CURRICULUM ALIGNMENT · IB MIDDLE YEARS PROGRAMME (MYP) MATHEMATICS

Are Electric Cars Really Cleaner?

Grade 9 · Two 60-minute lessons · SDG 13 Climate Action · SDG 11 Sustainable Cities and Communities

Are electric cars always better for the environment than gasoline cars? In this lesson, students use real-world data and mathematical models to investigate the question, and discover that the answer depends on more than they might expect. Along the way, they work with speed–time graphs, linear equations and inequalities, and use their results to discuss how mathematics can support better decisions for people and the planet.

Curriculum level: MYP Year 4 (Grade 9), standard mathematics. The MYP has no prescribed content syllabus, so content is described by branch.

Mathematical content

Reference	Curriculum content	How the lesson addresses it	Where	Type
Algebra	Forming and solving linear equations, including equations with the unknown on both sides	Students form and solve linear equations, including equations with the unknown on both sides, to answer a real-world question.	GA, I, A	Core
Algebra	Linear functions: meaning of the intercept and the gradient	Students build linear models of a real situation and interpret the meaning of the intercept and the gradient in context.	GA, I, A, Test	Core
Algebra	Comparing two linear relationships in context	Students compare two linear models and decide when one option becomes better than the other.	GA, I, A, WCD	Core
Algebra	Linear inequalities	Students use linear inequalities to find limits that keep a real-world quantity within a target, and explain what the solutions mean.	A	Core
Geometry and measurement	Area of composite shapes (triangles, rectangles, trapezia)	Students find the distance travelled from speed–time graphs by splitting the area under the graph into simple shapes.	GA, HW, B, I, A, Test	Applied
Number	Rates, units and unit conversion	Students work with rates and compound units and convert between units.	GA, HW, B, I, A	Applied
Statistics (data)	Interpreting real data presented in graphs and percentages	Students interpret real-world data from international sources and use it in their models.	GA, HW, B, I, A	Applied

MYP mathematics objectives (assessment criteria)

Criterion B (Investigating patterns) is not a main focus of this lesson.

Reference	Curriculum content	How the lesson addresses it	Where	Type
Criterion A	Knowing and understanding	Students select and apply algebraic and geometric techniques to solve problems in familiar and unfamiliar situations.	B, I, A, Test	Core
Criterion C	Communicating	Students present and justify their mathematical results, orally and in writing.	Sharing results, WCD, Test	Core
Criterion D	Applying mathematics in real-life contexts	Students identify the relevant elements of a real-life situation, select and apply a mathematical model, justify the accuracy of their results and judge whether they make sense in context.	GA, I, A, WCD, Test	Core

Core The lesson directly develops or assesses this content. Applied Students use this content in a new, real-world context.

GA Guided Activity (teacher-led) · **B / I / A** Differentiated group activity: Base, Intermediate, Advanced · **HW** Homework · **WCD** Whole-Class Discussion · **Test** Pre-/Post-test

MYP framework connections

Key and related concepts

Key concept: Relationships, how a real-world quantity depends on several factors.
Related concepts: Model, Change, Representation, Justification.

Global context and statement of inquiry

Globalization and sustainability.
Mathematical models of relationships help people understand the impact of their choices and make evidence-based decisions about sustainability.

Approaches to learning (ATL)

Thinking (critical thinking, evaluating a model), Communication (presenting and justifying results), Research (information literacy with real data).

Interdisciplinary links

MYP Sciences (motion, energy) and Individuals and societies (energy use and the environment).

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Sources: IB, *MYP Mathematics* subject brief (guide from 2020, first assessment 2022): criteria A–D, key concepts, global contexts.

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