EAST GRAND RAPIDS PUBLIC SCHOOLS
Kent County, Michigan

REGULAR Meeting of the East Grand Rapids Board of Education

The Community Board Room at Woodcliff, 2915 Hall Street SE East Grand Rapids, MI 49506.
For Information: Phone 616-235-3535.

Monday, April 15, 2019, 6:00 p.m.

AGENDA

1. Meeting Called to Order
2. Public Comments
3. Board Secretary's Report: Communications to and from the Board – Beth Milanowski
4. Student Council President's Report – Will Marsh

PRESENTATION / DISCUSSION

5. Recognition of Tad VandenBrink, 2019 Outstanding Teacher of American History for DAR–Craig Weigel (Enclosure #5)
6. Read by Third Grade/Literacy Coaching – Jenny Fee, Carlye Allen, Katie McIntosh (Enclosure #6)
7. Recognition of Teacher and Staff Appreciation: May 6-10, 2019 – Dr. Kattula
8. Kent ISD School Board Election Resolution Review – President Bernecker (Enclosure #8)

   Background: Under Section 614(2) of the Revised School Code, the resolution in Enclosure # 8 must be presented at not less than one public meeting before the Board adopts the resolution of the Kent ISD School Board Election for the purpose of designating a voting delegate and alternate from each constituent district. Three candidates will be elected to the vacancies on the Kent ISD school board on Monday, June 3, 2019. At the May 13, 2019, East Grand Rapids Board of Education regular meeting, a motion to pass a resolution designating its representative for the electoral body of the Kent Intermediate School District School Board will be proposed.

ACTION ITEMS – CONSENT AGENDA

Background: In order to save time during the meeting, we are using a Consent Agenda. Items in the Consent Agenda include those that are considered routine or have been previously discussed by the Board of Education. Any Board Member may request to have any item removed for a separate discussion and vote.

Recommendation: Motion to approve items in the Consent Agenda Numbers 9 through 12.

9. Approval of Minutes of REGULAR Meeting of 03/18/2019 (Enclosure #9)
10. Approval of Payment of Bills – March 2019 (Enclosure #10)
11. Approval of Middle School and High School Science Curriculum (Enclosure #11)
12. Acceptance of Grants from the East Grand Rapids Schools Foundation (Enclosure #12)

ADMINISTRATIVE REPORTS

13. Superintendent

14. Assistant Supt. of Business
    - 2019-2020 Health Care Rates

15. Assistant Supt. of Instruction

16. Board Member Reports

    Communications Committee - Milanowski
    Facilities Committee - Hessler
    Finance Committee – Laackman
    Joint Facilities Committee - Bernecker
    Personnel Committee - Bernecker
    Policy Review Committee – Welch

    Liaisons
    Community Action Council – Yates
    EGR Schools Foundation – Laackman
    Legislative Liaison – Welch
    Parks & Recreation – Hessler
    PTO Council – Bernecker
    Parent Advocates for Special Education (PASE) – Reid
    Leadership & Youth Development (LYD) – Milanowski
    Superintendent's Advisory Council (SAC) – Milanowski

17. Adjournment

* Minutes for this meeting will be available in the Superintendent's Office at 2915 Hall Street SE, East Grand Rapids, MI 49506.
** If you plan to attend and have a special need and require accommodation to attend this meeting, please contact Dr. Heidi S. Kattula, Superintendent, at 616-235-3535.

BOARD ENCLOSURE
April 15, 2019
Item No. 5

Sophie de Marsac Campau Chapter
National Society Daughters of the American Revolution
Grand Rapids, Michigan

www.dar.org
For Immediate Release
Contact: Marcia Kaye, Chapter Regent
regent@sophiedemarsaccampauchapter.org
(616)915-2648

February 9, 2019

Tad VandenBrink Named Outstanding Teacher of American History by Local DAR Chapter

Grand Rapids, Michigan – The Grand Rapids-based Sophie de Marsac Campau Chapter, National Society Daughters of the American Revolution (DAR) is proud to announce that Tad VandenBrink of East Grand Rapids High School is the winner of the chapter's 2018-19 Outstanding Teacher of American History Contest. Also honored today are the chapter's student winners of three DAR-sponsored writing contests: the DAR Good Citizens Award and Scholarship Contest; the American History Essay Contest; and the Christopher Columbus Essay Contest.

"Our chapter has been recognizing area teachers and student winners of these contests for many, many years," says Marcia Kaye, Chapter Regent. "It's a great way for us to promote locally our national objectives of historic preservation, education, and patriotism."

DAR's Outstanding Teacher of American History Contest honors notable full-time teachers of history (and related fields such as social studies, government, and citizenship education) in public, private, and parochial schools, grades 5-12. These teachers have demonstrated excellence in sharing an incisive knowledge of American History; fostering a spirit of patriotism and loyal support of our country; relating history to modern life and events; and requiring high academic standards from their students. Mr. VandenBrink's dossier has been submitted to the DAR of Michigan state society's 2018-19 Outstanding Teacher of American History Contest, the winner of which is eligible to participate in the DAR national competition.

Since 2014, Mr VandenBrink has taught at East Grand Rapids High School. While there, he has taught Government, World History, International Baccalaureate (IB) History of the Americas, and United States History. He also currently serves as a Model U.N. sponsor at the school. "Mr. VandenBrink prides himself in creating a classroom environment rich in collaboration between his students," says Craig Weigel, Principal of EGRHS. "His students routinely express their enjoyment of the class, the content being presented, as well as the relationships they have built with Mr. VandenBrink."

Mr. VandenBrink graduated from University of Michigan in 2009 with a B.A. in Secondary Education with a concentration in History and Social Studies. He received a Master of Education in Curriculum and Instruction, with an emphasis in Differentiation, from Grand Valley State University (GVSU) in 2016; Mr. VandenBrink also led a workshop in 2017 at GVSU's biannual Wildly Exciting Education Conference. He is an active member of Gilder Lehrman Institute of American History. He has taught in Honduras and Spain and has credentials in teaching English as a Second Language. He

has a passion for teaching and history and has his students develop and practice the skills of a historian.

"Our chapter is working actively on a literacy project for Kent County middle schools at the moment," says Mrs. Kaye. "We especially were impressed by Mr. VandenBrink's emphasis on the need for literacy skills, and his efforts to help students in this area through the teaching of higher level thinking skills in his classes."

Mr. VandenBrink previously taught United States History, Advanced Placement (AP) United States History and AP United States Government and Politics at Grand River Preparatory High School in Kentwood.

The Sophie de Marsac Campau Chapter is one of the oldest DAR chapters in the United States and is the second oldest chapter in Michigan. DAR was founded in 1890 to promote historic preservation, education and patriotism. Its members are descended from the patriots who won American independence during the Revolutionary War. With nearly 185,000 members in approximately 3,000 chapters worldwide, DAR is one of the world's largest and most active service organizations. DAR members are committed to volunteer service having served more than 12.5 million hours in communities throughout the world during the past three years. To learn more about the work of today's DAR, visit www.DAR.org or connect with DAR on social media at facebook.com/TodaysDAR, twitter.com/TodaysDAR and youtube.com/TodaysDAR.

# # #

Photo, left to right: DAR of Michigan State Society Regent Gina M. LaCroix; Mr. Tad VandenBrink of East Grand Rapids High School; Sophie de Marsac Campau Chapter Regent Marcia Kaye; Chapter Historian Linda Huffaker

BOARD ENCLOSURE
April 15, 2019
Item No. 6

East Grand Rapids Public Schools

Read by Grade Three Law

Presentation to the Board of Education

April 15, 2019

Read by Grade Three Law

Purpose of the Legislation

- To ensure Michigan students are reading proficiently by the end of 3rd grade when they should be transitioning from “learning to read” to “reading to learn”

Public Act 306/MCL 380.1280f

- Passed in October 2016
- Similar to legislation passed in over 30 other states
- Implementation required beginning in the 2017-2018 school year
- The retention component begins in 2019-2020 and will impact the students currently in second grade (as third graders)

REQUIREMENTS	ACTIONS BY EGRPS
Assess the reading skills of K-3 students three times per year, the first within 30 days of the start of school	• EGRPS previously assessed two times a year, now assesses three times for K-3 • EGRPS previously used and will continue to use the Fountas & Pinnell Benchmark Assessment System (MDE approved) in addition to phonemic awareness and phonics assessments. This addresses all five major reading components: Phonemic Awareness, Phonics, Fluency, Vocabulary, and Comprehension
Provide written notice to parents of students who demonstrate a reading deficiency	• During the 2016-2017 school year an EGRPS Literacy Team was created and the team developed a process for providing individualized Reading Growth Plans for readers below grade level expectations • EGRPS provides written notice through the Reading Growth Plan process
Provide an individual reading plan (Reading Growth Plan) outlining reading intervention services for students who demonstrate a reading deficiency	• Reading Growth Plan process implemented at the beginning of 2017-2018 outlines the reading intervention plan for each student • Parent-School Meeting (parent, principal, and reading specialist) • Intervention is evidence-based – Fountas & Pinnell Leveled Literacy Intervention (no change from previously) and phonemic awareness or phonics interventions • Intervention provides intensive development in one or more of the 5 major reading components: Phonemic awareness, phonics, fluency, vocabulary, and comprehension

REQUIREMENTS	ACTIONS BY EGRPS
Provide a "read at home" plan to parents/guardians of students on a Reading Growth plan	• The provision to parents of "read at home" plans, including tools for supporting one's child, is part of the Reading Growth Plan meeting and process
Provide teachers with targeted, intensive, and differentiated professional development (PD)	• EGRPS previously provided, and will continue to provide, this PD through Curriculum Implementation Teams, Literacy Coaching, Building-level PD, State PD, ISD PD, Summer Learning PD, and August PD opportunities
Implement a Literacy Coaching model	• EGRPS implemented a pilot part-time Literacy Coach Position that began January 8, 2018 • EGRPS Literacy Team is developing a sustainable Literacy Coaching model that was implemented at the start of the 2018-2019 school year
Beginning in 2019-2020 school year, retain any 3rd grade student who is one year or more behind in reading on the state summative assessment (M-STEP).	• Applies to the students who are currently in 2nd grade and who will be in 3rd grade during the 2019-2020 school year. This will be based on a predefined score determined by the MDE on the state assessment (M-STEP) • Alternatives to retention are available (see slide 6)

Example of Reading Growth Plan Form

EGRPS
EAST GRAND RAPIDS PUBLIC SCHOOLS

READING GROWTH PLAN

Student Name

Today's Date

School ☐ Breton Downs Elementary ☐ Lakeside Elementary ☐ Wealthy Elementary

Grade

Classroom Teacher

The persons listed below participated and/or provided input in writing (Name/Role):

Initial Fountas & Pinnell Benchmark Assessment Data

Date Assessed
Accuracy
Self-Correction Rate
Comments *(Please describe)*

Instructional Text Level
Fluency
Comprehension

The Reading Growth Plan will address:

- ☐ Phonemic Awareness *(The ability to hear, identify, and manipulate sounds)*
- ☐ Phonics *(Knowledge of letter-sound relationships and how they are used in reading and writing)*
- ☐ Fluency *(To read continuous text with appropriate momentum, phrasing, pausing, and stress, as well as the integration of all these areas)*
- ☐ Vocabulary *(Words one knows and understands in oral and written language)*
- ☐ Comprehension *(The complex process readers use to understand what they have read)*

The Reading Growth Plan will occur outside of regular literacy instructional time. The duration and frequency of service will be: *(Please describe)*

- ☐ Strategies to be implemented at home to address the areas of need have been shared with parents.
- ☐ District Commitment: The District will implement the recommended plan.

_____ Building Administrator

_____ Date

Parent/Guardian

- ☐ I agree with the Reading Growth Plan.
- ☐ I disagree with the Reading Growth Plan but will allow implementation.
- ☐ I disagree with the Reading Growth Plan and will not allow implementation.

_____ Parent/Legal Guardian Signature

_____ Date

Print four copies. Distribution:

☐ Parent/Guardian ☐ Student's Cumulative File ☐ Certified Teaching Staff ☐ District RGP Coordinator

Third Grade Reading Law

EGRPS
EAST GRAND RAPIDS PUBLIC SCHOOLS

What Families Need to Know

What is it?
Also known as Public Act 306 of 2016, the Third Grade Reading Law was passed by the Michigan legislature in an effort to increase student achievement in the area of literacy. Its intent is to ensure all children are proficient on state reading assessments by the end of third grade.

Who is impacted by this law?
A portion of the law went into effect in the 2017-2018 school year that requires students in grades K-3 who are below grade level in reading to receive an individualized Reading Growth (improvement) Plan. In addition, districts are required to regularly communicate with families regarding their child's progress and provide tools to support reading at home. Beginning in the 2019-2020 school year, third grade students will take a standardized state assessment to determine promotion to fourth grade.

What are Good Cause Exemptions?
The law offers several Good Cause Exemptions as alternatives to retention providing one of the following can be demonstrated:

- Proficiency on an alternative standardized reading assessment approved by the Superintendent
- Competency in all third grade standards via a student portfolio with multiple work samples
- The student has an IEP or Section 504 Plan and the team determines the child should be exempt from the requirements
- The student is an English Language Learner with less than three years of instruction in an ELL program
- The student has received reading intervention for two or more years and was previously retained
- The student has been enrolled in the current district for less than two years and was not previously provided an appropriate reading improvement plan
- The parent/guardian requests an exemption within the 30 day time period and the Superintendent or designee determines the exemption is in the best interests of the student

What is EGRPS doing as a result of this new law?
Many requirements of the law were occurring in East Grand Rapids Public Schools prior to its passing. Strong literacy instruction and interventions continue to be in place along with a more formalized process for receiving support. In addition to this, a Literacy Coach will provide ongoing support and professional development to K-3 teachers.

How is EGRPS supporting students as readers?
The district believes in a balanced literacy approach with high quality instruction delivered by trained educators committed to the success of each child. To foster growth in all readers, we will:

- Continue to utilize and provide professional learning on evidence-based best practices in literacy instruction
- Provide Leveled Literacy Intervention services delivered by a K-3 classroom or reading teacher in addition to regular literacy instruction for students reading below grade level
- Implement individualized Reading Growth Plans for those students reading below grade level
- Share Read-At-Home Plans, tips, and tools for supporting your child's growth as a reader

What can I do to support my child?

- Read out loud to your child
- Listen to your child read
- As you read:
  - Ask you child to share what they remember
  - Talk about your favorite parts, what you've learned, or who is in the book and what they do
  - Talk about the pictures in the book and how they connect to the words on the page
  - Help connect the stories to your child's life or other books you've read, even on trips to the store

How do I learn more?
The Michigan Department of Education provides more information on the "3rd Grade Reading Law" webpage found here. If you would like further information about our district practices and procedures, please contact your child's building administrator.

Located on the
egrps.org website

under the
District-Curriculum
tab

Alternatives to Retention

A 3rd grade student who is more than one year behind in reading as measured by the state reading assessment may be allowed to enroll in 4th grade if they qualify for an exemption.

Exemptions to Retention

An exemption may be granted to a student if the student:

1. Is **less than one year behind** on the state assessment
2. Demonstrates grade-level proficiency on an **alternative standardized assessment** approved by the state Superintendent of Public Instruction (NWEA MAP ELA Assessment)
3. Demonstrates grade-level proficiency in all Grade 3 ELA standards through a **portfolio of pupil work** samples
4. Demonstrates **proficiency on the Math M-STEP and also demonstrates proficiency in Science and Social Studies** as shown through a pupil portfolio and as determined by the teacher
5. Was **previously retained** in Kindergarten, Grade 1, Grade 2, or Grade 3 and received two years of remediation

Exemptions to Retention

6. Has an **IEP or 504 plan** and the team determines an exemption is in the student's best interest
7. Pupil has **limited English language proficiency** and has less than three years of instruction in English Language Learning programs
8. Has been **enrolled less than two years** in the current district and was not provided an appropriate Reading Growth Plan at the previous school
9. Has a parent/guardian, 3rd Grade teacher, Section 504 coordinator, or any member of an IEP team who **requests a Good Cause Exemption** "in the best interests of the student" to be approved by the superintendent in writing

Additional Information

- District process for retention exemptions will be determined upon the MDE's communication of time lines and accountability processes.
- MDE is currently determining what will constitute "one-grade level behind." This will be based on a predefined score on the state assessment (M-STEP).

Reading Growth Plan Data

READING GROWTH PLANS (K-3)
2017-2018

	BRETON	LAKESIDE	WEALTHY	DISTRICT	% of GRADE
Kindergarten	10	5	2	17	8.8%
1st Grade	12	5	13	30	16.9%
2nd Grade	5	6	15	26	13.2%
3rd Grade	3	12	12	27	13.1%
TOTAL	30	28	42	100	12.9%
% of K-3	11.7%	10.3%	17.1%	12.9%	

	BRETON	LAKESIDE	WEALTHY	TOTAL and %
# Exited	13	16	25	54
% Exited	43.3%	57.1%	59.5%	7%
# Continue	17	12	18	47
% Continue	56.7%	42.9%	42.9%	6%

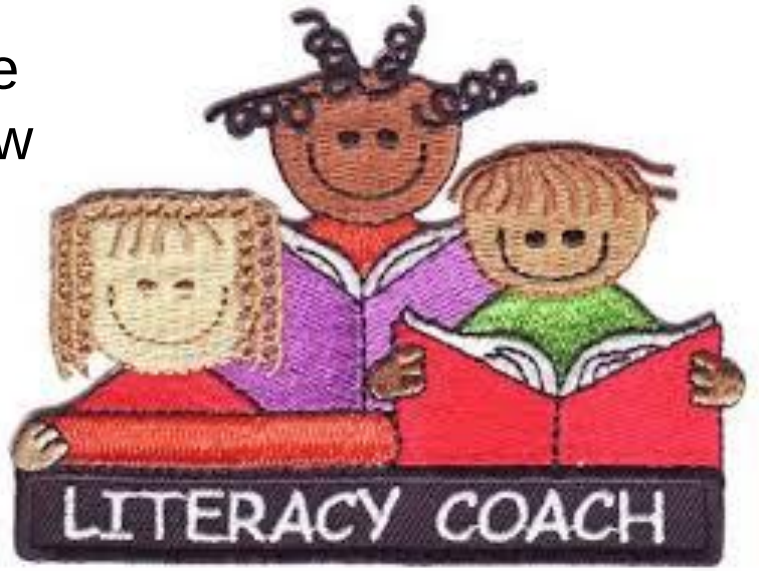
READING GROWTH PLANS (K-3)
2018-2019
As of February 1, 2019

	BRETON	LAKESIDE	WEALTHY	DISTRICT	% OF GRADE
Kindergarten	11	2	3	16	7.5%
1st Grade	8	7	3	18	9.3%
2nd Grade	9	6	5	20	10.9%
3rd Grade	9	8	19	36	18.3%
TOTAL	37	23	30	90	11.4%
% of K-3	13.8%	8.4%	11.0%	11.4%	

	BRETON	LAKESIDE	WEALTHY	TOTAL and %
Exited	10	4	5	19
% Exited	27.0%	17.4%	16.7%	2%
Continue	27	19	25	71
% Continue	73.0%	82.6%	83.3%	9%

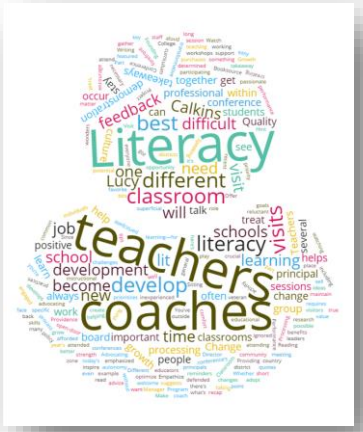
Early Literacy Coaching

A Requirement Under the
Read by Grade Three Law



Why do we have a Literacy Coach?

- Direct result of the Read by Grade Three Law
- **Goal**: to help teachers be self-directed, self-monitoring, self-modifying, self-managing
- Support colleagues to ensure that Reading Units of Study are being implemented with fidelity
- **Result**: Peer coaching can directly impact whether a teacher improves in his/her individual practices which then impacts student achievement



Early Literacy Coaching Model - PA 306

The legislation requires the development of an Early Literacy Coaching (LC) Model with the following features:

1. An Early Literacy Coach shall support and **PROVIDE** initial and ongoing **PROFESSIONAL DEVELOPMENT TO TEACHERS** in the following areas:
    - 5 major reading components
    - Administering and analyzing instructional assessments
    - Differentiated Instruction and Intensive Intervention
    - Progress monitoring
    - Identifying and addressing a reading deficiency

NOTE: Above language comes directly from PA 306

Early Literacy Coaching Model - PA 306 (continued)

2. An Early Literacy Coach shall **DO ALL THE FOLLOWING:**
   - ***Model*** effective instructional strategies for teachers
   - ***Facilitate*** study groups
   - ***Train*** teachers in data analysis and using data to differentiate instruction
   - ***Coach*** and mentor colleagues
   - ***Work with*** teachers to ensure that evidence-based reading programs are implemented with fidelity
   - ***Help*** to increase instructional density to meet the needs of all pupils (i.e. increase reading across disciplines)

NOTE: Above language comes directly from PA 306

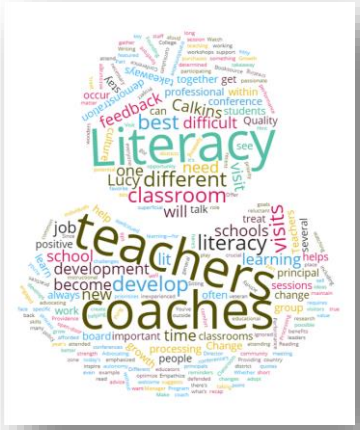
Early Literacy Coaching Model - PA 306 (continued)

- Help ***lead*** and ***support*** reading leadership teams at the school
- Continue to **increase his or her knowledge-base** in best practices in reading instruction and intervention
- **Model** for the teacher, and coach the teacher, in instruction with pupils in whole and small groups
- **Shall NOT be assigned a teaching assignment, though will work with pupils <u>in the context of modeling or coaching</u> in or outside of a teacher's classroom**

NOTE: Above language comes directly from PA 306

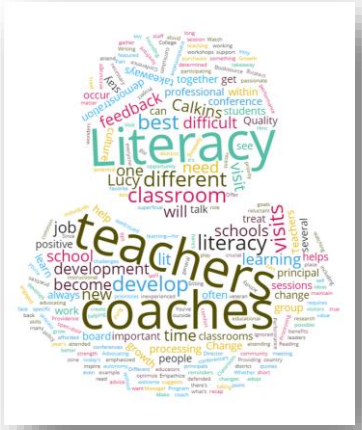
What is Literacy Coaching?

- Invites thinking while working side-by-side as professionals
- Helps a colleague analyze a growth area, allowing that teacher to develop his/her OWN problem solving strategies
- Implements a professional support system for teachers that includes:
  - Research and Theory (Teachers College – Columbia University)
  - Demonstration
  - Observation
  - Feedback and Reflection Opportunities
- Increases teachers' content knowledge
  - What do **you** need next for your learning?
- Supports and is non-evaluative



How is the Literacy Coach being utilized at EGRPS?

- Monthly collaborative planning meetings with each Grade Level Team throughout the district to discuss implementation of the Reading Units of Study
- All teachers will complete one full coaching cycle per year
  - Typically 5-6 weeks each
  - May be as an individual or a group
  - New teachers will be required to do an additional, individual coaching cycle
- Additional professional development sessions are offered based on individual and group needs



Learning/Benefits Respondents Gained from Literacy Coaching

- Affirmation/Validation
- Confidence
- Empowered
- Guidance
- Flow/sequence of Workshop
- Areas on which to focus/How to prioritize
- Structure/Parts of Workshop
- Understanding students as readers
- New resources
- Understanding assessments and their use
- How to leverage and use observations
- How to grow my craft
- Strategy groups
- Conferring
- Strengthening overall practice
- Team planning/collaboration
- Bridging reading and writing
- Person who listens and understands
- Brainstorming strategies
- Troubleshooting
- Using learning progressions
- Connect instruction to Units of Study
- Use of data and the continuum
- How to be reflective of my teaching
- New ways of thinking

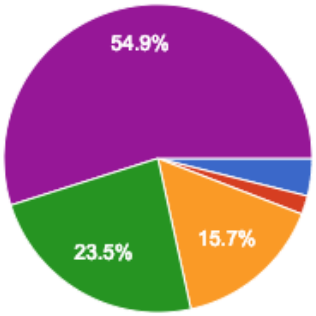
Learning/Benefits Respondents Gained from Literacy Coaching (continued)

- Goal setting
- Increased student engagement
- How to break down the lessons
- Condense my mini-lesson to 10 minutes
- Better support of students with special needs
- Create positive literacy environment
- Partnerships and conversations
- Consistency working as a team – same page
- Team dialogue
- Purpose of each component and how work together
- Shared reading
- Modeling of good teaching
- Value of observation
- Flexibility
- Effective implementation of Units of Study
- Rubrics and Assessment
- Encouraged
- Pushed/Motivated
- Celebrations
- New ideas
- Raise level of conversations among students

Literacy Coaching Survey Data

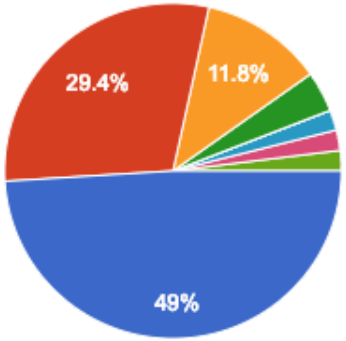
The purpose of a literacy coach is to provide additional support to implement instructional programs and practices and to strengthen the staff development process. Thus far and in regard to these purposes, how would you rate your experience(s) working with the literacy coach?

51 responses



- POOR: Not helpful to my instruction or student learning
- NEUTRAL: Neither helps or harms my instruction or student learning
- OK: A little helpful to my instruction or student learning
- GOOD: Helpful to my instruction or student learning
- EXCELLENT: Elevates my instruction and deepens student learning

Indicate your level of agreement to the following statement: Literacy coaching has been a valuable resource as the new reading curriculum is implemented. If you would like to explain your response in more detail please use the "Other" choice.



- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

QUESTIONS?

BOARD ENCLOSURE
April 15, 2019
Item No. 8

Kent ISD
We Lead Learning

Ron Caniff, Superintendent
roncaniff@kentisd.org

Memorandum

Cindy Conners, Administrative Assistant
cindyconners@kentisd.org
PHONE: (616) 365-2217
FAX: (616) 365-2383

To: Superintendent and Board Secretary

From: Ron Caniff, Superintendent

Date: March 14, 2019

Topic: **Kent ISD School Board Election**

This is to notify you that the Biennial Election of the Kent Intermediate School District School Board will be held on Monday, June 3, 2019, at 6:00 p.m. in the Rogue Room at Kent ISD.

The Kent ISD School Board has three seats up for election, currently occupied by David Drake – Vice-President, Bill Joseph - Trustee and Matt Rettig - Trustee. All three board members have indicated they will be seeking another term. David Drake and Bill Joseph are running for re-election for a six year term (2019-2025) and Matt Rettig has filed to fill the remainder of the term he was appointed to in November, 2017 (2019-2021). Eric-John Szczepaniak has also filed for the partial-term seat, so that position will be a contested election at this point.

If you have any candidates interested in running for election, please let me know. The candidate should also contact the County Clerk's Office for the necessary materials. The deadline for filing nominating petitions with the County Clerk is no later than 4:00 p.m. on Monday, May 6, 2019.

Our legal counsel notified us that under Section 614(2) of the Revised School Code, the attached resolution must be presented at not less than one public meeting before the Board adopts the resolution; it is a two-step process occurring over two separate meetings. The first step – the presentation and discussion of the resolution – may occur at a meeting any time after the 4:00 p.m. May 6 filing deadline (your board may discuss the resolution prior to the May 6 deadline but if it chooses to do so the official slate of candidates will not be finalized since the filing deadline is not until May 6). The second step, which occurs at a separate meeting on or after May 13 but before May 31, is when your board formally adopts the resolution.

As noted in the resolution, please designate a board member and an alternate board member to vote on behalf of your district. The resolution must also identify the candidates your Board designee is directed to vote for regarding each available position.

Please let me know if you have any questions regarding this process. Thank you, in advance, for your assistance.

RC:cc

Attachment – Sample Resolution

RESOLUTION DESIGNATING DISTRICT'S ELECTION REPRESENTATIVE

[*To be **presented for discussion** at a meeting any time after the 4:00 p.m. May 6, 2019 filing deadline and to be **adopted on or after May 13, 2019** and filed with the Kent Intermediate School District Board Secretary **on or before May 31, 2019***]

, Michigan (the "District")

A Regular meeting of the Board of Education of , Michigan (the "Board"), was held in the School District, on the day of , 2019, at o'clock in the p.m.

The meeting was called to order by , President

Present: Members

Absent: Members

The following preamble and resolution were offered by Member and supported by Member :

WHEREAS:

1. The biennial election of the Board of Kent Intermediate School District (the "ISD") will be held on Monday, June 3, 2019; and

2. The members of the ISD Board will be elected by an electoral body composed of one (1) person designated by the Board of each of the Constituent School Districts; and

3. In accordance with Section 614(2) of the Revised School Code [MCL 380.614(2)], this Board must now adopt a resolution which designates its representative to the electoral body **and** direct said representative to vote on behalf of this Board for the specific candidates this Board supports for each position to be filled on the ISD Board, at least on the first ballot taken by the electoral body.

NOW, THEREFORE, BE IT RESOLVED THAT:

1. This Board does hereby approve the designation of as the representative of this Board for the electoral body, which body will elect three candidates to the vacancies on the Kent ISD Board at 6:00 p.m. Monday, June 3, 2019 and as an alternate representative in the event the designated representative is unable to attend.

2. The designated representative, or the alternate in the event of the absence of the designated representative, is further directed to cast three (3) votes on the first ballot on behalf of this Board for [insert name(s) of candidates equal to the number of vacancies].

_____, Six-Year Term (July 1, 2019 – June 30, 2025)
_____, Six-Year Term (July 1, 2019 – June 30, 2025)
_____, Partial Term (June 3, 2019 – June 30, 2021)

3. The Secretary of this Board is hereby further directed to cause a certified copy of this resolution to be filed with the Secretary of the Kent ISD Board at or prior to the election of the ISD Board on Monday, June 3, 2019.

4. All resolutions and parts of resolutions insofar as they conflict with the provisions of this resolution by and the same are hereby rescinded.

Ayes: Members

Nays: Members

Motion declared adopted.

_____
Secretary, Board of Education

The undersigned duly qualified and acting Secretary of the Board of Education of , , hereby certifies that the foregoing is a true and complete copy of a resolution adopted by the Board at a Regular meeting held on , 2019, the original of which resolution is a part of the Board's minutes, and further certifies that notice of the meeting was given to the public under the Open Meetings Act, 1976 PA 267, as amended.

_____
Secretary, Board of Education

/cc

Our Mission
Educating and inspiring each student to navigate successfully in a global community

BOARD ENCLOSURE
April 15, 2019
Item No. 9

EAST GRAND RAPIDS PUBLIC SCHOOLS

Kent County, Michigan

REGULAR MEETING of the East Grand Rapids Board of Education

The James E. Morse Administration Center at Woodcliff
2915 Hall Street SE, East Grand Rapids, MI 49506

Monday, March 18, 2019

MINUTES

The **REGULAR MEETING** of the East Grand Rapids Public Schools Board of Education, Kent County, Michigan, was held on Monday, March 18, 2019, in the Community Board Room at the James E. Morse Administration Center, 2915 Hall Street SE, Grand Rapids, MI 49506.

BOARD OF EDUCATION

Present: Natalie Bernecker, Elizabeth Welch, Beth Milanowski, Brad Laackman, Mark Hessler, Mike Reid, Janice Yates
Absent: None
Administration: Dr. Heidi Kattula, Kevin Philipps, Jenny Fee, Doug Jenkins, Craig Weigel, Lori Johnston, Tim Johnston, Anthony Morey, Carlye Allen, Caroline Breault-Cannon

Meeting Called to Order
President Bernecker called the meeting to order at 6:00 p.m.

Public Comments – None

Board Secretary's Report: Communications to and from the Board
The board received a Thank You from Shannon Brady, Lakeside kindergarten teacher, for the Schuler gift card on the birth of her son, Declan.

Student Council President's Report
Will Marsh, Student Council Executive Board President, reported that work continues on graduation preparations. Prom will be held at Studio D2D and students are excited about the venue and the event.

President Bernecker reported that the order of tonight's agenda is adjusted to allow for adjustments to the onscreen presentation. Member Yates moved to adjust the agenda. Member Welch seconded the motion. Motion passed 7-0.

ACTION ITEMS - CONSENT AGENDA

Background: In order to save time during the meeting, we are using a Consent Agenda. Items in the Consent Agenda include those that are routine or have been previously discussed by the Board of Education. Any board member may request to have any item removed for a separate discussion and vote.

Recommendation: Motion to approve the items in the Consent Agenda Numbers 6-8.

Approval of Minutes of REGULAR Meeting of 02/25/2019 (Enclosure #6)
Approval of Payment of Bills – February 2019 (Enclosure #7)
Approval of the High School Mathematics Curriculum (Enclosure #8)

OTHER ACTION ITEMS

Approval of Administrator Contract (Enclosure #9)
Background: Per Board Policy #5430, the Board is responsible for the formal approval of all teacher and administrative contracts.

Recommendation: Motion to approve the administrative contract as outlined in Enclosure #9.

Dr. Kattula provided an overview of the extensive interview process and selection of Mrs. Joanne Platt as the new Special Education Administrator. The board congratulated Platt on her new position. Dr. Kattula reported that Mr. Behrendt will continue to support the district until Mrs. Platt assumes her new role following the processing of paperwork through the Michigan Department of Education.

Member Laackman moved to approve the administrative contract for Joanne Platt pending approval by the Michigan Department of Education (MDE). Member Welch seconded the motion. Motion passed 7-0.

ADMINISTRATIVE REPORTS

Superintendent
Dr. Kattula reiterated the hiring process for the special education administrator. She shared that she attended the Madagascar musical at Breton Downs Elementary, and she announced that the Melodies in March concert will take place this evening. Dr. Kattula reported that Mrs. Stephanie Thelen, Lakeside Elementary Principal, will return from maternity leave after Spring Break.

Dr. Kattula will attend Capitol Day in Lansing tomorrow to advocate for public education and learn how the House and Senate plan to move forward on their proposed budgets. Current conversations include whether or not the MDE will continue to require students to take the 3-hour ACT WorkKeys exam.

Assistant Superintendent of Business
Kevin Philipps shared an overview of the Governor's preliminary budget with a projected increase in the foundation allowance of $120-180 based on a 1.5x formula; this would result in a per-pupil increase of $157 for EGRPS. As it relates to schools, Governor Whitmer has incorporated findings from the school finance research study. Various budget proposal items were presented including increases in at-risk funding, special education reimbursement, and Career Tech Ed (CTE) support. With these specific proposals, the estimated allocation for EGRPS would total $199 per pupil. Retirement rates were discussed, and the MPSERS contribution rate for next year will continue to be a big expense for the district increasing from 26.18% to 27.50%. The Governor has proposed additional funding from the School Aid Fund to offset the increase in expense. The rate increased as a result of the system's assumed rate of return lowering from 8% to 7.05%. Various budget proposal items were presented. Philipps shared that this is the first step in the budget process, as the House and Senate will also present their budget proposals in March.

Another revenue conference will be held in early May. Once we have that target we will know how much money can be allocated toward the state budget. If the legislature is not in agreement by the end of May, we will need to look at the three budget proposals, then estimate a funding amount and adopt a budget for EGRPS.

Assistant Superintendent of Instruction - No reports.

PRESENTATION / DISCUSSION

Middle School and High School Science Curriculum (Enclosure #5)
Jenny Fee, Assistant Superintendent of Instruction; and middle school science teachers, Lindsey Lantz, Kevin Vance, Sarah Youngs; and high school teachers, Heather Carlson, Matt Harold, and Bill Trapp, presented on the science curriculum. The background and a detailed overview, as well as the proposed budget were provided as described in Enclosure #5. A discussion was held among the board. The proposal will be presented to the board for approval at the April 15 board meeting.

Board Member Reports
Communications Committee – Member Milanowski reported on the potential for Foundation alignment in district communications. Social media outlets are continuing to show growth in readership, and a discussion was held on future communication options.
Facilities Committee – No reports.
Finance Committee – No additional reports.
Joint Facilities Committee – Member Bernecker reported that the committee met last week and discussed drainage issues at the softball field at Manhattan Park. Changes will occur after the next season which will allow for more home games. Tennis ball recycling efforts by one of our students resulted in the recycling of approximately 1,100 tennis balls. Efforts are underway to assess and make plans for the playgrounds.
Personnel Committee – No additional reports.
Policy Review Committee – No reports.

Liaisons
Community Action Council – No reports.
EGR Schools Foundation – Member Laackman announced that the Sip & Support fundraiser will be held this weekend. The Foundation continues to educate the community on EGRNow&Forever.
Legislative Liaison Committee – Member Welch reported on the proposed budget and ways to engage parents. The committee is working on ways to educate new parents on school funding.
Parks & Recreation – Member Hessler reported that community input will be sought through surveys on parks and recreational updates.
PTO Council – Member Bernecker reported that a meeting will be held next week.
Parent Advocates for Special Education (PASE) – Member Reid reported that the next meeting will be held in April.
Leadership & Youth Development (LYD) – No reports.
Superintendent's Advisory Council (SAC) – Member Milanowski reported that presentations on 3rd Grade Reading/Literacy Coach, and a budget update were shared, as well as a presentation on Social Emotional Learning with a focus on anxiety.

ADJOURNMENT

President Bernecker adjourned the meeting at 7:26 p.m.

Respectfully submitted,

Beth Milanowski, Secretary
East Grand Rapids Public Schools Board of Education

* Minutes for this meeting will be available in the Superintendent's Office at 2915 Hall St. SE, East Grand Rapids, MI 49506. The phone number is 235-3535.
** If you plan to attend and have a special need and require accommodation to attend this meeting, please contact Dr. Heidi S. Kattula, Ed.D., Superintendent, at 235-3535.

jmm 03/19/2019

EGRPS
EAST GRAND RAPIDS PUBLIC SCHOOLS

BOARD ENCLOSURE
April 15, 2019
Item No. 10

BUSINESS OFFICE

MEMORANDUM

Date: April 15, 2019

To: Dr. Heidi S. Kattula, Ed.D., Superintendent
The Board of Education

From: Kevin D. Philipps, Assistant Superintendent of Business

Subject: March 2019 Payment of Bills

APPROVE **March General Fund (11)** – checks #127707 through check #127759, with the exception of voided checks #127707 and 127730, in the total amount of $433,981.26.

APPROVE **March Athletic Fund (21)** – checks #16335 through check #21929, with the exception of voided checks #16359, in the total amount of $62,913.59.

APPROVE **March Sinking Fund (41)** – no checks this month.

APPROVE **March Capital Projects (43)** – no checks this month.

APPROVE **March Bond Fund (46)** – no checks this month.

APPROVE **March Student Activity Fund (61)** – checks #26494 through #26540, in the total amount of $22,735.45.

APPROVE **March Joint Facilities Fund** – no checks this month.

APPROVE **March Debt Retirement** – no checks this month.

KP/jmm

BOARD ENCLOSURE
April 15, 2019
Item No. 11

Secondary Science Recommendations

Presentation to the Board of Education

East Grand Rapids Public Schools

March 18, 2019

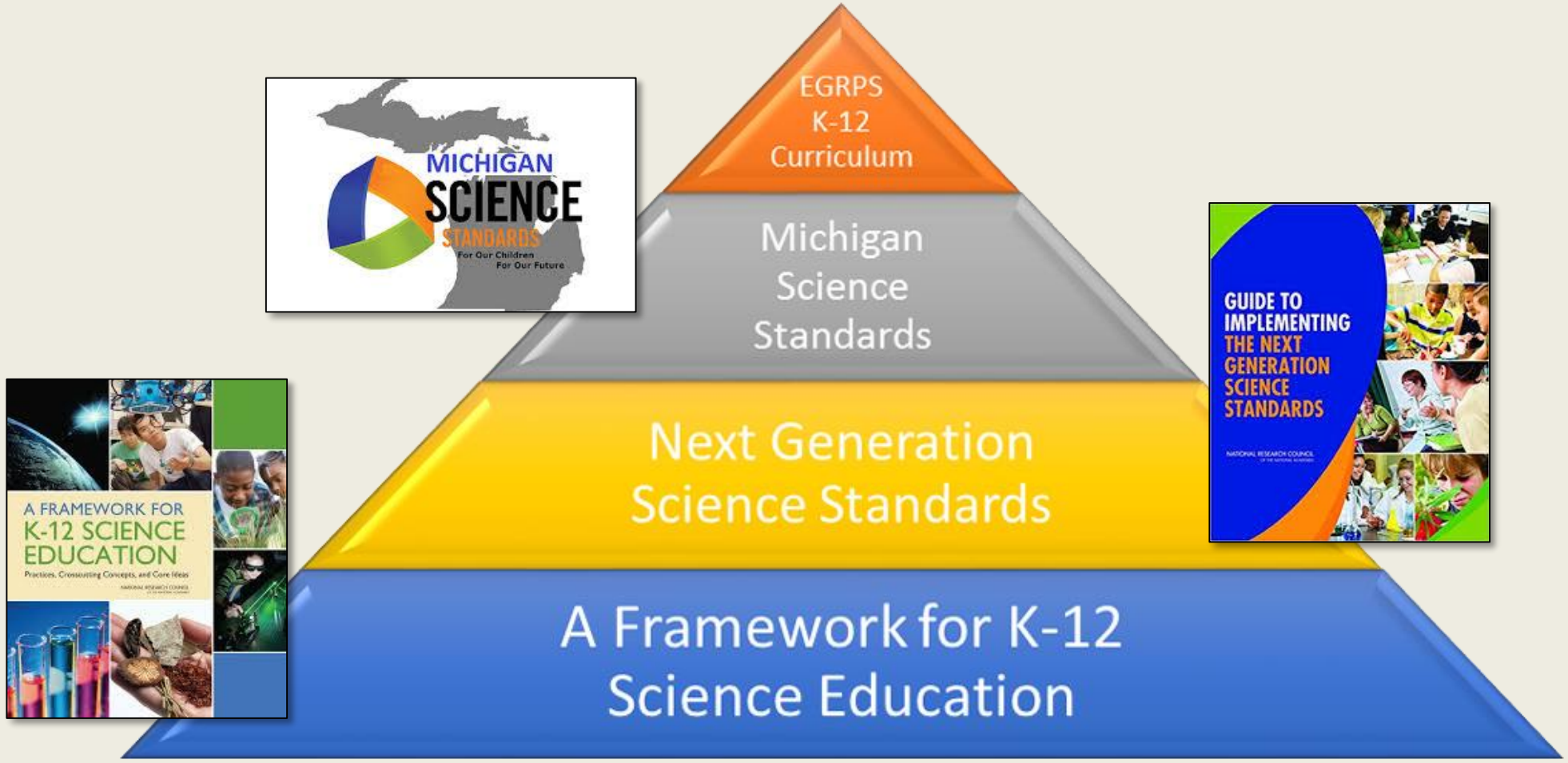
Presenters

Next Generation Science: Jenny Fee

Middle School Science Recommendation: Lindsey Lantz, Kevin Vance, Sarah Youngs

High School Science Recommendation: Heather Carlson, Matt Harold, Bill Trapp

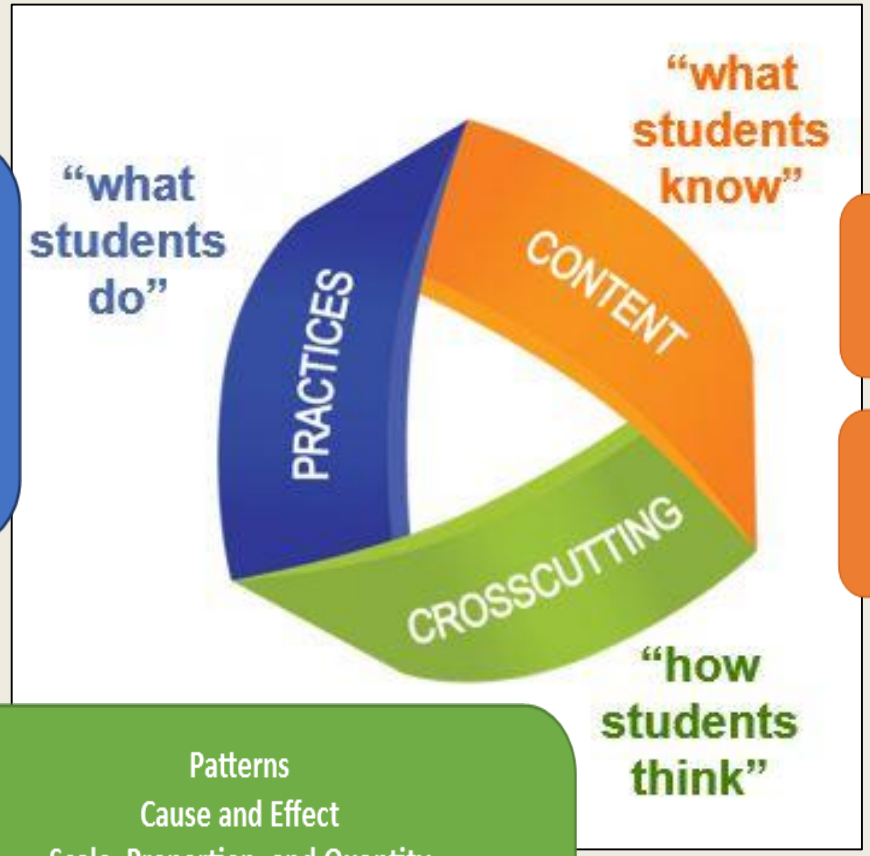
Next Generation Science Standards



Next Generation Science – 3D Science Learning

Science and Engineering Practices

Asking questions and defining problems
Developing and using models
Planning and carrying out investigations
Analyzing and interpreting data
Using mathematics and computational thinking
Constructing explanations and designing solutions
Engaging in argument from evidence



Disciplinary Core Ideas (DCIs)

Physical Science
Earth and Space Science
Life Science
Engineering, Technology, & Applications of Science

Crosscutting Concepts (CCCs)

Patterns
Cause and Effect
Scale, Proportion, and Quantity
Systems and System Models
Energy and Matter in Systems
Structure and Function
Stability and Change of Systems

Next Generation Science Instruction

- Modeling
- Phenomena Driven
- Inquiry-based
- Problem Solving
- Integration of Engineering, Technology, and Design
- Integration of Research, Writing, Analysis, and Reflection

Science instruction will involve **less**:	Science instruction 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 to explain phenomena, giving context for the ideas to be learned and modeled
Teachers providing information to the whole class	Students conducting investigations, solving problems, and engaging in discussions with teachers' facilitation
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 each chapter	Students reading multiple sources and developing summaries of information
Worksheets	Student learning reflected through journals, reports, posters, and media presentations that explain and argue

MSS/NGSS K-12 Scope and Sequence

SCOPE AND SEQUENCE OF MICHIGAN K-12 SCIENCE TOPICS

	TOPICS	K	1	2	3	4	5	6-8	9-12
PHYSICAL SCIENCE	Energy					√		√	√
	Structures & Properties of Matter			√			√	√	√
	Waves		√			√		√	√
	Forces & Interactions	√			√			√	√
	Waves and Electromagnetic Radiation							√	√
	Chemical Reactions							√	√
EARTH SCIENCE	Earth's Systems			√		√	√	√	√
	Weather & Climate	√		√	√			√	√
	Space Systems		√				√	√	√
	History of the Earth							√	√
	Human Impacts							√	
	Human Sustainability								√
LIFE SCIENCE	Inheritance and Variation of Traits				√				√
	Interdependent Relationships in Ecosystems	√		√	√			√	√
	Matter and Energy in Organisms and Ecosystems						√	√	√
	Structure, Function & Information Processing		√			√		√	√
	Growth, Development and Reproduction of Organisms							√	
	Natural Selection and Adaptations							√	
	Natural Selection and Evolution								√
ETSA	Engineering and Design	√	√	√	√	√	√	√	√

ETSA: Engineering, Technology, and Applications of Science

Middle School Science Recommendations for Approval

Lindsey Lantz
Kevin Vance
Sarah Youngs

Middle School Science Curriculum Realignment Process

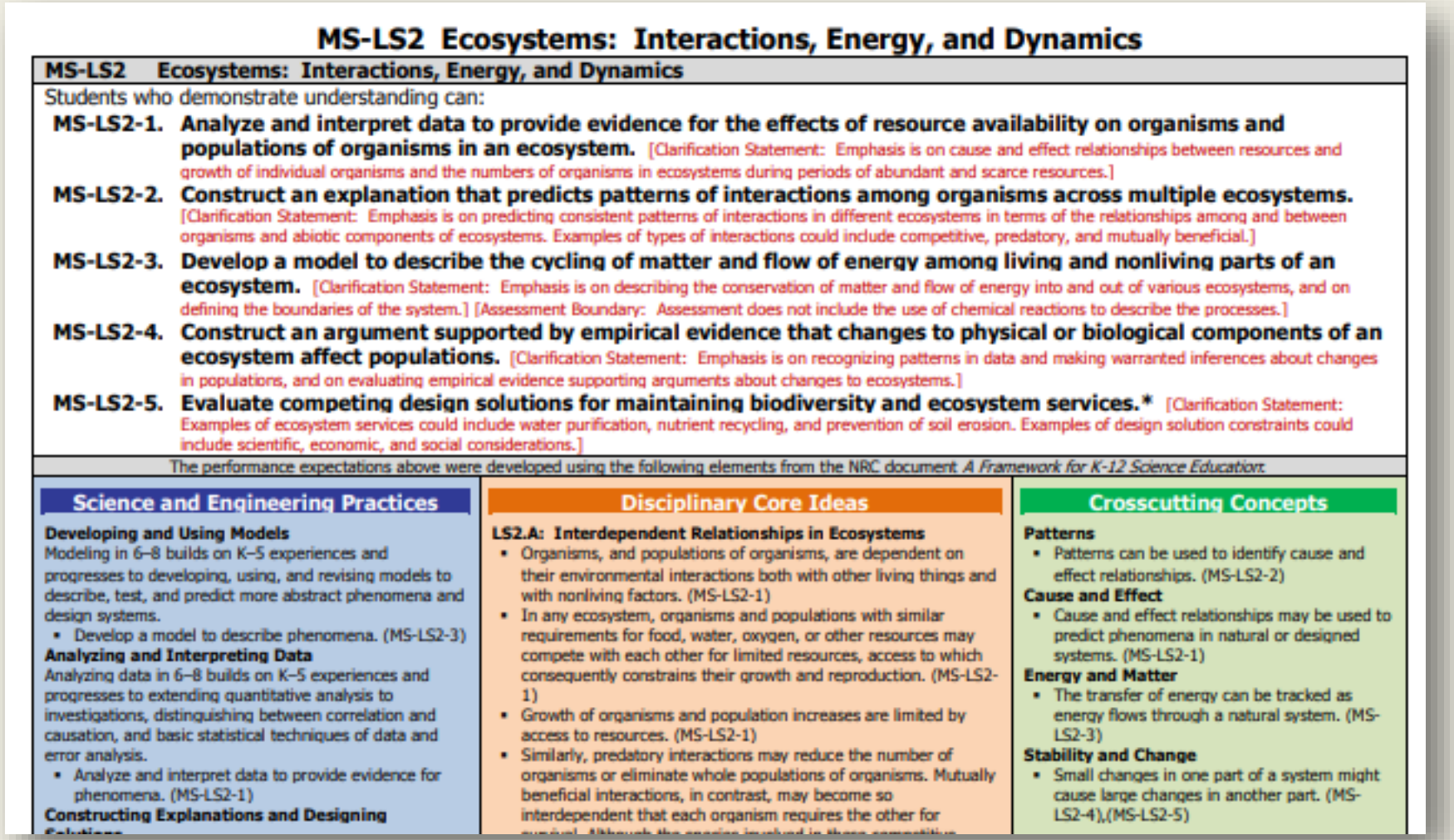
2015-2016 - Previewed and explored the NGSS/MSS (Next Generation Science Standards/Michigan Science Standards).

2016-2017 - Analyzed old curriculum (GLCE's) looking for gaps and misalignments with NGSS/MSS.

2017-2018 - Realigned new standards to address gaps, misalignments, and developmental appropriateness for middle school learners. Addressed areas of concern.

2018-2019 - Currently piloting new NGSS/MSS curriculum.

Previewed and explored the NGSS/MSS
(Next Generation Science Standards/Michigan Science Standards)



MS-LS2 Ecosystems: Interactions, Energy, and Dynamics

MS-LS2 Ecosystems: Interactions, Energy, and Dynamics

Students who demonstrate understanding can:

MS-LS2-1. **Analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem.** [Clarification Statement: Emphasis is on cause and effect relationships between resources and growth of individual organisms and the numbers of organisms in ecosystems during periods of abundant and scarce resources.]

MS-LS2-2. **Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems.** [Clarification Statement: Emphasis is on predicting consistent patterns of interactions in different ecosystems in terms of the relationships among and between organisms and abiotic components of ecosystems. Examples of types of interactions could include competitive, predatory, and mutually beneficial.]

MS-LS2-3. **Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem.** [Clarification Statement: Emphasis is on describing the conservation of matter and flow of energy into and out of various ecosystems, and on defining the boundaries of the system.] [Assessment Boundary: Assessment does not include the use of chemical reactions to describe the processes.]

MS-LS2-4. **Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.** [Clarification Statement: Emphasis is on recognizing patterns in data and making warranted inferences about changes in populations, and on evaluating empirical evidence supporting arguments about changes to ecosystems.]

MS-LS2-5. **Evaluate competing design solutions for maintaining biodiversity and ecosystem services.*** [Clarification Statement: Examples of ecosystem services could include water purification, nutrient recycling, and prevention of soil erosion. Examples of design solution constraints could include scientific, economic, and social considerations.]

The performance expectations above were developed using the following elements from the NRC document *A Framework for K-12 Science Education*:

Science and Engineering Practices

Developing and Using Models

Modeling in 6–8 builds on K–5 experiences and progresses to developing, using, and revising models to describe, test, and predict more abstract phenomena and design systems.

- Develop a model to describe phenomena. (MS-LS2-3)

Analyzing and Interpreting Data

Analyzing data in 6–8 builds on K–5 experiences and progresses to extending quantitative analysis to investigations, distinguishing between correlation and causation, and basic statistical techniques of data and error analysis.

- Analyze and interpret data to provide evidence for phenomena. (MS-LS2-1)

Constructing Explanations and Designing

Disciplinary Core Ideas

LS2.A: Interdependent Relationships in Ecosystems

- Organisms, and populations of organisms, are dependent on their environmental interactions both with other living things and with nonliving factors. (MS-LS2-1)
- In any ecosystem, organisms and populations with similar requirements for food, water, oxygen, or other resources may compete with each other for limited resources, access to which consequently constrains their growth and reproduction. (MS-LS2-1)
- Growth of organisms and population increases are limited by access to resources. (MS-LS2-1)
- Similarly, predatory interactions may reduce the number of organisms or eliminate whole populations of organisms. Mutually beneficial interactions, in contrast, may become so interdependent that each organism requires the other for

Crosscutting Concepts

Patterns

- Patterns can be used to identify cause and effect relationships. (MS-LS2-2)

Cause and Effect

- Cause and effect relationships may be used to predict phenomena in natural or designed systems. (MS-LS2-1)

Energy and Matter

- The transfer of energy can be tracked as energy flows through a natural system. (MS-LS2-3)

Stability and Change

- Small changes in one part of a system might cause large changes in another part. (MS-LS2-4),(MS-LS2-5)

Analyzed old curriculum (GLCE's) looking for gaps and misalignments with NGSS/MSS

MS-ESS1-2. Develop and use a model to describe the role of gravity in the motions within galaxies and the solar system. [Clarification Statement: Emphasis for the model is on gravity as the force that holds together the solar system and Milky Way galaxy and controls orbital motions
within them. Examples of models can be physical (such as the analogy of distance along a football field or computer visualizations of elliptical orbits) or conceptual (such as mathematical proportions relative to the size of familiar objects such as students' school or state).]
[Assessment Boundary: Assessment does not include Kepler's Laws of orbital motion or the apparent retrograde motion of the planets as viewed from Earth.]
Model of solar system movement on paper, cardboard with push pins, computer graphics
Demonstration or Lab with objects of different masses

MS-ESS1-3. Analyze and interpret data to determine scale properties of objects in the solar system. [Clarification Statement: Emphasis is on the analysis of data from Earth-based instruments, space-based telescopes, and spacecraft to determine similarities and differences among solar system objects. Examples of scale properties include the sizes of an object's layers (such as crust and atmosphere), surface features (such as volcanoes), and orbital radius. Examples of data include statistical information, drawings and photographs, and models.]
[Assessment Boundary: Assessment does not include recalling facts about properties of the planets and other solar system bodies.]

Black: Grade-specific Standard
Green: Shared Standard (grades 6-8)
Red: Standard needs attention
Blue: Implementation Ideas (not currently used at grade level)
Purple: Activities currently used to support standard
Special Attention Needed

Realigned new standards to address gaps, misalignments, and developmental appropriateness

Energy

MS-PS3-3. Apply scientific principles to design, construct, and test a device that either minimizes or maximizes thermal energy transfer.* [Clarification Statement: Examples of devices could include an insulated box, a solar cooker, and a Styrofoam cup.] [Assessment Boundary: Assessment does not include calculating the total amount of thermal energy transferred.] - could be 8th grade beginning or end of year engineering projects)

Need to develop project based on thermodynamics-insulation boxes? - probes

MS-PS3-4. Plan an investigation to determine the relationships among the energy transferred, the type of matter, the mass, and the change in the average kinetic energy of the particles as measured by the temperature of the sample. [Clarification Statement: Examples of experiments could include comparing final water temperatures after different masses of ice melted in the same volume of water with the same initial temperature, the temperature change of samples of different materials with the same mass as they cool or heat in the environment, or the same material with different masses when a specific amount of energy is added.] [Assessment Boundary: Assessment does not include calculating the total amount of thermal energy transferred.] (Moved from 8th grade)

Particles on the Move Station rotations

Created NGSS/MSS Aligned Curriculum for 6th, 7th, and 8th Grades

Currently piloting new NGSS/MSS Curriculum

6th Grade

ENGINEERING (ENGINEERING, TECHNOLOGY, AND APPLICATIONS OF SCIENCE)

Engineering Design

MS-ETS1-1. Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.

MS-ETS1-2. Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.

MS-ETS1-3. Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success.

MS-ETS1-4. Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.

Created NGSS/MSS Aligned Curriculum for 6th, 7th, and 8th Grades - Engineering

ENGINEERING DESIGN *Integrated Across the Units of Study at Each Grade level*						
MICHIGAN STATE NGSS SCIENCE STANDARDS	GRADE LEVEL			CONTENT		
	6th	7th	8th	Unit of Study - 6th	Unit of Study - 7th	Unit of Study - 8th
MS-ETS1-1 Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.	√	√	√	Engineering, Technology, and Applications of Science	Engineering, Technology, and Applications of Science	Engineering, Technology, and Applications of Science
MS-ETS1-2 Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.	√	√	√	Engineering, Technology, and Applications of Science	Engineering, Technology, and Applications of Science	Engineering, Technology, and Applications of Science
MS-ETS1-3 Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success.	√	√	√	Engineering, Technology, and Applications of Science	Engineering, Technology, and Applications of Science	Engineering, Technology, and Applications of Science
MS-ETS1-4 Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.	√	√	√	Engineering, Technology, and Applications of Science	Engineering, Technology, and Applications of Science	Engineering, Technology, and Applications of Science

NGSS/MSS Aligned Curriculum
6th, 7th, and 8th Grades
Physical Science

PHYSICAL SCIENCE						
MICHIGAN STATE NGSS SCIENCE STANDARDS	GRADE LEVEL			CONTENT		
STRUCTURE AND PROPERTIES OF MATTER	**6th**	**7th**	**8th**	**Unit of Study - 6th**	**Unit of Study - 7th**	**Unit of Study - 8th**
MS-PS1-1 Develop models to describe the atomic composition of simple molecules and extended structures.	√			Chemistry		
MS-PS1-3 Gather and make sense of information to describe that synthetic materials come from natural resources and impact society.	√	√		Chemistry	Pollution	
MS-PS1-4 Develop a model that predicts and describes changes in particle motion, temperature, and state of a pure substance when thermal energy is added or removed.	√			Chemistry		
CHEMICAL REACTIONS	**6th**	**7th**	**8th**	**Unit of Study - 6th**	**Unit of Study - 7th**	**Unit of Study - 8th**
MS-PS1-2. Analyze and interpret data on the properties of substances before and after the substances interac	√			Chemistry		
MS-PS1-5. Develop and use a model to describe how the total number of atoms does not change in a chemical reaction and thus mass is conserved.	√			Chemistry		
MS-PS1-6. Undertake a design project to construct, test, and modify a device that either releases or absorbs thermal energy by chemical processes.	√			Chemistry		
FORCES AND INTERACTIONS	**6th**	**7th**	**8th**	**Unit of Study - 6th**	**Unit of Study - 7th**	**Unit of Study - 8th**
MS-PS2-1 Apply Newton's Third Law to design a solution to a problem involving the motion of two colliding objects.*		√			Forces and Motion	
MS-PS2-2 Plan an investigation to provide evidence that the change in an object's motion depends on the sum of the forces on the object and the mass of the object. ects is conserved when there is no net force on the system.		√			Forces and Motion	
MS-PS2-3 Ask questions about data to determine the factors that affect the strength of electric and magnetic forces.		√			Forces and Motion	
MS-PS2-4 Construct and present arguments using evidence to support the claim that gravitational interactions are attractive and depend on the masses of interacting objects.		√			Forces and Motion	
MS-PS2-5 Conduct an investigation and evaluate the experimental design to provide evidence that fields exist between objects exerting forces on each other even though the objects are not in contact.		√			Forces and Motion	
ENERGY	**6th**	**7th**	**8th**	**Unit of Study - 6th**	**Unit of Study - 7th**	**Unit of Study - 8th**
MS-PS3-1 Construct and interpret graphical displays of data to describe the relationships of kinetic energy to the mass of an object and to the speed of an object.	√	√		Chemistry	Forces and Motion	
MS-PS3-2 Develop a model to describe that when the arrangement of objects interacting at a distance changes, different amounts of potential energy are stored in the system.	√	√		Chemistry	Forces and Motion	
MS-PS3-3. Apply scientific principles to design, construct, and test a device that either minimizes or maximizes thermal energy transfer.	√			Chemistry		
MS-PS3-4. Plan an investigation to determine the relationships among the energy transferred, the type of matter, the mass, and the change in the average kinetic energy of the particles as measured by the temperature of the sample.	√			Chemistry		
MS-PS3-5. Construct, use, and present arguments to support the claim that when the kinetic energy of an object changes, energy is transferred to or from the object.	√	√		Chemistry	Forces and Motion	
WAVES AND ELECTROMAGNETIC RADIATION	**6th**	**7th**	**8th**	**Unit of Study - 6th**	**Unit of Study - 7th**	**Unit of Study - 8th**
MS-PS4-1 Use mathematical representations to describe a simple model for waves that includes how the amplitude of a wave is related to the energy in a wave.			√			Waves and Energy
MS-PS4-2 Develop and use a model to describe that waves are reflected, absorbed, or transmitted through various materials.			√			Waves and Energy
MS-PS4-3 Integrate qualitative scientific and technical information to support the claim that digitized signals are a more reliable way to encode and transmit information than analog signals.			√			Waves and Energy

NGSS/MSS Aligned Curriculum
6th, 7th, and 8th Grades
Earth Science

EARTH SCIENCE						
MICHIGAN STATE NGSS SCIENCE STANDARDS	**GRADE LEVEL**			**CONTENT**		
SPACE SYSTEMS	**6th**	**7th**	**8th**	**Unit of Study - 6th**	**Unit of Study - 7th**	**Unit of Study - 8th**
MS-ESS1-1 Develop and use a model of the Earth-sun-moon system to describe the cyclic patterns of lunar phases, eclipses of the sun and moon, and seasons.	√			Astronomy		
MS-ESS1-2 Develop and use a model to describe the role of gravity in the motions within galaxies and the solar system.	√			Astronomy		
MS-ESS1-3 Analyze and interpret data to determine scale properties of objects in the solar system.	√		√	Astronomy		Geology
HISTORY OF EARTH	**6th**	**7th**	**8th**	**Unit of Study - 6th**	**Unit of Study - 7th**	**Unit of Study - 8th**
MS-ESS1-4 Construct a scientific explanation based on evidence from rock strata for how the geologic time scale is used to organize Earth's 4.6-billion-year-old history.			√			Geology
MS-ESS2-2 Construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying time and spatial scales.			√			Geology
MS-ESS2-3 Analyze and interpret data on the distribution of fossils and rocks, continental shapes, and seafloor structures to provide evidence of the past plate motions.			√			Geology
EARTH'S SYSTEMS	**6th**	**7th**	**8th**	**Unit of Study - 6th**	**Unit of Study - 7th**	**Unit of Study - 8th**
MS-ESS2-1 Develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process. **			√			Geology
MS-ESS2-4 Develop a model to describe the cycling of water through Earth's systems driven by energy from the sun and the force of gravity. **		√			Pollution	
MS-ESS3-1 Construct a scientific explanation based on evidence for how the uneven distributions of Earth's mineral, energy, and groundwater resources are the result of past and current geoscience processes. **		√	√		Pollution	Geology
WEATHER AND CLIMATE	**6th**	**7th**	**8th**	**Unit of Study - 6th**	**Unit of Study - 7th**	**Unit of Study - 8th**
MS-ESS2-5 Collect data to provide evidence for how the motions and complex interactions of air masses results in changes in weather conditions.			√			Weather and Climate
MS-ESS2-5 MI Collect data to provide evidence for how the motions and complex interactions of air masses results in changes in weather conditions in Michigan due to the Great Lakes and regional geography.***			√			Weather and Climate
MS-ESS2-6 Develop and use a model to describe how unequal heating and rotation of the Earth cause patterns of atmospheric and oceanic circulation that determine regional climates.			√			Weather and Climate
MS-ESS3-5 Ask questions to clarify evidence of the factors that have caused the rise in global temperatures over the past century.			√			Weather and Climate
HUMAN IMPACTS	**6th**	**7th**	**8th**	**Unit of Study - 6th**	**Unit of Study - 7th**	**Unit of Study - 8th**
MS-ESS3-2 Analyze and interpret data on natural hazards to forecast future catastrophic events and inform the development of technologies to mitigate their effects.			√			Geology
MS-ESS3-3 Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment. * **		√			Pollution	
MS-ESS3-4 Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.		√			Pollution	

NGSS/MSS Aligned Curriculum 6th, 7th, and 8th Grades Life Science

LIFE SCIENCE						
MICHIGAN STATE NGSS SCIENCE STANDARDS	GRADE LEVEL			CONTENT		
STRUCTURE, FUNCTION AND INFORMATION PROCESSING	**6th**	**7th**	**8th**	**Unit of Study - 6th**	**Unit of Study - 7th**	**Unit of Study - 8th**
MS-LS1-1 Conduct an investigation to provide evidence that living things are made of cells; either one cell or many different numbers and types of cells.	√			Cells and Body Systems		
MS-LS1-2 Develop and use a model to describe the function of a cell as a whole and ways parts of cells contribute to the function.	√			Cells and Body Systems		
MS-LS1-3 Use argument supported by evidence for how the body is a system of interacting subsystems composed of groups of cells.	√			Cells and Body Systems		
MS-LS1-8 Gather and synthesize information that sensory receptors respond to stimuli by sending messages to the brain for immediate behavior or storage as memories.	√			Cells and Body Systems		
MATTER AND ENERGY IN ORGANISMS AND ECOSYSTEMS	**6th**	**7th**	**8th**	**Unit of Study - 6th**	**Unit of Study - 7th**	**Unit of Study - 8th**
MS-LS1-6 Construct a scientific explanation based on evidence for the role of photosynthesis in the cycling of matter and flow of energy into and out of organisms.		√			Plants and Ecology	
MS-LS1-7 Develop a model to describe how food is rearranged through chemical reactions forming new molecules that support growth and/or release energy as this matter moves through an organism.		√			Plants and Ecology	
MS-LS2-1 Analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem. **		√			Plants and Ecology	
MS-LS2-3 Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem. **		√			Plants and Ecology	
MS-LS2-4 Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.		√			Plants and Ecology	
INTERDEPENDENT RELATIONSHIPS IN ECOSYSTEMS	**6th**	**7th**	**8th**	**Unit of Study - 6th**	**Unit of Study - 7th**	**Unit of Study - 8th**
MS-LS2-2 Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems. **		√			Plants and Ecology	
MS-LS2-5 Evaluate competing design solutions for maintaining biodiversity and ecosystem services. **		√			Plants and Ecology	
GROWTH, DEVELOPMENT AND REPRODUCTION OF ORGANISMS	**6th**	**7th**	**8th**	**Unit of Study - 6th**	**Unit of Study - 7th**	**Unit of Study - 8th**
MS-LS1-4 Use argument based on empirical evidence and scientific reasoning to support an explanation for how characteristic animal behaviors and specialized plant structures affect the probability of successful reproduction of animals and plants respectively.		√			Natural Selection	
MS-LS1-5 Construct a scientific explanation based on evidence for how environmental and genetic factors influence the growth of organisms. **		√			Natural Selection	
MS-LS3-1 Develop and use a model to describe why structural changes to genes (mutations) located on chromosomes may affect proteins and may result in harmful, beneficial, or neutral effects to the structure and function of the organism.			√			Heredity
MS-LS3-2 Develop and use a model to describe why asexual reproduction results in offspring with identical genetic information and sexual reproduction results in offspring with genetic variation.			√			Heredity
MS-LS4-5 Gather and synthesize information about the technologies that have changed the way humans influence the inheritance of desired traits in organisms.		√			Natural Selection	
NATURAL SELECTION AND ADAPTATION	**6th**	**7th**	**8th**	**Unit of Study - 6th**	**Unit of Study - 7th**	**Unit of Study - 8th**
MS-LS4-1 Analyze and interpret data for patterns in the fossil record that document the existence, diversity, extinction, and change of life forms throughout the history of life on Earth under the assumption that natural laws operate today as in the past. **			√			Geology
MS-LS4-2 Apply scientific ideas to construct an explanation for the anatomical similarities and differences among modern organisms and between modern and fossil organisms to infer evolutionary relationships		√			Natural Selection	
MS-LS4-3 Analyze displays of pictorial data to compare patterns of similarities in the embryological development across multiple species to identify relationships not evident in the fully formed anatomy.		√			Natural Selection	
MS-LS4-4 Construct an explanation based on evidence that describes how genetic variations of traits in a population increase some individuals' probability of surviving and reproducing in a specific environment.		√			Natural Selection	
MS-LS4-6 Use mathematical representations to support explanations of how natural selection may lead to increases and decreases of specific traits in populations over time.		√			Natural Selection	

Middle School Science Materials and Resources

2017-2018 - Research and assessment of materials and resources:

- Discovery Science Techbook
- Frey Scientific – CPO Science
- SEPUP Middle School Core Curriculum
- Bring Science Alive! TCI Science
- Amplify Science
- HMH Science Dimensions
- FOSS – Delta Education
- STC Program – Science and Technology Concepts by Caroline Biological Supply/ Smithsonian Science Education Ambitious Science Teaching
- Next Gen and NSTA - ngss@ntsa.org
- TeachEngineering.org
- Science Talking: Supporting the Practices through Classroom Discourse (NE Georgia RESA)

2017-2018 - Met with TCI Representative - Science Implementation Team

Middle School Science Materials and Resources

2018-2019 - Professional Development experience with Middle School Science Teachers to explore/research Mi-STAR Curriculum

2018-2019 - Met with TCI representative with Science Department for pilot training

2018-2019 - Two MS teachers attending NGSX Training at KISD

2018-2019 - Narrowed down and researched pros and cons of top five resources:

- IQWST by Activate Learning
- Project-based Inquiry Science (PBIscience) by Activate Learning
- Mi-STAR
- TCI Bring Science Alive (teacher access only)
- TCI Bring Science Alive (teacher access and student accounts)

Middle School Science Materials and Resources Evaluation of Top Five Options

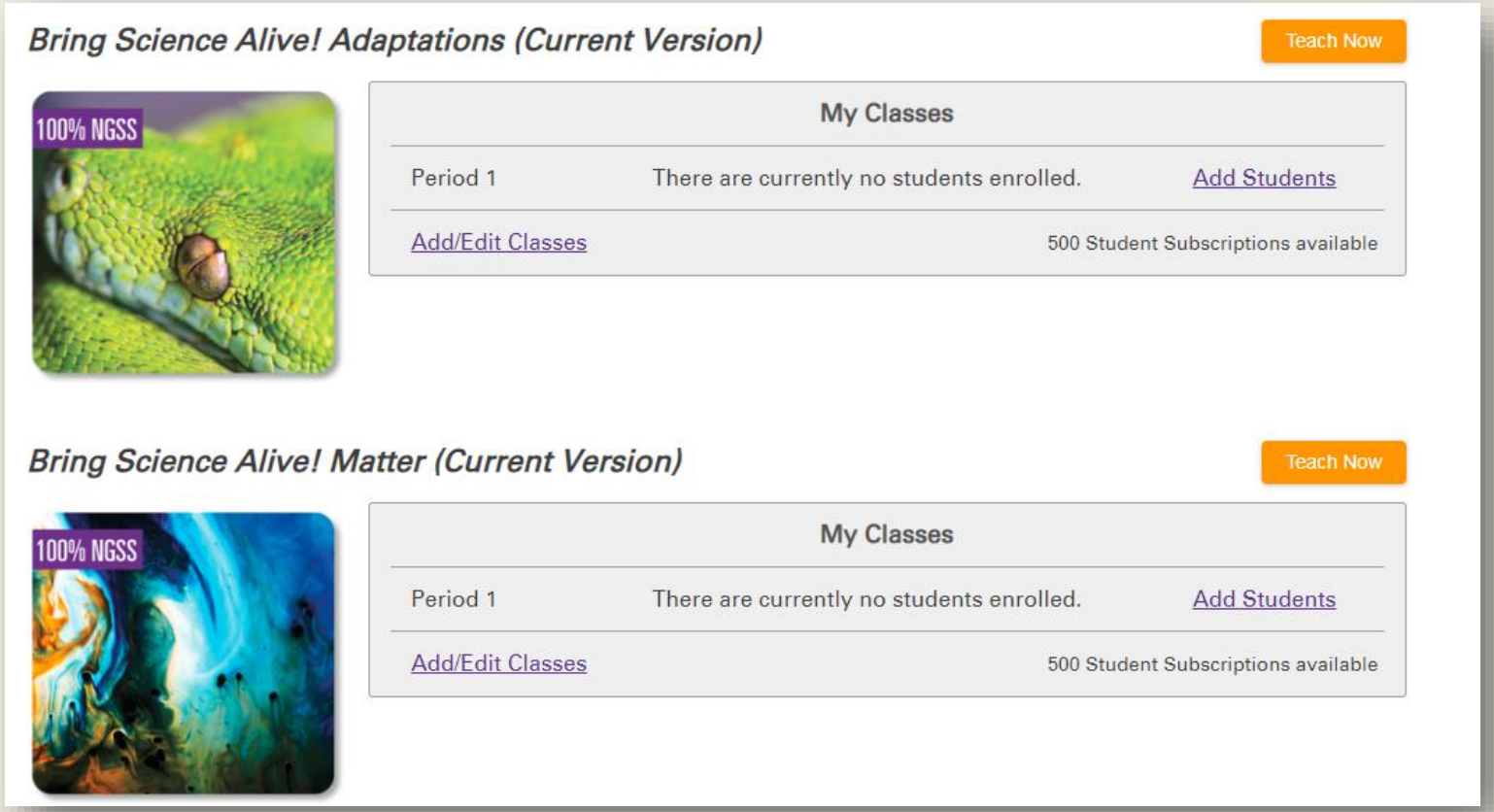
- ✓ TCI Bring Science Alive (2 options)
  - TCI Bring Science Alive (teacher access only)
  - TCI Bring Science Alive (teacher access and student accounts)
- ✓ IQWST
- ✓ PBIscience
- ✓ Mi-Star

Criteria Used for Evaluation of Resources

- NGSS Aligned – Phenomena driven; Inquiry-based; Engineering Design Integrated
- Assessment and Data Analysis Capacity
- Technology – Integration with Google Suite/Google Classroom
- Flexible and Adaptable to EGRMS Curriculum Scope and Sequence
- Resource Related Professional Development

Middle School Science Materials and Resources

2018-2019 - Currently Piloting TCI materials and resources with NGSS/MSS



Materials and Resources Recommendation:
TCI with Teacher Access and Student Accounts

Unit 1

Anchoring Phenomenon - The History of Life on Earth

Phenomenon: Similar fossils have been found in the same aged rock in fossil digs that are over 100 miles apart.

Storyline: As a paleontologist, students will collect data from one of six fossil sites around the world. They will analyze the data and find patterns between different fossil sites to form a more comprehensive view of the history of life on Earth.

1 Earth's History

Phenomenon: You would usually find shells by the ocean, but fossilized shells can be found in the middle of the desert.

Description: Students will learn about rock strata and how fossils are formed and found within the rock strata. They will analyze data and construct explanations for patterns found in the fossil record.

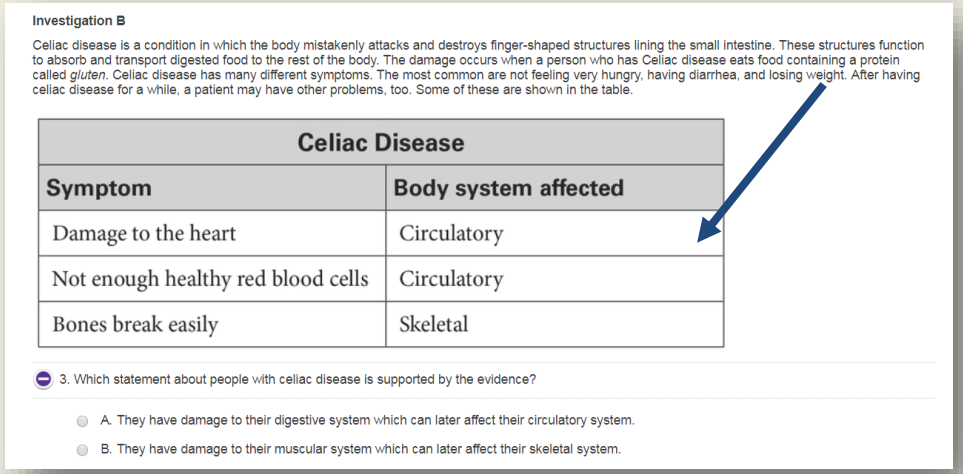
Performance Expectations: MS-ESS1-4

3D Learning:

Science and Engineering Practices | Crosscutting Concepts | Disciplinary Core Ideas

Why is TCI the best option for the East Grand Rapids Middle School Science Program and Teachers?

- NGSS/MSS-aligned curriculum
- Assessment questions aligned with M-Step and are process and application based



Investigation B

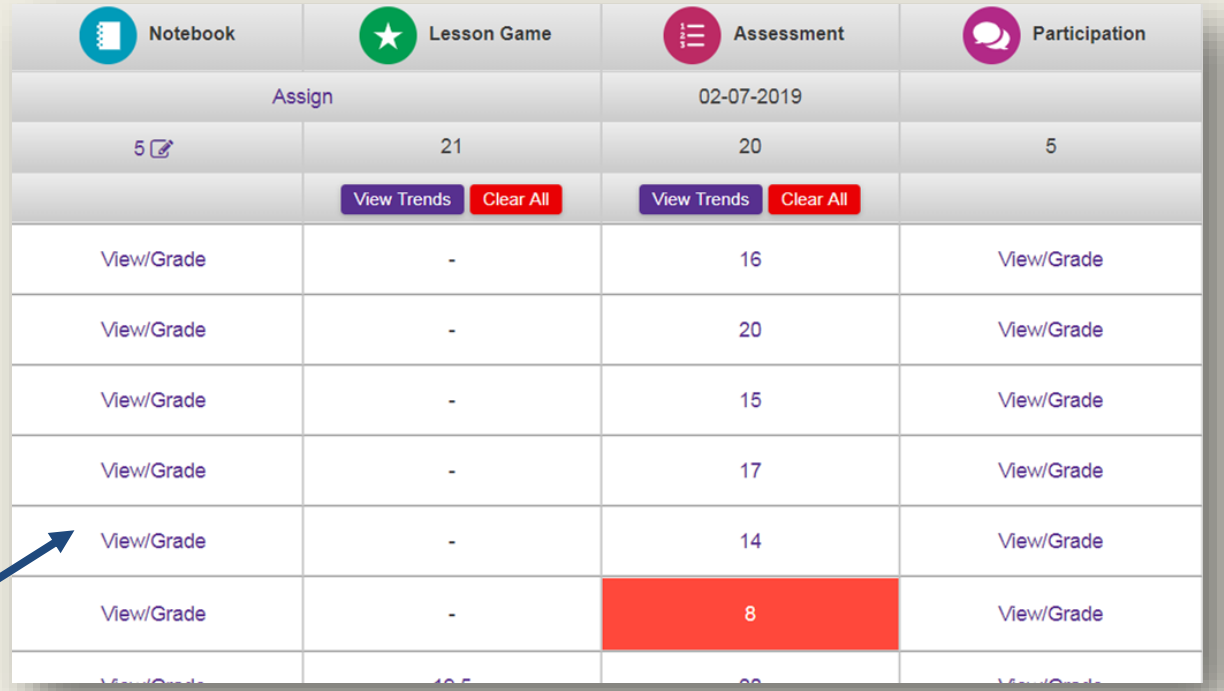
Celiac disease is a condition in which the body mistakenly attacks and destroys finger-shaped structures lining the small intestine. These structures function to absorb and transport digested food to the rest of the body. The damage occurs when a person who has Celiac disease eats food containing a protein called *gluten*. Celiac disease has many different symptoms. The most common are not feeling very hungry, having diarrhea, and losing weight. After having celiac disease for a while, a patient may have other problems, too. Some of these are shown in the table.

Celiac Disease	
Symptom	**Body system affected**
Damage to the heart	Circulatory
Not enough healthy red blood cells	Circulatory
Bones break easily	Skeletal

3. Which statement about people with celiac disease is supported by the evidence?

A. They have damage to their digestive system which can later affect their circulatory system.

B. They have damage to their muscular system which can later affect their skeletal system.



Notebook	Lesson Game	Assessment	Participation
Assign		02-07-2019	
5	21	20	5
	View Trends Clear All	View Trends Clear All	
View/Grade	-	16	View/Grade
View/Grade	-	20	View/Grade
View/Grade	-	15	View/Grade
View/Grade	-	17	View/Grade
View/Grade	-	14	View/Grade
View/Grade	-	8	View/Grade

- Student assessment data can be analyzed by questions/concepts, giving reteaching opportunities

TCI Snapshot: Investigation 3 Diagnosing Mr. T

Why is TCI the best option for the East Grand Rapids Middle School Science Program and Teachers?

- All units are introduced using a phenomenon or overarching theme that ties the unit together
- Videos, visuals, model-eliciting, and online activities are real-life based
- Teachers can pick and choose from a wide variety of resources available that are still NGSS aligned
- Program continues to be developed with updates
  (For example: 2019 - Google Classroom compatible)
- Very detailed, organized, comprehensive instruction - easy for new teachers to pick up and follow curriculum easily

Why is TCI the best option for the East Grand Rapids Middle School Science Student?

- Many opportunities available for students to become invested in scientific understanding of real world connections
- The online journal and textbook allows students access from any computer in any location
- Built-in accommodations for learning needs such as audio and visual supports and reading level adjustments with textbook and assessments
- Comprehension checks are built-in for students, so they can self-monitor their understanding
- Engineering performance-based activities built into units

Budget for Middle School Recommendation

TCI Bring Science Alive Student and Teacher Subscriptions

Description	Quantity	Cost Each	Total Cost
All Life Science: Adaptations	250	$25.00	$6,250.00
Life Science: Cells and Genetics	250	$25.00	$6,250.00
Life Science: Ecosystems	250	$25.00	$6,250.00
Physical Science: Forces and Energy	250	$25.00	$6,250.00
Physical Science: Matter	250	$25.00	$6,250.00
Physical Science: Planet Earth	250	$25.00	$6,250.00
Earth Science: Space	250	$25.00	$6,250.00
Earth Science: Waves	250	$25.00	$6,250.00
Earth Science: Weather and Climate	250	$25.00	$6,250.00
Seven (7) Teacher Accounts	7	No Charge	$0.00
Half-Day PD and Webinars	-	No Charge	$0.00
		TOTAL	**$56,250.00** **over 6 years** **($9,375.00 per year)**

Budget for Middle School Recommendation

One-time Purchase of Materials

Resource	Vendor	Quantity	Cost Each	Total Cost
Molecule Building Set	Amazon	20	$21.97	$439.40
Human Body Tissue Prepared Slides	Amazon	2	$129.00	$258.00
Fan (20”)	Amazon	2	$39.95	$79.90
Digital Timers (set of 10)	Amazon	3	$13.99	$41.97
Storage Containers for 18 qt. (for kits)	Amazon	5	$42.88	$214.40
Storage Containers for 30 qt. (for kits)	Amazon	5	$53.99	$269.95
Digital Scales	Amazon	8	$124.99	$999.92
Alcohol Thermometer	Carolina Biological	30	$5.95	$178.50
Mini Mag Flashlights	Amazon	15	$11.56	$173.40
			TOTAL	**$2,655.44**

Questions for Middle School

High School Science Recommendations for Approval

Heather Carlson
Matt Harold
Bill Trapp

Purpose for Revisions

- **Add flexibility to IB Diploma Programme**
  - Implement IB Chemistry Standard Level (SL) Course (One-year vs. two-year IB course)
- **Adapt and align curriculum to newly released standards**
  - Michigan Science Standards reflecting the Next Generation Science Standards (NGSS)
- **More effectively meet student needs**
  - Sequencing of pathways to ensure students are not out of sequence
  - Chemistry before biology - due to MI/NGSS changes in Biology
  - Increase opportunities for all students to take three (3) core science courses over four (4) years (Physics, Chemistry, and Biology)

High School Items for BOE Review and Approval

- **Revised Science Curriculum**
  - Due to NGSS/MI Science Standards Integration
- **Two New Science Courses**
  - Integrated Physics and Chemistry (IPC)
  - IB Chemistry Standard Level (SL)
- **Curriculum Changes to Chemistry Honors Course**
  - Integration of content to prepare student for AP Chemistry and/or IB Chemistry
  - Name change of “Chemistry Honors” to “EGR Pre-AP/IB Chemistry”
- **Revised Science Course Graduation Pathways**
  - Move Biology to a junior year course
  - Create new instructional sequence of: Physics, Chemistry, Biology, and Science Elective of four (4) years
- **Purchase of Support Materials and Resources**

NGSS High School Course Integration

- Update/Replace Current Science Labs with more **Engineering-based activities**
- **Embedded Earth Science** Standards into Core Science Curriculum
  - *Physics/Physics Honors, Chemistry/Chemistry Honors, Biology/Biology Honors,* Integrated Physics and Chemistry (IPC)
- Developed New **STEM Activities** for All Levels of Science

NGSS High School Integration – Earth Science

EARTH SCIENCE								
MICHIGAN STATE NGSS SCIENCE STANDARDS	GRHS COURS				UNIT OF STUDY			
SPACE SYSTEMS	**IPC**	**PH**	**CH**	**BI**	**IPC**	**Physics**	**Chemstry**	**Biology**
HS-ESS1-1 Develop a model based on evidence to illustrate the life span of the sun and the role of nuclear fusion in the sun's core to release energy that eventually reaches Earth in the form of radiation.	√	√	√		•Astrophysics	•Astrophysics	•Nuclear Chemistry and Electron Behavior	
HS-ESS1-2 Construct an explanation of the Big Bang theory based on astronomical evidence of light spectra, motion of distant galaxies, and composition of matter in the universe.	√	√			•Astrophysics	•Astrophysics		
HS-ESS1-3 Communicate scientific ideas about the way stars, over their life cycle, produce elements.	√	√	√		•Atomic Theory and Periodic Table of Elements •Astrophysics	•Astrophysics	•Atomic Theory and Periodic Table of Elements •Nuclear Chemistry and Electron Behavior	
HS-ESS1-4 Use mathematical or computational representations to predict the motion of orbiting objects in the solar system.	√	√			•Astrophysics	•Circular Motion •Astrophysics		
HISTORY OF EARTH	**IPC**	**PH**	**CH**	**BI**	**IPC**	**Physics**	**Chemstry**	**Biology**
HS-ESS1-5 Evaluate evidence of the past and current movements of continental and oceanic crust and the theory of plate tectonics to explain the ages of crustal rocks.	√	√			•Geophysics	•Geophysics		
HS-ESS1-6 Apply scientific reasoning and evidence from ancient Earth materials, meteorites, and other planetary surfaces to construct an account of Earth's formation and early history.	√	√			•Astrophysics •Geophysics	•Astrophysics •Geophysics		
HS-ESS2-1 Develop a model to illustrate how Earth's internal and surface processes operate at different spatial and temporal scales to form continental and ocean-floor features.	√	√			•Geophysics	•Geophysics		
EARTH'S SYSTEMS	**IPC**	**PH**	**CH**	**BI**	**IPC**	**Physics**	**Chemstry**	**Biology**
HS-ESS2-2 Analyze geoscience data to make the claim that one change to Earth's surface can create feedbacks that cause changes to other Earth systems.			√				•Environmental Chemistry	
HS-ESS2-3 Develop a model based on evidence of Earth's interior to describe the cycling of matter by thermal convection. HS-ESS2-5 Plan and conduct an investigation of the properties of water and its effects on Earth materials and surface processes. **	√	√			•Geophysics	•Geophysics		
HS-ESS2-5 Plan and conduct an investigation of the properties of water and its effects on Earth materials and surface processes. **			√				•Environmental Chemistry	
HS-ESS2-6 Develop a quantitative model to describe the cycling of carbon among the hydrosphere, atmosphere, geosphere, and biosphere.				√				•Ecology
HS-ESS2-7 Construct an argument based on evidence about the simultaneous coevolution of Earth's systems and life on Earth.				√				•Evolution
WEATHER AND CLIMATE	**IPC**	**PH**	**CH**	**BI**	**IPC**	**Physics**	**Chemstry**	**Biology**
HS-ESS2-4 Use a model to describe how variations in the flow of energy into and out of Earth's systems result in changes in climate.	√	√	√		•Geophysics	•Meteorology and Thermal Physics	•Energetics	
HS-ESS3-5 Analyze geoscience data and the results from global climate models to make an evidence-based forecast of the current rate of global or regional climate change and associated future impacts to Earth systems. **	√	√	√		•Geophysics	•Meteorology and Thermal Physics	•Environmental Chemistry	
HUMAN SUSTAINABILITY	**IPC**	**PH**	**CH**	**BI**	**IPC**	**Physics**	**Chemstry**	**Biology**
HS-ESS3-1 Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and changes in climate have influenced human activity.	√	√			•Geophysics	•Geophysics		
HS-ESS3-2 Evaluate competing design solutions for developing, managing, and utilizing energy and mineral resources based on cost-benefit ratios. * **	√	√	√		•Nuclear Chemistry	•Nuclear Chemistry	•Energetics	
HS-ESS3-3 Create a computational simulation to illustrate the relationships among management of natural resources, the sustainability of human populations, and biodiversity. **				√				•Ecology
HS-ESS3-4 Evaluate or refine a technological solution that reduces impacts of human activities on natural systems. *	√	√			•Nuclear Chemistry	•Nuclear Chemistry		
HS-ESS3-6 Use a computational representation to illustrate the relationships among Earth systems and how those relationships are being modified due to human activity.			√				•Environmental Chemistry	

A Look at the Current H.S. Science Program

CURRENT SCIENCE PATHWAYS

STANDARD	9th	10th	11th	12th
Prerequisite: Algebra	Physics or Physics Honors	Biology or Biology Honors	Chemistry or Chemistry Honors	Science Elective or No Course AP Physics AP Biology Forensics/Genetics Anatomy/Physiology Adv. Projects Engineering Environmental Science
Prerequisite: None	Biology or Biology Honors	Physics or Physics Honors	Chemistry or Chemistry Honors	Science Elective or No Course AP Physics AP Biology Forensics/Genetics Anatomy/Physiology Adv. Projects Engineering Environmental Science

IB	9th	10th	11th	12th
No Chemistry	Physics or Physics Honors	Biology or Biology Honors	IB Physics SL/HL A IB Biology HL A	IB Physics SL/HL B IB Biology HL B
No Chemistry	Biology or Biology Honors	Physics or Physics Honors	IB Physics SL/HL A IB Biology HL A	IB Physics SL/HL B IB Biology HL B
No Pre-Bio	Physics or Physics Honors	Chemistry or Chemistry Honors	IB Biology HL A	IB Biology HL A
No Pre-Phys.	Biology or Biology Honors	Chemistry or Chemistry Honors	IB Physics SL/HL A IB Biology HL A	IB Physics SL/HL A IB Biology HL A
Double Up in 10th Chem and Bio	Physics or Physics Honors	Chemistry or Chemistry Honors --and-- Biology or Biology Honors	IB Biology HL A	IB Biology HL A
Double Up in 10th Chem and Phys	Biology or Biology Honors	Chemistry or Chemistry Honors --and-- Physics or Physics Honors	IB Physics SL/HL A IB Biology HL A	IB Physics SL/HL A IB Biology HL A

New Pathways

- Integrating the new courses into the pathways
  - IB Chemistry SL and Integrated Physics and Chemistry
- Switching Chemistry to sophomore year in the sequence
- Allows all students a pathway to take all three core sciences at a level they can have success while keeping/adding flexibility and fourth-year elective science courses

	9th	10th	11th	12th
Path for students enrolled in Algebra in 9th grade	Intergrated Physics and Chemistry (IPC)	Chemistry	Biology	Science Elective
Path for student enrolled in a math course beyond Algebra in the 9th grade	Physics Physics Honors	Chemistry Pre-AP/IB Chemistry Honors	Biology Biology Honors AP Biology	Science Elective
Path for students who enroll in the IB Diploma Programme	Physics Physics Honors	Chemistry Pre-AP/IB Chemistry Honors	IB Chemistry SL	Biology Biology Honors AP Biology
	Physics Physics Honors	Chemistry Pre-AP/IB Chemistry Honors	IB Biology HL A	IB Biology HL B

Graduation Requirement for Science
1.0 credits in Biology 1.0 credits in Physics or Chemistry 1.0 credits in any Science --- 3.0 total science credits required

Science Electives
Advance Projects in Engineering Anatomy and Physiology Forensics and Genetics Environmental Science AP Biology AP Chemistry AP Physics IB Chemistry SL

Science Course Changes

- Addition of an **Integrated Physics and Chemistry** Course
  - Adds a lower level Algebra reduced Physics course to keep all 9th graders in the same sequence
- Addition of an **IB Chemistry Standard Level (SL)** Course and Elimination of IB Physics SL/HL
  - IB Chemistry SL is a one-year course
  - Replaces a two-year IB course for a one-year course – Increases flexibility
  - IB Diploma Programme cannot sustain all three core science courses with its current numbers
  - IB Biology Higher Level (HL), a two-year course, will remain an offering
  - Most flexibility with IB Chemistry SL and IB Biology HL
    - One-year course option and a two-year course option
    - One standard level option and one higher level option

Proposed New Course: Integrated Chemistry and Physics

- Introductory course to investigate the basic principles of Physics and Chemistry
- For students who need a less mathematical and more hands-on approach to the physical sciences – For 9th grade students enrolled in Algebra
- Emphasis on developing conceptual understanding of Physics and Chemistry through means of physical and computer modeling
- Develops scientific measurement techniques and problem solving skills with the use of basic mathematical calculations and limited use of Algebra

Proposed New Course: Integrated Chemistry and Physics

Unit Topic	Unit Description	Engineering and Labs	MSS/NGSS Standards
Measurement and All Motion	This unit discusses basic issues in measurement, including the metric system and uncertainty. It introduces and refines types of motion including linear and circular motions. It refines concepts of velocity and acceleration.	Length measurement methods and associated tools (paces,tape measure,meter stick, ruler, caliper, micrometer, laser/sonic devices) Motion Sensor Lab Centripetal Force Lab	HS-PS2-4
Forces	Basic introduction to Newton's laws and applications. Includes calculations of weight and discussion of inertial reference frames.	3rd Law balloon rockets	HS-PS2-1
Energy and Momentum	This unit introduces the conservation of linear momentum and the impulse momentum theorem. Applications include collisions.	Car Crash Project HS-PS-2-3 (could do egg drop challenge i.e. build an egg catcher... Windmill/Rubber band Car/ Machine Project)	HS-PS2-2 HS-PS2-3 HS-PS3-1 HS-PS3-2 HS-PS3-3
Electricity and Magnetism	Introduction to topics in electricity and magnetism including; static electricity, electrical magnetic force, electric current, voltage, and resistance. Analysis of electric circuits and devices will include Ohm's Law calculations. This study will include analysis of electrical technology that utilize electrify and magnetic forces.	Electronic Circuits Design Kits End of unit project Build a Simple Motor Lab	HS-PS2-4 HS-PS2-5 HS-PS3-5
Waves	Mathematical representations of frequency, wavelength and wave speed. Transfer and storage of information. Interactions between waves and matter. EM radiation and wave particle duality.	Dangers of Radiation Project	HS-PS4-1 HS-PS4-2 HS-PS4-3
Atomic Theory & Periodic Table of Elements	In this unit, students investigate the atom, beginning with the development of atomic theory. They learn about charges, the effects of these charges, and properties of elements. These properties are related to the Periodic Table of Elements and students use the Periodic Table to make predictions about the properties of elements based on location on the periodic table.	Modeling matter lab box prediction, Bean bag isotope lab, Matter lab	HS-PS1-1 HS-PS3-5 HS-ESS1-3
Electron Behavior	Students will predict the relative properties of elements based on the patterns of electrons in the outermost energy level of atoms. Students will explore periodic trends.	Flame test lab, periodic trends lab, Colorimetry lab	HS-PS1-1 HS-PS1-8
Bonding, Formulae, Nomenclature and Chemical Reactions	In this unit, students investigate the different ways atoms bond with other atoms. This includes the study of ionic and molecular compounds along with metallic and covalent network structures. Students will mathematical representations to support the claim that atoms, and therefore mass, are conserved during a chemical reaction.	Types of Reaction Lab	HS-PS1-1 HS-PS1-2 HS-PS1-3 HS-PS2-6 HS-PS1-7
Astrophysics	Topics include cosmology and the life cycle of stars. Examples include the big bang, light spectra, distant galaxies, composition of objects in the universe.	Space research project exoplanets	HS-PS2-4 HS-ESS1-1 HS-ESS1-2 HS-ESS1-3 HS-ESS1-4 HS-ESS1-6
Geophysics	Introduction to topics in physical geology. Internal and surface processes, thermal convection of matter, carbon cycling and effects, water and its geological effects. Climate and weather, convection, heat transfer, 2nd law of thermodynamics, greenhouse effect.	Thermal Lab/Solar Earth Cooker Newton's Law of Cooling	HS-ESS1-5 HS-ESS1-6 HS-ESS2-1 HS-ESS2-3 HS-ESS2-4 HS-ES3-1 HS-ESS3-5 HS-PS3-4
Nuclear Chemistry	In this unit, students look closely at the nucleus, the different ways it can change, and the results of those changes. This understanding is then applied to natural phenomena like radioactive dating and the composition of stars.	Skittle half-life simulation lab Energy Project	HS-PS1-8 HS-ESS3-2 HS-ESS3-4

Proposed New Course: IB Chemistry Standard Level (SL)

- One-year IB Course for juniors or seniors
- Combines academic study with the acquisition of practical and investigational skills through the experimental approach
- Students examine the chemical principles that form the basis of physical and biological systems through the core content
- Students develop skills designing experiments, analyzing data, and drawing conclusions from experimental data
- Integrates IB Approaches to Teaching and Learning

IB Chemistry Standard Level (SL) – IB Subject Brief

International Baccalaureate
Diploma Programme Subject Brief

Diploma Programme

Sciences:
Chemistry—Standard level

First assessments 2016 – Last assessments 2022

The IB Diploma Programme (DP) is a rigorous, academically challenging and balanced programme of education designed to prepare students aged 16 to 19 for success at university and life beyond. The DP aims to encourage students to be knowledgeable, inquiring, caring and compassionate, and to develop intercultural understanding, open-mindedness and the attitudes necessary to respect and evaluate a range of viewpoints. Approaches to teaching and learning (ATL) within the DP are deliberate strategies, skills and attitudes that permeate the teaching and learning environment. In the DP students develop skills from five ATL categories: thinking, research, social, self-management and communication.

To ensure both breadth and depth of knowledge and understanding, students must choose at least one subject from five groups: 1) their best language, 2) additional language(s), 3) social sciences, 4) experimental sciences, and 5) mathematics. Students may choose either an arts subject from group 6, or a second subject from groups 1 to 5. At least three and not more than four subjects are taken at higher level (240 recommended teaching hours), while the remaining are taken at standard level (150 recommended teaching hours). In addition, three core elements—the extended essay, theory of knowledge and creativity, action, service—are compulsory and central to the philosophy of the programme.

These IB DP subject briefs illustrate four key course components.
I. Course description and aims
II. Curriculum model overview
III. Assessment model
IV. Sample questions

I. Course description and aims

Chemistry is an experimental science that combines academic study with the acquisition of practical and investigational skills. Chemical principles underpin both the physical environment in which we live and all biological systems. Chemistry is often a prerequisite for many other courses in higher education, such as medicine, biological science and environmental science.

Both theory and practical work should be undertaken by all students as they complement one another naturally, both in school and in the wider scientific community. The DP chemistry course allows students to develop a wide range of practical skills and to increase facility in the use of mathematics. It also allows students to develop interpersonal and information technology skills, which are essential to life in the 21st century.

By studying chemistry students should become aware of how scientists work and communicate with each other. While the scientific method may take on a wide variety of forms, it is the emphasis on a practical approach through experimental work that characterizes the subject. Teachers provide students with opportunities to develop manipulative skills, design investigations, collect data, analyse results and evaluate and communicate their findings.

Through the overarching theme of the nature of science, the aims of the DP chemistry course are to enable students to:

1. appreciate scientific study and creativity within a global context through stimulating and challenging opportunities
2. acquire a body of knowledge, methods and techniques that characterize science and technology
3. apply and use a body of knowledge, methods and techniques that characterize science and technology
4. develop an ability to analyse, evaluate and synthesize scientific information
5. develop a critical awareness of the need for, and the value of, effective collaboration and communication during scientific activities
6. develop experimental and investigative scientific skills including the use of current technologies
7. develop and apply 21st century communication skills in the study of science
8. become critically aware, as global citizens, of the ethical implications of using science and technology
9. develop an appreciation of the possibilities and limitations of science and technology
10. develop an understanding of the relationships between scientific disciplines and their influence on other areas of knowledge.

II. Curriculum model overview

Component	Recommended teaching hours
Core	**95**
1. Stoichiometric relationships	13.5
2. Atomic structure	6
3. Periodicity	6
4. Chemical bonding and structure	13.5
5. Energetics/thermochemistry	9
6. Chemical kinetics	7
7. Equilibrium	4.5
8. Acids and bases	6.5
9. Redox processes	8
10. Organic chemistry	11
11. Measurement and data processing	10
Option (choice of one out of four)	**15**
A. Materials	15
B. Biochemistry	15
C. Energy	15
D. Medicinal chemistry	15
Practical scheme of work	**40**
Prescribed and other practical activities	20
Individual investigation (internally assessed)	10
Group 4 project	10

The group 4 project

The group 4 project is a collaborative activity where students from different group 4 subjects, within or between schools, work together. It allows for concepts and perceptions from across disciplines to be shared while appreciating the environmental, social and ethical implications of science and technology. It can be practically or theoretically based and aims to develop an understanding of the relationships between scientific disciplines and their influence on other areas of knowledge. The emphasis is on interdisciplinary cooperation and the scientific processes.

III. Assessment model

It is the intention of this course that students are able to fulfill the following assessment objectives:

1. Demonstrate knowledge and understanding of:
   - facts, concepts, and terminology
   - methodologies and techniques
   - communicating scientific information.
2. Apply:
   - facts, concepts, and terminology
   - methodologies and techniques
   - methods of communicating scientific information.
3. Formulate, analyse and evaluate:
   - hypotheses, research questions and predictions
   - methodologies and techniques
   - primary and secondary data
   - scientific explanations.
4. Demonstrate the appropriate research, experimental, and personal skills necessary to carry out insightful and ethical investigations.

Assessment at a glance

Type of assessment	Format of assessment	Time (hours)	Weighting of final grade (%)
External		3	80
Paper 1	30 multiple-choice questions (Core)	0.75	20
Paper 2	Short answer and extended response questions (Core)	1.25	40
Paper 3	Data- and practical-based questions, plus short answer and extended response questions on the option	1	20
Internal		10	20
Individual investigation	Investigation and write-up of 6 to 12 pages	10	20

IV. Sample questions

- What is the total number of atoms in 0.50 mol of 1,4-diaminobenzene, $H_2NC_6H_4NH_2$?
  A. 16.0×10^{23}
  B. 48.0×10^{23}
  C. 96.0×10^{23}
  D. 192.0×10^{23}

  (Avogadro's constant (L or N_A) = 6.0×10^{23} mol^{-1}.) (Paper 1)
- Many automobile manufacturers are developing vehicles that use hydrogen as a fuel.
  1. Suggest why such vehicles are considered to cause less harm to the environment than those with internal combustion engines.
  2. Hydrogen can be produced from the reaction of coke with steam: $C(s)+2H_2O(g) \rightarrow 2H_2(g)+CO_2(g)$

  Using information from section 12 of the data booklet, calculate the change in enthalpy, ΔH, in kJ mol^{-1}, for this reaction. (Paper 2)

About the IB: For over 40 years the IB has built a reputation for high-quality, challenging programmes of education that develop internationally minded young people who are well prepared for the challenges of life in the 21st century and able to contribute to creating a better, more peaceful world.

For further information on the IB Diploma Programme, and a complete list of DP subject briefs, visit: ***http://www.ibo.org/diploma/***.

Complete subject guides can be accessed through the IB online curriculum centre (OCC) or purchased through the IB store: ***http://store.ibo.org***.

For more on how the DP prepares students for success at university, visit: ***www.ibo.org/recognition*** *or email:* ***recognition@ibo.org***.

Course Revision: Chemistry Honors to EGR Pre-AP/IB Chemistry

- Faster paced and more rigorous compared to the previous Honors Chemistry course
- Will better prepare students for college level courses such as AP Chemistry and IB Chemistry

Unit Topic	Unit Description	Engineering and Labs	MSS/NGSS Standards
Atomic Theory & Periodic Table of Element	In this unit, students investigate the atom, beginning with the development of atomic theory. They learn about charges, the effects of these charges, and properties of elements. These properties are related to the Periodic Table of Elements and students use the Periodic Table to make predictions about the properties of elements based on location on the periodic table.	Modeling matter lab activities, Bean bag isotope lab, Matter lab	HS-PS1-1 HS-PS3-5 HS-ESS1-3
Nuclear Chemistry and Electron Behavior	In this unit, students look closely at the nucleus, the different ways it can change, and the results of those changes. This understanding is then applied to natural phenomena like radioactive dating and the composition of stars. Students will also predict the relative properties of elements based on the patterns of electrons in the outermost energy level of atoms. Students will explore periodic	Flame test lab, periodic trends lab, colorimetry lab, Van Andel stars project, Nuclear Project	HS-ESS1-1 HS-ESS1-3 HS,PS1-1 HS-PS1-8
Bonding, Formulae, Nomenclature and Chemical Reactions	In this unit, students investigate the different ways atoms bond with other atoms. This includes the study of ionic and molecular compounds along with metallic and covalent network structures. Students will mathematical representations to support the claim that atoms, and therefore mass, are conserved during a chemical	Design a rocket fuel delivery system to launch a pipet rocket, types of chemical reactions, Conservation of matter lab, Ionic vs covalent substance property lab	HS-PS1-1 HS-PS1-2 HS-PS1-3 HS-PS2-6 HS-PS1-7
Moles and Stoichiometry	In this unit, students investigate the mathematical relationship between reactants and products in chemical reactions. This investigation includes using patterns in familiar reactions to predict other reactions as well as using mathematical modeling to make predictions about quantities.	Design an airbag engineering project, Empirical formula lab, Nail lab, Limiting Reactants Lab	HS-PS1-2 HS-PS1-7
Intermolecular Forces and Gas Laws	In this unit, students will investigate and model the different intermolecular forces as well as the properties that can be attributed to these forces. They will relate molecular geometry to properties. Students will investigate the kinetic theory, particularly with the behavior of gases. When studying gases, they investigate the relationship between the pressure, temperature, and volume of a gas and the consequences when any of those factors are	IMF Lab, Stem IMF lab, Gas laws inquiry lab, Collection of butane over water	HS-PS1-3 HS-PS3-2
Chemical Equilibrium and Aqueous Chemistry	In this unit, students continue their investigation of chemical reactions, beginning with a study of factors affecting the rate of reaction. They are introduced to the idea of reversible reactions, the concept of equilibrium, and work with Le Chatelier's principle. Finally, students investigate acids and bases in society.	Rate of reaction lab, Acids and bases, Titration, Le Chatelier's Lab	HS-PS1-5 HS-PS1-6 HS-PS1-7
Energetics	In this unit, students investigate the energy in chemical reactions. They learn about endo and exothermic reactions, calorimetry, and the effects of energy changes on Earth's systems	Candle lab, Burning of a nut, Unknown metal lab	HS-PS3-1 HS-PS3-2 HS-PS3-4 HS-PS1-4 HS-ESS2-4 HS-ESS3-2
Environmental Chemistry	In this unit, students apply their understanding of chemistry to Earth systems. Particularly, they investigate the role of chemistry in climate change. Included in their study is an investigation into possible solutions for human impacts on the environment.		HS-ESS2-2 HS-ESS2-5 HS-ESS3-5 HS-ESS3-6

Budget for High School Recommendation

Additional Needs for New Courses and Developing NGSS/STEM Labs/Experiments

Course(s)	Material Description	Source	Quantity	Total Cost
All Physics	Software Physics of Sports	www.physicscurriculum.com/physicsofsports	Unlimited Site License (perpetual)	$890.00
Chemistry/Biology All	Electronic pH Meters	www.flinnsci.com/flinn-phmeter/ap8673/	18 ($50 each)	$900.00
AP Chemistry	Lifetime Subscription to Adrian Dingle's AP Resources	www.adriandingleschemistrypages.com/subscriber-materials/	1	$499.00
Environmental Science/All Physics	Anemometers	www.amazon.com/HP-866B-Anemometer-Measuring-Temperature-Backlight/	16 ($25 each)	$400.00
All Physics	Pasco Bluetooth Probe Adapters (replaces 7-year-old computer interface)	www.pasco.com/prodCatalog/PS/PS-3200_airlink/index.cfm	18 ($60 each)	$1,080.00
AP/IB Chemistry	Le Chats Lab Kits	www.flinnsci.com/applications-of-lechateliers-principle-advanced-inquiry-laboratory-kit/ap7659/	2 ($100 each)	$200.00
EGR Pre-AP/IB Chemistry	Kinetics Lab Kits	www.flinnsci.com/kinetics-of-crystal-violet-fading--advanced-inquiry-laboratory-kit/ap7644/#variantresources	2 ($50 each)	$100.00
All Chemistry Levels	Electronic Balances	www.scalesoutlet.com	7 ($340 each)	$2,380.00
Biology All Levels, Forensics/Anatomy and Physiology	5-7 Year Maintenance Microscopes	www.associatedmicroscope.com/services.aspx	32 ($25 each)	$800.00
			TOTAL	**$7,249.00**

Questions for High School

Summary – Seeking BOE Approval For:

1. Secondary (6-12) Science Curriculum based on the Michigan Science Standards/Next Generation Science Standards
2. Purchase of MS Resource: TCI *Bring Science Alive* for both Students and Teachers
   - Approval for $56,250 over six years ($9,375 per year for six years)
   - Approval for one-time purchase for materials of $2,655.44
3. Purchasing Materials and Resources to Support Changes to EGR High School Science Curriculum
   - Approval for one-time purchase for materials of $7,249
4. Two New High School Science Courses
   - Integrated Physics and Chemistry
   - IB Chemistry Standard Level
5. Revised Curriculum and Name Change for Chemistry Honors Course to EGR Pre-AP/IB Chemistry
6. Approval of New Pathways for High School Science

BOARD ENCLOSURE
April 15, 2019
Item No. 12

East Grand Rapids Schools Foundation

2915 Hall Street SE
East Grand Rapids, MI 49506

tel 616.235.3535
web www.egrsf.org

March 29, 2019

To: EGR Public Schools – Board of Education Members and Administration
From: Amy Stuursma – Executive Director EGRSF
Re: Spring 2019 Grant Cycle

Please see the attached summary of the grants requested and funded for the Spring 2019 grant cycle. We were pleased to have so many innovative requests that support and enhance the current K-12 curriculum.

We were able to fund all of the requests this cycle as well as some that were resubmitted from previous cycles. We funded $45,928.50 for this grant cycle.

We are looking forward to the next full grant cycle which will begin November 1, 2019.

Spring 2019 Grants Work Sheet

#	Title	Requestor	School	Comments	Other Funding Sources	Amount Requested	Amount Granted
1	Classroom Libraries for Elementary Schools - part 2	Kristin Griffith, Jenny Fee	Lakeside, Breton Downs, Wealthy	Approved Fall 2018. This is the 2nd of 4 installments.		$28,900.00	$28,900.00
2	High-Top Stools for Flexible Seating in Classroom	Jill Smith, Kris DiVita, Rachel Ries, Lorie Miller	Middle School		Discounted price from GR Chair Company	$6,070.00	$6,070.00
3	Special Education Reading Intervention for Secondary Students	Bill Behrendt (for Special Ed Department), Jenny Fee	High School, Middle School			$5,890.00	$5,890.00
4	Robotics - State and World Tournament Entry Fees	Elisha Murphy	High School	contingent on them making it so state/worlds		$5,000.00	$2,500.00
				Performing Arts Fund			$960.00
TOTAL 4						$45,860.00	$44,320.00

Spring 2019 Mini Grants Work Sheet

#	Title	Requestor	School	Comments	Other Funding Sources	Amount Requested	Amount Granted
1M	Kuta Software: Unlimited Math Problems	Maggie Edison	High School			$216.00	$216.00
2M	We the People Washington DC Trip	Adam Horos	High School		fundraising, participant fees	$1,392.50	$1,392.50
TOTAL 2						$1,608.50	$1,608.50