74 W Tungsten 183.84 — 2 8 18 32 12 2

63 Eu Europium 151.964 — 2 8 18 25 8 2

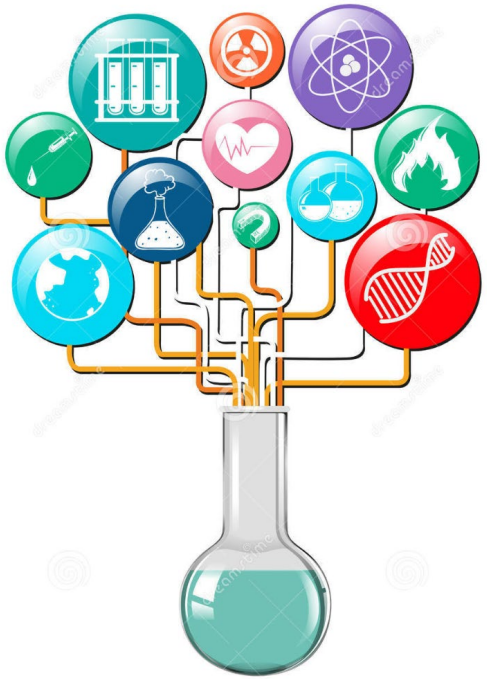
116 Lv Livermorium [293] — 2 8 18 32 32 18 6

27 Co Cobalt 58.933195 — 2 8 15 2

25 Mn Manganese 54.938045 — 2 8 13 2

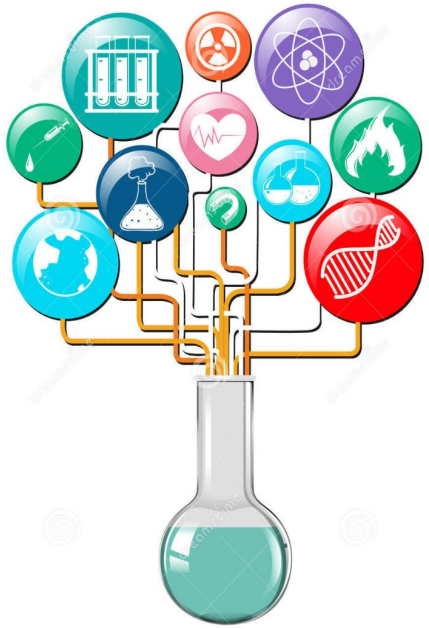
63 Eu Europium 151.964 — 2 8 18 25 8 2

High School Science Curriculum Night



MCPS

NEXT GENERATION SCIENCE STANDARDS

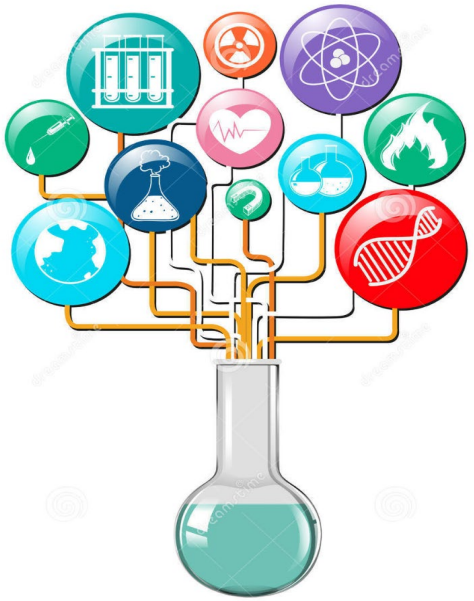


HIGH SCHOOL *SCIENCE* CURRICULUM NIGHT

Mrs. Niki Hazel, Associate Superintendent
Office of Curriculum & Instructional Programs

MCPS

NEXT GENERATION SCIENCE STANDARDS

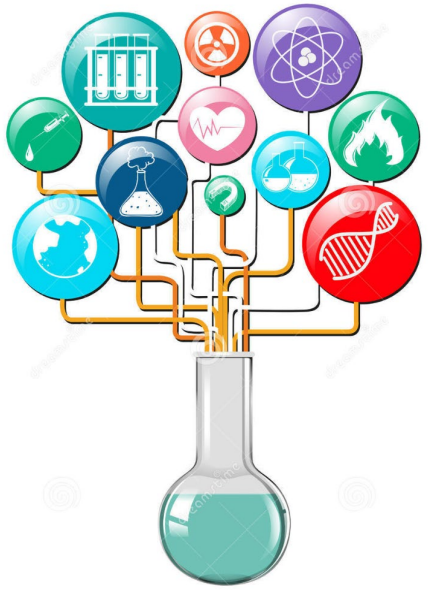


HIGH SCHOOL *SCIENCE* CURRICULUM NIGHT

Mrs. Amanda Graver, Curriculum Committee Chair
Montgomery County Council of PTAs

MCPS

NEXT GENERATION SCIENCE STANDARDS



HIGH SCHOOL *SCIENCE* CURRICULUM NIGHT

Mr. Scott Murphy, Director
Department of Secondary Curriculum & Districtwide Programs

MCPS

NEXT GENERATION SCIENCE STANDARDS

Outcomes

- Explain paradigm shifts in science
- Explore breadth/depth of content
- Discuss how to prepare for AP/IB
- Explain course pathway options

Tonight's Schedule

6:30– 6:45	Opening Session
6:45– 6:50	Transition
6:50– 7:20	**Breakout Session 1**
7:20– 7:25	Transition
7:25– 7:55	**Breakout Session 2**
7:55– 8:00	Transition
8:00– 8:30	**Breakout Session 3**

Background

- National standards
- State graduation requirements
  - Credits
  - End of course exam vs. integrated exam
- Opportunities for AP/IB and advanced coursework
- Changing conditions
- Options vs. consistency

High School Course Pathways

CORE PATHWAY			
Grade 9	Grade 10	Grade 11	Grade 12
NGSS Biology	NGSS Chemistry	NGSS Physics	AP/IB Science Science Elective

Other NGSS-aligned sequences, including options of AP and IB, also are available. For example, other approved pathways might include but are not limited to:

PATHWAY OPTION 1			
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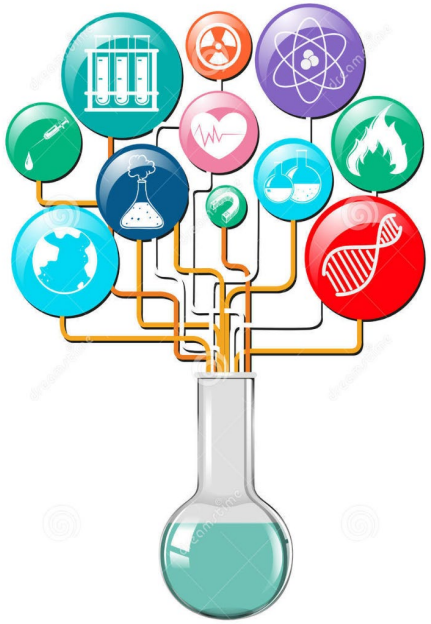
PATHWAY OPTION 2			
NGSS Physics *OR* AP/IB Physics	NGSS Chemistry	NGSS Biology *OR* AP/IB Biology	AP/IB Science



HIGH SCHOOL *SCIENCE* CURRICULUM NIGHT

Dr. Rhonda Moreno, Science Supervisor
Department of Secondary Curriculum & Districtwide Programs

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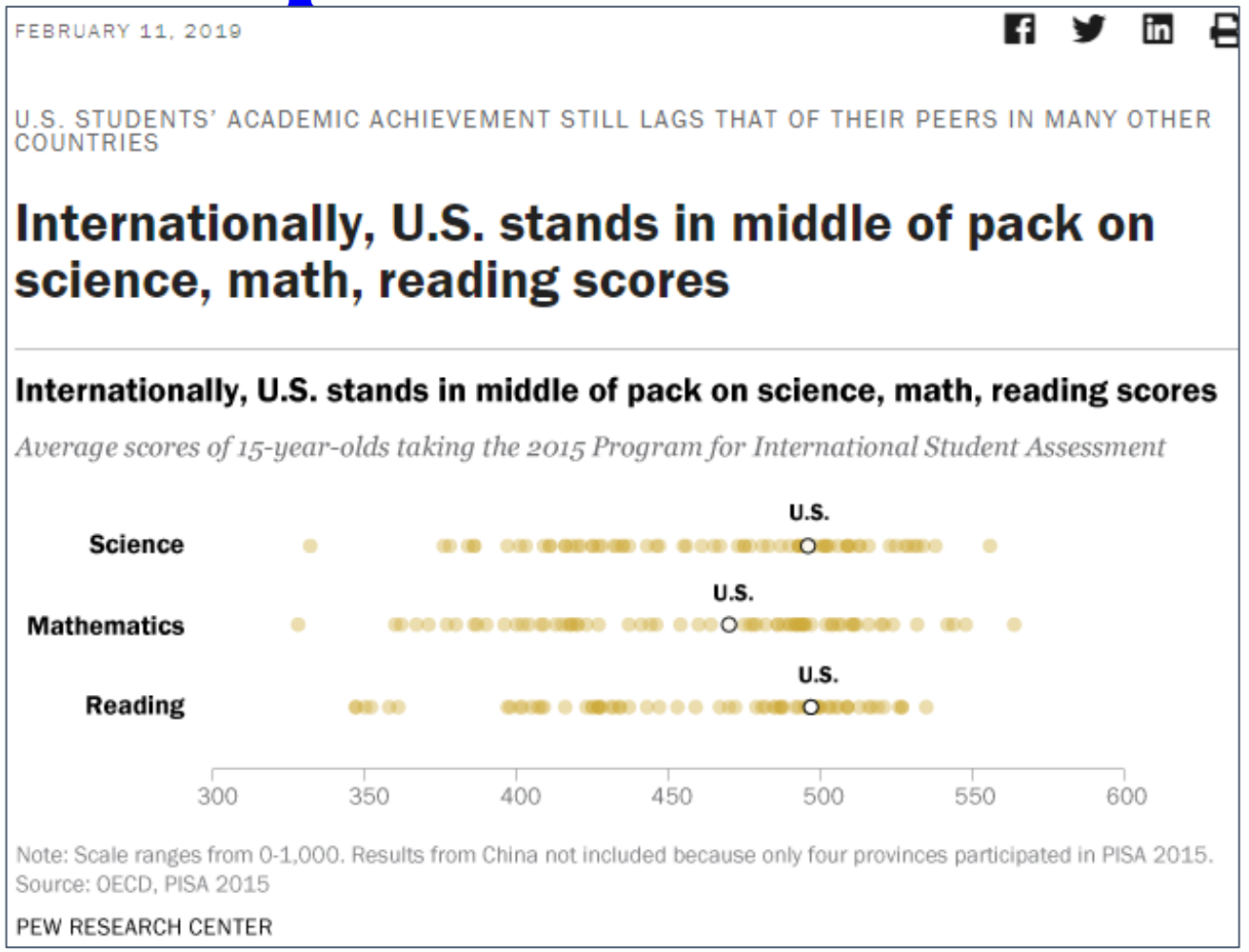
NEXT GENERATION SCIENCE STANDARDS

The Impetus for Change

FEBRUARY 11, 2019

U.S. STUDENTS' ACADEMIC ACHIEVEMENT STILL LAGS THAT OF THEIR PEERS IN MANY OTHER COUNTRIES

Internationally, U.S. stands in middle of pack on science, math, reading scores



NGSS Shift:

Science → phenomenon

Engineering

Solving Human Needs

Science and Engineering Connections

Out with the Old (HSA), In with the New (MISA)

Question 11 ▼

Trees and the Global Carbon

The data show the total carbon
model shows how carbon moves
The scientist wants to compare
and model with global carbon d
models to predict the potential
from the park.

The total amount of carbon stor
year as carbon moves through t
atmosphere, geosphere, and bio
gathered historical data from 19
(C) estimates are shown in the

**Global Carbon Sto
from 1990**

Location	Ca (g
atmosphere	
ocean	
forests	
total	

*1 gigaton = 1 billion to

abc A

31. **What chemical formula represents lead (IV) iodate?**

A. PbI_4
B. Pb_4IO_3
C. $Pb(IO_3)_2$
D. $Pb(IO_3)_4$

32. **What is the correct name for the isotope of carbon shown below?**

$^{14}_{6}C$

A. carbon-6
B. carbon-8
C. carbon-14
D. carbon-20

Directions: Use the information below to answer Number 33.

33. **A sample of element X contains the percentages of atoms of different isotopes shown below.**

ISOTOPES OF ELEMENT X

Percent of Atoms	Isotope
84	^{86}X
10	^{89}X
6	^{90}X

Which of these is closest to the average atomic mass for element X?

A. 87
B. 88
C. 89
D. 90

Biology

LS1.A	HS-LS1-1.
	HS-LS1-2.
	HS-LS1-3.
LS1.B	HS-LS1-4.
LS1.C	HS-LS1-5.
	HS-LS1-6.
	HS-LS1-7.
LS2.A	HS-LS2-1.
	HS-LS2-2.
LS2.B	HS-LS2-3.
	HS-LS2-4.
	HS-LS2-5.
LS2.C	HS-LS2-6.
	HS-LS2-7.
LS2.D	HS-LS2-8.
LS3.A	HS-LS3-1.
LS3.B	HS-LS3-2.
	HS-LS3-3.
LS4.A	HS-LS4-1.
LS4.B	HS-LS4-2.
	HS-LS4-3.
LS4.C	HS-LS4-4.
	HS-LS4-5.
	HS-LS4-6.

ESS1.C	HS-ESS1-5.
	HS-ESS1-6.
ESS2.E	HS-ESS2-7.
ESS3.B	HS-ESS3-1.
ESS3.C	HS-ESS3-3.
	HS-ESS3-4.

Chemistry

PS1.A	HS-PS1-1.
	HS-PS1-2.
	HS-PS1-3.
	HS-PS1-4.
PS1.B	HS-PS1-5.
	HS-PS1-6.
	HS-PS1-7.
PS1.C	HS-PS1-8.
PS3.B	HS-PS3-1.
	HS-PS3-4.
PS3.D	HS-PS3-3.
PS1.B	HS-PS1-2.
	HS-PS1-4.
PS1.C	*HS-ESS1-5.*
	HS-ESS1-6.
PS3.D	HS-PS3-4.
	HS-PS4-5.
	HS-LS2-5.
	HS-ESS1-1.

ESS2.C	HS-ESS2-5.
ESS2.D	HS-ESS2-4.
	HS-ESS2-6.
ESS3.A	HS-ESS3-2.
ESS3.D	HS-ESS3-5.
	HS-ESS3-6.
ESS2.D	HS-ESS2-7.
	HS-ESS3-6.
ESS3.A	HS-ESS3-1.

Physics

PS2.A	HS-PS2-1.
	HS-PS2-2.
	HS-PS2-3.
PS2.B	HS-PS2-4.
	HS-PS2-5.
	HS-PS2-6.
PS3.A	HS-PS3-2.
PS3.C	HS-PS3-5.
PS4.A	HS-PS4-1.
	HS-PS4-2.
	HS-PS4-3.
	HS-PS4-5.
PS4.B	HS-PS4-4.
PS2.B	*HS-PS1-1.*
	HS-PS1-3.
PS3.A	HS-PS3-1.
	HS-PS3-3.
	HS-PS2-5.
PS3.B	HS-PS3-1.
	HS-PS3-4.
PS4.A	*HS-ESS2-3.*
PS4.B	HS-PS4-3.
	HS-PS4-5.
	HS-ESS1-2.

ESS1.A	HS-ESS1-1.
	HS-ESS1-2.
	HS-ESS1-3.
ESS1.B	HS-ESS1-4.
ESS2.A	HS-ESS2-1.
	HS-ESS2-2.
	HS-ESS2-3.
ESS1.B	*HS-ESS2-4.*
ESS2.A	HS-ESS2-4.
ESS2.B	*HS-ESS1-5.*
	HS-ESS2-1.

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Break Out Sessions

149	NGSS Biology	200	AP Biology
150	NGSS Chemistry	201	AP Biology
151	NGSS Physics	268	AP Chemistry
152	IB Environmental	269	AP Chemistry
153	IB Sports	280	AP Physics
154	IB Chemistry	281	AP Physics
180	IB Biology	282	AP Environmental
181	IB Physics	274	Childcare Room