

COURSE OUTLINE: GRADE 7

MATHEMATICS

Course Description:

This course builds on the National Standard Curriculum Mathematics grades 7-9 APSE1 to further develop students' understanding of fundamental mathematical concepts by exploring topics related to number sense and numeration, measurement, geometry and spatial sense, patterning and algebra. Students will work with different types numbers while representing number system and performing addition and subtraction. Through investigation, students will measure with nonstandard units and begin to tell time. Students build their understanding of two- and three dimensional shapes, recognize symmetry, and describe location. Students will create patterns and establish an understanding of properties of Arithmetic such as Communicative, associative and Distributive. Throughout the course, students begin developing the mathematical processes of problem-solving, reasoning and proving, reflecting, selecting tools and computational strategies, connecting, representing, and communicating at a basic level. Through investigation of real-life problems, students develop a strong foundation of mathematical knowledge and skills. Students apply mathematical processes and build transferrable critical thinking skills in varied teaching and consolidation activities that appeal to diverse learning styles. Students participate in engaging activities along with materials that connect their learning to real-world contexts and build confidence

through facilitating a positive attitude towards mathematics. Various opportunities are provided to consolidate students' learning through technology and offline activities, including tactile manipulatives, to reinforce essential mathematical strategies and tools. The course has a strong focus on reinforcing number sense and numeracy skills and provides various activities for practice throughout. This course prepares students for grade 7 mathematics.

Resources Required by the Student

This course is entirely online and does not require nor rely on any textbook. Students will require the following resources:

- A scanner, smart phone camera, or similar device to digitize handwritten or hand-drawn work.
- A smart phone camera or similar device to take pictures of student work.
- A device to record audio
- A printer
- A physical binder, folder, or notebook for offline activities
- Various household items to complete offline activities

Resource require by teachers:

- White board

- A scanner, smart phone camera, or similar device
- Printer
- markers

Teaching and Learning Strategies

Through a balance of problem-solving and direct instruction, students develop a strong foundation of mathematical processes, knowledge, and skills to apply in real-world contexts. The Course Outline: Grade 7 Mathematics course utilizes a combination of technology and offline activities, providing opportunities to develop an understanding of skills and concepts in interactive and concrete ways and engage multiple learning styles. The lessons feature a variety of intriguing storylines, materials, videos, storybooks, and interactive games to reinforce students' learning. The activities also build a foundation of mathematical models and strategies that students will use throughout the grades level. The course relies on the assistance of a learning coach to support young students through the content. The learning coach will be involved in facilitating technical aspects of the course (e.g. printing and scanning printable activities) and participating in discussion-based activities to assist students in developing communication skills.

Reporting (Courses with Qualified Teacher)

Student achievement will be communicated formally to students via progress reports and official report cards. A progress report is provided after completion of the first unit in the course. The progress report is not an evaluation of the student's achievement. Rather, the purpose is to give students and parents early and specific feedback regarding the student's general progress during the first unit of study. Report cards are issued at the midterm point in the course as well as upon completion of the course. Each report card will focus on two distinct but related aspects of student achievement. First, the achievement of curriculum expectations is reported as a letter grade. Additionally, the course median is reported as a letter grade. The teacher will also provide written comments concerning the student's strengths, areas for improvement, and next steps. Second, the learning skills are reported as letter grades representing four levels of accomplishment. Upon completion of a course, GHS will send a copy of the report card to the student's home school where the course will be added to the ongoing list of courses on the Student Record (SR). The report card will also be sent to the student's parents.

General Objectives:

On completion of this Section, students should have/ be able:

1. An understanding of how to use basic operation, number relationships, pattern, number facts, calculators and software to compute and estimate in order to solve real- world problems involving fractions, percentage and decimals.
2. Use correct units, tools and attributes to estimate, compare and carry out the process of measurement to given degree of accuracy.
3. Explore paths, geometric shapes, and space and make generalizations about geometric relationships within the environment.
4. . An understanding of how to use basic operation, number relationships, pattern, number facts, calculators and software to compute and estimate in order to solve real- world problems involving fractions, percentage and decimals.

Assessment Weighting:

Classwork: 25%

Tests: 15%

Exam: 45%

Attendance: 5% (absent for 50% of classes = 0%)

Punctuality: 5% (late for more than 50% of classes = 0%)

Participation: 5% (participate in less than 50% of classes = 0%)

Learning Outcomes:

Upon completion of this section students should be able to:

1. Accurately recognize the difference between sets of real numbers.
2. Order real numbers correctly.
3. Apply divisibility rules correctly.
4. Perform the four basic operation correctly.
5. Safely conduct investigation using digital content.

6. Engage in problem solving situations involving measurement.
7. Complete tables with researched information on aspect of measurement.
8. Complete table with measures of area and perimeter of objects.
9. Model areas of perimeter using software.
10. Use ICT tools to investigate measurement.
11. Complete tables on solid correctly.
12. Sketch solids accurately
13. Find Euler's Formula.
14. Get involved in group activities and discussions.
15. Engage in problem-solving situations.
16. Manipulate software.
17. Model arithmetic properties accurately.
18. Engage in problem solving situations.



Course Details

Date	Topics	Specific Objectives	Assignments	Resources
Week One-four of October	Operation on Real Numbers	<ul style="list-style-type: none"> • Describe different types of numbers in the real number system(Natural, Whole, Integer, Rational, Irrational) • Compare and order a set of numbers • Perform the four basic operation; including multiple operations, on real numbers, mentally. • Give reasonable estimation of the results of operations on numbers • By rounding off, approximate a given number to the nearest thousandths, hundredths, tenths, tens, hundreds, thousands, etc); • Identify, without calculation, whole numbers divisibility by 2, 3, 5,6 and 9 (divisibility rules). 	Students will research and write the different types of numbers.	
Week one-three of November	Measurement- Measurement Concepts	<ul style="list-style-type: none"> • Measure length, mass, time, temperature, Volume, Capacity using approximate instruments. • Perform conversions within units and across related units (Square units). • Find the perimeter of composite figures in a plane. • Find the area of composite figure in a plane. 	Students will be given the SI table to research instruments and present on instruments.	Straw, paper clips, ruler, tape.
Week four of November	Geometry - Solids	<ul style="list-style-type: none"> • Identify and draw nets of solids • Construct solids from nets. 	Students will be asked create solids from materials and present to the class	
Week one of December	Geometry: Transformation	<ul style="list-style-type: none"> • State the relationships between an object and its image in a plane when undergoes a translation in that plane. • State the relationships between an object and its image in a plane when it is reflected in a line in that plane 		

		<ul style="list-style-type: none"> • State the relationships between an object and its image in a plane when it is rotated about a point (center of rotation) in that plane • Identify and use angle, side and symmetry properties of triangles and quadrilaterals; 		
Week two of December	Geometry: geometric construction	<ul style="list-style-type: none"> • State the relationships between an object and its image in a plane when it undergoes a translation in that plane • Construct, using appropriate geometric instruments; a circle of a given radius; • Construct using ruler and compasses only: <ol style="list-style-type: none"> a) Line segment b) Perpendicular and parallel lines c) Line bisectors 		
Week one-three of January	Numbers: Properties of Arithmetic, Ratio, and Proportion	<ul style="list-style-type: none"> • Identify and use the following properties of arithmetic <ol style="list-style-type: none"> a) Commutative b) Associative c) Distributive • Identify and use the following concepts: <ol style="list-style-type: none"> a) Identity b) inverse 		

The Final Grade (Courses with Qualified Teacher)

Student evaluation in this course is based on the student's achievement of curriculum expectations. The final letter grade represents the quality of the student's overall fulfilment of the expectations for the course and reflects the corresponding level of achievement as described in the achievement chart for the discipline. The final grade reflects the student's most consistent level of achievement across all units in the course, although special consideration is given to more recent evidence of achievement. There are assessment, such homework assignments, quizzes, including computer activities that deepen the level

of understanding, writing assignments designed to develop communication of mathematical concepts, student projects, and final examinations, in this course, in this course.

Recommended text:

A complete Mathematics Course for Secondary Schools Book 1. Author: Raymond Toolsie

