan to help teens get the sleep they need. Use PowerPoint or Google Slides to present your plan to your fellow students or others as appropriate.

Create a presentation for school administrators encouraging them to adjust school schedules to better meet the sleep requirements of teens. Ask your administrator for time to present your plan.

Time



LOGIC PUZZLE

Consider the following clues to answer the question below:

- The clock was correct at midnight.
- From that moment it began to lose four minutes per hour.
- The clock stopped three hours ago showing 12:08 pm.
- The clock runs for less than 24 hours.

What is the correct time now? Explain your answer.



FIELD STUDIES

Albert Einstein is often associated with the Theory of Special Relativity that explains how space and time are linked for objects that are moving in a straight line at a consistent speed. Watch this video for a brief overview: <https://youtu.be/ajhFNcUTJl0>

To dig deeper for more details about Einstein's Theory take the Elementary Tour of Relativity on this website: <https://bit.ly/3foOAS8>

After exploring the idea of Special Relativity, create a presentation in the format of your choice. You can design a presentation, do it artistically, write a summary, or use another format of your choice. Be sure to include how time relates to the theory.



RESEARCH EXPLORATIONS

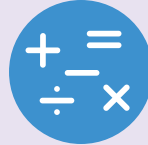
Most people think of a day as the time it takes the Earth to rotate, but that is not exactly 24 hours.

Research how geologists have been able to determine the number of hours in a day during different time periods using this link: <https://www.scientificamerican.com/article/earth-rotation-summer-solstice/>

Has time sped up or slowed down? Use this chart to determine the length of a day during each geological time period: <https://docs.google.com/document/d/1ySqdzlDYCnujiwOHnII7ntxQyjoBcOvkFWS4V61lw/edit?usp=sharing>

Use the Desmos graphing calculator to graph the data comparing the age (years) to the hours per day. How much has the length of a day increased in seconds per century?

Write a tweet (140 characters or fewer) explaining this change in time.



MATH

Futurama is a cartoon series that follows a time-traveling pizza delivery guy named Fry.

Fry's problems seem to follow him into the 31st century. When he needs money, he realizes that his bank is still in business and his account is still open.

With a balance of \$0.93, his account does not seem to be very lucrative. The interest rate is 2.25% and was compounded annually over 1,000 years.

- How much money is in Fry's account?
- How much longer would it take Fry to double his money?
- How long would it take Fry to earn \$1,000,000 in interest?

Watch a scene from *Futurama*:

<https://www.youtube.com/watch?v=g9Z4d5EOjGs>



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10-12

Time



ENGLISH LANGUAGE ARTS

Science fiction is a popular genre among many readers, young and old. Going back in time to correct mistakes or traveling ahead to see the future makes time travel a common topic in this genre.

Choose and read three short stories about time travel from Daily Science Fiction:

<https://dailysciencefiction.com/story>

If time travel did exist and you could travel forward or backward in time, where would you go? Why would you travel to that time and what would you do when you arrive?

Create a diary entry of your experience. Make sure to include any emotions you faced while on your adventure.



SOCIAL STUDIES

Introduced as an executive action by President Obama in June 2012, Deferred Action for Childhood Arrivals (DACA) was intended to give temporary protection against deportation to certain groups of young undocumented immigrants who were brought to the United States as children. View the timeline of DACA legislation changes: <https://bit.ly/2E3lG9>

Explore both sides of the issue: How have DACA policies evolved since the initial action of the 2012 legislation? How has the American view of immigration changed since this time? What is the most convincing argument to continue with DACA? What is the most compelling reason to end a program like DACA?

Complete a Venn Diagram with the pros and cons of this program. Using your organizer as a guide, write a speech or an essay defending your position.



SCIENCE

The Amazon Rainforest is the largest tropical ecosystem on the planet. Using the interactive map, research ways the rainforest is being exterminated:

<https://tinyurl.com/ydxyhrw6>

Analyze how deforestation will impact citizens globally and here in the United States. What problems do conservation experts expect our planet to experience over time - a decade, 50 years, a century? What are some ways that Americans can help solve this problem today?

Create your own rainforest in a jar by following the directions on this website: <https://bit.ly/3eLvBQk>

Over time, you will notice the water cycle beginning as condensation rises to the top of the jar. Observe how the water cycle changes over time. Each day, take notes in a science notebook to record observations of your rainforest in a jar.



MINDFULNESS

Time Management is an important skill for all to master, especially high school students.

Steven Covey, author of the bestselling, *7 Habits of Highly Effective People*, has developed a creative and easy way to help people manage their time. It is called the Four Quadrant Weekly Plan. By dividing your "to-do" list into four categories, you can become more organized and proactive – leading to less stress.

Watch this video for a description of the Four Quadrant Weekly Plan:

<https://www.youtube.com/watch?v=Z459cW8C3i0>

Try out this time management plan this week. Draw your quadrants and get started! At the end of the week, reflect on how your implementation of this plan helped you manage your time.

Time



LOGIC PUZZLE

Four children, each one a different age, go to bed at different times. Follow the clues to figure out what time Larry goes to bed.

1. The oldest child goes to bed 30 minutes earlier than Harold.
2. Donald sleeps later than Vincent.
3. Donald is 6 years old.
4. The youngest child sleeps at 8:00 pm.
5. The child who sleeps at 8:30 pm is either the 6 year-old or Harold.



FIELD STUDIES

Travel virtually to the National Zoo in Washington, D.C., and choose an animal to watch on the live webcam:

<https://nationalzoo.si.edu/webcams>. Observe how the animals interact with other animals in their habitat. How do they pass their time? Do they appear to have a routine? If so, what activities are part of their routine?

If you love animals or are intrigued by their habitats and behaviors, maybe a career at the zoo would interest you! Start your research here for some of the careers available:

<https://nationalzoo.si.edu/education/wildlife-careers>

Construct a chart of any careers that may be interesting to you and determine the coursework you can complete now to help you plan for the future.

Research universities that offer this degree program to help you know where you might study further.



RESEARCH EXPLORATIONS

Since the days of Martha Washington, American First Ladies have had the opportunity to directly affect U.S. policy through their influence. Their roles within their husbands' administrations varied, but first ladies often found themselves in a position to subtly set the national mood and establish the country's priorities.

Explore America's First Ladies through the Smithsonian's online portrait gallery:

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

Select three of your favorite first ladies to conduct further research. How has the role of the First Lady changed throughout time? What contributions to American History have been made, perhaps through policies or practices that have endured the test of time?

Create a Google Slide/PowerPoint presentation with your favorite first ladies. Be sure to include their contributions, interesting information you learned, and an explanation why each is your favorite.



MATH

Using the United States/World Population Clock (<https://www.census.gov/popclock/>) complete the following activities:

- Draw a line graph of the top 10 most populous U.S. counties.
- Research the population of your county.
- Create ratios of your county compared to the largest counties in America. What factors influence the size of the county's populations (large vs small); compare average incomes, education levels, attractions, sports, university presence, demographics, etc.?

Predict the world/U.S. population next year, five years, and a decade from now. Explain your reasoning.

Summarize your data by answering these questions:

- What could be done to increase population in your area or other areas?
- What factors cause a decline in population?



Time Reference Guide

K-1 Logic Puzzle:

Solutions:

Challenge 1

12:00, 1:05, 2:10, 3:15, 4:20, 5:25, 6: 30, 7:35, 8:40, 9:45, 10:50, 11:55

Challenge 2:

1:01, 1:11, 1:21, 1:31, 1:41, 1:51,

2:02, 2:12, 2:22, 2:32, 2:42, 2:52

3:03, 3:13, 3:23, 3:33, 3:43, 3:43

4:04, 4:14, 4:24, 4:34, 4:44, 4:54

5:05, 5:15, 5:25, 5:35, 5:45, 5:55

6:06, 6:16, 6:26, 6:36, 6:46, 6:56

7:07, 7:17, 7:27, 7:37, 7:47, 7:57

8:08, 8:18, 8:28, 8:38, 8:48, 8:58

9:09, 9:19, 9:29, 9:39, 9:49, 9:59

10:01, 11:11, 12:21

2-3 Logic Puzzle:

Solution:

https://www.algebra.com/algebra/homework/word/misc/Miscellaneous_Word_Problems.faq.question.363085.html

4-5 Logic Puzzle:

Solution is included in the video: <https://www.youtube.com/watch?v=KM5KUlyAJ9I>

6-7 Logic Puzzle:

Solution: 4:22

8-9 Logic Puzzle:

Solution: 4:00

10-12 Logic Puzzle:

Solution: Larry goes to bed at 9:00 pm.