K-12 - The goals of the AES mathematics program are to enable students to:

- communicate mathematically
- reason mathematically
- make connections among mathematical concepts
- become problem solvers
- build conceptual understanding
- develop and utilize visual and spatial thinking skills
- become confident in their mathematical abilities
- apply mathematical modeling to real world situations
- effectively use appropriate technology
- appreciate the value and beauty of mathematics

K-12 - As educators, we will accomplish these goals by:

- providing meaningful problem solving opportunities
- providing opportunities for students to express mathematical ideas orally and in writing
- accommodating a wide variety of learning styles and offering opportunities to learn both cooperatively and individually
- offering a variety of activities with physical materials before emphasizing work with symbols
- utilizing appropriate tools and technology
- offering opportunities to develop and use the language and notation of mathematics
- using appropriate models to enable students to construct conceptual understanding
- encouraging students to make connections between mathematics and other disciplines

K-12 Math Standards

1. **Number and Operations**
- Understand numbers and relationships
- Understand meanings of operations
- Compute fluently and make reasonable estimates

2. **Algebra**
- Understand patterns, relations, and functions
- Represent and analyze mathematical situations using algebraic symbols
- Use mathematical models
- Analyze change in various contexts

3. Geometry
- Analyze characteristics and properties of two- and three-dimensional geometric shapes
- Describe spatial relationships using coordinate geometry
- Apply transformations and use symmetry
- Use visualization, spatial reasoning, and geometric modeling to solve problems

4. Measurement
- Understand measurable attributes
- Apply appropriate techniques, and formulas

5. Data Analysis and Probability
- Formulate questions, collect, organize, and display relevant data
- Select and use appropriate statistical methods
- Develop and evaluate inferences and predictions
- Understand and apply basic concepts of probability

6. **Problem Solving**
- Solve problems that arise in various contexts
- Apply and adapt a variety of appropriate strategies

7. Reasoning and Proof
- Make and investigate mathematical conjectures
- Develop and evaluate mathematical arguments and proofs
- Select and use various types of reasoning

8. Communication
- Organize and consolidate their mathematical thinking
- Communicate their mathematical thinking coherently
- Analyze and evaluate the mathematical thinking and strategies of self and others
- Use the language of mathematics to express mathematical ideas precisely

9. Connections
- Recognize and apply mathematics in various contexts
- Recognize and use connections among mathematical ideas and understand how they produce a coherent whole

10. Representation
- Create and use representations to organize and communicate mathematical ideas
- Select, apply, and translate among mathematical representations
- Use representations to model and interpret
- Select and apply mathematical representation

AES Curriculum Framework
(Math-MS/HS)

AES Mission: **The American Embassy School serves students from the United States and other nations. It provides a quality American education that enables students to be inspired learners and responsible global citizens through the collaboration of a dedicated faculty and a supportive community.**

We believe that:
- each individual has intrinsic value
- people are responsible for the choices they make
- diversity enriches us
- every person needs nurturing to thrive
- every person has a right to learn in a safe environment free of prejudice
- service to others strengthens us
- trust and respect are essential in relationships
- life is more meaningful when lived with integrity and passion
- every person has a responsibility to contribute to peace and harmony in the world
- every person has a responsibility to protect and pr the environment of our planet

We are committed to...
… developing a community service ethic and practice in all students.
... ensuring a caring school atmosphere is evident in how we work with students, families and one another.
... the practice of an open, transparent and collaborative decision-making process.
… reducing our school's environmental footprint.

K-12 Mathematics Philosophy:

Mathematics enables all students to develop competencies, conceptual understanding and reasoning skills leading to mathematical literacy and the appreciation of the role of mathematics in an increasingly technological world.

1. Curriculum (What we want students to learn..)

AES Standards (NCTM): What we want students to know, do, and understand.

Benchmarks (NCTM): What we want students to know, do, and understand by the end of course, grade level, or band of grade levels (ex. K-Gr. 2). Indicators of progress toward the standard at each level.

Unit Understandings:
The learning that is at the heart of the unit and that needs to be explored through a process of inquiry

Unit Essential Questions:
Questions that guide student inquiry to build understanding

Knowledge and Skills = Performance indicators:
We are using College Board Integrated performance indicators in units for each grade level that align with NCTM standards.

Sequence of Units:
Chart of key ideas and summary of performance indicators for unit sequence summary and of sequence of units grade 6-12

2. Assessment (Evidence of Learning)

- ***Formative:*** Assessment for learning that occurs throughout unit to help guide instruction and learning

- ***Summative:*** Assessment of learning that evaluates what student know, do, and understanding after they have been taught

- ***Common:*** A formative or summative assessment all teachers teaching the same course or grade agree to use to collect evidence of learning

3. Instruction

Key teaching strategies and learning activities:
Aligned to curriculum and assessment

Resources:

Materials/ resources used for Instruction:
Resources are the instructional tools we use in the classroom.