6th Grade Talented and Gifted

Sayreville Middle School

Full year

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Course Overview

Statement of Purpose

The purpose of the 6th Grade Talented and Gifted Program is to foster innovative thinking, sophisticated problem-solving, and entrepreneurial mindsets in academically advanced students who have been identified using multiple measures. By engaging weekly in a collaborative, project-based environment, students will explore the intersections of science, technology, engineering, and economics. The program aims to cultivate a growth mindset by framing failure as an iterative steppingstone toward success. Through the real-world application of deductive reasoning, economic planning, and physical modeling, students develop the leadership and analytical skills necessary to excel in an increasingly complex global marketplace.

Overview

The 6th Grade Talented and Gifted (TAG) Program provides an advanced, interdisciplinary learning environment designed to challenge intellectually curious students. Meeting weekly, this specialized curriculum empowers students to transition from consumer to creator by integrating STEM, entrepreneurship, and high-level cognitive reasoning. Students will apply the Engineering Design Process alongside creative, inventive, and deductive skills to navigate complex, open-ended challenges. The capstone learning experience requires students to establish a mock business and systematically design a comprehensive theme park featuring a functional, physically accurate roller coaster model.

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6th Grade Talented and Gifted

Content Area: **Talented and Gifted**
Course(s): Talented and Gifted
Time Period: Full Year
Length: 33 weeks
Status: **Not Published**

Section Title

TAG - Grade 6

Summary of the Unit

Sixth-grade students identified for the pull-out Talented and Gifted (TAG) program through multiple assessment measures will participate in weekly small-group enrichment sessions led by a district TAG teacher. These specialized learning experiences are designed to extend and enrich advanced learners' academic growth through engaging STEM challenges, higher-level critical thinking activities, creative problem-solving opportunities, and exploration of high-interest topics. Students will engage in hands-on science, technology, engineering, and mathematics (STEM) investigations, solve complex logic and reasoning challenges, and pursue student-driven projects and in-depth studies of unique areas of interest. Through these enrichment experiences, students will strengthen and apply advanced analytical, deductive, creative, inventive, evaluative, and visual-spatial thinking skills while fostering intellectual curiosity and independent learning.

Enduring Understandings

Failure is an essential part of learning. It reveals flaws and provides the necessary data to make improvements.
There is rarely a single right answer. Multiple successful solutions can exist for the exact same problem.
Engineers work within constraints. Real-world designs always require balancing limitations like time, money, and materials.
Design is a continuous loop. It constantly circles back to testing and refining.
Feedback loops are critical. Peer critiques and user testing provide essential insights that the original designer might miss.
Entrepreneurship drives innovation by identifying societal gaps and creating targeted, viable solutions.
Failure is a critical, informative component of the iterative design and business cycle.
Success relies heavily on data-backed storytelling, clear value propositions, and public speaking.
Viable businesses require a strict balance between production costs, pricing strategies, and profit margins.
Potential energy converts into kinetic energy to drive motion, while friction removes energy over time.

Essential Questions

Why is it important to follow a design process when developing solutions to a design challenge?
Why should we evaluate design solutions at intervals?
What is the problem we are trying to solve, and why does it matter?
What scientific concepts or mathematical tools do we need to understand to solve this?
How will we know if our design is successful?
What failure points did we discover during testing, and how can we fix them?
How effectively did our team collaborate to solve this challenge?
How do entrepreneurs identify problems that are worth solving?
How does understanding a target audience change a product's design?
What makes a business idea sustainable rather than just creative?
How do cost, price, and profit determine the survival of a business?

How do you convince someone to invest in your idea over another?
How do we represent a large physical space accurately on a small piece of paper?
How does energy change form as a roller coaster moves along a track?

Summative Assessment and/or Summative Criteria

Assessment is primarily formative classroom observations. Others include anecdotal records, student/teacher conferences, running records, worksheets, and prototypes.
Some summative assessment may be used for identification such as:
Benchmark assessments, LinkIt Assessments, NNAT3, Williams CAP

Resources

Power Point Presentations
Resource Folder Worksheets (planning guides, challenge tasks)
http://www.ted.com/talks/tom_wujec_build_a_tower
Pringle Challenge: https://www.youtube.com/watch?v=DT9UOu_d4hk
Shark Tank https://www.youtube.com/watch?v=k3PY_p_M-8w&t=187s
https://www.youtube.com/watch?v=zSCCKnkyHNM
https://www.youtube.com/watch?v=WpPhs7OipzQ

Unit Plan

Topic/Selection Time Frame	General Objectives	Instructional Activities	Standards
Topic: TAG Class Introduction & Activities Time Frame: 1 week	SWBAT list responsibilities of a TAG student and class expectations SWBAT demonstrate their ability to follow directions and creativity by participating in the game, "The Quest" and digital and physical classroom escape rooms.	Discussion of responsibilities and expectations for class. Students will participate in two icebreaker activities. Students will organize into groups of 5 to participate in "The Quest." Each group will work together to solve various types of problems as quickly as possible testing their collaboration, creativity, and critical thinking skills. Students will organize into groups of 3-4 to solve digital and physical classroom escape rooms with tasks focused on creativity and critical thinking skills.	GIFT.PK-12.2.1.1 GIFT.PK-12.3.4.2 GIFT.PK-12.1.1.3 GIFT.PK-12.1.2.3

Topic: The Engineering Design Process Timeframe: 1 week	SWBAT explain and demonstrate the engineering design process. SWBAT evaluate competing designs for successes and failures and provide feedback.	The Marshmallow Challenge Introduce students to the Engineering Design Process Students will be arranged in groups of 3 or 4 and use the "Marshmallow Kit" to build the highest free-standing structure they can in 18 minutes time. Students will measure their structures and a winner will be announced. They will compare designs for best ideas and provide feedback.	SCI.MS.ETS1.A SCI.MS-ETS1-2 SCI.MS-ETS1-4 **9.4.8.CI.3** **9.4.8.CT.2**
Topic: The Engineering Design Process Timeframe: 1 week	SWBAT explain and demonstrate the engineering design process. SWBAT apply scientific principles to solve design problems.	The Pringle Challenge Explain how friction, gravity, and compression forces stabilize a structure. Students will be arranged in groups of 2 or 3 and given a planning sheet and can of Pringles to build a ring of potato chips following the Engineering Design Process. Students may only use the whole chips in the can. Followed by a class discussion & Power Point presentation on design successes and failures.	SCI.MS.ETS1.A SCI.MS-ETS1-2 SCI.MS-ETS1-4 **9.4.8.CI.3** **9.4.8.CT.2**
Topic: The Engineering Design Process Timeframe: 2 weeks	SWBAT explain and demonstrate the engineering design process.	Bone Bridge Challenge	SCI.MS.ETS1.A SCI.MS-ETS1-1

	SWBAT identify design constraints like time, budget, and materials when building. SWBAT analyze designs for successes and failures and provide feedback.	Explain and discuss examples of constraints in engineering. Students will work in teams of 2 to 3 with a planning sheet to build a bone bridge using the criteria and constraints listed: must hover at least one inch above the building surface, must measure at least one inch wide, build as long as possible, use only the material issued, 30-minute time limit, and gaps between bridge planks must be small enough for a penny to lay flat and not fall through. Followed by an evaluation of structures for successes and failures and the effect of constraints.	SCI.MS-ETS1-2 **9.4.8.CI.2** **9.4.8.CI.3** **9.4.8.CT.2**
Topic: The Engineering Design Process Real World Timeframe: 2 weeks	SWBAT design, construct, and test a model building that can withstand simulated earthquake vibrations, using the engineering design process to improve the stability of their structure.	Ask students how can engineers design buildings that remain safe during earthquakes? Discuss what causes earthquakes? Why do some buildings collapse while others stay standing? How do engineers make structures safer? Students will work in groups of 2-3 and will sketch a tower that is at least 12 inches tall and predict what features will help it withstand shaking. Students will construct their tower using only the	SCI.MS.ETS1.A SCI.MS-ETS1-1 SCI.MS-ETS1-2 **9.4.8.CI.2** **9.4.8.CI.3** **9.4.8.CT.2**

		provided materials. Students will test their tower by placing it on the shake table and simulate an earthquake by gently shaking the platform. Students will record did the tower remain standing? How much shaking could it withstand? What parts were weakest? Then students will redesign and strengthen their structures based on test results. Students will retest their improved towers and compare results.	
Topic: Be Your Own Boss Timeframe: 2 weeks	SWBAT define risk and entrepreneur. SWBAT determine their entrepreneurial potential by taking a self-assessment. SWBAT identify and explain the 10 talents of a successful entrepreneur. SWBAT analyze a business buster problem, generate solutions, and list at least 3 of the entrepreneurial talents that apply.	Be Your Own Boss: Entrepreneurs Students will take the Entrepreneurial Self-Assessment survey and discuss the results. Using a Power Point presentation, discuss what an entrepreneur is, Mark Zuckerberg risk quote, and the 10 talents needed to be a successful entrepreneur. Using a Power Point presentation, students will break into groups of 2-3 and become business partners. Students will create a business name and identify goods or services they would provide. Students will brainstorm solutions for business buster problem	GIFT.PK-12.3.4.2 GIFT.PK-12.4.1.1

		scenarios and incorporate at least 3 talents needed to be successful in their problem-solving explanation. Groups will share their solutions and talents.	
Topic: Be Your Own Boss Timeframe: 2 weeks	SWBAT list the steps to beginning a business. SWBAT explain and critique a pitch for a business proposal using clips of "Shark Tank."	The Pitch Students will brainstorm the steps to beginning a business and then put them in timeline order. Explain what an elevator pitch is and how to evaluate a pitch, product/idea, and marketability. Students will use a checklist to critique pitches from the show, Shark Tank. Then discuss their responses.	GIFT.PK-12.4.1.1 GIFT.PK-12.3.2.2
Topic: Be Your Own Boss Timeframe: 2 weeks	SWBAT explain and identify a specific target consumer market for various products. SWBAT create upgrades for a product to change the target market audience.	Target Market Audiences Show a commercial for a product clearly aimed at kids vs. one for adults and discuss who is this trying to sell to, and how do you know. Define target market (the specific group of people most likely to buy a product) and explain how age, interests, and needs effects a products value. Discuss value proposition (a clear statement of why a customer should buy their item instead of a competitor's) and have students practice this with 3 different products.	GIFT.PK-12.4.1.1

		Students will work in pairs to map out a target market for an ordinary notebook and then brainstorm upgrades for it. Students will fill in a profile sheet detailing their target audience and the two best additional features for their upgraded notebook.	
Topic: Be Your Own Boss Timeframe: 3 weeks	SWBAT explain and identify what a slogan and logo is and their importance to a brand. SWBAT design and create a slogan and logo presentation for a fake product called "Yummies."	Slogans & Logos Using PowerPoint presentation discuss slogans and logos. Students will brainstorm as many slogans as they can. Students will identify logos playing a Kahoot. Students will create and design a slogan & logo for the fake product called "Yummies" which are all natural, 10 calorie, delicious cookies filled with vitamins and minerals. Students will present their ideas.	GIFT.PK-12.3.4.2
Topic: Be Your Own Boss Timeframe: 2 weeks	SWBAT calculate the production cost, selling price, and potential profit for an item. SWBAT compare revenue and cost data to determine profitability of an entrepreneurial venture.	Business Financials Ask students, "If a lemonade cup costs $0.50 to make, and you sell it for $2.00, how much money do you keep?" Define expense, revenue, and profit. Students will work in groups of 2-3 to complete a profit projection form for their hamburger business. Students will research prices, compare costs, and make choices for their business with the	GIFT.PK-12.4.1.1 GIFT.PK-12.3.2.2 **9.2.8.CAP.20**

		result being is their business profitable, why or why not, and what changes can they make to earn a higher profit? Students will present their findings.	
Topic: Be Your Own Boss Timeframe: 4 weeks	SWBAT create a business plan which includes a name, description, slogan, logo, target audience, list of competitors and marketing strategies for an original product or service.	The Business Plan Students will brainstorm their big idea for a product or service and fill in a Product/ Service Profile. Information included in the profile will include a name survey, description, slogan, logo, target audience description, list of competitors, and marketing strategies. The information will be used to create a two-minute presentation.	GIFT.PK-12.3.4.2 **9.2.8.CAP.20** **9.4.8.DC.2** **9.4.8.IML.12**
Topic: Be Your Own Boss Timeframe: 2 weeks	SWBAT deliver a 2-minute verbal sales pitch on their product or service. SWBAT evaluate peer presentations constructively based according to a rubric.	The Elevator Pitch Presentations Discuss public speaking tips such as eye contact, speaking slowly, and standing up tall. Students will have time to practice their 2-minute elevator pitch. Students will take the podium to pitch their product using their presentations. The audience can ask questions and evaluate the pitch using a rubric. The audience will share their evaluations and decide they would invest in the idea.	GIFT.PK-12.4.1.1 **9.4.8.IML.12**
Topic: Amusement Parks Timeframe: 3 weeks	SWBAT design a scaled amusement park map based on a specific theme.	The Amusement Park Students will complete the Royal Castle Map worksheet.	GIFT.PK-12.3.4.2 GIFT.PK-12.4.1.1

	SWBAT apply a mathematical scale factor to measure real-world dimensions for an amusement park.	Discuss favorite and least favorite amusement park rides. Introduce a mathematical scale factor such as 1cm = 10 physical meter using Power Point. Have students work collectively to measure then create the scale on graph paper. Students may work alone or in pairs to complete the Amusement Park Challenge planning guide to choose a theme and design an amusement park map with 5 rides, restrooms, parking, 3 additional facilities, symbols, and a legend.	
Topic: Amusement Parks Timeframe: 3 weeks	SWBAT design a scaled amusement park map based on a specific theme.	The Amusement Park Map Students will draw their scaled map with 5 rides, restrooms, parking, 3 additional facilities, symbols, and a legend. Students will present final products for feedback.	GIFT.PK-12.3.4.2 GIFT.PK-12.4.1.1 **9.4.8.IML.12**
Topic: Amusement Parks Timeframe: 3 weeks	SWBAT identify areas of maximum potential and kinetic energy on a roller coaster track. SWBAT construct a working track model where a marble successfully navigates at least one loop and one turn using gravity.	Build Your Roller Coaster Discussion of kinetic energy (KE) and potential energy (PE) using classroom ramps to demonstrate how height transforms into speed. Review the Engineering Design Process. Students will choose to work alone or in pairs and	SCI.MS.ETS1.A SCI.MS-ETS1-4 GIFT.PK-12.4.1.1 **9.4.8.CI.3** **9.4.8.CT.2**

		sketch their roller coaster blueprint labeling their maximum potential and kinetic energy. Students will use the Roller Coaster Kit to construct their roller coaster with one loop and one turn. Students will demonstrate their roller coasters. They will compare designs for best ideas and provide feedback.	

Standards

GIFT.PK-12.1.1.2 Educators engage students with gifts and talents in identifying their intellectual, academic, creative, leadership, and/or artistic abilities.

GIFT.PK-12.1.2.3 Teachers create a learning environment that promotes high expectations for all children, support for perceived failures, positive feedback, respect for different cultures and values, and addresses stereotypes and biases.

GIFT.PK-12.2.1.1 Educators develop environments and instructional activities that encourage students to express diverse characteristics and behaviors that are associated with giftedness.

GIFT.PK-12.4.1.1 Educators maintain high expectations for all students with gifts and talents as evidenced in meaningful and challenging activities.

GIFT.PK-12.3.4.1 Educators use critical-thinking strategies to meet the needs of students with gifts and talents.

GIFT.PK-12.3.4.2 Educators use creative-thinking strategies to meet the needs of students with gifts and talents.

GIFT.PK-12.3.2.2 Educators use metacognitive models to meet the needs of students with gifts and talents.

GIFT.PK-12.3.3.3 Educators provide opportunities for students with gifts and talents to explore, develop, or research their areas of interest and/or talent.

SCI.MS.ETS1.A Defining and Delimiting Engineering Problems

SCI.MS-ETS1-1 Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.

SCI.MS-ETS1-2 Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.

SCI.MS-ETS1-3 Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success.

SCI.MS-ETS1-4 Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.

Suggested Modifications for Special Education, ELL and Gifted Students

All students who demonstrate characteristics of giftedness will have access to a variety of enrichment opportunities and resources designed to support advanced learning. To ensure equitable access, enrichment experiences include multiple entry points, such as nonverbal and hands-on activities, that are particularly supportive of twice-exceptional learners and English language learners. Gifted students are encouraged to self-select learning experiences that align with their strengths, interests, and talents, allowing them to explore areas of passion, deepen their understanding, and develop their abilities at an appropriate pace.

Suggested Technological Innovations/Use

Discovery Education, Codeacademy.com, Python.org, Gamestar Mechanic, MIT App Inventor

Cross Curricular/Career Readiness, Life Literacies and Key Skills Practice

Lessons encourage 21st century skills including: collaboration, communication, creativity, critical thinking, and character. These soft skills promote career readiness and are requisites for success in all curricular areas.

9.2.8.CAP.20 [*Performance Expectation*] - Identify the items to consider when estimating the cost of funding a business.

9.4.8.CI.2 [*Performance Expectation*] - Repurpose an existing resource in an innovative way (e.g., 8.2.8.NT.3).

9.4.8.CI.3 [*Performance Expectation*] - Examine challenges that may exist in the adoption of new ideas (e.g., 2.1.8.SSH, 6.1.8.CivicsPD.2).

9.4.8.CT.2 [*Performance Expectation*] - Develop multiple solutions to a problem and evaluate short- and long-term effects to determine the most plausible option (e.g., MS-ETS1-4, 6.1.8.CivicsDP.1).

9.4.8.DC.2 [*Performance Expectation*] - Provide appropriate citation and attribution elements when creating media products (e.g., W.6.8).

9.4.8.IML.12 [*Performance Expectation*] - Use relevant tools to produce, publish, and deliver information supported with evidence for an authentic audience.