



Dublin City Schools Medical Detectives Graded Course of Study

Vision

Dublin City Schools is committed to providing purposeful STEAM learning experiences to students throughout their K-12 journey. These experiences will be in the form of integrated, interdisciplinary experiences as well as focused pathways in the areas of STEAM.

We commit to transforming STEAM into more than the integration of Science, Technology, Engineering, and Mathematics with vision to expand ownership to all disciplines and grade levels. By creating a culture of thinking, curiosity and creativity across content, students will engage in interest based learning that will help them develop the attitudes and skills that will support them in a variety of career and life pathways. These learning experiences will support students as lifelong, adaptable learners who can thrive in a quickly changing world.

We believe in STEAM learning for all students and commit to creating equitable access so that our STEAM classrooms are representative of our school populations and communities.

Instructional Agreements

- We recognize the importance of early access and exposure to STEAM learning.
- We prioritize learning where students will identify and solve open-ended problems and engage in experiential learning.
- We will engage students through a lens of design thinking and promote opportunities for PBL.
- We will provide students with industry connections and experiences.
- We prioritize educating the whole child, in addition to our content. This includes a commitment to employability skills and emotional intelligence.
- We value students seeing themselves in STEAM fields.



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Course Goals

In Medical Detectives, students play the role of real-life medical detectives as they collect and analyze medical data to diagnose disease. They solve medical mysteries through hands-on projects and labs, measure and interpret vital signs, examine nervous system structure and function, and investigate disease outbreaks. This course uses a Project Lead the Way (PLTW) Curriculum.

Communication, Collaboration, and Problem-Solving		
Strand	Topic	Content Statements
CAREER AWARENESS AND EXPLORATION (CAE)	CAE-A Identify the variety of careers related to engineering, biomedical science, and computer science	CAE-A.1 Explore a variety of careers related to engineering, biomedical sciences, and computer science.
COMMUNICATION (COM)	COM-A Communicate effectively for specific purposes and settings	COM-A.1 Communicate to meet the needs of the audience and be appropriate to the situation.
		COM-A.2 Document a process, including findings or solutions.
COLLABORATION (COL)	COL-A Collaborate effectively on a diverse and multidisciplinary team.	COL-A.1 Illustrate successful collaboration through effective communication and constructive feedback.
		COL-A.2 Apply team norms to encourage productivity and define how a team will function and measure its success.
CRITICAL AND CREATIVE	CCP-A Solve a problem using	CCP-A.1 Devise and execute a plan to solve a problem.



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PROBLEM SOLVING (CCP)	analytical and critical thinking skills.	CCP-A.2 Analyze data and evidence to craft a conclusion supported by evidence.
		CCP-A.3 Explain how solutions for complex problems can require interdisciplinary collaboration to incorporate a wide range of perspectives and skills.
	CCP-B Design and conduct an experiment that investigates a question.	CCP-B.1 Develop an experimental protocol that includes a testable hypothesis, is repeatable, and produces reliable results.
		CCP-B.2 Distinguish between the independent and dependent variable and define controls.
		CCP-B.3 Perform necessary data calculations and draw logical conclusions from experimental data.

Disease Detectives		
Strand	Topic	Content Statements
ANALYSIS OF MEDICAL EVIDENCE (AME)	AME-A Collect and analyze medical evidence to draw conclusions.	AME-A.1 Measure vital signs.
		AME-A.2 Determine investigative questions for a case.
		AME-A.3 Interpret medical information to draw conclusions



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SAFETY PROTOCOLS		about a patient's health.
		AME-A.4 Describe and apply aseptic techniques for handling microbial samples.
	7.1 Infection Control	7.1.2a Infection control – differentiate methods of controlling the spread and growth of pathogens. (National Consortium for Health Science Education Standards) 7.1.2b Standard precautions – environmental cleaning, gloving, handwashing, personal protective equipment. (PPE). (National Consortium for Health Science Education Standards)
	7.2 Personal Safety	7.2.3 Demonstrate and apply the use of personal protective equipment (PPE). (National Consortium for Health Science Education Standards)

Mysteries of the Human Body		
Strand	Topic	Content Statements
STRUCTURE AND FUNCTION (SF)	SF-A Interpret how a breakdown in communication in the nervous system would impact the function of the human body.	SF-A.1 Create a model to describe the structures and function of the central and peripheral nervous system.
		SF-A.2 Explain how neurons pass signals to and from the brain and spinal cord.



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		SF-A.3 Match regions of the brain with their primary function in the human body.
ELA IN SCIENCE AND TECHNICAL SUBJECTS	Key ideas and details.	ELA-RST.6-8.3 Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.
		ELA-RST Cite specific textual evidence to support analysis of science and technical texts.

Outbreak		
Strand	Topic	Content Statements
DISEASE OUTBREAK (DO)	DO-A Analyze health and disease data to identify the source of a disease outbreak.	DO-A.1 Identify the classes of pathogens that cause disease.
		DO-A.2 Describe the manners of disease transmission.
		DO-A.3 Analyze connections between individuals in a disease outbreak.
		DO-A.4 Calculate measures of risk used to demonstrate a possible association between a risk factor and a disease.
WRITTEN COMMUNICATION	Text types and purposes	ELA-W.8-8.2 Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.