THE RED OAKS
SCHOOL

PARENT CURRICULUM GUIDE

Middle School (Grades 5–8)

2023-2024

Middle Years Programme

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Program Structure, Methodology, and Assessment

The Red Oaks Middle School is accredited by International Baccalaureate Middle Years Programme (IBMYP). This program offers a **whole-child approach** with the learner at the center of the learning process. The curriculum is **conceptually based** and structured around timeless and global ideas. Content **connects to student's lives**, as well as to local and international perspectives. **Interdisciplinary** connections and units bring together concepts, methods, and forms of communication from two or more subjects, extending and expanding students' understanding. Interdisciplinary units provide the opportunity to solve problems, create products, and investigate questions in ways that are not possible through a single subject.

Overarching Curricula

These concepts and skills are defined and taught explicitly within the curriculum and throughout school life.

- **Learning skills and executive skills** (*Approaches to Learning and Executive Skills* - Appx. A)
- **Community values** (*The Learner Profile* - Appx. B)
- **Community action:** a strong culture of service learning and the capstone Community Project
- **Wellbeing:** Based on Dr. Martin Seligman's research which is supported by the National Science Foundation, the Guggenheim Foundation, the Mellon Foundation, and the MacArthur Foundation

Pedagogy

The primary method of instruction is **structured inquiry.** Students construct meaning from what they already know through a deep understanding of vocabulary and concepts. Learning is **hands-on and minds-on**. Experiential learning and connecting content to students' lives is favored. The school hosts speakers who connect to our curriculum, and we practice on-site learning by taking advantage of the opportunities in our town and nearby NYC.

Assessment

At Red Oaks, assessment is not a snapshot of learning; it is a photo album. Students have **multiple opportunities and modalities to show what they understand, know, and can do.** Teachers pre-assess students' knowledge and offer formative assessments along the milestones of learning. These formative assessments serve as feedback for teachers to modify instruction and for students to revise their product.

Summative assessments include a variety of strategies and tools. Strategies include performance assessments, process assessments, tests, quizzes, open-ended tasks, self-assessments, and peer assessments. Tools include rubrics, checklists, anecdotal records, exemplars, and continuums.

Red Oaks Middle School Learning in a Nutshell

- Whole child approach
- Rich, interdisciplinary, practical and diverse
- Concept-Based Learning
- Teaching and learning connects to students' lives
- Pedagogy is mostly structured inquiry
- Students have multiple opportunities and modalities to show what they understand, know, and can do

Montessori and IBMYP - The Perfect Combination

Montessori and IB share many characteristics:

- Both programs are international in outlook
- They are recognized around the world
- The environment is student-centered and has a whole child approach
- Both programs are based on "action" (learning by doing and experiencing)
- Both programs involve extensive language, math investigation, and critical thinking
- The programs aim for an education "for a better world" through service
- Independence, self-management, organization, and values are central

Montessori flows into IBMYP

- IB is recognized as an excellent program in secondary education
- Montessori provides a rich foundation for middle school
- IBMYP provides a rigorous and balanced education in preparation for high-school
- The elements of IBMYP:
    - 8 disciplines or subjects, including Design (STEAM)
    - World language is learned with a goal of proficiency
    - Approaches to Learning/Executive Skills taught deliberately
    - Learner Profile - the values that tie all 6,000+ IB programs worldwide
    - Curriculum ties local, national, and international outlooks
    - Service learning culminating in an individual capstone community project

Overview of Courses

LANGUAGE AND LITERATURE

Grades 5 and 6

Reading and Writing Development

Using the methodology of The Reading & Writing Project from Teachers College, Columbia University, students follow a workshop model comprising mini-lessons on strategies and tools, followed by guided and independent practice. Teachers model reading and writing strategies within units rooted in powerful statements of inquiry. Along with read-aloud, shared reading, and book clubs, students read books of their choice independently inside and outside of school. Guidance is provided for students to select "just right" books that support where they are as readers. They endeavor to express their perspectives effectively by developing their oral and written communication skills. Students develop writing pieces in various genres with individual conferencing for feedback from their teacher. They are provided with regular modeling, scaffolding, and exposure to mentor texts over the course of a unit. Students are also empowered with strategies for providing constructive peer feedback.

Conceptual Understandings:

- **Grade 5**
  - Unit 1: Perspective, Point of View, Purpose, Self-Expression (Personal Stories)
    - personal narrative, plot structure, leads, dialogue, sensory detail, figurative language, characterization, dialogue, paragraphing
  - Unit 2: Relationships, Character, Setting (Historical Fiction)
    - character, life lessons, expository writing, transitions, textual evidence, explanation
  - Unit 3: Creativity, Genre, Setting, Structure (Fantasy)
    - imaginative narrative, elements of fantasy, character development, the hero's journey, storyboarding, word choice, figurative language, descriptive detail
  - Unit 4: Communication, Purpose, Audience Imperatives, Style (Advertisements)
    - persuasive language and images, purpose, stylistic choices

- **Grade 6**
  - Unit 1: Creativity, Communication, Structure, Self-Expression (Playwriting)
    - monologues, scenes, dialogue, character, conflict, improv, theatricality, play formatting, performance
  - Unit 2: Perspective, Point of View, Self-Expression, Character (Personal Stories)
    - realistic fiction, personal essay, contribution to communities, mini-stories
  - Unit 3: Connections, Intertextuality, Theme (Literary Essay)
    - analysis of short stories, intertextuality, theme, life lessons, essay structure, transitions, textual evidence, explanation
  - Unit 4: Change, Audience Imperatives, Purpose, Structure (Persuasive Letters)

        - letter structure, persuasive language and strategies, voice, purpose, thesis statements

Sample Texts for Grade 5:

- *Boy*, by Roald Dahl
- *Marshfield Dreams*, by Ralph Fletcher
- *The War that Saved my Life*, by Kimberly Brubaker Bradley
- *Landed*, by Milly Lee, Yangsook Choi
- *Adrift at Sea: A Vietnamese Boy's Story of Survival*, by Marsha Forchuk Skrypuch and Tuan Ho
- *Journey*, by Aaron Becker
- Student Exemplars

Sample Texts for Grade 6:

- *More Short Scenes and Monologues for Middle School Students: Inspired by Literature, Social Studies, and Real Life*, by Mary Hall Surface
- *Seedfolks*, by Paul Fleischman
- *Every Living Thing*, by Cynthia Rylant
- *Teammates*, by Peter Golenblock
- *Freedom Summer*, by Deborah Wiles
- *The Marble Champ*, by Gary Soto
- Student Exemplars

Grades 7 and 8

MYP Language and Literature aim to encourage and enable students to:

- use language as a vehicle for thought, creativity, reflection, learning, self-expression, analysis, and social interaction
- develop the skills involved in listening, speaking, reading, writing, viewing, and presenting in a variety of contexts
- develop critical, creative, and personal approaches to studying and analyzing literary and non-literary texts
- engage with text from different historical periods and a variety of cultures
- explore and analyze aspects of personal, host, and other cultures through literary and non-literary texts
- explore the language through a variety of media and modes
- develop a lifelong interest in reading
- apply linguistic and literary concepts and skills in a variety of authentic contexts.

Conceptual Understandings:

- **Grade 7**
    - Unit 1: Creativity (Short Stories)
    - Unit 2: Communication (Poetry)
    - Unit 3: Connections (Biographies)
    - Unit 4: Perspectives (Dystopian Reading: The Giver)
- **Grade 8**
    - Unit 1: Perspective (Realistic Fiction: The Outsiders)

- Unit 2: Creativity (Poetry)
- Unit 3: Connections (Historical Fiction: The Book Thief)
- Unit 4: Communication (Speeches)

Forms of literature in MYP Language and Literature courses typically include poetry, prose (short stories and novels from various genres), mythology, and drama. Additional literary and non-literary texts include

- Multimedia texts, including screenplays, films, television programs, and drama series
- Biographies and autobiographies
- Essays, letters, narrative non-fiction, and informational text
- Speeches, oral traditions
- Graphic novels.

MYP teachers choose written and multimedia texts of sufficient complexity that allow students to encounter a range of age-appropriate styles to explore linguistic, literary, and visual devices and supportive tools. Works of literature and non-literary texts studied in MYP language and literature courses must provide vocabulary, syntax, depth, and levels of meaning and styles of the language of appropriate sophistication. Ideas and issues typically explored in the classroom might include:

- Identity, heritage, culture, diversity
- Communities, globalization, migration, displacement
- Social history, civilizations, journeys
- Media and mass communication
- Childhood, adolescence, youth, rebellion, innocence, and experience
- Families, friendships, relationships
- Systems, power, and protest, justice, peace and conflict, freedom, and independence
- Health and well-being, environment, lifestyle
- Social roles, norms and expectations, gender, inclusion, minorities, class
- Utopias, dystopias, survival
- Religion, faith, values, ritual, spirituality, taboos
- Allegiance, betrayal, revenge, atonement, forgiveness.

INDIVIDUALS AND SOCIETIES

MYP Individuals and Societies encourage learners to respect and understand the world around them and equip them with the necessary skills to inquire into *historical, contemporary, geographical, political, social, economic, religious, technological, and cultural factors* that impact individuals, societies, and environments.

Conceptual Understandings:

Grade 5

- Unit 1: Time, Space & Pace (Maps and Geography)
- Unit 2: Systems (Settlements)
- Unit 3: Change (Civilizations)
- Unit 4: Systems (U.S. Government)

Grade 6
- Unit 1: Time, Place & Space (Revolutions)
- Unit 2: Change (New Jersey History & Geography)
- Unit 3: Global Interactions (Immigration)
- Unit 4: Systems (Economic Free Trade)

Grade 7
- Unit 1: Global Interactions (Globalization)
- Unit 2: Time, Place & Space (Middle Ages)
- Unit 3: Change (Exploration)
- Unit 4: Systems (Natural Environments)

Grade 8
- Unit 1: Time, Place & Space (Current Events)
- Unit 2: Systems (Belief Systems)
- Unit 3: Change (Renaissance)
- Unit 4: Global Interactions (World Government)

LANGUAGE ACQUISITION AND LINGUISTICS

Language shapes identity, and learning another language promotes intercultural understanding. Language acquisition promotes critical thinking, reflection, and self-reflection. Newer research indicates that language shapes the way we develop perception and enhances cognitive development. To understand another language is to see the world from a different perspective in the context of human interaction.

The language acquisition program at Red Oaks develops multiliteracy skills through various learning tools, such as multimedia, speaking, listening, viewing, and writing.
At Red Oaks, students follow the language acquisition objectives for emergent, capable, and proficient levels. The levels are described in Appendix E.

SPANISH

Grade 5

Content:
- How do we learn? Schools around the world
- Who are you? Describing self, family, relationships, country, nationality, likes and dislikes
- Pastimes- extra curricular activities
- Celebrations and Tradirions

Language Structures and skills:
- Adjective agreement

- Personal pronouns
- Question words
- Verbs: *gustar, tener, ir, ser, estar*
- Present tense of regular verbs
- Recognize Spanish sounds and accents
- Recognize conventions of oral, written and visual text

Grade 6

Content:

- Home - describing homes, dwellings, rooms, and chores
- Daily routines
- A healthy and balanced life: nutrition, exercise, and wellbeing
- Travel: places, and activities, cultural perspectives discussing travel

Language Structures and skills:

- Comparison structures
- Superlatives
- Stem changing verbs
- Present progressive form and usage
- Understand and use cognates
- Prepositions
- Reflexive verb forms and usage
- Expressing habitual actions
- Past tense forms and usage
- Command “Tu” regular and irregular
- Ser/estar
- Possessive pronouns
- Demonstrative adjectives
- Direct object pronouns
- Preterite
- Cohesive devices

Grade 7

Content:

- We are what we do: describe people’s appearance and character: social etiquette, relationships, habits/routines
- Middle school is my life: activities and school subjects: values of education, types of students, the mission of the school, conducting interviews, writing emails and articles
- Social networks: positive and negatives use of internet, perspectives on using technology, instructions for use
- Caring for our world: volunteer work, environmental protection, debate/causes climate change

Language Structures and skills:

- Review present tense
- Review reflexive tense
- Review past tense
- Imperfect form and usage
- Cohesive devices
- Preterite vs. imperfect
- Indirect and direct object pronouns
- Conjugations of irregular verbs in the preterite
- Stem changing verbs: *saber, conocer, gustar, acabar, decir, hacer, dar*

Grade 8

Content:

- Beliefs and Values: reflection on the concept of culture, identifying values in legends, myths, and fairy tales.
- Healthy habits: advice, recommendations, research and data, physical activity, nutrition, technology, and health
- Means of communication: vocabulary associated with media communication, informal and formal letters, news and fake news, mass communication, opinions, critical analysis of advertising
- The future and future events: future jobs, future events, make predictions and plans

Language Structures and skills:

- Reflexive and non-reflexive verbs
- Identify textual conventions
- Subjunctive, forms and usage
- Conditional, forms and usage
- Preterit and imperfect tenses
- Future tense forms and usage

LINGUISTICS AND MOTHER TONGUE

Concepts:

- The universal concepts and properties shared by all languages
- How language derive from a few meta-languages
- Connecting to one's cultural heritage by exploring the mother tongue

Content:

- Morphology -word structure: roots, suffixes, prefixes
- Phonetics- what sounds makeup language
- Syntax as the organizational principle of a sentence
- Semantics- how we extract meaning

- Pragmatics: how we acquire meaning from context
- Grammatical structures: inflections and conjugations
- Identify roots derivatives and cognates
- Language acquisition- language and the brain
- Language and culture- Key words and core cultural values
- Computational Language

MATH

Math at Red Oaks is interactive, inquiry-based, and connected to the real world. Students develop a conceptual understanding through the use of manipulatives, technology, and visual models. They collaborate with their peers, investigate patterns, and learn to communicate their knowledge effectively.

Grade 5

Place Value

- Understanding place value
- Comparing numbers
- Rounding numbers
- Number properties
- Order of operations
- Adding and subtracting decimals

Multiplication

- Multiplication patterns
- Estimating products
- Multiple-digit multiplication of whole numbers
- Multiplication of decimals

Division

- Relating multiplication and division
- Division patterns
- Whole number division with multiple digit divisor
- Division of decimals

Fractions

- Simplest form
- Common denominators
- Mixed numbers
- Adding and subtracting fractions and mixed numbers
- Modeling multiplication of fractions
- Multiplying fractions and mixed numbers
- Fractions as division expressions

- Mixed numbers as quotients
- Division with fractions

Geometry

- The coordinate plane
- Line graphs
- Volumes of rectangular prisms
- Classifying triangles and quadrilaterals

Grade 6

The Number System:

- Powers and exponents
- Order of operations
- Prime factorization
- Greatest Common Factor
- Least Common Multiple
- Multiplying and dividing fractions and mixed numbers
- Adding and subtracting decimals
- Dividing whole numbers
- Multiplying and dividing decimals
- Integers and rational numbers
- Absolute value
- The number line and the coordinate plane

Proportional Relationships:

- Ratios
- Rates and unit rates
- Graphing ratio relationships
- Converting measures
- Converting, comparing, and ordering fractions, decimals, and percents
- Solving percent problems

Algebra:

- Writing, evaluating, simplifying, and factoring algebraic expressions
- Applying properties of addition and multiplication
- Writing and solving one-step linear equations in one variable
- Writing and graphing equations in two variables
- Writing and graphing simple inequalities

Geometry:

- Areas of parallelograms, triangles, trapezoids, and kites
- Nets and attributes of three-dimensional figures
- Surface areas of prisms and pyramids
- Volumes of rectangular prisms

Statistics:

- Measures of center and variation
- Data displays

Grade 7

The Number System:

- Classifying and comparing rational numbers
- Absolute value
- Adding, subtracting, multiplying, and dividing integers and rational numbers
- Converting between fractions and decimals
- Powers of rational numbers

Algebra:

- Writing, evaluating, simplifying, and factoring algebraic expressions with rational coefficients
- Writing and solving one and two-step linear equations involving rational numbers
- Writing and solving one and two-step linear inequalities involving rational numbers

Proportional Relationships:

- Ratios
- Rates and unit rates
- Proportions
- Graphs of proportional relationships
- Scale drawings
- Comparing and ordering fractions, decimals, and percents
- Solving percent problems
- Percent of change
- Simple interest

Geometry:

- Perimeters and areas of polygons and composite figures
- Circumferences and areas of circles
- Angle relationships
- Surface areas of prisms, pyramids, and cylinders,
- Volumes of prisms and pyramids
- Cross-sections of three-dimensional figures

Probability and Statistics

- Probability of simple and compound events
- Experimental and theoretical probability
- Box and whisker plots
- Mean absolute deviation

Grade 7 Honors

The Number System:

- Absolute value

- Adding, subtracting, multiplying, and dividing integers
- Adding, subtracting, multiplying, and dividing rational numbers
- Classifying rational and irrational numbers
- Converting between fractions and decimals
- Roots and powers of rational numbers
- Properties of exponents
- Scientific notation

Algebra:

- Writing, evaluating, simplifying, and factoring algebraic expressions with rational coefficients
- Writing and solving one and two step linear equations involving integers and rational numbers
- Writing and solving one and two step linear inequalities involving integers and rational numbers

Proportional Relationships:

- Ratios
- Rates
- Proportions
- Graphs of proportional relationships
- Slope
- Scale drawings
- Comparing and ordering fractions, decimals, and percentages
- Solving percent problems
- Percent of change
- Simple interest

Geometry:

- Angle relationships
- Parallel lines & transversals
- Angles of a polygon
- Classifying triangles
- Similar triangles
- Classifying quadrilaterals
- The Pythagorean theorem
- Surface area of prisms, pyramids, cylinders
- Volume of prisms, pyramids, cylinders, cones, and spheres

Grade 8

Linear Equations:

- Solving Simple Equations
- Solving Multi-Step Equations
- Solving Equations with Variables on Both Sides
- Solving Equations with no solutions, infinitely many solutions
- Rewriting Equations and Formulas

Linear functions:

- Writing, solving, and graphing linear functions
- Graphing proportional relationships
- Slope
- Scatterplots and lines of fit
- Relations and functions
- Comparing linear and nonlinear functions

Linear Systems:

- Solving linear systems by graphing
- Solving linear systems by substitution
- Solving linear systems by elimination
- Solving special systems of linear equations

Exponents and Scientific Notation

- Properties of exponents
- Understanding scientific notation
- Operations with scientific notation
- Finding square and cube roots

Geometry:

- Parallel lines and transversals
- Angles of triangles and polygons
- Similar triangles
- The Pythagorean theorem
- Volume of cylinders, cones and spheres
- Surface area and volume of similar solids

Polynomials:

- Classifying polynomials
- Adding and Subtracting Polynomials
- Multiplying Polynomials

Grade 8 – Honors

Linear Equations and Inequalities

- Writing and solving linear equations
- Absolute value equations
- Literal equations
- Writing, solving and graphing linear inequalities
- Compound inequalities
- Absolute value inequalities

Linear Functions:

- Characteristics of functions
- Writing and graphing linear functions
- Transformations of functions
- Absolute value functions
- Scatterplots and lines of fit
- Arithmetic sequences
- Piecewise functions

Linear Systems:

- Solving linear systems by graphing
- Solving linear systems by substitution
- Solving linear systems by elimination
- Special systems of linear equations
- Writing and graphing linear inequalities in two variables
- Systems of linear inequalities

Exponential Functions:

- Properties of exponents
- Radicals and rational exponents
- Writing and graphing exponential functions
- Exponential growth & decay
- Solving exponential equations
- Geometric sequences

Quadratics:

- Simplifying and factoring polynomial expressions
- Graphing quadratic functions
- Comparing linear, exponential, and quadratic functions
- Properties of radicals
- Solving quadratic equations
- Solving nonlinear systems of equations

SCIENCE

Science at Red Oaks is experiential and inquiry-based. The curriculum is grounded on The Next Generation Science Standards and the IBMYP framework. We incorporate resources from the Smithsonian's STC Curriculum (Science and Technology Concepts).

There is a five-stage learning cycle for students:

- Explore what they already know about a topic.
- Investigate a scientific phenomenon or concept following a structured sequence of classroom investigations.
- Reflect on their observations, record them in science notebooks, draw conclusions, and share their findings with others.

- Apply their learning to real-life situations and to other areas of the curriculum.
- Demonstrate their knowledge and understanding through processing and evaluating data, designing original experiments, and reflecting on the impact of science.

Units at a Glance

Grade 5	Grade 6	Grade 7	Grade 8
The Earth, Moon, and Sun are part of a Planetary System of Interacting Bodies	Understanding Weather	Exploring Properties of Matter	Ecosystems and their Interactions:
How do Asteroids, Comets and Meteors Shape the Earth?	Understanding Climate	Exploring properties of Mixtures and Solutions	Exploring electricity
Exploring Plate Tectonics:	Experimenting with Forces and Motion	Matter and its Interactions (Elements and Compounds)	Organism Organization
Exploring the Nature of Light	Providing Freshwater	Genes and Molecular Machine	Energy and Electromagnetic Waves

Grades 5

Earth Science

The Earth, Moon, and Sun are part of a Planetary System of Interacting Bodies

- Scaled model of solar system
- Earth's and other planets' geological and atmospheric processes
- Scientific advances that have allowed humans to understand and explore the solar system

How do Asteroids, Comets, and Meteors Shape the Earth?

- What are asteroids, comets and meteors
- How have these celestial bodies shaped the Earth's history
- Geological time scale
- Fossil record and K-T Boundary

Exploring Plate Tectonics:

- Plate tectonic theory
- Seismic waves
- Convection in the Mantle
- Plate boundaries - mountains, trenches and continents

- Impact of earthquakes and volcanic eruptions on the planet
- Rock cycle
- Human-made systems to understand, predict and mitigate the impact of these events

Physics

Exploring the Nature of Light:

Investigate how light is produced and measured

- Explore how light travels, translucence and opacity
- Understand color, wavelength and the basics of the electromagnetic spectrum
- Modeling particle and wave theory of light
- Explore reflection and refraction of light
- Understand how the scientific understanding of light has led to the development of useful devices.

Grade 6

Earth Science

Understanding Weather

- Dominant features of Earth, its oceans, weather, and climate; impact on the lives of its living organisms
- Students will make observations and collect data about local weather conditions
- Vortices, convection currents, winds, storms, tornadoes, and hurricanes
- Difference between weather and climate

Understanding Climate:

- Climates or weather conditions as related to specific geographic, atmospheric and topographic conditions
- Human adaptation to changing weather patterns
- Technology and weather monitoring, risks and benefits to society

Providing Freshwater:

- Sources of fresh water
- Human activities need fresh water - agriculture, industry, and everyday life.
- Global water scarcity and human impact on the geosphere, hydrosphere, biosphere, and atmosphere.
- A healthy environment depends on the availability of freshwater.
- Fresh water distribution
- Designing solutions for accessing and treating water

Physics

Experimenting with Forces and Motion:

- Natural forces - gravity, friction, magnetism
- Energy - kinetic energy, potential energy
- Transformation of energy from one form to another
- Laws of motion

Grades 7

Chemistry

Exploring Properties of Matter

- What is matter
- Density
- Buoyancy
- How does temperature affect matter
- Phases of matter

Exploring properties of Mixtures and Sollutions

- Types of Mixtures: - Homogeneous mixtures (solutions) vs. heterogeneous mixtures,
- Solubility - Solubility of substances in different solvents
- Factors affecting solubility: temperature, nature of solute and solvent
- Solutions and Concentration
- Factors influencing the rate of dissolution: agitation, temperature, surface area
- Separation Techniques: Filtration, evaporation, distillation, distillation
- Miscibility and Immiscibility

Matter and it's Interactions (Elements and Compounds)

- Matter: mixtures,compounds and elements
- Introduction to periodic table
- Pure substance vs Mixture
- Physical and chemical properties
- Chemical reaction involving acids and bases
- Chemical reaction involving metals
- Low of conservation of mass

Biology

Genes and Molecular Machine

- Cells : Prokaryotic and Eukaryotic
- Organelles of the cells and their functions
- Comparison and Contrast of Prokaryotic and Eukaryotic organisms
- Organism Reproduction
- Cellular Reproduction
- Genetics

- Phenotype and genotype
- DNA to Trait
- Natural selection

Grade 8

Biology

Ecosystems and their Interactions:

- Ecosystem Organization
- How does the availability of resources affect a population of organisms
- Matter Cycles
- Food web
- How do organisms interact with one another
- Population Changes
- Natural Selection
- Biodiversity
- Human impact

Organism Organization

- Levels of organization: cells, tissues, organ, organ system, organism
- Photosynthesis
- Cellular respiration and the release of energy from foods
- Circulatory system
- Resparitory system
- The structure and function of the respiratory and circulatory systems
- Process by which the circulatory system delivers the building blocks which cells transform into energy
- Nervous system
- Balance within these systems to sustain the optimal function of the human body

Physics

Exploring electricity:

- What is electricity?
- How is electricity measured?
- Resistance in Electric Circuits
- How is electrical energy transformed into kinetic energy?
- How can energy transfer be maximized or minimized?
- How does your body use electrical signals to detect and respond to your environment?

Energy and Electromagnetic Waves:

- Investigate how electromagnetic waves are produced
- Electromagnetic spectrum

- Create a particle and wave model of electromagnetic waves
- Understand how the scientific understanding of electromagnetic waves has led to the development of today's wireless communication system.

DESIGN

Design links innovation and creativity within products and/or systems. In Design, students use the principles and processes of the **MYP Design Cycle** to investigate and explore products/systems, generate ideas and prototypes, perform experiments, and adapt and evaluate their designs. Design focuses on solving human needs and wants and is limited by the end user. Design challenges all students to apply practical and creative thinking skills to solve design problems encourages students to explore the role of design in historical and contemporary contexts, and raises their awareness of their responsibilities when making design decisions and taking action.

Interdisciplinary Connections

The Red Oaks design units connect disciplines such as Science, Individuals and Societies, Math, Arts, Language and Literature, Visual Arts, Language and Literature, and World Languages.

Flexible Curriculum

Design projects are created to maximize links to current events, student interests, and opportunities for interdisciplinary investigation. Design units may change every year based on these factors. Examples of some projects are listed below.

Grade 5 and 6

Food For Thought (Grade 5)

Every day we are surrounded by products that are labeled to draw the buyer in. Attractive words like “organic and healthy” are plastered across supermarket aisles. Students will research a current ethical food product with a seed-to-table system. They will design the label, packaging, and recipe page. Where does the food we eat come from? How ethical is the food we eat?

Conceptual understanding:

- Sustainability
- Environmental impact
- Renewable energy
- Ethical entrepreneurs
- Aesthetic marketing

Recycled Tote Bags (Grade 5 and 6)

Millions of plastic bags are used each year in order to curb the ones that are being thrown away; cities have started to implement reusable bags and bans on plastic bags. Bags that are not reusable do not biodegrade, but what happens to reusable bags made from plastic or paper? Students will investigate a client’s need for a particular bag before developing functional solutions, including using recycled and sustainable materials.

Conceptual understanding:

- Sustainability
- Environmental impact
- Sewing skills
- Aesthetics
- Understanding post-consumer product
- Styling

Public Service Campaign (Grade 6)

Observing a total solar eclipse is a breathtaking experience that offers a glimpse into the remarkable beauty of the natural world. As the moon passes between the sun and the Earth, it casts a shadow on the planet's surface, temporarily blocking the sun's light. The upcoming total solar eclipse on April 8, 2024, presents an excellent opportunity for New Jersey residents to witness this awe-inspiring event firsthand, whether from their backyard or by taking a short drive to be in totality. The totality path will include several New York State cities, including Buffalo, Rochester, Syracuse, Utica, Glens Falls, and Plattsburgh. Students will design a campaign to raise interest and awareness about this wonderful natural phenomenon.

Conceptual understanding*:*

- What is solar eclipse
- Safety around solar eclipse
- What is a campaign

- Target audience
- Communication medium
- Communication

Grades 7 and 8

Rocketry

Students will follow the IB design cycle to design and launch bottle rockets. Students will engage in hands-on STEM learning during this unit, illustrating the law of motion through practical experience. This activity fosters creative thinking, collaboration, and critical thinking as students construct rockets, analyze their flight trajectories, and modify designs. By integrating physics, mathematics, and engineering principles, students gain real-world insights into rocket propulsion while having fun.

Conceptual understanding:

- Newton's law of motion
- Aerodynamics
- Thrust and propulsion
- Energy conservation
- Gravity
- Safety
- Pressure and volume

Transforming Art Through 3D Printing (Art and Design Interdisciplinary Unit)

Emerging technologies have revolutionized the realm of art. Throughout this unit, students will delve into how technology can ignite inventive forms of expression and push conventional artistic limits. They will use 3-D prints to design an art piece.

Conceptual understanding:

- Computer-Aided Design (CAD)
- Geometry and Scaling
- Layering and Slicing
- Understand the components of a 3D printer
- Understand the need for and how to design or generate support structures that help complex prints maintain their shape during printing.
- Ethical Considerations: of 3D printing
- Form and function
- Aesthetic
- Scuplture
- Craft and Artistry

THE ARTS

The arts are a universal form of human expression. The arts are less about outward appearance than they are about inner significance. The arts engage us in effective, imaginative, and productive activities while exploring, communicating, and developing our sense of identity, culture, and individuality. At Red Oaks, students have opportunities to function as artists, developing skills and performing, presenting, and communicating their art. Students also function as learners of the arts, learning to respond to and reflect on art and understanding the relationship between art and its contexts. The creative thought process is key to the Red Oaks arts experience. This includes

- Questioning, responding, challenging conventions and one's and others' assumptions
- Using imagination and seeing possibilities when responding to challenges
- Persevering, and modifying one's ideas in the process
- Playing with ideas, experimenting, and responding to one's intuition

VISUAL ART

The art program at Red Oaks offers students opportunities to explore a broad range of art making techniques while synthesizing craft and concept. Students build a foundation of conceptual and historical understanding of visual culture through manipulating materials, observation, and ongoing discussion. These explorations in self-reflection and communication provide tools with which students can see and respond to the world around them. At Red Oaks, the visual arts curriculum explores artists and art from worldwide.

Grades 5 and 6

Concepts:

- Illustrations have been used to create stories
- Art can give other subjects or genre a visual expression
- Social and political themes are often expressed through art - Artists that changed the world
- Objects has often been the subject of art - Still life
- Identity can be defined through art.
- Form and function within ceramics and sculpture

Content:

- Line, color, shape, texture, form and space
- Develop skills: Composition, sketching, painting, sculpting and ceramics
- Elements and principles of art - composition, narrative, value of color
- characteristics of materials
- Pre-planning: exploration of ideas, outlining, following plan to the point of realization
- Respond to art
- Develop and create original art with intention
- Explore connections between art and context, and art and prior experience
- Evaluate artwork from self and others

- Research: artists, genre, and materials
- Worldwide artists and art that have had an impact on society
- Historical still life art
- Illustration, comic strips, and action figures
- Visiting artists and field trips to NYC museums

Grades 7 and 8

Concepts:

- Contemporary artists work in a globally influenced, culturally diverse, and technologically advancing world.
- Figure and Gesture drawing
- Objects has often been the subject of art - Still life
- Art is represented and interpreted differently through time and space
- Exploring Identity and heritage
- Form and function within ceramics and sculpture

Content:

- Line, color, shape, texture, form and space
- Develop skills: Composition, sketching, painting, sculpting and ceramics
- Elements and principles of art - composition, narrative, value of color
- characteristics of materials
- Pre-planning: exploration of ideas, outlining, following plan to the point of realization
- Respond to art
- Develop and create original art with intention: Found art piece, classical work with a modern twist, park art theme, contemporary art
- Explore connections between art and context, and art and prior experience
- Evaluate artwork from self and others
- Research: artists, genre, and materials
- Guest artists and field trips to NYC museums
- History of contemporary art
- Exploring mobiles, sculpture, prints, tapestry, installation art
- Curating and labeling found art for display and documentation
- Research landmarks and park designs worldwide

MUSIC

The music program at Red Oaks is both expressive and explorative. Students consider music from various sources and discover theoretical concepts to apply to their work. They practice skills in performance and composition, using voice, instruments, and music technology. Musical works are analyzed through active listening, reinforcing understanding of musical elements. Using a process

journal, students capture their thinking as they explore content and develop their musical ideas. This program is intended to facilitate the growth of artistic literacy through the processes of creating, performing, responding, and connecting.

Grades 5 and 6

Concepts:

- Identity and self-awareness
- Musical expression
- Challenging stylistic norms
- Creative freedom
- Roles of composers, performers, audience
- Impact of societal changes

Content:

- Elements of music
- Baroque, Classical and Romantic styles
- Musical notation
- Instrumental skills
    - Grade 5: woodwinds
    - Grade 6: MIDI keyboards
- Noteflight (notation software)
- Soundtrap (digital audio workstation)

Grades 7 and 8

Concepts:

- Aesthetics
- Inspiration for composition
- Structure to create purpose
- Competition and cooperation
- Social dynamics of working groups
- Artistic choices

Content:

- Elements of music
- Scales: major, minor, and pentatonic
- Compositional techniques
    - melodic phrasing
    - texture and harmony
    - form
- Musical notation
- Performance skills
    - Voice

    - Orff instruments
    - MIDI keyboards
- Noteflight (notation software)
- Soundtrap (digital audio workstation)

PHYSICAL AND HEALTH EDUCATION

The Red Oaks School prioritizes a holistic approach to ensure every student's physical, mental, and emotional well-being. The physical and health education program enables students to attain and apply knowledge to make healthy life choices. Students learn to consider new ideas, embrace their peers' abilities and identities, and collaborate with others more effectively through competitive and non-competitive games. In accordance with the IB curriculum, physical education and health are considered one class, assessing students in four areas:

Criterion A: Knowing and Understanding *(rules and facts assessed through written or oral tasks)*
Criterion B: Planning for Performance *(game strategies, practice/training plans, or movement routines)*
Criterion C: Applying and Performing *(performance-based, application of skills, movement techniques)*
Criterion D: Reflecting and Improving Performance *(personal and social development, sportsmanship)*

2023-2024 Middle School Physical Education Overview

<table>
<tr><th>5th Grade</th><th>6th Grade</th><th>7th Grade</th><th>8th Grade</th></tr>
<tr><td colspan="4">Fitness Fundamentals</td></tr>
<tr><td colspan="2">Pickleball</td><td>Goal Ball</td><td>Touch Rugby</td></tr>
<tr><td>Basketball</td><td>Indoor Soccer</td><td colspan="2">Badminton</td></tr>
<tr><td>Line Dances</td><td>Acrogym</td><td>Circus Skills</td><td>Indpendent Movement Pattern Exhibition</td></tr>
<tr><td colspan="4">Backyard Target Games (Bocce, Cornhole, and Mölkky)</td></tr>
</table>

Notes About Instructional Units in Physical Education

- Instructional units are designed to last for several weeks to allow sufficient time for students to acquire the necessary skills and knowledge to apply strategies or rehearse for performances.
- Fitness Fundamentals aims to introduce students to essential information about different components of fitness and physical conditioning that are utilized throughout the year.
- Students will participate in fitness testing activities for the sole purpose of helping students set goals and track improvement throughout the year. The results of these fitness tests have no impact on their grades.
- The physical education program boasts a blend of individual pursuits, net games, aesthetic/creative movement, adaptive activities, and team sports.

2023-2024 Middle School Health Overview

5th Grade	6th Grade	7th Grade	8th Grade
Building Healthy Relationships with Others			
Managing Stress and Emotions	Healthy Habits (Hygiene, sleep, and screen time)	Self-Esteem and Bias	Drug and Alcohol Abuse
Personal Safety	Nutrition	Gender Identity and Sexual Orientation	Dating and Consent
The Reproductive System and Puberty		Reproduction and Pregnancy	Contraception and STDs

Notes about Instructional Units in Health

- Instructional units are intended to help students make informed decisions about their health and to think critically about their actions.
- Over the course of their MS experience, students will address areas of study aligned with the widely accepted sex education standards from SIECUS: Sex Ed for Social Change as well as the Answer program by Rutgers University
- To prevent students from searching inappropriate topics for health class on the internet, appropriate articles, videos, and other information will be shared with students and parents.
- Each grade level has access to a Google form where students can anonymously ask questions they may not want to ask during class or in front of others.

Advisory Curriculum: Social Emotional Approaches to Learning, and Executive Skills.

The Approaches to Learning and Executive Skills curriculum is taught in advisory and Town Hall. It is also embedded in our unit planners. Approaches to Learning is from the International Baccalaureate. At the same time, the Executive Skills component applies the research of Dr. Peg Dawson and Dr. Richard Guare on the development, teaching, learning, modeling, and practice of these skills.

All learning is hands-on and practical, with animated discussions. Resources include carefully chosen videos, TED talks, Discovery Education resources, the Newsela Social Emotional Curriculum, the Facing the Future sustainability curriculum, books, podcasts, and articles. Role playing and games are integral parts, as is reflection in the journals.

Grades 5, 6, and 7

Content:

- Building Community: ROS culture and essential agreement of community
- Introduction to the Learner Profile, Approaches to Learning, and Executive Skills
- Growing well-being: PERMA (positive emotions, engagement, good relationships, achievement). Dr. Martin Seligman
- RELATIONSHIP AND COMMUNITY BUILDING
    - Understanding another's perspective
    - Empathy and understanding are fundamental to relationships
    - Communication: Establishing boundaries through clear communication
    - Managing your reactions
    - Managing conflict
    - Advocating for yourself
    - Being fair to others /Roles in groups
    - Virtual citizenship: Media literacy and Digital Citizenship: based on *Common Sense Media* curriculum. Managing our digital lives takes knowledge, reflection, and a plan
    - Excluding / cliques/ bullying

Grade 8

Content:

- Building Community: ROS culture and essential agreement of community
- Reinforcing Executive Skills: Affective (emotional control/ flexibility/response inhibition/ stress tolerance.
- Roles in groups
- Gossip
- Excluding
- Cliques
- Bullying
- Digital friendships
- Racial Literacy: Based on Pollyanna Racial Literacy Curriculum
- Media literacy and Digital Citizenship: based on *Common Sense Media* curriculum

APPROACHES TO LEARNING (ATL'S) AND EXECUTIVE SKILLS (ES) (APPENDIX B AND C)

- ATLs support the IB belief that a large influence on a student's education is what you learn and how you learn.
- ATLs are deliberate strategies, skills, and attitudes that permeate the teaching and learning environment.
- ATLs are intrinsically linked with the IB learner profile attributes to enhance student learning and assist student preparation for life after high school.
- Executive Skills is an expanded view of ATLs through the research of Dr. Peg Dawson and Dr. Richard Guare

- Executive skills refer to the brain-based, cognitive processes that help us to regulate our behavior, make decisions, and set and achieve goals
- Students develop ATLs and ES when they are taught explicitly, modeled and practiced
- Our ATL/ES curriculum is taught in advisory and town hall and overlaps with our Health and Social curriculum. ATLs and ES are also explicitly taught within each subject
- Students write in their Managebac journals to reflect on their learning year after year for the SocialEmotional Curriculum, the ALTs and ES curriculum, and the Global Contexts curriculum

IB Approaches to Learning

1. Communication skills
2. Self-management skills
    - Organization
    - Affective
    - Reflection
3. Social skills
4. Thinking skills
    - Critical Thinking
    - Creativity and innovation
    - Transfer
5. Research skills
    - Information literacy

Dawson & Guare Executive Skills

- Emotional Control
- Flexibility
- Goal-directed persistence
- Metacognition
- Organization
- Planning/Prioritization
- Response Inhibition
- Stress Tolerance
- Sustained Attention
- Task Initiation
- Time Management
- Working Memory

GLOBAL CONTEXTS: DIVERSITY, INCLUSION, AND OUR COMMON HUMANITY

At the ROS Middle School, we connect learning experiences to the context of students' lives and the world at large. We use global contexts as a framework for our units. It allows students to explore diversity, inclusion, and integration, understand our common humanity, and build a sense of our responsibility for the shared guardianship of the planet. Global Contexts are part of the ATL/ES curriculum and taught during advisory and town hall. In addition, each unit of study is framed by a Global Context (Appendix D)

The MYP Global Contexts are:

- Identities and relationships - Who we are
- Personal and cultural expression - How we express ourselves
- Orientations in space and time - Where we are in place and time
- Scientific and technical innovation - How the world works
- Fairness and development - How we organize ourselves
- Globalization and sustainability - Sharing the planet

Racial Literacy Curriculum

Red Oaks has developed a racial literacy curriculum in collaboration with Pollyanna, Inc. to address national current events. The curriculum gives voice to many races, religions, and ethnicities. It defines

the vocabulary of racial relationships and examines the roots of racism in our country. It enables honest, positive, and constructive conversations about empathy, human dignity, and justice.

SERVICE LEARNING AND THE COMMUNITY PROJECT

Service is a subset of learning by doing and experiencing ("action"). IB educates students "for a better world", while Montessori has been known as "an education for peace." Thus, service is intrinsic to the Red Oaks experience, as our students strive to become caring members of our community who make a positive difference in the lives of others and the environment. We offer opportunities for community service supervised by the Red Oaks faculty. We ask students to also complete a few hours of service outside our school each year. Service learning is often student-led and evolves from the curriculum and world events, thus creating connections between learning and service and empowering students to "be the change they want to see in the world."

Through their service, students

- Become more aware of their strengths and areas for growth
- Undertake challenges and develop new skills
- Discuss, evaluate, and plan student-led activities
- Collaborate
- Develop international-mindedness through global understanding
- Reflect on the ethical implications of their actions
- Develop the attributes of the Learner Profile

THE COMMUNITY PROJECT

The Community Project is an 8th-grade experience that brings together the spirit of service and action of the Red Oaks IB education. It focuses on community and service. Community projects encourage students to explore their rights and responsibilities to implement service as action in the community. Through these projects, students develop an awareness of their community's needs and address them through service learning. The Community Project is the capstone of the IB program.

The Community Project is:

- Independent
- Passionate
- Based on the student's interests and community needs
- Evolves from the teacher-led jobs and community action
- Long-term (whole academic year)
- Community-based - final presentation to the community

What Do 8th Graders Do In the Community Project?

- Find a local need based on interests and passion
- Develop a goal to address the need
- Research the issues
- Develop a proposal for the project
- Prepare a service action plan
- Carry out the service action plan
- Evaluate the proposal and the projects
- Reflect on learning
- Prepare an oral presentation
- Prepare a written report with selections from the process journal
- Complete an academic honesty form
- Write a bibliography
- Record reflections, information, and developments in the action journal
- Evaluate the quality of the service action

Appendix A

IB LEARNER PROFILE

PERFIL DE LA COMUNIDAD DE APRENDIZAJE DEL IB

Inquirers	Indagadores
Knowledgeable	Informados e instruidos
Thinkers	Pensadores
Communicators	Buenos comunicadores
Principled	Integros
Open-minded	De mentalidad abierta
Caring	Solidarios
Risk-takers	Audaces
Balanced	Equilibrados
Reflective	Reflexivos

Appendix B


APPROACHES TO LEARNING
& EXECUTIVE SKILLS
Communication
Self-Management
*Affective
*Organization
*Reflection
Collaboration
Thinking
Creative Thinking
Critical Thinking
Transfer
Research Skills
Information Literacy
Media Literacy
*Affective
Emotional Control
Flexibility
Response Inhibition
Stress Tolerance
Goal-Directed Persistence
Sustained Attention
*Organization
Organization
Planning/Prioritization
Task Initiation
Time Management
*Reflection
Metacognition
Working Memory

Appendix C: Definition of Executive Skills (Dr. Peg Dawson and Dr. Richard Guare)

Emotional Control:

The ability to manage emotions in order to achieve goals, complete tasks, or control and direct behavior.

Flexibility:

The ability to revise plans in the face of obstacles, setbacks, new information or mistakes. It relates to an adaptability to changing conditions.

Response Inhibition:

The capacity to think before you act – this ability to resist the urge to say or do something allows us the time to evaluate a situation and how our behavior might impact it.

Stress Tolerance:

The ability to thrive in stressful situations and to cope with uncertainty, change, and performance demands.

Metacognition:

The ability to stand back and take a birds-eye view of oneself in a situation. It is an ability to observe how you problem solve - self-monitoring and self-evaluative skills.

These are skills necessary not only for school learning, but also to develop successful social interactions, and enjoy emotional well-being in school.

Goal-directed persistence:

The capacity to have a goal, follow through to the completion of the goal, and not be put off by or distracted by competing interests.

Organization:

The ability to create and maintain systems to keep track of information or materials.

Planning/Prioritization:

The ability to create a roadmap to reach a goal or to complete a task. It also involves being able to make decisions about what's important to focus on and what's not important.

Sustained Attention:

The capacity to maintain attention to a situation or task in spite of distractibility, fatigue, or boredom.

Time Management:

The capacity to estimate how much time one has, how to allocate it, and how to stay within time limits and deadlines. It also involves a sense that time is important.

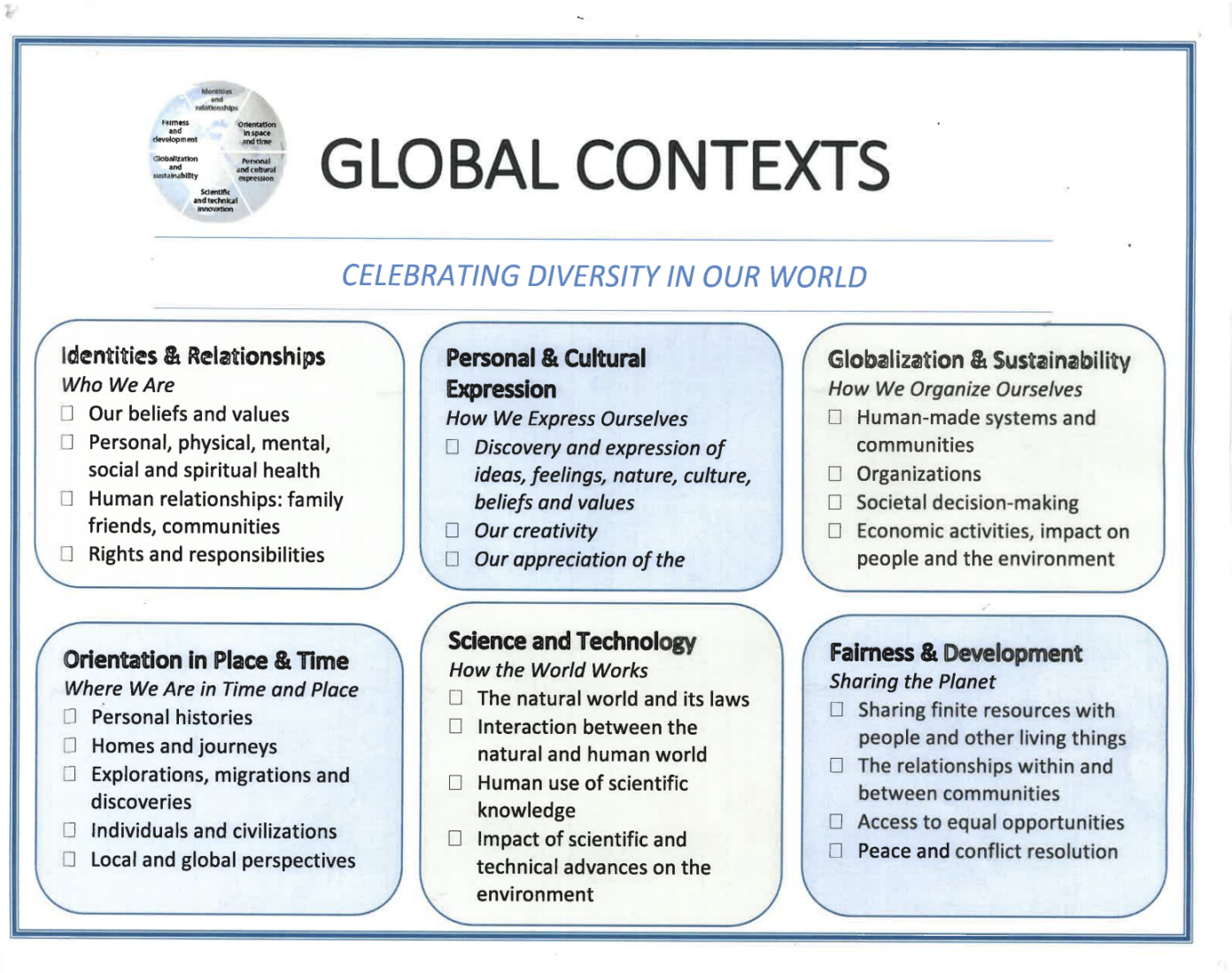
Task Initiation:

The ability to begin projects without undue procrastination, in an efficient or timely fashion.

Working Memory:

The ability to hold information in memory while performing complex tasks. It incorporates the ability to draw on past learning or experience to apply to the situation at hand or to project into the future.

Appendix D: GLOBAL CONTEXTS



Appendix E: Phase-Specific Language Acquisition Objectives

Language acquisition objectives for emergent, capable and proficient levels

	Emergent Phase 1–2	Capable Phase 3–4	Proficient Phase 5–6
	In order to reach the aims of language acquisition, students should be able to:	In order to reach the aims of language acquisition, students should be able to:	In order to reach the aims of language acquisition, students should be able to:
Objective A: Listening			
i.	identify explicit and implicit information (facts, opinions, messages supporting details) in a wide variety of simple authentic texts	identify explicit and implicit information (facts, opinions, messages, supporting details) in a wide variety of simple and some complex authentic texts	identify explicit and implicit information (facts, opinions, messages, supporting details) in a wide variety of complex authentic texts
ii.	analyse conventions in a wide variety of simple authentic texts	analyse conventions in a wide variety of simple and some complex authentic texts	analyse conventions in a wide variety of complex authentic texts
iii.	analyse connections in a wide variety of simple authentic texts	analyse connections in a wide variety of simple and some complex authentic texts	analyse connections in a wide variety of complex authentic texts
Objective B: Reading			
i.	identify explicit and implicit information (facts, opinions, messages, supporting details) in a wide variety of simple authentic texts	identify explicit and implicit information (facts, opinions, messages, supporting details) in a wide variety of simple and some complex authentic texts	identify explicit and implicit information (facts, opinions, messages, supporting details) in a wide variety of complex authentic texts
ii.	analyse conventions in a wide variety of simple authentic texts.	analyse conventions in a wide variety of simple and some complex authentic texts	analyse conventions in a wide variety of complex authentic texts
iii.	analyse connections in a wide variety of simple authentic texts	analyse connections in a wide variety of simple and some complex authentic texts	analyse connections in a wide variety of complex authentic texts
Objective C: Speaking			

	Emergent Phase 1–2	Capable Phase 3–4	Proficient Phase 5–6
i.	use a wide range of vocabulary	use a wide range of vocabulary	use a wide range of vocabulary
ii.	use a wide range of grammatical structures generally accurately	use a wide range of grammatical structures generally accurately	use a wide range of grammatical structures generally accurately
iii.	use clear pronunciation and intonation in a comprehensible manner	use clear pronunciation and intonation in a comprehensible manner	use clear pronunciation and intonation in a comprehensible manner
iv.	communicate almost all the required information clearly and effectively	communicate all the required information clearly and effectively	communicate all the required information clearly and effectively
Objective D: Writing			
i.	use a wide range of vocabulary	use a wide range of vocabulary	use a wide range of vocabulary
ii.	use a wide range of grammatical structures generally accurately	use a wide range of grammatical structures generally accurately	use a wide range of grammatical structures generally accurately
iii.	organize information effectively and coherently in an appropriate format using a wide range of simple cohesive devices	organize information effectively and coherently in an appropriate format using a wide range of simple and complex cohesive devices	organize information effectively and coherently in an appropriate format using a wide range of complex cohesive devices
iv.	communicate all the required information with a clear sense of audience and purpose to suit the context	communicate all the required information with a clear sense of audience and purpose to suit the context	communicate all the required information with a clear sense of audience and purpose to suit the context

Source: International Baccalaureate Language Acquisition Guide (September 2020/January 2021)

Appendix F: Curriculum-Professional Connections

Each year, our faculty invites professionals to interact with our students on topics that are related to the curriculum. These curriculum-professional connections further bring our curriculum to life and expose our students to sophisticated content and perspectives as they see their academic life reflected in the world around them. Curriculum-professional Connections change yearly.

Sample of Curriculum-Professional Connections in the Last Five Years

Speaker/Title/Organization	Topic & Curriculum connection	Grades
Ms. Powell, an educator at The Interfaith Food Pantry Network, talked about the issue of hunger in our local communities and the role of the Interfaith Food Pantry Network in ending hunger and supporting self-sufficiency.	Raising Awareness of Food Insecurity-Community Project	8
Anthony Cortese has been the proud owner and leader of Split Rock Design, a design and build company created in 2016. After spending years in the Urban Planning profession, working for both the State of New Jersey and the City of New York as an Environmental City Planner, Anthony decided to join the landscape and hardscape world. While working, he began taking classes in Landscape Design and Horticulture at Rutgers University. It was at Rutgers that Anthony realized his passion for design and especially for ornamental plants. After years of education in these and other related areas, Anthony decided to launch Split Rock Design which fused his old-world knowledge, past down from generations, with modern design philosophies developed through years of academic pursuit.	Unit: Urban Planning: Design a Future Sustainable City Sustainable development	7,8
Dr. David Yermack, NYU Stern School of Business Chair and Professor, Dr. Yermack holds degrees from Harvard, Harvard Business School, and Harvard Law School. Known for the economic impact of Michelle Obama's clothing and Bitcoin	Technology Disruption around the globe - Economics Unit Google search data, social history, and hipster zeitgeist. Uber's impact on economics worldwide.	7,8
Hazel England, Director of Education and Outreach for the Great Swamp Watershed Association. Previously, she was a Naturalist for Somerset County Park Commission Environmental Education Center and as Executive Director of the Whitesbog Preservation Trust in the Pine Barrens. Hazel received her undergraduate	Water Safety - Science unit Weather and Climate Erosion, Hurricane Matthew, Damage in Haiti Interactive program: drinking, clean water, and wastewater through the ages. Pollution in the Passaic River	5,6

degree in Zoology and Botany from the University of Dundee, Scotland, and her masters in Ecology and Environmental Management from the University of Aberdeen.		
Marc Rogoff is a lead environmental education specialist, (aka "The Fossil Guy"), from The NJ Department of Environmental Protection. He visited 5th and 6th science classes during the Earth Science units. He provided interactive programming for 5th grade and educated then about the unique fossils of NJ and the geologic history of the state. Marc presented a climate workshop to the sixth grade during the weather and climate units.	Earth Science Units Weather and Climate Units	5,6
Emma Allen, designer, entrepreneur, and Sustainable Business Developer https://www.shopfaitlaforce.com/	Building a sustainable craft business Working in Haiti to establish sustainable craft businesses. Designing a website marketing products. Design Week: Creating a bag out of local Haitian materials and pricing it.	5,6,7,8
Clay Sherman, Environmental Engineer, Mary Washington U., Rutgers U., Army Corp of Engineers, US Environmental Protection Agency, and NJ Department of Environmental Protection in the Urban Planning and Flood Risk Reduction fields for over 16 years. He is the Project Manager for the groundbreaking 230 million dollar Hudson River Rebuild By Design project which is tasked with preventing significant damage from Sandy and Irene-type flood events in the highly urbanized municipalities of Hoboken, Jersey City, and Weehawken.	Blueprints for the Hudson River Rebuild by Design. Science unit Weather and Climate, Design Design week challenge- building a storm defense system for Haiti	5,6,7,8,

D. James Baker, Director, Forest and Land-Use Measurement, Clinton Climate Initiative Jim works with CCI's Ecosystems and Livelihoods program, providing technical advice on monitoring landscape use and protecting forests. Before coming to CCI, he was President of the Academy of Natural Sciences in Philadelphia and Administrator of the U.S. National Oceanic and Atmospheric Administration (NOAA) in the Clinton Administration. He was a scientific advisor on Al Gore's "An Inconvenient Truth" and co-founded and was the first President of The Oceanography Society. He has more than 100 scientific publications and is the author of the book Planet Earth: The View from Space. He holds a B.S. in physics from Stanford University, a Phd. in physics from Cornell University, and three honorary degrees.	Economics and development Sustainable development	5,6,7,8
James Roberts, a retired music teacher. Still records live concerts and makes CDs. Was a teacher of Music Technology at Randolph High School for many years. Also worked in recording studios and writing music for films.	Technology and innovation	7, 8
Matt Stephens, PhD, Vice President, Air Liquide. Dr Stephens is the inventor of several chemical process technologies and holds three U.S. patents. Mr. Stephens holds a Ph.D. in Chemistry from the U. of Wisconsin-Madison and completed an M.B.A. at INSEAD (Singapore). The Wharton School of Business. He graduated magna cum laude from Wabash College and was elected to Phi Beta Kappa.	Students learned about the process of Atomic Layer Deposition for the prevention of tarnish on silver	7, 8
Benton Campbell Ben Campbell joined Deloitte as the Deputy General Counsel for the Disputes, Consultations, and Regulatory Affairs ("DCRA") group in the Office of General Counsel in April 2014 after three years as a partner at Latham & Watkins in New York. Prior to joining Latham & Watkins, Ben served for more than 16 years with the Department of Justice, where he held a wide variety of positions, including, among others, Interim United States Attorney for the Eastern District of New York from 2007 to 2010, member of the Enron Task Force, and Principal Deputy	Ran a mock trial that combined elements of the Tinker vs. Des Moines case and pretending that Scout is 13 and protesting the arrest of Tom Robinson (From To Kill a Mockingbird)	7, 8

Assistant Attorney General and Chief of Staff to the Assistant Attorney General of the Criminal Division in Washington, DC. As the Deputy General Counsel for DCRA, Ben is responsible for managing a team of attorneys handling civil litigation and regulatory matters. He has extensive trial, appellate, and litigation experience as a prosecutor and civil attorney in a wide variety of matters. He also served as an ex officio commissioner on the United States Sentencing Commission from 2006 to 2007. Ben began his legal career as an associate at Kirkland & Ellis in Washington, DC, after graduating from the University of Chicago Law School in 1991 and received his undergraduate degree from Yale University in 1988.		