



# 8th Grade Curriculum Night 2022-2023 Science and Math

Curriculum, Habits of Learning and Competency Based  
Learning



## WHAT IS A COMPETENCY?

- SAU has made a shift to Competency Based Education (CBE)
- In order to do well in school and beyond, there are necessary skills that students need to develop for success.

## Science 8

**Contact Forces:** *Why do things sometimes get damaged when they hit each other?* Development of cheerleading helmets that utilize knowledge of force and motion and engineering practices.

**Sound Waves:** *How can a sound make something move?* Creating a model and explanation to explain how hitting a cymbal loudly can damage a musician's ear.

**Forces at a Distance:** *How can a magnet move another object without touching it?* Student choice for type of electromagnetic device to create a model to explain the forces that make the device work.

**Earth in Space:** *Why do we see patterns in the sky, and what else is out there that we can't see?* Students investigate force and motion of objects in space.

**Genetics:** *Why are living things different from one another?* Students create models and use the model to explain how variations in genetic information can affect traits through production of proteins.

**Natural Selection & Common Ancestry:** *How could things living today be connected to the things that lived long ago?* Students develop a model using evidence from anatomical similarities and differences between organisms living today and organisms in the fossil record, and patterns in the traits of embryos from different species that are alive today, to explain speciation.

## Science and Engineering Practices:

- 1) Asking questions and defining problems
- 2) Developing and using models
- 3) Planning and carrying out investigations
- 4) Analyzing and interpreting data
- 5) Using mathematics and computational thinking
- 6) Constructing explanations and designing solutions
- 7) Engaging in argument from evidence
- 8) Obtaining, evaluating, and communicating information

# Contact Forces Summative

## Evaluating the design of Cheerleading Protective Headgear



Design #1



Design #2



Design #3

- Use evidence to discuss that all solid objects have elastic limits
- Forces in a collision are equal in size and opposite in direction
- Develop and use free body diagrams to represent the differences in force and energy in a collision
- Create and use mathematical models to determine how changes in the mass and speed of an object affect the amount of kinetic energy that object has.
- Develop and use system models to support explanations for how forces, cause energy to be transferred from one part of the system to another

## Example of a Rubric for the Science Practice of “Constructing Explanations”

3: Proficient	4: Advanced
<b><i>Independently and consistently, student can:</i></b>	<b><i>In addition, student can:</i></b>
I can independently use scientific concepts and domain specific language to develop my claim. <ul style="list-style-type: none"> <li>• Claim restates and answers the question</li> </ul>	N/A
Use of specific and detailed evidence <ul style="list-style-type: none"> <li>• Use of data (detailed observations and/or numbers)</li> </ul>	All of proficient and use evidence as a comparison for a counterclaim.
I can independently use specific vocabulary and principles to explain the evidence <ul style="list-style-type: none"> <li>• Reasoning is connected to key ideas we are using in class</li> </ul>	I can use all required for Proficient and adequately use reasoning to support the argument with detail.  AND I can bring in an example from outside of the classroom to further develop my argument

## Math 8

September: Rigid Transformations (Dilations, Rotations, Reflections, Translations (**Project: Dilation Portraits**), Skills review: Order of operations with integers).

October/November: Linear Relationships (Solving multi-step equations), Geometric relationships with Parallel Lines (**Project: City Design Project**).

December/January: , Linear Equations in two variables (**Project: Stained Glass Window**)

February: Systems of Linear Equations, Engineering Week + Associated Challenges

March/April: Exponents, Scientific Notation (**Project: Interpreting and Operating Large Numbers**), Pythagorean Theorem Applications

May/June: Functions and Volume (**Project: Function Stories, Project: Bridge Building**)

**Algebra:** Interwoven into the curriculum. Students are expected to complete extra assignments and meet with me to practice and develop the algebra skills that are not a part of the typical 8th grade curriculum (Algebra is not graded).

# Competency-based Grading

-A competency is a predetermined “learning objective.” It is something an 8th grade student should be able to do.

**-Example: By the end of 8th grade, a mathematics student should be able to tell the difference between a rational and irrational number.**

-Teachers use competencies adopted by SAU 21 to guide instruction and assessment.

-Students are given opportunities through tests, tasks, projects to demonstrate their understanding of a competency and we report out to you if your child can demonstrate particular competencies.

## Competency Grading Example: Mathematics

### **Task:** Slope/Intercept Art Project

Create a stained glass window using at least 20 line segments. Determine the slope, y-intercept and equation (in slope intercept form) for each segment. You must include three lines with “no slope” and three lines with zero slope.

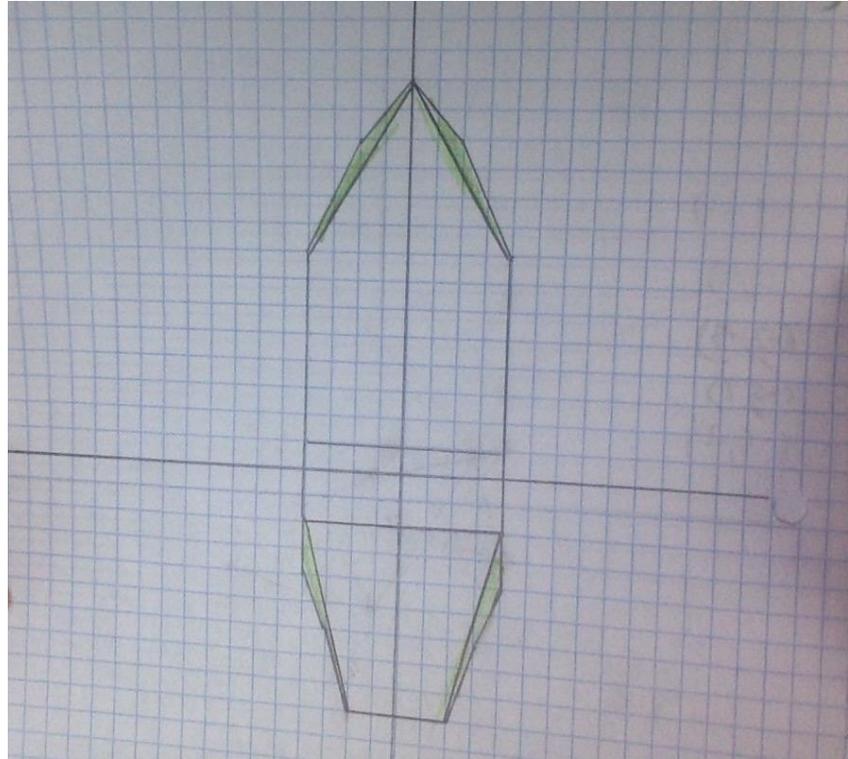
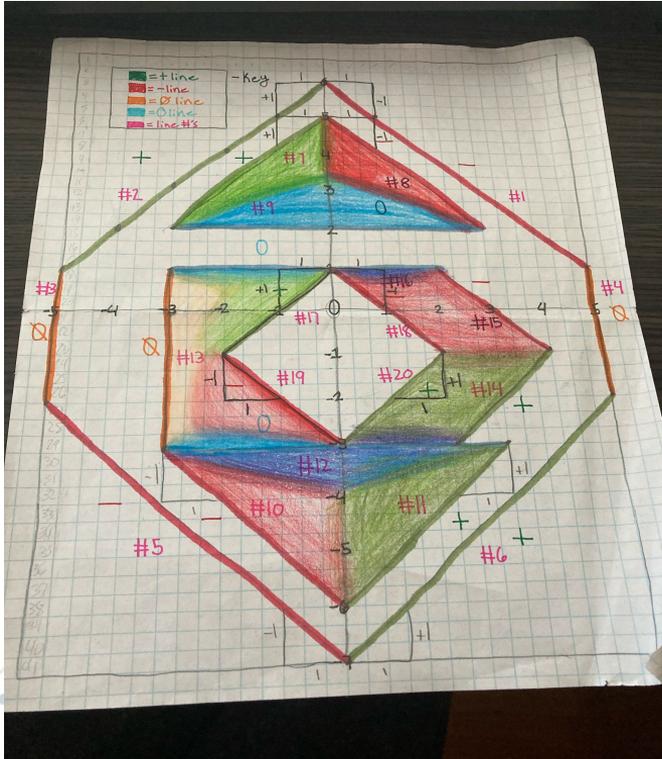
**\*\*\*For a 4:** All lines must be written in Standard Form.**\*\*\***

# Rubric Example

	(4)	(3)	(2)	(1)
<p><b>Algebraic Functions, Patterns &amp; Relations</b></p> <p>Students will make use of structure to describe and compare situations that involve proportionality, change, or patterns and use the information to make conjectures and justify conclusions/solutions.</p>	<p>The student met the criteria and was, independently, able to write the final equations in Standard Form.</p>	<p>The student created a product that met the outlined criteria:</p> <ul style="list-style-type: none"><li>-A piece of artwork (Stained glass window)</li><li>-20 lines total with three zero and no slopes.</li><li>-20 equations written in slope-intercept form.</li></ul>	<p>The student was able to complete some of the outlined criteria with independence.</p>	<p>The student needed support to complete most aspects of the task.</p>

# Project Examples

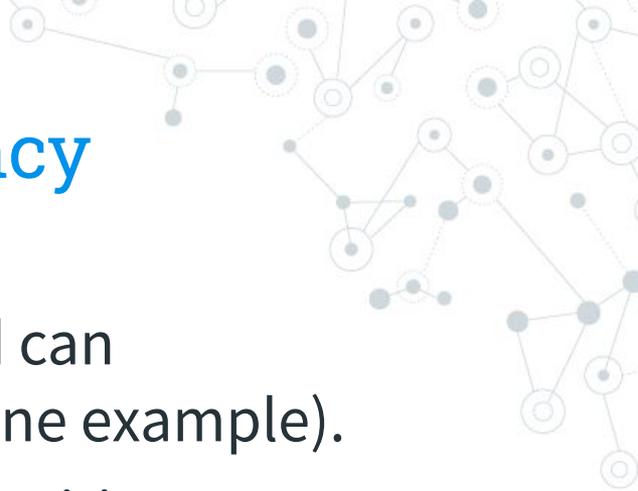
An example of a 3 or 4 based on criteria.....An example of a project that would be a 1 or 2

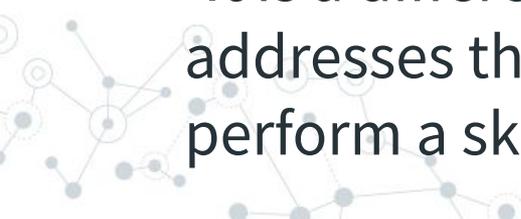


## Is it a 3 or a 4?

Line #16	(12, -24)	(3, -10)	Negative	$x + \frac{2}{3}y = 2.6$
Line #17	(0, -15)	(-10, 2)	Negative	$x + \frac{3}{5}y = -9$
Line #18	(0, -15)	(-8, 4.5)	Negative	$x + \frac{2}{5}y = -6$
Line #19	(0, -15)	(-6, 8)	Negative	$4x + y = -15$
Line #20	(0, -15)	(-3, 13)	Negative	$9x + y = -15$

# Key Takeaways with Competency



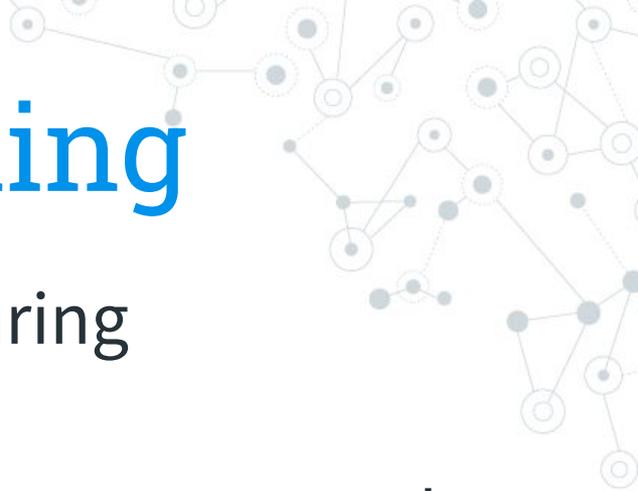
- The system is meant to show if your child can consistently perform a certain skill (Airplane example).
  - It allows for multiple assessment opportunities.
  - On summative assessments, students should always have an opportunity to demonstrate their understanding at a “4” level.
  - It is a different system that we are used to but it addresses the ultimate question of: “Can a student perform a skill or not?”
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# Purpose of Habits of Learning



- Basis for comments and parent-teacher conferences
  - The habits support specific content (Math, ELA, Science, Social Studies) competencies
- 

# Habits of Learning



**Communication:** obtaining and sharing information.

**Innovation:** using flexible thinking, resources and learning from mistakes.

**Collaboration:** ability to work together.

**Self-direction:** initiate and manage personal learning.



# Snapshot of Habits of Learning Rubric for Middle School

This is one category of the rubric.

As you can see, the student is directed to focus on the Proficient category.

	<i>Beginning</i>	<i>Developing</i>	<i>Proficient</i>	<i>Advanced</i>
<b>Communication</b>  <i>Students will utilize space and materials to both understand and/or convey meaning to an intended audience.</i>	I am sometimes able to do some of the practices in the proficient category with repeated teacher assistance <b>(See comments below)</b>	I am able to do some practices in the proficient category with teacher assistance <b>(See comments below)</b>	<ul style="list-style-type: none"><li>• I communicate in a variety of ways that are appropriate and engaging to the target audience</li><li>• I listen and ask questions that help to clarify a topic or line of reasoning</li><li>• I convey respect in speaking and listening</li><li>• I express knowledge and information to create mutual understanding</li></ul>	<i>I consistently and independently demonstrate all practices in the proficient category at a level exceeding expectations</i>
<b><u>Comments:</u></b>				

## Communication

*Students will utilize space and materials to both understand and/or convey meaning to an intended audience.*

- I communicate in a variety of ways that are appropriate and engaging to the target audience
- I listen and ask questions that help to clarify a topic or line of reasoning
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# Innovation

*Students will interpret experiences and imagine and play with new possibilities in order to create approaches that are unique and meaningful.*

- I demonstrate flexible thinking and remain open to feedback and ideas of others
- I use a variety of ideas, resources and original thinking to show my understanding
- I draw on and learn from mistakes and recognize when taking a new approach is appropriate

*Students will demonstrate the ability to work with other people in a process that requires interdependence to solve a problem, achieve a goal, or complete a task.*

- In group work, I consistently participate by being prepared, contributing, and asking/answering questions
- I stay on task and rarely require redirection
- I work in diverse groups and exhibit positive interactions to achieve a common goal
- I recognize and include the perspectives of others

## Self Direction

*Students will initiate and manage personal learning, and demonstrate a “growth” mindset, through self-awareness, goal-setting, ownership, perseverance, managing learning, and self-reflection in order to develop personal goals.*

- My work is consistently good quality; I work to the best of my ability and complete assignments on time.
- I am responsible for my own learning and am able to persevere through challenges and access support when needed
- I set goals and follow the steps necessary to achieve them
- I learn from setbacks and connect success to effort
- I self-reflect in order to improve performance (i.e. I can reassess assignments while evaluating my progress on a rubric)



# 8th Grade Curriculum Night 2022-2023

Curriculum, Habits of Learning and Competency Based  
Learning



## Tonight's agenda:

- ⊙ Introductions
- ⊙ Communication
  - Weekly update
- ⊙ Guidance Counselor
- ⊙ Habits of Learning
- ⊙ Social Studies Curriculum
- ⊙ ELA Curriculum
- ⊙ Leadership Unit
- ⊙ Working with PowerSchool
- ⊙ Questions



# Communication:

[epope@sau21.org](mailto:epope@sau21.org)

[jlukach@sau21.org](mailto:jlukach@sau21.org)

- ◎ The 8th grade weekly newsletter is emailed most Fridays. Teachers give an overview of the week and preview some upcoming assignments.
- ◎ Please contact one of us if you have not received the email and would like to.



Liz Fiore, M.Ed.

# School Counselor K-8

Provide Individual and Group Support  
Collaborate and Teach Social Emotional Learning  
504 Case Manager for grades K-5  
Private School liaison  
WHS liaison



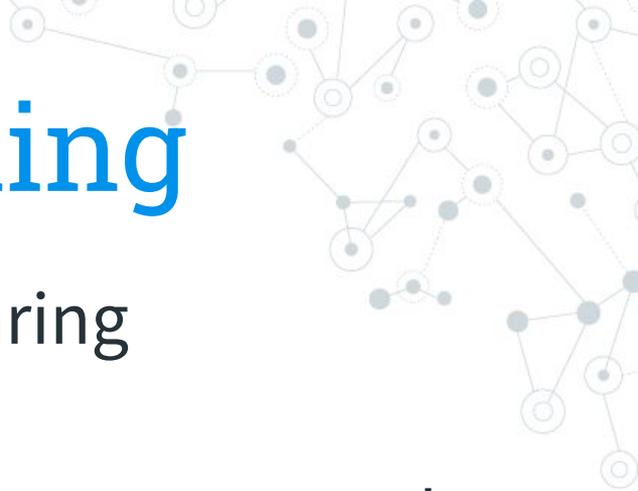
Best way to reach me is to email me at [efiore@sau21.org](mailto:efiore@sau21.org)

# Purpose of Habits of Learning



- Help inform parents and students about performance in other areas, some not addressed in competencies.
  - The habits support specific content (Math, ELA, Science, Social Studies) competencies
- 

# Habits of Learning



**Communication:** obtaining and sharing information.

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<b><u>Comments:</u></b>				

## Implementation

### *How the habits of learning will be used in Middle School*

- ◎ **Communication, Innovation, Collaboration and Self-Direction are the habits that are instrumental for student success.**
- ◎ These habits will be used to monitor student growth over time.
- ◎ Habits will be incorporated into assignments, group projects, and in report card comments at the end of each trimester.

# Language Arts 8

## Unit 1: Reading Literature

- *The Hobbit* (Through the lens of leadership and heroism, cross-curricular unit).
- **Standards Met: Comprehension strategies, using text evidence, and reading practices**

## Unit 2: Grammar/Conventions (On going)

- No Red Ink, Sentence of the Day, common errors, learning to use citations, and works cited.
- **Standards Met: Conventions and Vocabulary**

## Unit 3: Reading and Writing Informational Texts

- Introduction with ELO project
- Students will read a non-fiction book related to forestry, the outdoors, or nature (TBD).
- Students will write informational text relating to the nature trails located behind the school.
- **Standards Met: Comprehension strategies, using text evidence, speaking/listening.**

## Unit 4: Argumentative Writing

- Persuasive Research paper, developing strong claims, the modes of persuasion etc.
- **Standards Met: Writing claims, evidence, developing style/tone, conclusions and inquiry.**

## Unit 5: Reading and Writing Narratives

- WWII narratives choice reading, narrative class-wide novel, and narrative writing.
- **Narrative techniques, writing introductions and conclusions, inquiry, speaking/listening**

# Cross-Curricular Leadership Unit:

## Select a Leader

- Advisory
- ELA

## Research the Leader

- ELA/SS
- Library Integration

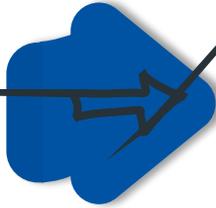
## Informational Writing

- ELA/SS
- Advisory

### Culminating Activity

Application of Knowledge (AOK)

Extended Learning Opportunity (ELO)



# Culminating Activity Options

## Application of Knowledge

Students will be supported by the 7/8 Team as they:

- Explore ways to support a cause associated with their leader
- Plan the activity
- Execute the activity

OR

## Extended Learning Opportunity

In this optional enrichment extension, students will:

- Engage in Participatory Action Research
- Work to promote diversity, equity, inclusion, and belonging in their communities
- Have additional support from a NHS teacher mentor

Community Share prior to December vacation



## Madeline Stuart

- 25 year old model from Australia
- First famous model with Down's Syndrome
- Walked in more than 100 fashion shows across the globe including New York, Paris, and London

## Leadership

### Fashion

- Forbes (2018) - "#1 Game Changer in the fashion industry"

### Disability Advocacy

- Equal treatment
- Changing perceptions

AOK: Hold a fundraiser for The Arc to support inclusive volunteering and raise awareness in your community

ELO: Use PhotoVoice to research representation on your social media feeds. Based on findings, start a #campaign.



## Social Studies 8

### **COURSE CONTENT-**

- 1. Using a compass and direction.**
- 2. Evaluating Sources- recognizing conspiracy theories**
- 3. History of Discrimination in the U.S.: from slavery to today**
- 4. Progress & Industrial Revolution**
  - a. Consumerism and wage inequities**
  - b. Sustainability**
  - c. Immigration**
- 5. Courage & Conflict (WWI, the 20's , the depression, WWII & Holocaust)**

## **SAU21 Social Studies Competencies:**

### **Reading Informational Texts**

- 1. Comprehension Strategies (Craft and Structure)**
- 2. Textual Evidence (Key Ideas and Details)**

### **Argumentative Writing:**

- 1. Introducing claims**
- 2. Supporting Evidence**
- 3. Style and Tone**
- 4. Conclusion**

### **Informational Writing:**

- 1. Introduction**
- 2. Evidence**
- 3. Style and Tone**
- 4. Conclusion**

### **Speaking and Listening**

- 1. Collaboration:**
- 2. Presentation:**

### **Inquiry**

- 1. Question Building**
- 2. Collection**
- 3. Evaluation**

### **Content**

- 1. History**
- 2. Civics**
- 3. Economics**
- 4. Geography**

## Working With Power School: how-to

Please take one of the handouts and follow along as we watch the short video.

Navigation

- Grades and Attendance
- Grade History
- Attendance History
- Email Notification
- Teacher Comments
- Report Cards
- School Bulletin
- Class Registration
- Balance
- My Schedule
- School Information

## Grades and Attendance:

Grades and Attendance Standards Grades

Exp	Attendance By Class														Absences	Tardies	
	Last Week					This Week					Course	T1	T2	T3			Y1
	M	T	W	H	F	M	T	W	H	F							
HR(Mon-Fri)						-	-	-	-	-	Grade 6 Homeroom Email Johnston, Patricia S - Rm: 326	[i]				2	1
HR(Mon-Fri)						-	-	-	-	-	Grade 6 Homeroom Email Johnston, Patricia S - Rm: 326		[i]			2	0
HR(Mon-Fri)											Grade 6 Homeroom Email Johnston, Patricia S - Rm: 326			[i]		3	1
1(Mon,Wed,Fri)						-	-	-	-	-	Grade 6 Spanish Email Johnston, Bradford H - Rm: 327	[i]				0	0
1(Mon,Wed,Fri)						-	-	-	-	-	Grade 6 Spanish Email Johnston, Bradford H - Rm: 327		[i]			0	0
1(Mon,Wed)											Grade 6 Art Email Zavez, Marsha A - Rm: 107			[i]		0	0
2(Mon,Wed)						-	-	-	-	-	Grade 6 Physical Education Email DiPietro, Kiel - Rm: 137	[i]				0	0
						-	-	-	-	-	Grade 6 Physical Education Email DiPietro, Kiel - Rm: 138		[i]			0	0
						-	-	-	-	-	Grade 6 Humanities Email Johnston, Patricia S - Rm: 326	A-				0	0

Account

Mouse Pen Rectangle Stickers Eraser START WORKING

# QUESTIONS?



## Implementation

### *How the habits of learning will be used in Middle School*

- ◎ **Communication, Innovation, Collaboration and Self-Direction are the habits that are instrumental for student success.**
- ◎ These habits will be used to monitor student growth over time.
- ◎ Students will set goals for themselves as part of their advisory groups and will monitor their progress with teacher feedback and support.
- ◎ Habits will be incorporated into assignments, group projects, and in report card comments at the end of each trimester.