



Curriculum Night 25-26

**Integrate Science & Survival
Science
6, 7, 8th Grade**

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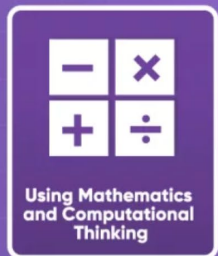
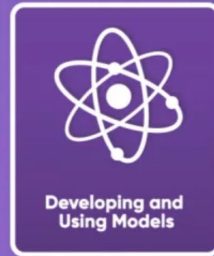
Room 145



6th Grade Science

Key Shifts in Science Education

SCIENCE & ENGINEERING PRACTICES



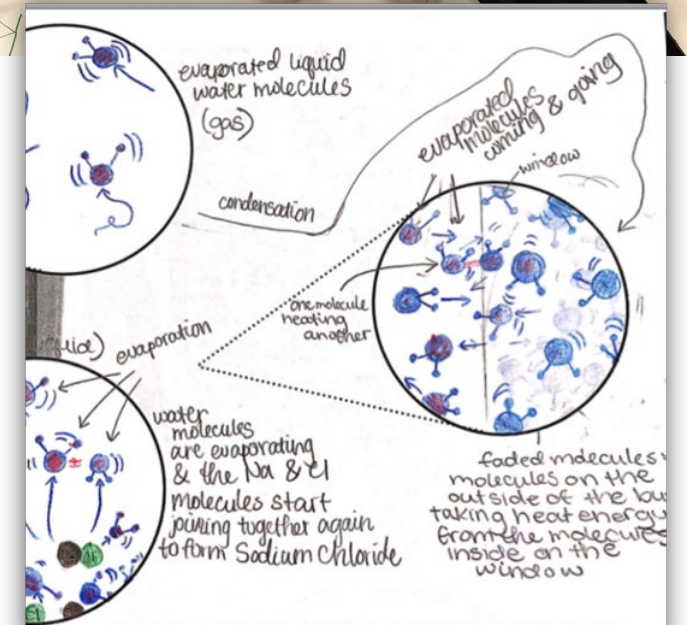
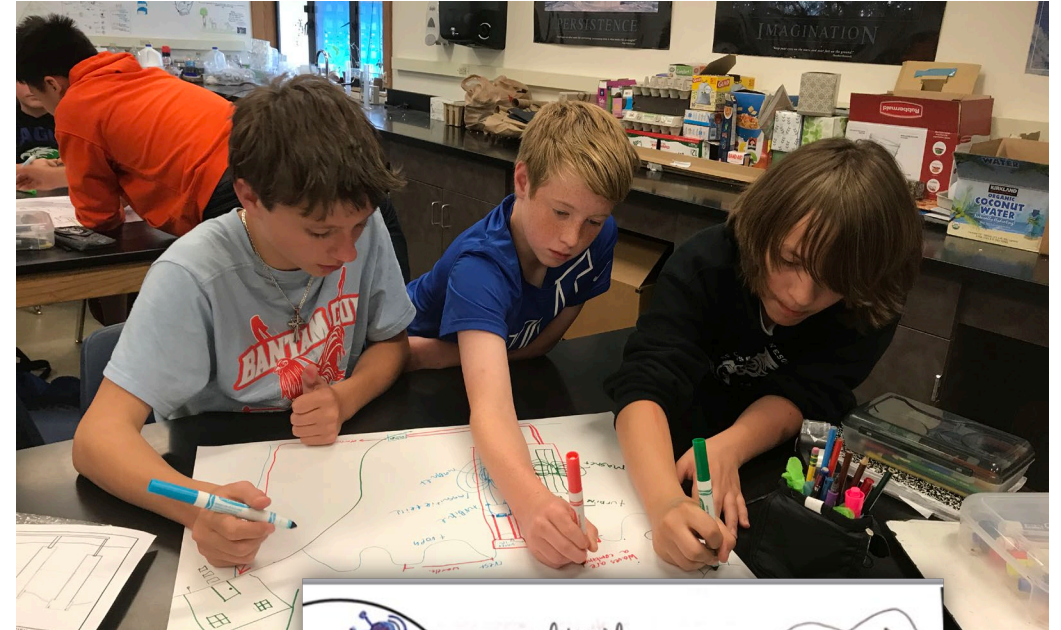
A New Vision for Science Education

Implications of the Vision of the Framework for K-12 Science Education and the Next Generation Science Standards

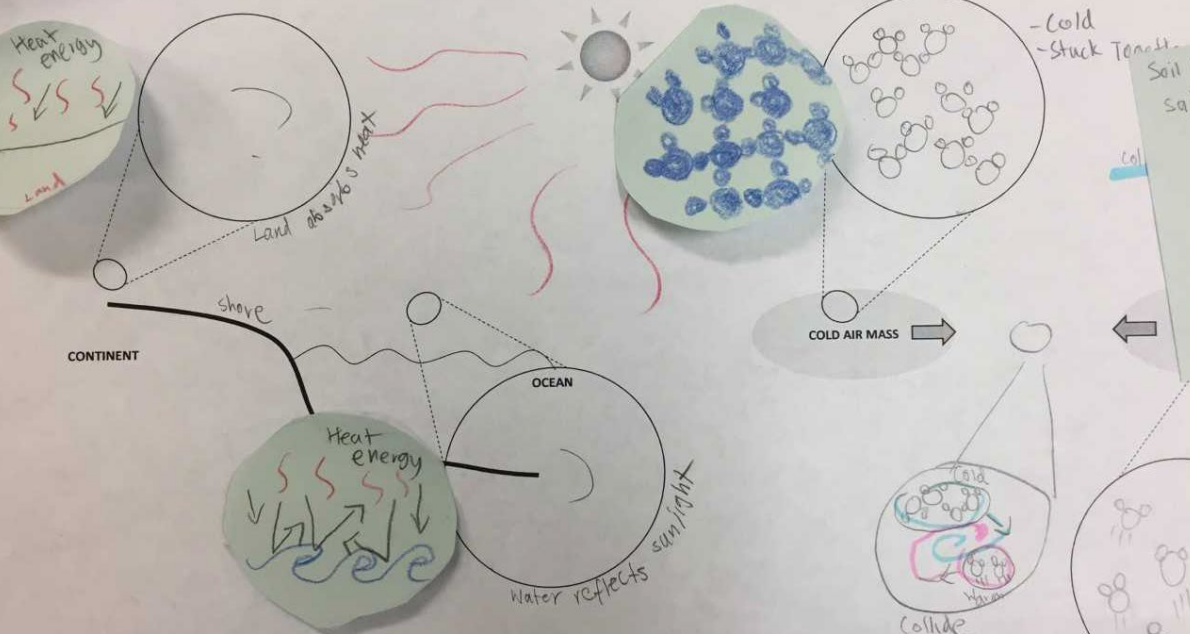
SCIENCE EDUCATION WILL INVOLVE LESS:	SCIENCE EDUCATION WILL INVOLVE MORE:
Rote memorization of facts and terminology	Facts and terminology learned as needed while developing explanations and designing solutions supported by evidence-based arguments and reasoning.
Learning of ideas disconnected from questions about phenomena	Systems thinking and modeling to explain phenomena and to give a context for the ideas to be learned
Teachers providing information to the whole class	Students conducting investigations, solving problems, and engaging in discussions with teachers' guidance
Teachers posing questions with only one right answer	Students discussing open-ended questions that focus on the strength of the evidence used to generate claims
Students reading textbooks and answering questions at the end of the chapter	Students reading multiple sources, including science-related magazine and journal articles and web-based resources; students developing summaries of information.
Pre-planned outcome for "cookbook" laboratories or hands-on activities	Multiple investigations driven by students' questions with a range of possible outcomes that collectively lead to a deep understanding of established core scientific ideas
Worksheets	Student writing of journals, reports, posters, and media presentations that explain and argue
Oversimplification of activities for students who are perceived to be less able to do science and engineering	Provision of supports so that all students can engage in sophisticated science and engineering practices

Ambitious Science Teaching

- Based on important science ideas and “Natural Phenomena”
- Elicits student ideas
- Model based explanations
- Supports on-going changes in thinking
- Evidence-based explanations
- 3 levels of understanding: WHAT, HOW, and WHY



PART 1: Show how energy from the sun causes air masses to move when the ocean meets a continent. Show where there are different amounts of energy.



Is the air on the continent supposed to be hot?
The air on ocean is cold?

PART 2: Draw a prediction for what would happen next collide. Use the zoom ins to show how the molecules in

Model Checklist

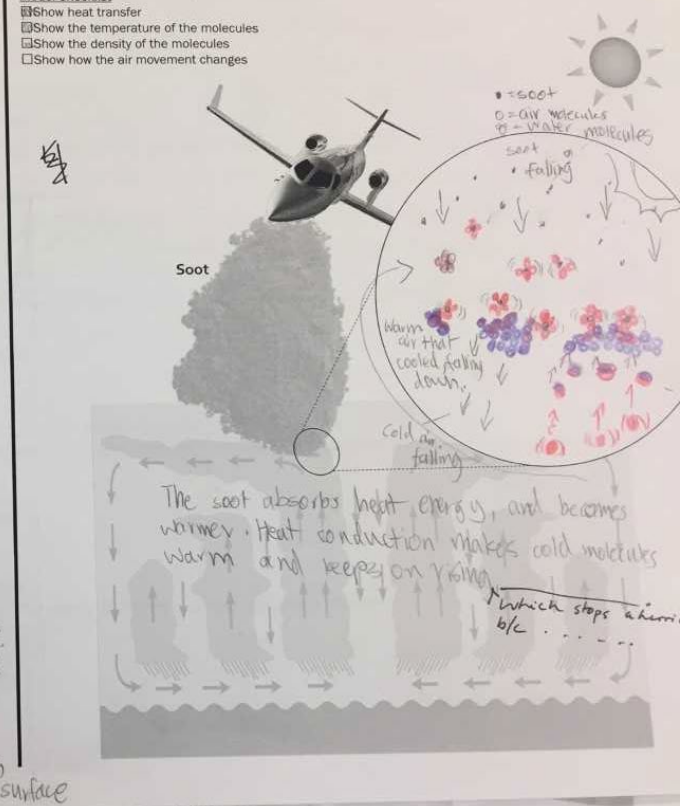
- Show the temperature of the molecules
- Show the density of the molecules
- Show the air pressure (air rising or sinking)



Part 2: How might the soot being dropped affect the hurricane? Why might this stop a hurricane?

Model Checklist

- Show heat transfer
- Show the temperature of the molecules
- Show the density of the molecules
- Show how the air movement changes



How can you support your students?

Empower

Empower them to reach out to their teacher or their peers

Check in

Ask them about science class! If it is clear your student may be struggling with a particular concept, encourage them to reach out to their teacher and they can help your student make a plan for how to finish their work or review content.



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7th Grade Integrated Science

Think back to your own science education. Which practices below did you engage in frequently? Which were less frequent or missing?



Asking Questions



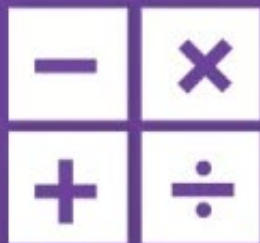
**Planning and
Carrying Out
Investigations**



**Analyzing and
Interpreting Data**



**Developing and
Using Models**



**Using Mathematics
and Computational
Thinking**



**Constructing
Explanations**



**Engaging in
Argument from
Evidence**



**Obtaining, Evaluating
& Communicating
Information**

General Strategies to support your student in 7th grade

Agenda:

- Help them create a routine at home each day.

Skyward:

- Sit with them while they look at their grades. Ask question while they show their grades. If they say, “I don’t know” (a favorite sentence of all middle school students 😊) they can record on their agenda to find out.
- Check Skyward “missing assignments” tab. These are “must do’s”.

Communication: -include your students on any e-mails to teachers (Parent Square cannot do this 😞).

Science Specific Strategies to support your student in 7th grade

- Retake/revisions are available.
- Home notebook showcases.
- This is the evidence of their daily engagement.
Spend a little time with this process and ask questions 😊
- Science Ed shifts and SEPs

SCIENCE EDUCATION WILL INVOLVE LESS:

Rote memorization of facts and terminology

Learning of ideas disconnected from questions about phenomena

Teachers providing information to the whole class

Teachers posing questions with only one right answer

SCIENCE EDUCATION WILL INVOLVE MORE:

Facts and terminology learned as needed while developing explanations and designing solutions supported by evidence-based arguments and reasoning.

Systems thinking and modeling to explain phenomena and to give a context for the ideas to be learned

Students conducting investigations, solving problems, and engaging in discussions with teachers' guidance

Students discussing open-ended questions that focus on the strength of the evidence used to generate claims

SCIENCE EDUCATION WILL INVOLVE LESS:

Students reading textbooks and answering questions at the end of the chapter

Pre-planned outcome for “cookbook” laboratories or hands-on activities

Worksheets

Oversimplification of activities for students who are perceived to be less able to do science and engineering

SCIENCE EDUCATION WILL INVOLVE MORE:

Students reading multiple sources, including science-related magazine and journal articles and web-based resources; students developing summaries of information.

Multiple investigations driven by students’ questions with a range of possible outcomes that collectively lead to a deep understanding of established core scientific ideas

Student writing of journals, reports, posters, and media presentations that explain and argue

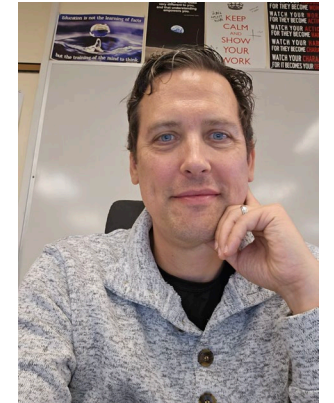
Provision of supports so that all students can engage in sophisticated science and engineering practices

8th Grade Integrate Science

You can reach both of us on Parent Square
or the following emails:



Mr. Fraczek (jfraczek@gmail.com)



Mr. Semrau (asemrau@gmail.com)




8th Grade Curriculum

Next Generation Science Standards

- **Unit 1:** Sound Wave Properties
- **Unit 2:** Electromagnetic Wave Properties
- **Unit 3:** Exploring Motion
- **Unit 4:** Newtonian Forces
- **Unit 5:** Gravitational Forces and Scale in the Universe
- **Unit 6:** Sun-Earth-Moon System
- **Unit 7:** Evidence for Evolution
- **Unit 8:** Natural Selection & Adaptations

8th Grade Science

- Phenomenon Based Learning: Examples
 - Sound Waves Unit: Car blasting music causing windows to shake & How glass can be broken by a human voice
 - EM Waves: What color is my Teacher's shirt? (One picture shows same shirt as pink, another picture as gray)
 - Newton's Laws of Motion: Why does a cell phone break sometimes when it falls but not always?
- Skills and Practices: Examples
 - Modeling
 - Design & Engineering Challenges
 - Experimental design, analyze, and interpreting data
 - Graphing
 - Research Projects
 - Claim, Evidence, & Reasoning
 - Public Speaking



8th Common Grading Practices

- **Classwork/Homework Grades (~15% of total grade)**
 - Classwork/Homework grades are based on completion and often posted in CANVAS.
 - 2 points for completion
 - 1 point for attempting more than half
 - 0 points for missing
- **Tests/Labs/Project Grades (~85% of total grade)**
 - There will be Check-ins or Labs for each unit to track student learning (graded on accuracy; 10-20 points).
 - At the end of each unit, there will be a summative exam or project (graded on accuracy & completion; 50-200 points).
- **Opportunities for Enrichment (QUEST & Optional to everyone)**
 - Research Paper and Presentation (1st and 2nd Semester)
 - Extra Credit
 - 1 Additional ~15-minutes of home practice work per week
 - Additional Challenge problems on each project and assessment

*8th Grade
Science: How
you can help
your student
be successful*

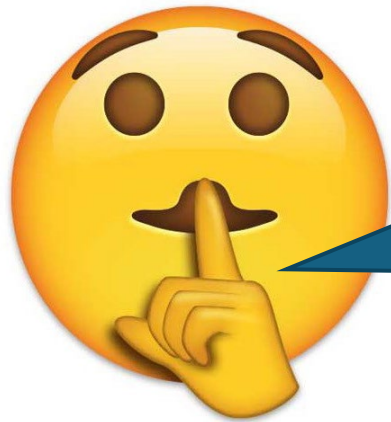
- Have your student Check CANVAS Calendar and Skyward every night
- Parents/Guardians Check CANVAS and Skyward regularly
- Have STUDENTS email their teacher, and CC their Parents/Guardians, when they have completed late or missing assignments.

Which of these 6 survival priorities is most important? Why?



CLASS GOALS

- △ Respond to any survival situation with a PMA
- △ Practice using the principals of human psychology and physiology to manage emergencies
- △ Achieve growth in my personal emergency/survival skills through practice



SHHHHH We will use the principals of **science**, the skills of **reading and writing**, the study of **historical** events, and **mathematical** data analysis to accomplish these goals....

Strategies to support your student

All School

Agenda: -Help them create a routine at home each day.

Skyward: -Sit with them while they look at their grades. Ask question while they show you their grades. If they say “I don’t know” (a favorite sentence of all middle school students 😊) they can record on their agenda to go find out.

-Check skyward “missing assignments” tab. These are “must do’s”.

Communication: -include your students on any e-mails to teachers (Parent Square can not do this 😞).

Strategies to support your student

Survival Science Specific

-Only assessments in skyward. Retake/revisions are always available.

-Home notebook showcases. This is the evidence of their daily engagement. Spend a little time with this process and ask questions 😊

Survival Science

Emergency Preparation



Survival
Simulat



First Aid and MORE



Improvising
Practice

Build Mental
Toughness

