Office of the Superintendent of Schools
MONTGOMERY COUNTY PUBLIC SCHOOLS
Rockville, Maryland

February 14, 2024

MEMORANDUM

To: Members of the Board of Education

From: Monique T. Felder, Interim Superintendent of Schools

Subject: Approval of Pilot Courses

During the November 9, 2023, discussion regarding agenda item 9.1, *Approval of Pilot Courses*, Board member, Ms. Lynne Harris, requested the following information:

Question
Regarding *Science of Sports and Recreational Activities, Kingsview Middle School* on Slide 5, normally the cycle is 3 years, so why is it still in the pilot stage? Ms. Harris explained that she had an encounter with a student who took it virtually in 2021, so why is it still in the pilot process? What happens to the students that remain in programs that are still in the pilot process?

Response
This course was submitted as a pilot course for the 2022–2023 school year (see attachment). The course currently has 90 students enrolled. Students typically take pilot courses once, so they should not be in the course during successive pilot years. However, if they did, there would be no impact on students. Given the school's success with this pilot course, it should be exiting the pilot process at the end of the 2023–2024 school year.

If you have further questions, please contact Dr. Peggy A. Pugh, chief academic officer, or Ms. Niki T. Hazel, associate superintendent of curriculum and instructional programs, via email.

MTF:BJC:PAP:NTH:asj

Attachment

Copy to:
Executive Staff
Ms. Webb

Request to Pilot a New Course/Join Existing Pilot

__X__New Pilot Course _____Join Existing Pilot at

List school(s):

Pilot Course Name:
Science of Sports and Recreational Activities (SSRA)

School(s): Kingsview Middle School

Course Instructor(s): Wymon H. Lee

Resource Teacher: Wymon H. Lee

Course Description:

Students will be exposed to and engage in the science that exists in the world of sports and recreation. Utilizing the Science and Engineering Design process, students will engage in practical and physical application of the science of sports to identify current problems that exist in the world of sports and recreational activities. Applying 21st century technology skills, students will research, design, propose and communicate solutions to the problems that they uncover and identify. This semester-long course will focus on the physics, biology, mathematics and strategy that is utilized in several set sports and games, this will culminate in a final project where students will focus on an independent sports problem of their choice to propose a practical and viable solution.

Current SSRA Units: HERE

Purpose/Rationale for Course:

The Science of Sports and Recreational Activities (SSRA) course is another elective offering for 7th and 8th grade students that integrates the elements of Science Technology Engineering and Mathematics (STEM) and the Science and Engineering and Design process and applying the concepts learned in 7th and 8th grade Investigations in Science. This course helps to develop the leadership and problem solving skills in students in a kinesthetic and practical manner that will help the students involved to become more proficient problem solvers. Furthermore, students will apply concepts learned in their 7th and 8th science courses when developing solutions to challenges presented in class. Additionally, the students engage in regular leadership challenges that will help to develop their skills at working constructively as team members. This supports

the county wide wellness initiatives as students work on stress management through kinesthetic movement and positive interactions with peers in a non-restrictive and risk free environment.

Next Generation Science Standard Practice connection

Students are presented with a problem revolving around a sports or recreational activity challenge that the team must complete. To be successful, teacher appointed captains and their selected teams must go through the Engineering and Design Process to "design" a winning strategy:

- Students are presented with a problem to solve
- The students must develop hypothesis using models
- The students plan and carry out the potential solutions on the court or field in real time game situation/challenge
- The students have a debriefing every class to analyze the numerical and anecdotal data collected before and after each challenge
- The students must then evaluate and construct revisions to improve team performance
- The students communicate their potential solutions and revisions
- Students then put their revisions into practice to improve performance

This has a natural connection to their middle school science curriculum as the students engage in natural and organic problem solving every day in the classroom and out in real time field/game situations.

NGSS Standards: MS-ETS1

Connections to Montgomery County Public School Curriculum:

Investigations in Science 7 (IS7):

- This course supports the application of IS7 Unit 2 Matter and Energy Flow in Organisms. The students have learned the interactions of the human organ systems and how they support one another to achieve homeostasis. SSRA lessons support the application of the respiratory, circulatory, skeletal and muscular systems. All interact to achieve more optimal on field/court and in game performance as applied to the kinetic chain and biomechanics to execute more efficient and effective movements.

NGSS Standards: MS-LS1 (MS-LS1-1, MS-LS1-2, MS-LS1-3, MS-LS1-8)

Investigations in Science 8 (IS8):

- Unit 1 Weather and Climate. The students have learned the interactions of fluid in the form of air, water, and it shapes the atmospheric phenomena of weather. SSRA lessons support the application of the understanding of fluid dynamics in terms of the Bernoulli's Principle, Magnus force, and wind speed and direction when throwing a variety of sports equipment and understanding the interactions of the equipment when catching it. Additionally, students will learn to use weather conditions to make better data driven decisions to create strategies to be successful on field during game situations.

NGSS Standards: MS-ESS2-1, MS-ESS2-5, MS-ESS2-6

- Unit 2 Earth, Solar System, and Universe. The students have learned how the Earth, Sun, and Moon interact to create changes in the angle of the Sun as the seasons change. SSRA lessons support the application and understanding of this phenomena in terms of challenging students to utilize the angle of the sun and how it affects wind and visibility based on the time of the day to help develop in game/challenge strategies.

NGSS Standards: MS-ESS1-1, MS-ESS2-5

- Unit 4 Forces, Motion, and Interaction. The students have learned how Newton's Laws of Motion affect the interaction of objects with its surroundings and how energy is used to manipulate these interactions. SSRA lessons use a high level of applications of these concepts in the use of kinetic chain when running, throwing, catching, in a game as well as creating strategies for the teams to best utilize the use of force to design a winning team strategy.

NGSS Standards: MS-PS2-4, MS-PS2 , MS-PS3

Connection to Mathematic Content:

- Grade 7 and 8: Geometry. Students have learned basic geometric figures and concepts from both 7th and 8th grade to solve real life mathematical problems involving angle, measure, area, surface area, and volume. The use of Pythagorean Theorem. And the use of congruence and similarity using physical models. SSRA lessons will use the application of angles, surface area, volume to help to determine the optimal technique to throw, run, and catch as the game/challenge situations demand. Furthermore the area and grade of the ground and surface is considered when determining a strategy when playing other teams.

Common Core Standard: CCSS.Math.Content.7.G, CSSS.Math.Content.8.G

ATTACHMENT

I support the development of this course and understand that no funding is available from central services to develop or provide additional staffing for the course.

Principal's Name: _____

Principal's Signature: _____

Date: _____