Nora

The Nora School
Grades 9-12
www.nora-school.org
"Think Differently"

SUMMER BRAINWORK 2025

We want you to have down time, vacation and fun this summer…and we also want to keep your brain active. Students lose a lot of knowledge over the summer, and the pandemic has exacerbated learning gaps. Here is an opportunity to try some new activities - who knows, you might enjoy them!

You should complete one assignment for each subject (a total of five) - these assignments form **the first grade of the year** in each of your classes. The following pages include ALL the assignments, for each class of the subject, so choose the appropriate assignment as listed in its instructions.

ENGLISH

Information

One of the traditions at the Nora School is our Summer Book Groups. Being part of a book group allows us all to participate in something that connects us to others in the community and offers us a shared experience-one that we can discuss on the first day of school. Our Nora groups are sponsored by the English department and the administration.

Below you'll find a book choice recommended by each member of our staff. They're all very different from each other! Take a look at them, read about them online, or visit a library to look through them before deciding. **Please CHOOSE ONE book to read this summer.** (Audio versions are OK too.) Please come to school prepared to discuss the book with other students and teachers.

Roberto's book: The Blue Water, by Paula Hawkings (fiction)

Terah's book: We Are Not Free, by Traci Chee (YA, Historical Fiction)

Nisaa's book: Parable of the Sower by Octavia Butler (Dystopian Fiction)

Darrell's book: The Autobiography of Malcolm X, by Alex Haley and Malcolm X (autobiography)

Chris's book: The Vegetarian by Han Kang (fiction)

Marcia's book: Dracula by Bram Stroker (gothic horror)

Mara's book: The Round House, by Louise Erdrich (fiction)

Chrissy's book: The Plays of Anton Chekhov, translated by Paul Schmidt (fictional plays)

Christina's Book: Pockets: An Intimate History of How We Keep Things Close by Hannah Carlson (nonfiction)

Calder's Book: War is a Racket by Smedley Butler (nonfiction)

Eric's Book: The Left Hand of Darkness by Ursula K. Le Guin (science fiction)

Jeff's book: Winners Take All: The Elite Charade of Changing the World, by Anand Ghiridhadas (social change & philanthropy)

Scott's book Medicine River by Mary Annette Pember

ALL GRADES & CLASSES:

A. Please CHOOSE ONE book from the summer reading list above. (Audio versions ;.are OK too.) Please come to school prepared to discuss the book with other students and teachers.

B. Once you've read it, **respond in a separate document to these questions,** to turn in to your English teacher in the first week of school. Remember, your responses will count as your first assignment in your English class this upcoming school year.

1. What is the title of the book you read, and why did you choose to read this particular book?

2. Overall, what did you think of the book? How would you rate it on a 1-10 scale (10 being the best) and why?

3. If you had to describe this book in 2-3 sentences (in your own words) to someone who had never read it, how would you do it?

4. What is the single aspect of the book-a chapter, a scene, a line-you found most vivid and memorable? Be specific. Why do you think you responded strongly to it?

5. Would you recommend this book to others? Why or why not?

SOCIAL STUDIES

Assignment: Podcast Review

ALL GRADES & CLASSES:

A. Listen to an episode of **The Daily** (link here) and anywhere you can find podcasts.

B. Write a one (1) paragraph summary of what you learned.

SCIENCE

9TH and 10TH Grade

Please show your steps for solving the problem. Either print this assignment and handwrite your calculations or make a copy of the document and type your work into the space provided.

Background

Being comfortable and skillful with science measurements and their units is critical to understanding scientific principles and data. In the table below are the most common metric system prefixes and suffixes used with base units. Examples of base units include the gram for measuring mass, liter for measuring volume, and watt for measuring power.

Different samples come in different sizes. For instance, a can of soda is 355 mL. The “m” in mL stands for *mili* which means “thousandth”. So 1 mL is 1/1000 of a liter. It would not be convenient to measure the size of a swimming pool or a lake in mL. There is just too much water in a swimming pool to measure it in mL and the numerical value would be too large and inconvenient. Hence scientists use metric prefixes to change the value of a measurement.

Common Prefixes used with SI Units			
Prefix	Symbol	Meaning	Order of Magnitude
giga-	G	1 000 000 000	10^{9}
mega-	M	1 000 000	10^{6}
kilo-	k	1 000	10^{3}
hecto-	h	100	10^{2}
deka-	da	10	10^{1}
	base unit	1	10^{0}
deci-	d	0.1	10^{-1}
centi-	c	0.01	10^{-2}
milli-	m	0.001	10^{-3}
micro-	μ	0.000 001	10^{-6}
nano-	n	0.000 000 001	10^{-9}

Example 1:

10 cm is equal to how many meters?

In the table above, centimeters are 0.01 of a meter or 1/100 of a meter, which can also be expressed, 1 m = 100 cm OR 1 m / 100 cm OR 100 cm / 1 m. These fractions are called *conversion factors.* And all conversion factors are equal to one. Conversion factors are how we can convert between units.

10 cm x (1 m / 100 cm) = 0.1 m

In the example above, centimeters multiplied by (m / cm) leaves us with meters in our answer. Mathematically, we are effectively dividing 10 cm by 100 cm and end up with 0.1 m.

Example 2:

45.3 m equals how many millimeters (mm)? First you need the conversion factor of meters to millimeters. 1 meter = 1000 millimeters.

45.3 m x (1000 mm / 1 m) = 45300 mm

Like the problem above, since we start with meters, we need meters in the bottom of the conversion factor and millimeters in the top because those are the units we want in our answer. Paying attention to the units in the conversion factor tells us what to do with the numbers to correctly convert the units.

If you are still feeling stuck, I highly recommend Khan Academy - “Conversion between metric units”, or any other Youtube instructional video.

Here are some *more exciting* problems for you to try!

How many milliliters are there in 234 L?

How many kilograms are there in 22.3 grams?

How many kilograms are there in 99.77 milligrams?

How many seconds are there in 900 nanoseconds?

How many milligrams are there in 1000 micrograms?

How many millimeters are there in 0.006 kilometers?

How many kilometers are there in 1,000,000 millimeters?

How many centigrams are there in 55 micrograms?

How many megagrams are there in 33.2 kilograms?

How many nanometers are in 234.5 centimeters?

SCIENCE

11TH and 12TH Grade

Pick 2 graphs or data nuggets to evaluate from the following websites and submit an analysis of the data from the study of your choice. (For the data nugget you must open the link of your choice and then select one of the student activities with a corresponding graph type). You are welcome to pick any topic which interests you and answer all of the related questions. Please print off the PDF and submit your work as a hard copy.

https://www.turnersgraphoftheweek.com/gow-archive-2013-2023.html

https://datanuggets.org/search-current-data-nuggets/skills-and-concepts/

MATHEMATICS

Assignments: Please complete the assignment for the math class you are entering this coming school year.

ALGEBRA I

Students are to complete the ***Get Ready for Algebra 1*** in Khan Academy (khanacademy.org). Upon return to school, students are to come in with notes, proof of the completion of quizzes and the unit test. They are to complete the first unit:

Unit 1: Get ready for equations & inequalities

GEOMETRY

Students are to work on the ***Get Ready for Geometry*** in Khan Academy (khanacademy.org). Upon return to school, students are to come in with notes and proof of the completion of quizzes. They are to complete the first three sections following unit and quizzes 1-3:

Unit 1: Get ready for congruence, similarity, and triangle trigonometry

ALGEBRA 2

Students are to complete the ***Get Ready for Algebra 2*** in Khan Academy (khanacademy.org). Upon return to school, students are to come in with notes, proof of the completion of quizzes and the unit test. They are to complete the first unit only.

Unit 1: Get ready for polynomial operations and complex numbers

BUSINESS MATH

Play the game **SPENT** (https://playspent.org/). Students need to write a reflection on their experience playing the game. Questions they could answer in the reflection: What job did they choose? How did you manage your money (did they make it through the month)? What would they have done differently? How did this game make them feel? Did they play the game more than once? What would be some solutions to end poverty?

PRECALCULUS

Please complete the questions from both of the Khan Academy units linked below. There are helpful videos to guide you through any ideas that you don't remember from class. You should complete the questions in these units by hand and submit your calculations on paper. Please note that you must show all of your steps to get credit for this assignment!

https://www.khanacademy.org/math/algebra/x2f8bb11595b61c86:functions/x2f8bb11595b61c86:evaluating-functions/e/functions_1

https://www.khanacademy.org/math/get-ready-for-precalculus/x65c069afc012e9d0:get-ready-for-polynomials

Calculus

Print off and fill out the unit circle in the following link with all of the angles (in both degrees and radians) and the x/y values at each point on the unit circle

http://www.embeddedmath.com/downloads/files/unitcircle/blankunitcircle-letter.pdf

Evaluate either the components or the magnitude of the vector given the following:

1. Find the components of a vector that has a magnitude of 7 and an angle of 140 degrees

2. Find the components of a vector that has a magnitude of 19 and an angle of -28 degrees

3. Find the magnitude of a vector that has components of x = -4 and y = -7

4. Find the magnitude of a vector that has components of x = -11 and y = 8

Perform the following vector operations:

Vector a: <7,-3> Vector b: <-2,9> Vector c: <-3,-4> Vector d: <1,4>

1. A + C

2. A - D

3. 2C - B

4. -D + 2C

5. 3A + 2B

Evaluate the following limits:

1. $\lim_{x \to 2} (x^2 + 2x - 3)$

2. $\lim_{x \to 0} (e^x)$

3. $\lim_{x \to -1} (x-5)/(x^2-25)$

Visual Art Assignment

(Choose one the following assignments)

1. Read *Big Panda and Tiny Dragon,* an Illustrated book by James Norbury

Amazon link:

https://www.amazon.com/Panda-Tiny-Dragon-James-Norbury/dp/1647225124/ref=sr_1_1?crid=9KVTUECNFA71&dib=eyJ2IjoiMSJ9.0a_7lFXeFMS2yU_fj6Wxy3bdLkqNOg0ZzFM-jQeAH3jE_v_pgIWT1DcBthGQkkGUxc8mw8mutj1wMU9hjl9pgg1C8BzdIAb8DBGWrCq0Z-PVHWi7ACF9hVWM4I-fIU-OlbCguHVW_aJb1tRrCMTq9YFpkNG14RVSZHoe9AwlPm0Ry42ggcVToxqR0dpKuxsob9sgYO5tzk5gs1it1nQoZ53Z522OYxdeHA7vc5Z3yLQ.IHCcCNa_u65A6Y0WUxLWAiC75sGohp5wGgKqz37DQss&dib_tag=se&keywords=big+panda+and+tiny+dragon&qid=1748454746&sprefix=big+panda+an%2Caps%2C85&sr=8-1

or

2. Dream Drawings, 2-3 drawings from dreams : without getting too caught up or worried about technical proficiency, see if you can sketch out a scene you remember, just using pencil or whatever you have at hand. Color is optional. Let it be rough and cartoony, or whatever comes naturally.

My advice as to “How”:

Relax and bring an actual scene from your dream into focus in your mind. Have a pencil and paper, and sit in a comfortable spot that allows you to work efficiently. Draw slowly, simplifying the forms and allowing yourself to creatively reproduce them on the page. Take the whole rectangle of the paper into account, and try to construct the scene, as well as the characters. Is it a bedroom, a kitchen table, or a lakeside beach? Try to just allow your hand to move the pencil while concentrating on the scene in your mind. You will probably be surprised at how well you can do this!

It is easiest to remember your dreams right after you wake up. If you want, you can keep a journal next to your bed and jot down what you remember in words right as you wake up and still hold the dream in your mind. Then you can draw it later. Or, launch right into the drawing- as you wish :)