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LEARNING UNIT PLAN

DALFYS

DATA Literacy competences For Young students towards STEAM education
2020-1-IT02-KA226-SCH-095305

Title	Functions with Data Literacy Steps
Outcome	To solve functions and their applicaiton problems
Target (indicate the age of students)	16-year-old / 10 th Grade
Pre-requisites (indicate what student should know before starting this learning unit contents)	Students should know following topics: <ul style="list-style-type: none"> • Equations • Factorization • Using computer and graphic calculator
Period of application (indicate when you start and when you end the learning unit)	31 October-4 November,2022 7 lesson
Assessment (how does this lesson relate to assignments/homework/readings)	Formative assessment: Classroom collaboration and activities Functions worksheets Summative assessment: Exams, Past paper questions
Goals of the unit	To analyse and identify Lines and Quadratics, Functions, domain, range, graph, Composition of functions, The inverse function, Transformations of functions, Asymptotes, The exponential and logarithmic functions.
Competence/s	Data Collection, Teamwork, Critical Thinking, Problem Solving, Evaluating/Reflecting
Evaluation	Assessments will be used.
Description of the steps	
1st step	
Name of the teacher: Gamze Sezgin	
Subject: Mathematics	
Knowledge	Skills
Function notation	To be able to write a function with the help of variables.
Functions and their graphs	To be able to identify functions and their graphs in their team groups.

Content:	Content of this part cover introduction to functions , their notations and graphs.
Description of the Activity:	Students will learn different representations of functions, symbolically and visually as graphs, equations and tables, provide different ways to communicate mathematical relationships while searching properties of function on internet. They will collect data related with special functions and they will try to match them with teamwork.
Time (indicate how many hours of lessons are needed)	1 hour
Used resources:	IB books and the internet.
Students accomplishment:	They will accomplish to collect information related to functions.
Method	Guided Instruction Inquiry based learning
Tools	Books, Notes paper, Phone (to use the internet) or computer and graphic calculator.
2st step	
Name of the teacher: Gamze Sezgin	
Subject: Mathematics	
Knowledge	Skills
Special functions and their graphs	<ul style="list-style-type: none"> - Graphing a function - Solving applications on functions
Sketching functions graphs	<ul style="list-style-type: none"> - Modelling of real life situations
Functions Transformation	<ul style="list-style-type: none"> - Using technology to observe transformations
Content:	Functions Graphs, Their Transformation and Real Life Application
Description of the Activity:	After the class is divided into 5 groups, they will do research by using their phones according to their worksheet. They will take notes or answer the questions related with topic by sharing their research with to another. After finding the names and graphs of functions, students will use graphic calculators to understand their transformations and explore transformation names and rules together. Finally, they will write the real-life question as a function and create its graph.
Time (indicate how many hours of lessons are needed)	3 hours
Used resources:	IB books and the internet.
Students accomplishment:	<ul style="list-style-type: none"> - Students will move between different forms to represent functions allows for deeper understanding and provides different approaches to problem solving. - Students may be represented graphically and algebraically and represents the solution that satisfies the funcions.

Method	Interactive Teaching, Experiential Learning,
Tools	Computer, graphing calculator, Activity worksheet
3st step	
Name of the teacher: Gamze Sezgin	
Subject: Mathematics	
Knowledge	Skills
<ul style="list-style-type: none"> - Functions, - Functions Graphs - Transformation 	<p>Students will be thinking through brain-storming and discussions in class. Group work will be motivated. Appropriate homework especially similar to Section IB type and challenge questions will empower thinking process. Flipped classroom activities, like some videos in Khan Academy web-site, will help them to develop metacognition self-management skills.</p> <p>Discussion will be developing their reflection and communication skills.</p>
Content:	Evaluation of outcomes
Description of the Activity:	Students will be grouped differently from their previous groups. They will answer the questions and design a concept map according to the reflection worksheet which they have. After the first 15 minutes of the lesson, the groups will share what they have learned with 5-minute presentations.
Time (indicate how many hours of lessons are needed)	1 hour
Used resources:	All previous materials
Students accomplishment:	<ul style="list-style-type: none"> - They will analyse what did learn in the previous lessons, - They will reflect their knowledge and skills - They will accomplish to work together and communicate with each other
Method	Student-centre Case-based Learning
Tools	Groups and reflection paper