

USING CHOICE FOR ASSIGNMENTS, HOMEWORK AND ASSESSMENTS (RAFTs and TRIMIND)

RAFT



- ...is a creative strategy that encourages writing across the curriculum.
- ...a way to encourage students to...
 - ...assume a role
 - ...consider their audience, while
 - ...examine a topic from their chosen perspective, and
 - ...writing in a particular format
- All of the above can serve as motivators by giving students choice, appealing to their interests and learning profiles, and adapting to student readiness levels.
- Can be used as introductory “hooks” into a unit of study or for assessment purposes (as seen in the science example below)
- **OPTIONS WHEN USING RAFTS:** Keep one column consistent while varying the other columns in the RAFT grid; Can be created by the students or incorporate a blank row for that option

Examples of RAFTs (see below)

1. **Science – DNA unit; used as a formative assessment (Credit to Nicholas Bihler – Kentwood)**
2. **Mathematics – Reviewing learning target for Pythagorean Theorem (Credit to Kayla Koert – Grand Rapids Public Schools and Hopkins – working with ESL students)**
3. **ELA – Reviewing Plot Development from the Ender’s Game – a unique way to do a RAFT (Credit to Chris Mayer – student)**
4. **Social Studies – Peer Evaluation Formative Assessment for American Industrial Revolution Unit (Credit to Tad VandenBrink – East Grand Rapids)**

Genetic Modification RAFT Formative Assessment

The purpose of this formative assessment is to give the instructor and students the opportunity to evaluate the progress of three targets. The assessment will allow the instructor to determine student readiness for the next targets. This formative assessment will allow students the opportunity to evaluate and reflect on their understanding of concepts genetic modification. These concepts are important as they will be part the future summative assessment and are essential to understanding the real world applications of DNA. This activity provides students with several opportunities to show their understanding of a genetic modification. While students will be provided choice for the role, audience, and format, all RAFT variants will share the same topic.

Michigan Benchmarks for High School Biology

1. **B4.4a:** Describe how inserting, deleting, or substituting DNA segments can alter a gene. Recognize that an altered gene may be passed on to every cell that develops from it and that the resulting features may help, harm, or have little or no effect on the offspring's success in its environment.
2. **B4.r5b:** Evaluate the advantages and disadvantages of human manipulation of DNA.

Targets

- I can explain 2 different ways in which DNA can be intentionally modified (reasoning).
- I can explain how genes from one organism can be expressed in a different organism (reasoning).
- I can explain the advantages and disadvantages of genetic modification (reasoning).

1 day before assessment:

Students are to be given directions 1 day before assessment to allow for individual RAFT selection approval (if necessary):

Objective: During the last week, we have been learning the about the process of genetic modification, various types of genetic modification, and the social and biological implications and controversies that surround genetic modification. Tomorrow's assessment is designed to evaluate your progress on those learning targets. We will use the information to determine which targets we need to relearn.

- 1) See the RAFT assessment guidelines below and select your viewpoint.
 - a) Please see me before you leave class today if you are interested in selecting or modifying the role, audience, or format. Be sure to clear this with me before you leave class today.

Day of assessment:

Genetic Modification RAFT

Objective: During the last week, we have been learning the about the process of genetic modification, various types of genetic modification, and the social and biological implications and controversies that surround genetic modification. This assessment is designed to evaluate your progress on those learning targets. We will use the information to determine which targets we need to relearn.

General Directions: For this assessment you will be using the information that you have learned about genetic modification and its controversies to complete a RAFT. While you must show understanding of the targets below, you may select from a variety of viewpoints to show mastery.

You will be evaluated on the following targets:

- I can explain 2 different ways in which DNA can be intentionally modified.
- I can explain how genes from one organism can be expressed in a different organism.
- I can explain the advantages and disadvantages of genetic modification.

For example: If I were to select the first option, I would pretend to be a member of Congress who will be delivering a persuasive speech about the concerns of genetic modification. I first must determine my viewpoint (for or against genetic modification). I then will write a persuasive speech that:

- Explains 2 ways in which DNA can be intentionally modified.
- Explains how genes from one organism can be expressed in a different organism.
- Explains the advantages and disadvantages (your position) of genetic modification. ***Remember, good persuasive arguments acknowledge the opposition's viewpoint.***

You will have the rest of the hour to complete the RAFT.

- 1. Select your role, audience, and format.**
- 2. Review the rubric.**
- 3. Begin writing RAFT.**

When you are finished completing the RAFT to the best of your ability, turn to the last page and complete the self-assessment portion. You will be asked to score yourself on your response. Don't worry – I will score your responses before I read your self-assessment. Please be honest! This process will help you improve your responses on future assessments.

After you completely finished, turn it in to the correct tray and return to your seat. If you have time...

- Compete any remaining on Tic-Tac-Toe board activities (remember we must be quiet).
- Login into Edmodo and complete your choice of activities.

Genetic Modification R.A.F.T.

ROLE	AUDIENCE	FORMAT	TOPIC
Politician	Congress	Persuasive Speech	Genetic modification (see rubric)
News Reporter	Scientist	Interview	Genetic modification (see rubric)
Patient who is in need of genetic modification therapy for survival	Politician	Persuasive Letter	Genetic modification (see rubric)
CHOICE	See teacher for approval _____	See teacher for approval _____	Genetic modification (see rubric)

Genetic Modification R.A.F.T. Rubric

Learning Targets	5	3	1
I can explain 2 different ways in which DNA can be intentionally modified.	I accurately explained 2 different ways in which DNA can be intentionally modified.	I explained 1 way in which DNA can be intentionally modified.	I did not explain how DNA could be intentionally modified.
I can explain how genes from one organism may be expressed in a different organism.	I accurately explained how genes from one organism can be expressed in a different organism.	I explained how genes from one organism may be expressed, however, a portion of my explanation was incorrect.	I explained how genes from one organism may be expressed, however, my explanation was incorrect.
I can explain the advantages and disadvantages of genetic modification	I accurately explained the advantages of genetic modification. I accurately explained the disadvantages of genetic modification.	I explained the advantages of genetic modification, however a portion of my explanation was incorrect. I explained the disadvantages of genetic modification, however a portion of my explanation was incorrect.	I explained the advantages of genetic modification, however, most of my explanation was incorrect. I explained the disadvantages of genetic modification, however, most of my explanation was incorrect.

The Pythagorean Theorem: RAFT Writing

Directions: You will choose one of the following writing prompts and write as if you are the person in the role. You will be writing to the specified audience using the specific format given. You will address the specified topic for your role and audience choice.

Assessment: Please make sure to look at the RAFT Scoring Guide to make sure you have covered everything. I will be scoring you using the targets on the Scoring Guide.

This RAFT was created using the following targets:

Know

- I can recall the Pythagorean Theorem.
- I can explain the proof of the Pythagorean Theorem.
- I can explain the proof of the converse of the Pythagorean Theorem.

Understand

- I can be use the Pythagorean Theorem to calculate the distance between two points on a plane.

Do

- I can solve mathematical problems using the Pythagorean Theorem to find the missing side lengths in right triangles in three-dimensions.
- I can solve real-world problems using the Pythagorean Theorem to find the missing side lengths in right triangles in three-dimensions.
- I can determine how to create a right triangle on a coordinate graph from two points.
- I can use the Pythagorean Theorem to find the distance between two points in a coordinate system.

RAFT Writing

Role	Audience	Format	Topic
News Reporter	TV Audience	Script	Give the audience directions on how to find the distance between two points in a coordinate system.
Newspaper Writer	Newspaper Reader	Advice Column	Explain the proof of the Pythagorean Theorem. Then explain the proof of the converse of the Pythagorean Theorem.
Yourself	Absent Friend In Class	Instructions	Explain how to create a right triangle on a coordinate grid given two points.
Teacher	Student	Instructions	Explain how to solve a real-world mathematical problem using the Pythagorean Theorem to find the missing side in a right triangle in three-dimensions.

The Ender's Game: RAFT Writing

Standards:

CCSS.ELA-LITERACY.RL.9-10.1

Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.

CCSS.ELA-LITERACY.RL.9-10.2

Determine a theme or central idea of a text and analyze in detail its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text.

CCSS.ELA-LITERACY.RL.9-10.3

Analyze how complex characters (e.g., those with multiple or conflicting motivations) develop over the course of a text, interact with other characters, and advance the plot or develop the theme.

I can Statements:

I can identify and summarize important plot events in a fiction novel.

I can explain central ideas and themes of a text in a variety of different ways.

I can create an accurate "point of view" perspective from one of the characters in a novel based on their personality and character development throughout the novel.

R.A.F.T.

Assignment: You will be reviewing important plot developments from the novel *Ender's Game* by creating 4 (four) original pieces using different combinations in the R.A.F.T. columns. Each option will be used once by the end of this assignment (so I suggest that you cross them out as you use them!).

Example combination: Graff communicating to his best friend through a cartoon about a load of Launchies' trip to Battle School

Role	Audience	Format	Topic
Ender	Judge	Formal paragraph	Trip to Battle School
Bean	Talk Show Audience	Txt msg conversation	Locke and Demosthenes Debates
Graff	Classroom of Students	Acrostic Poem	Ender's Return to Earth
Bonzo	Best Friend	Cartoon	Victory Over the Buggers

American Industrial Revolution: RAFT Writing

Grade Level Content Expectations Addressed:

6.1.1 Factors in the American Industrial Revolution – Analyze the factors that enabled the United States to become a major industrial power

As a result of this unit, students will KNOW:

- Who the big business barons were and what their role was in creating a more industrial economy.
- How big business dominated politics.

As a result of this unit, students will UNDERSTAND:

- Increased foreign immigration, and regional migration from rural to urban, created a large pool of workers for big business.
- Favorable conditions were created for big business thanks to governmental policies and practices.

As a result of this unit, students will BE ABLE TO:

- Analyze the factors that enabled the United States to become a major industrial power.

Assessment:

Students will present their chosen RAFTs in small groups, and then be asked to complete a handout evaluating one of their group member's RAFTs. This will be used as a peer evaluation, formative assessment.

INDUSTRIALIZATION ERA RAFT

Directions: You are going to complete one of the below RAFTs either on your own or with a partner. You will be given 55-minutes to complete it. Once time is up, you will be combining into larger groups, where each individual/group will share their RAFT. Be sure to use content learned in class within the RAFT. Each topic was designed to allow you to demonstrate knowledge of the time period in the creation of your format.

ROLE	AUDIENCE	FORMAT	TOPIC
Robber Baron	Your business' shareholders	Report	You are the head of a major industry and need to keep your shareholders happy by explaining to them how you are going to continue to make money. You need to outline your plan to them.
Member of Congress	Other members of Congress	Legislation	You and many of your colleagues are shareholders of several big companies making large profits. You want to make sure this continues. Draft a bill that will guarantee support for big business.
Immigrant Worker	Family in Homeland	Letter	Explain what your life in America is like to your loved ones back home. Focus on your job and opportunities for work.
Populist Reformer	Immigrants	Invitation	You are beginning to see how immigrants are being taken advantage of in the work place as a source of cheap labor. You want to learn more about their situation in the factories. Invite them to a dinner to discuss their status as laborers
Inventor	Your employees	Inspirational Speech	There is quick money to be made with every new invention that is created. Inspire your company workers to invent the next big one!

INDUSTRIALIZATION ERA RAFT REPORT OUT

Directions: Complete the below questions about one of your classmate's RAFTs. This will be collected at the end of the class.

1. Complete each of the below boxes for the RAFT chosen by one of your classmates that was presented to you.

ROLE	AUDIENCE	FORMAT	TOPIC

2. What historical content/evidence did your classmate use to complete their RAFT?

3. How is perspective seen in the chosen RAFT option? Explain how the role of the RAFT changed the dimension of the assignment.

4. Do you think your classmate was able to successfully demonstrate that they understood the historical content in how they create the RAFT?



TRIMIND

TriMind is a strategy that can be used to differentiate according to Sternberg's three intelligences: Creative Intelligence; Practical Intelligence; Analytical Intelligence

The idea behind TriMind is that you provide students with assignments, centered around the same learning goals, that are designed for their intelligence strengths. This way, students learn more efficiently and successfully.

Robert Sternberg's Triarchic Theory of Intelligence posits that people have strengths in one or more types of intelligences: creative, analytical, or practical. **Successful intelligence** is the ability to recognize which strengths we possess, and to steer toward careers/activities which require these strengths. We all have some of each of these intelligences, but are usually stronger in one or two areas than in the third. We should strive to develop as fully as possible **each** of these intelligences in students, but also recognize where students' strengths lie and teach through those intelligences as often as possible, particularly when introducing new ideas.

Creative Thinkers: Attracted to novelty, likes to produce knowledge or ideas instead of consuming them, sees the world from a unique perspective, often prefers working alone, does not like to be rushed toward completion of tasks, often works in "bursts," with long periods of incubation (which can look like unproductiveness) followed by quick, highly productive working periods, often has unique sense of humor.

Needs: Support with setting deadlines and timelines, open-ended assignments with structure, assignments that allow for creative thinking and novel products, support working with other students, frequent outlets for creative thought, support with turning "ideas" into "reality."

Analytical Thinkers: Likes to break things into its parts, likes to know how things work, enjoys facts as well as ideas, likes to argue, attracted to logical thinking and logical ideas, likes to "think" as opposed to "doing," typically does well at school tasks, enjoys solving problems, can focus for long periods of time on a single task, may balk at "creative" assignments, like to find one, right "answer," may see things as black and white.

Needs: Assignments that require thought as opposed to rote memorization, extended assignments that allow for focused, long-term study, "problems" to figure out, time to discuss ideas with others, support with how to present ideas in a non-argumentative way, support with listening to and accepting other' ideas, opportunities to struggle with open-ended questions that have no right/wrong answer.

Practical Thinkers: Likes to see the real-world application of things, excellent at implementing plans, a "doer," highly effective in making things "happen," organized, less interested in ideas than in action, likes to move and do when learning, can be an excellent leader, may struggle with creativity-for-creativity's-sake assignments, may resist completing assignments for which they see no real-world purpose, can work very well in group situations, may not be traditionally "booksmart"

Needs: Hands-on activities assignments that are connected to the real world, opportunities to share ideas with practitioners and experts, experiences with more creative, open-ended activities, support with being patient with activities for which they see no immediate application, opportunities to lead (even when they are not the highest achievers, these students can be highly effective at leading groups and delegating responsibilities).

Tips for Teaching Triarchically

- Some of the time, teach analytically, helping students learn to analyze, evaluate, compare and contrast, critique, and judge.
- Some of the time, teach creatively, helping students learn to create, invent, imagine, discover, explore, and suppose.
- Some of the time, teach practically, helping students learn to apply, use, utilize, contextualize, implement, and put into practice.
- Some of the time, enable all students to capitalize on their strengths.
- Most of the time, enable all students to correct or compensate for their weaknesses.
- Make sure your assessments match your teaching, calling upon analytical, creative, and practical as well as memory skills.
- Value the diverse patterns of abilities in all students.

Examples (see below):

Science – Trimind used to demonstrate students' understanding of DNA's structure and function (Credit to Nicholas Bihler – Kentwood)

Social Studies – Trimind used for homework reading assignments – American Industrial Revolution (Credit to Tad VandenBrink – East Grand Rapids)

Tri-Mind

Structure and Function of DNA

Directions: Choose an activity below to demonstrate your understanding of DNA's structure and function. Each activity covers the same targets, so choose the activity that interests you most. Please review the attached rubric so that you can be sure that your hard work is spent wisely.

Standards: B4.2C Describe the structure and function of DNA.

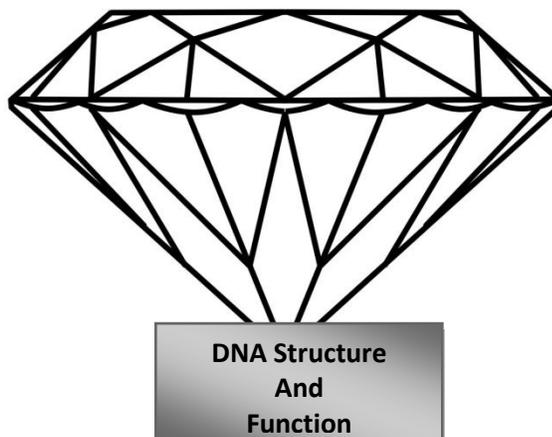
Student Objectives:

I can explain the structure of a nucleotide.
I can explain the chemical structure of DNA.
I can explain physical structure of DNA.

Choose one of the activities below:

Choice 1: Creative

Directions: Develop an alternate design to DNA using the rules that Watson and Crick used to build the DNA. Write brief letter to Watson and Crick explaining how your new model is different, yet still follows the same rules.



Choice 2: Practical

Directions: Demonstrate your knowledge of DNA structure. Examine a DNA K'nex molecule, identify errors, disassemble model, and fix errors. Write a letter to the previous designer explaining how to correctly build DNA.

Choice 3: Analytical

Directions: Develop a manual explaining the necessary steps to build a DNA molecule. Provide a glossary with pictures, which explain the key terms associated with the physical and chemical structure of DNA.

What Kind of Thinker Are You?

Are you a creative thinker? Analytical thinker? Practical thinker? Take the survey below. The column with the highest totals may provide some insight as to what type of learner you are.

Rating Scale

- 0 = not true for me
- 1 = kind of true for me
- 2 = sometimes true for me
- 3 = definitely true for me

CREATIVE THINKER	ANALYTICAL THINKER	PRACTICAL THINKER
1. I like to design new things. ____	1. I like to analyze characters when I'm reading or listening to a story. ____	1. I like taking things apart and fixing them. ____
2. I like coming up with ideas. ____	2. I like comparing and contrasting points of view. ____	2. I like learning through hands on activities. ____
3. I like using my imagination. ____	3. I like criticizing my own and others' work. ____	3. I like making and maintaining friends. ____
4. I like playing make-believe and pretend games. ____	4. I like appealing to logic. ____	4. I like understanding and respecting others. ____
5. I like thinking of alternative solutions. ____	5. I like judging mine and others' behavior. ____	5. I like putting into practice things I learn. ____
6. I like inventing new things. ____	6. I like explaining difficult problems to others. ____	6. I like resolving conflict. ____
7. I like acting and role playing. ____	7. I like solving logical problems. ____	7. I like advising my friends on their problems. ____
8. I notice things people usually tend to ignore. ____	8. I like sorting and classifying. ____	8. I like learning by interacting with others. ____
9. I like thinking in pictures and images. ____	9. I like thinking about things. ____	9. I like adapting to new situations. ____
10. I like supposing that things were different. ____	10. I like evaluating mine and others' points of view. ____	10. I like working and being with others. ____
Total: _____	Total: _____	Total: _____

Choice 1: Creative

Develop an alternate design to DNA using the rules that Watson and Crick used to build the DNA. Write brief letter to Watson and Crick explaining how your new model is different, yet still follows the same rules. You can find the list of rules used by Watson and Crick in your Google drive. Be sure to use the rubric to ensure that you are meeting the required targets. Use the checklist below to make sure that you are following the protocols to your activity.

- Use the same rules used by Watson and Crick to build a model of DNA.
- Create a model that demonstrates how nucleotides fit together (base pairing rules) and the importance of sugar-phosphate bonds.
- Write a letter to Watson and Crick explaining how your model is chemically and structurally different and similar when compared to their original model.

Choice 2: Practical

Demonstrate your knowledge of DNA structure. Examine a DNA K'nex molecule, identify errors, disassemble model, and fix errors. After successfully rebuilding the DNA molecule, write a letter to the previous designer explaining how to correctly build a DNA molecule. Be sure to use the rubric to ensure that you are meeting the required targets. Use the checklist below to make sure that you are following the protocols to your activity.

- Examine the DNA model and identify and record any errors.
- Disassemble the model, fix errors, and rebuild the model correctly.
- Write a letter to the previous designer and explain how to correctly build a DNA molecule. Your letter should address the following parameters:
 - Explain how the structure of a nucleotide contributes to the physical and chemical structure of DNA.
 - Indicate the designer's errors.
 - Briefly describe the protocols for correctly building a DNA molecule.

Choice 3: Analytical

Create a manual explaining the necessary steps needed to build a DNA molecule. Provide a glossary with pictures that explain the key terms associated with the chemical and physical structure of DNA. Be sure to use the rubric to ensure that you are meeting the required targets. Use the checklist below to make sure that you are following the protocols to your activity.

- Your manual depicts and describes each of the following:
 - nucleotides
 - base pairing rules
 - double helix
 - sugar-phosphate backbone
- Your manual accurately describes the necessary steps to build a DNA molecule.

Trimind: Structure and Function of DNA Rubric

Learning Targets	5	3	1
I can explain the structure of a nucleotide.	I accurately explained the 3 parts of a nucleotide.	I explained the 3 parts of a nucleotide, however, a portion of my explanation was incorrect.	I explained the 3 parts of a nucleotide, however, most of my explanation was incorrect.
I can explain the chemical structure of DNA.	I accurately explained the how nucleotides make the backbone of DNA I accurately explained the base pairing rules of DNA.	I explained the how nucleotides make the backbone of DNA, however a portion of my explanation was incorrect. I explained the base pairing rules of DNA, however a portion of my explanation was incorrect.	I explained the how nucleotides make the backbone of DNA, however, most of my explanation was incorrect. I explained the base pairing rules of DNA, however, most of my explanation was incorrect.
I can explain physical structure of DNA.	I accurately explained the structure of DNA.	I explained the physical structure of DNA, however a portion of my explanation was incorrect.	I explained the physical structure of DNA, however, most of my explanation was incorrect.

Final Grade: ____/15 points

Course: High School United States History

Unit: Industrialization and Urbanization

Assignment: Tri-Mind

NOTE: *This Tri-Mind is going to be the textbook reading homework assignment for students in the unit. For this reason, each of the unit objectives are listed below because each will be “hit” while students complete this homework assignment. The idea is to have students with different triarchic intelligences find a way to organize their understanding of the content they read in a way that works best for them.*

Unit Reading Homework Packet



Tri-Mind Learning Activity

Directions: This homework packet outlines your homework options as you complete the assigned textbook reading for this unit. This packet will be due on the final review day before the unit test. In order to be eligible for test mastery, this homework assignment, as well as all other class activities, must be turned in and scored by a peer as completed.

Below are the objectives for this unit...

“I Can...”

- Analyze the factors that enabled the United States to become a major industrial power.
- Analyze the impact Big Business had on American society.
- Evaluate the different responses of labor to industrial change.
- Analyze the changing urban and rural landscape.
- Analyze the causes for both immigrant and migration, and evaluate the impact both had on city life during the late 1800s.

For each of the above objectives you must complete one Intelligence Artifact, thus, at the end of this unit, you must have created **FIVE** artifacts. You can mix and match your artifacts, or make all of the artifacts one “intelligence.” Either way, you must have one for each of the above objectives.

On the backside of this paper you will find your options for each of the intelligence artifacts you need to create. Remember, the textbook reading is where you get your base of understanding of the content we are studying. We will elaborate on key pieces of what is discussed in the book in class activities.



INTELLIGENCE ARTIFACTS

	<ul style="list-style-type: none">• A “One-Page,” in which you take an 8.5 x 11 piece of printer paper and draw your own collage to visually explain the objective (see example on Schoology)• A “One-Page,” in which you take an 8.5 x 11 piece of printer paper complete a collage of pictures that represent the content or ideas. The collage must also include words (see example on Schoology).
	<ul style="list-style-type: none">• Create a series of visuals (Cause and Effect, Central Idea, T-charts, Venn diagrams others?) to show the connection between key content that is presented and how it connects to the objective (see example on Schoology).• In note format, break down the objective into parts and organize content, creating almost an outline as if you were to answer the question (see example on Schoology).
	<ul style="list-style-type: none">• Complete each of the Section Summaries at the end of each section.• Complete the chapter reading guides that are found on Schoology.

Have your own method? Come talk to me and have it approved!