Unit 2: Grades 5 &6 Talented & Gifted Math

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Department of Curriculum and Instruction

Belleville Public Schools

Curriculum Guide

Talented and Gifted

5th and 6th Grade

MATH

Belleville Board of Education

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Unit Overview

PHILOSOPHY

The philosophy of the Talented & Gifted Program for Belleville Public Schools is to recognize the unique talents and capabilities of all students. Students who demonstrate exceptional abilities require a challenging and a differentiated curriculum. We recognize that students learn in different ways and posses different experiences and levels of understanding. Students deserve an educational environment that is challenging, stimulating, individualized, and learner driven. The curriculum has been designed to maximize students' creative, cultural, and cognitive needs. The cornerstone belief of the Talented & Gifted program is that children learn best when they are actively engaged in the quest for knowledge.

PURPOSE

The purpose of the Belleville School District Talented & Gifted Program:

- Provides students with learning experiences to increase their cognitive and affective abilities through frequent applications of creative thinking, problem solving, critical thinking, exploration, discovery, and experimentation.
- This program will provide educational opportunities and activities to every student in his/her personal learning style, to include visual-spatial, musical, naturalist, bodily kinesthetic, interpersonal, intrapersonal, linguistic, verb-linguistic, and logical-mathematical.
- Students will be encouraged to develop and apply higher level thinking processes to become producers of information, as well as consumers of information.
- The program will enhance each student’s level of understanding concepts, ideas, and issues in the areas of knowledge, comprehension, application, analysis, synthesis, and evaluation.
- The intellectual architecture of this unit will be fueled by teacher designed lessons that build upon identified students' strengths, interests, and talents.

- The program is designed to be student driven in which the teacher acts as a facilitator, guide, or resource for personal or small group inquiries and investigations.
- The three characteristics used for identifying students are above average ability, task commitment, and creativity.
- Provide a three-part model of learning activities which would include Tier One as whole group instruction in the classroom setting during the school day, Tier Two as small group instruction and planned activities in the classroom setting during the school day involving cross-curricular involvement, and Tier Three as a pull out enrichment program for students in grades Kindergarten through sixth who meet the established criteria.
- The students are identified based on unique talents, abilities, and interests to form a talent pool.

At the Kindergarten-2nd grade levels, enrichment is intended for all students. It will be available to encourage students, and give them additional opportunities to achieve their highest potential. A pull out program in grades seven and eight has been designed for those students who demonstrate exceptional ability, talent, and potential. Students chosen to participate in this program will be required to meet established acceptance criteria.

TALENTED & GIFTED PULL OUT PROGRAM GOALS

1. Provide a differentiated curriculum for students who demonstrate exceptional cabilities and potential.
2. Identify and support each student's personal style to promote academic, social, and emotional growth for potential success.
3. Provide opportunities for students to pursue long-term investigations of personal interests.
4. Provide activities that promote growth and stimulation in higher cognitive processes such interpretation, analysis, application, synthesis, and evaluation.
5. To engage students in rich academic experiences coupled with high expectations, which will afford them opportunities to make meaningful connections between their learning and the larger world.
6. Develop an understanding of their own talents and interests in order to select and pace learning experiences necessary to become more self-directed learners.

TALENTED & GIFTED PROGRAM OBJECTIVES

1. The student will participate in learning activities in which one or more of the following strategies for differentiated instruction will be employed: interest groups, independent projects, learning centers, and tiered assignments.
2. The students will be exposed to a personal interest survey to help them focus their questions for personal or small group inquiry and investigation in grades Kindergarten through second.
3. The students will participate in analysis and synthesis of information facilitated by, but not limited to, real world problem solving, mentorship, product creation, presentation, and self-evaluation.
4. Students will select topics of personal interest that they will research, engage in problem solving, and create solutions that are tied to real world application.
5. The students will use technological resources to facilitate their investigations.

GUIDELINES FOR INSTRUCTIONAL ACTIVITIES

Activities will include but not be limited to:

1. Personal interest inventories, and investigations pursuing those interests.
2. Inquiry of questions related to or arising from regular classroom studies or those proposed by the instructor.
3. Exploratory activities.
4. Student opportunities to engage in new endeavors involving questioning and investigation to secure new knowledge.
5. Those that encourage students to question, make inferences, and find evidence to support generalizations.

UNIT TWO: MATH

Unit Two of the T&G Enrichment Curriculum will focus on different aspects to broaden student's understanding of Math concepts.

Enduring Understandings

1. Students will understand the importance of becoming independent thinkers and problem solvers.

2. Students will understand that many solutions exist when solving a problem.

3. Students will understand that it is vital to use multiple resources when completing research.

4. Students will understand the importance of respect and collaboration when working with team members to solve problems.

Essential Questions

1. Why is it important to become an independent thinker?

2. What is financial literacy and why is financial literacy important?

2. How would the world be different if there weren't any problem solvers?

3. Why isn't there just one approach to solving a problem?

4. When completing research, why is it important to cross-reference different materials?

5. Why is collaboration necessary for effective problem solving?

6. What are some examples of experimenting with perspective in mathematics?

7. How can changing your perspective lead to better understanding of a problem?

Exit Skills

By the end of this unit students will be independent thinkers and problem solvers utilizing the skills taught within the Talented and Gifted Program.

New Jersey Student Learning Standards (NJSLS)

MA.5.OA.A	Write and interpret numerical expressions.
MA.5.NBT	Number and Operations in Base Ten
MA.5.NBT.B	Perform operations with multi-digit whole numbers and with decimals to hundredths.
MA.6.NS.B	Compute fluently with multi-digit numbers and find common factors and multiples.
MA.5.NF.B	Apply and extend previous understandings of multiplication and division to multiply and divide fractions.
MA.5.NF.B.5	Interpret multiplication as scaling (resizing), by:
MA.5.NF.B.6	Solve real world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem.
MA.5.NF.B.7	Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions.
MA.6.EE	Expressions and Equations

MA.5.MD.B	Represent and interpret data.
MA.6.EE.C	Represent and analyze quantitative relationships between dependent and independent variables.
PFL.9.1.8.A.6	Explain how income affects spending decisions.
PFL.9.1.8.B	Money Management
PFL.9.1.8.B.2	Construct a simple personal savings and spending plan based on various sources of income.
PFL.9.1.8.B.5	Explain the effect of the economy on personal income, individual and family security, and consumer decisions.
PFL.9.1.8.B.7	Construct a budget to save for long-term, short-term, and charitable goals.
PFL.9.1.8.B.8	Develop a system for keeping and using financial records.
PFL.9.1.8.B.9	Determine the most appropriate use of various financial products and services (e.g., ATM, debit cards, credit cards, check books).
PFL.9.1.8.B.11	Evaluate the appropriate financial institutions to assist with meeting various personal financial needs and goals.
TECH.8.1.5.A.1	Select and use the appropriate digital tools and resources to accomplish a variety of tasks including solving problems.
TECH.8.1.5.F	Critical thinking, problem solving, and decision making: Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources.

Interdisciplinary Connections

The T&G Curriculum areas of divergent thinking, convergent thinking, visual/spatial perceptions, interpretive thinking, and problem solving are integrated with Language Arts, Math, Science, and other content areas.

Learning Objectives

Students will demonstrate ability to apply higher level thinking skills

- apply skills in the acquisition and production of new knowledge
- plan and create a financial plan on a budget and demonstrate financial literacy in managing finances
- research and and plan a trip on a budget
- create and manage financial budgeting plans to demonstrate financial literacy
- develop skills and strategies that promote personal and financial responsibility related to financial planning, savings, investment, and charitable giving in the global econo

Students will be able to refine and broaden

- I. Divergent thinking (NJSLS Reading: Informational Text; Reading Literature; Writing; Speaking and Listening; Language)

    a. Creative thinking

b. Inventive thinking

2. Convergent thinking (NJSLS: Reading: Informational Text; Speaking and Listening)

a. Deductive thinking

b. Analytical thinking

c. Evaluative thinking

3. Interpretive thinking (NJSLS: Reading: Informational Text; Reading Literature; Writing; Speaking and Listening; Language, NJCCCS 5.2)

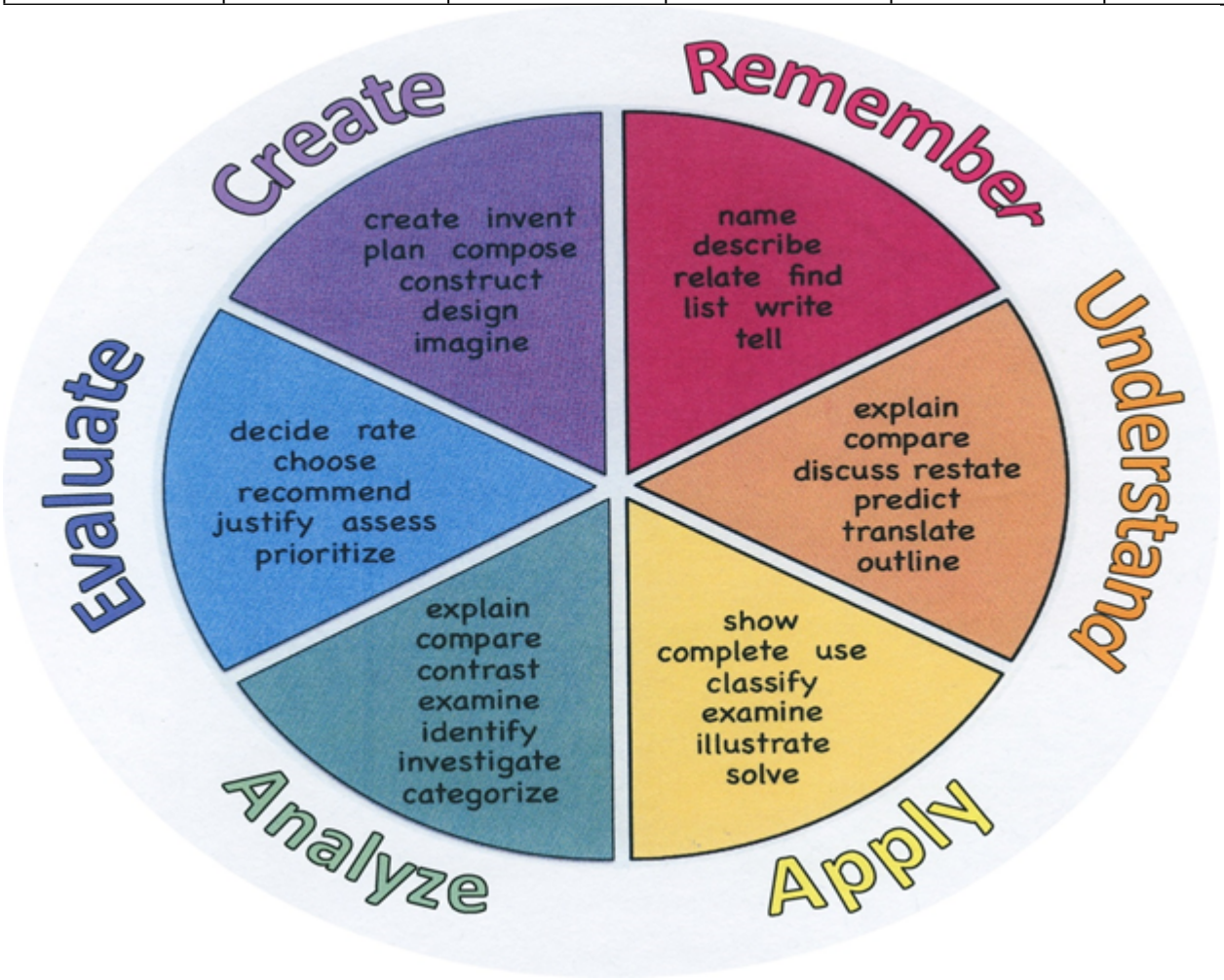
4. Problem solving (NJSLS 5.12, 6.6; Core Standards: Reading: Informational Text; Writing; Speaking and Listening)

5. Research Skills (NJSLS: Reading: Informational Text; Reading Literature; Writing; Speaking and Listening; Language)

Action Verbs: Below are examples of action verbs associated with each level of the Revised Bloom's Taxonomy.

Remember	Understand	Apply	Analyze	Evaluate	Create
Choose	Classify	Choose	Categorize	Appraise	Combine
Describe	Defend	Dramatize	Classify	Judge	Compose
Define	Demonstrate	Explain	Compare	Criticize	Construct
Label	Distinguish	Generalize	Differentiate	Defend	Design
List	Explain	Judge	Distinguish	Compare	Develop
Locate	Express	Organize	Identify	Assess	Formulate
Match	Extend	Paint	Infer	Conclude	Hypothesize
Memorize	Give Examples	Prepare	Point out	Contrast	Invent
Name	Illustrate	Produce	Select	Critique	Make
Omit	Indicate	Select	Subdivide	Determine	Originate
Recite	Interrelate	Show	Survey	Grade	Organize
Select	Interpret	Sketch	Arrange	Justify	Plan
State	Infer	Solve	Breakdown	Measure	Produce
Count	Match	Use	Combine	Rank	Role Play
Draw	Paraphrase	Add	Detect	Rate	Drive
Outline	Represent	Calculate	Diagram	Support	Devise
Point	Restate	Change	Discriminate	Test	Generate
Quote	Rewrite	Classify	Illustrate		Integrate
Recall	Select	Complete	Outline		Prescribe
Recognize	Show	Compute	Point out		Propose
Repeat	Summarize	Discover	Separate		Reconstruct

Reproduce	Tell Translate Associate Compute Convert Discuss Estimate Extrapolate Generalize Predict	Divide Examine Graph Interpolate Manipulate Modify Operate Subtract			Revise Rewrite Transform



Suggested Activities & Best Practices

- Plan a Trip on a Budget; research information to create plan and perform appropriate computations including areas such as packing for the trip, means of travel, lodging, food and entertainment, souveniers
- Complete a Personal Budget (Google Slides) with understanding of financial literacy terms, and researching to complete budget including balanced budgeting, choosing career and salary, personal savings, budgeting spreadsheet, choosing a home, choosing a vehicle, and other expenses.
- TedEd Talk Lesson- Math is the Hidden Secret to Understanding the World - Exploring, discussing

new perspective that may reveal patterns, numbers, formulas, etc.
https://ed.ted.com/lessons/m9hD2tyM

Assessment Evidence - Checking for Understanding (CFU)

First in Math's analysis and progress of students (Formative)

Multimedia Presentation (Alternative)

Teacher Observation Checklist (Formative)

Project Reports (Summative)

- Admit Tickets
- Anticipation Guide
- Common Benchmarks
- Compare & Contrast
- Create a Multimedia Poster
- DBQ's
- Define
- Describe
- Evaluate
- Evaluation rubrics
- Exit Tickets
- Explaining
- Fist- to-Five or Thumb-Ometer
- Illustration
- Journals
- KWL Chart
- Learning Center Activities
- Multimedia Reports
- Newspaper Headline
- Outline
- Question Stems
- Quickwrite
- Quizzes
- Red Light, Green Light
- Self- assessments
- Socratic Seminar
- Study Guide

- Surveys
- Teacher Observation Checklist
- Think, Pair, Share
- Think, Write, Pair, Share
- Top 10 List
- Unit review/Test prep
- Unit tests
- Web-Based Assessments
- Written Reports

Primary Resources & Materials

First in Math

Envision Realize

Google Suite Applications

Ancillary Resources

Osmo

ST Math

Prodigy Game

First in Math

PLAN A TRIP ON A BUDGET TEMPLATE - Google Slides

Personal Budget Template - Google Slides'

TedED

www.Hoodamath.com

www.odysseyofthemind.com

http://aaamath.com

http://gregtangmath.com (tangrams)

http://artsandculture.google.com

Technology Infusion

G Suite (Docs, Sheets, Jamboard) to write, edit, comment and create different works for presentation.

Chromebooks/Tablets/iPads for students to independently work for both research and type written information.

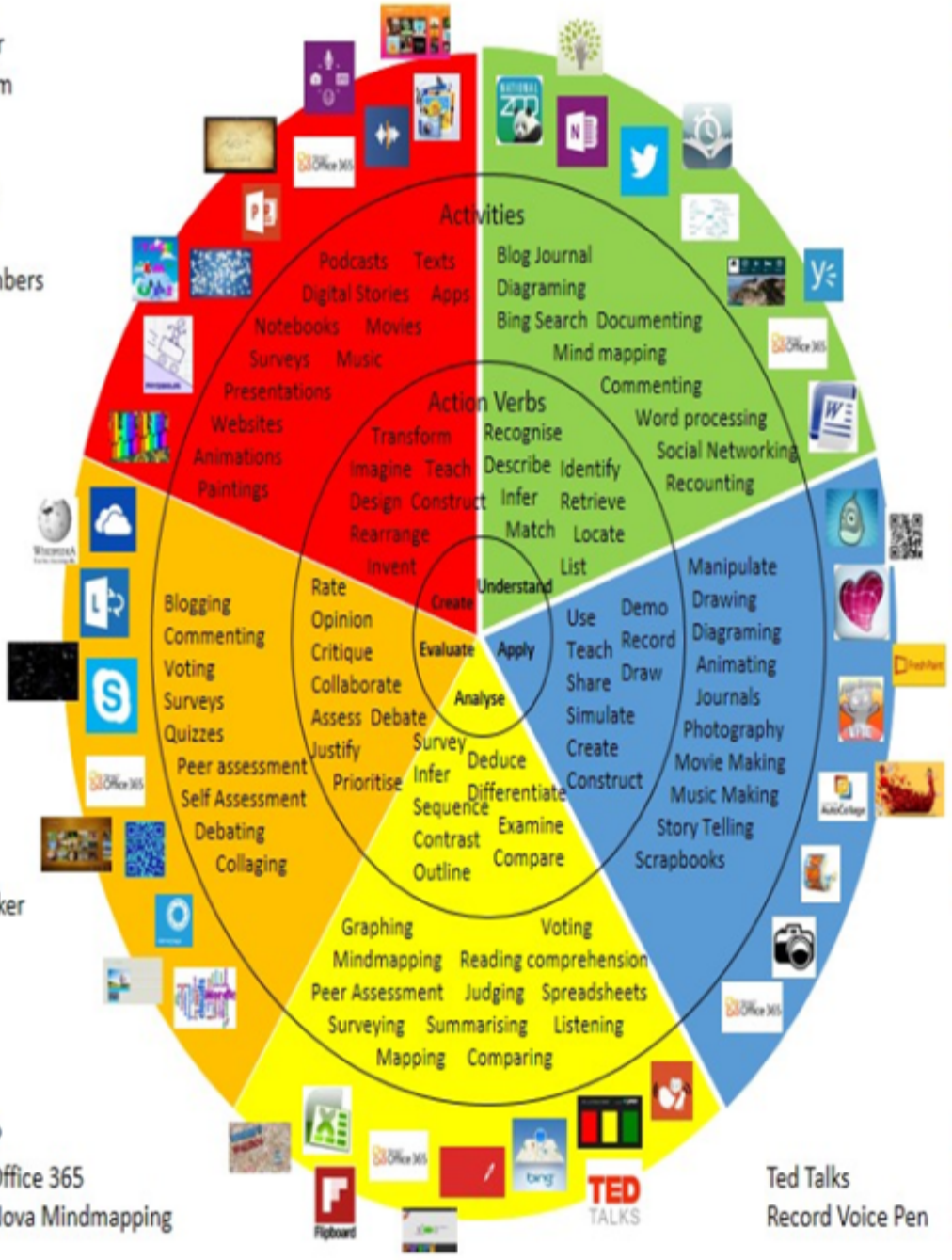
SmartTV to present videos or notes in lieu of a white/chalkboard.

First in Math to practice mental math with lessons and math games in a web based format.

Win 8.1 Apps/Tools Pedagogy Wheel

Podcasts
Photostory 3
Kid Story Builder
Music Maker Jam
Paint A Story
Office 365
MS PowerPoint
Stack 'Em Up
NqSquared Numbers
Physamajig
Xylophone 8

Wikipedia
Skydrive
Lync
SkyMap
Skype
Office 365
Puzzle Touch
Easy QR
Memorylage
Life Moments
Word Cloud Maker



Where's Waldo?
MS Excel Office 365
Flipboard Nova Mindmapping

Ted Talks
Record Voice Pen

Originally taken from http://www.coetail.com/vzimmer/files/2013/02/iPadagogy-Wheel.001.jpg
And adapted for Windows 8.1 devices by Charlotte Beckhurst @CharBeckhurst

Alignment to 21st Century Skills & Technology

Mastery and infusion of **21st Century Skills & Technology** and their Alignment to the core content areas is essential to student learning. The core content areas include:

- English Language Arts;
- Mathematics;
- Science and Scientific Inquiry (Next Generation);
- Social Studies, including American History, World History, Geography, Government and Civics, and Economics;
- World languages;
- Technology;
- Visual and Performing Arts.

21st Century Skills/Interdisciplinary Themes

Upon completion of this section, please remove all remaining descriptions, notes, outlines, examples and/or illustrations that are not needed or used.

Please list only the **21st Century/Interdisciplinary Themes** that will be incorporated into this unit.

- Communication and Collaboration
- Creativity and Innovation
- Critical thinking and Problem Solving
- ICT (Information, Communications and Technology) Literacy
- Information Literacy
- Life and Career Skills
- Media Literacy

21st Century Skills

Upon completion of this section, please remove all remaining descriptions, notes, outlines, examples and/or illustrations that are not needed or used.

Please list only the **21st Century Skills** that will be incorporated into this unit.

- Civic Literacy
- Environmental Literacy
- Financial, Economic, Business and Entrepreneurial Literacy
- Global Awareness
- Health Literacy

Differentiation

T&G students will be identified through multiple measurable assessments (DRA, Envision, teacher recommendation, etc.).

Tier 1- At this tier, ALL students are serviced. Enrichment opportunities will be offered through various classroom experiences.

Tier 2 - At this tier, flexible groups are formed based on concept mastery. Extended learning opportunities will be offered in order for students to transfer complex thinking processes to a higher level. This could be accomplished through small group instruction/projects/centers within the whole class environment.

Tier 3- At this tier, identified students in Language Arts and/or Mathmatics will be engaged in culminating activities in an after school enrichment program. This guide addresses identified T&G students enrolled in this program.

Differentiations:

- Small group instruction
- Small group assignments
- Extra time to complete assignments
- Pairing oral instruction with visuals
- Repeat directions
- Use manipulatives
- Center-based instruction
- Teacher reads assessments allowed
- Scheduled breaks
- Rephrase written directions
- Multisensory approaches
- Additional time
- Preview vocabulary
- Preview content & concepts
- Story guides
- Highlight text
- Student(s) work with assigned partner
- Visual presentation
- Assistive technology
- Auditory presentations
- Large print edition
- Dictation to scribe

- Small group setting

Hi-Prep Differentiations:

- Alternative formative and summative assessments
- Choice boards
- Games and tournaments
- Group investigations
- Guided Reading
- Independent research and projects
- Interest groups
- Learning contracts
- Multiple intelligence options
- Multiple texts
- Project-based learning
- Problem-based learning
- Tiered activities/assignments
- Tiered products
- Varying organizers for instructions

Lo-Prep Differentiations

- Choice of books or activities
- Cubing activities
- Exploration by interest
- Flexible grouping
- Goal setting with students
- Mini workshops to re-teach or extend skills
- Open-ended activities
- Think-Pair-Share
- Reading buddies
- Varied journal prompts
- Varied supplemental materials

Special Education Learning (IEP's & 504's)

Guidelines for students with IEP's and 504's will be followed.

Work will be checked frequently to check for student's understanding.

- additional time for skill mastery
- assistive technology
- behavior management plan

- Center-Based Instruction
- check work frequently for understanding
- computer or electronic device utilizes
- extended time on tests/ quizzes
- have student repeat directions to check for understanding
- highlighted text visual presentation
- modified assignment format
- modified test length
- multi-sensory presentation
- preview of content, concepts, and vocabulary
- Provide modifications as dictated in the student's IEP/504 plan
- Reduced/shortened written assignments
- secure attention before giving instruction/directions
- shortened assignments
- student working with an assigned partner

English Language Learning (ELL)

Translation devices will be used if the need arises for students to communicate if there is a language barrier.

Tutoring by peers to guide in understanding of topics.

- teaching key aspects of a topic. Eliminate nonessential information
- using videos, illustrations, pictures, and drawings to explain or clarif
- allowing products (projects, timelines, demonstrations, models, drawings, dioramas, poster boards, charts, graphs, slide shows, videos, etc.) to demonstrate student's learning;
- allowing students to correct errors (looking for understanding)
- decreasing the amount of workpresented or required
- reducing or omitting lengthy outside reading assignments
- tutoring by peers
- using computer word processing spell check and grammar check features

At Risk

Tutoring by peers will be used.

Students may correct errors when they occur.

- allowing students to correct errors (looking for understanding)
- teaching key aspects of a topic. Eliminate nonessential information
- allowing products (projects, timelines, demonstrations, models, drawings, dioramas, poster boards, charts, graphs, slide shows, videos, etc.) to demonstrate student's learning
- allowing students to select from given choices
- collaborating (general education teacher and specialist) to modify vocabulary, omit or modify items to reflect objectives for the student, eliminate sections of the test, and determine how the grade will be determined prior to giving the test.
- decreasing the amount of workpresented or required
- having peers take notes or providing a copy of the teacher's notes
- marking students' correct and acceptable work, not the mistakes
- providing study guides
- reducing or omitting lengthy outside reading assignments
- tutoring by peers
- using videos, illustrations, pictures, and drawings to explain or clarify

Talented and Gifted Learning (T&G)

Provide enrichment articles and assignments

Allow students to complete independent study assignments

- Above grade level placement option for qualified students
- Advanced problem-solving
- Allow students to work at a faster pace
- Cluster grouping
- Complete activities aligned with above grade level text using Benchmark results
- Create a blog or social media page about their unit
- Create a plan to solve an issue presented in the class or in a text
- Debate issues with research to support arguments
- Flexible skill grouping within a class or across grade level for rigor
- Higher order, critical & creative thinking skills, and discovery
- Multi-disciplinary unit and/or project
- Teacher-selected instructional strategies that are focused to provide challenge, engagement, and growth opportunities
- Utilize exploratory connections to higher-grade concepts
- Utilize project-based learning for greater depth of knowledge

Sample Lesson

Unit Name: Math / Financial Literacy

NJSLS: See Attached

Interdisciplinary Connection: Math, ELA, 21st Century Skills

Statement of Objective: SWDAT create and manage a financial budget plan to demonstrate financial literacy by researching and planning a trip on a budget

Anticipatory Set/Do Now: SW be given a budget and guidelines to plan a trip, they will have time to research a bit to see what it costs to take a vacation somewhere and get a better understanding of these types of expenses in real-world scenarios

Learning Activity: SW create a planning spreadsheet to calculate areas including travel, lodging, transportation, eating/restaurants, activities/attractions, and any other elements of a trip that must be incorporated into a budget that includes the entirety a trip ; SW be given a budget and SW then research places they may want to go, for how long, and decide how many people will be joining ; SW research all elements of their trip using real world websites (such as Expedia) to find real prices for travel and stay. SW create a multimedia presentation to present their plan to their peers.

Student Assessment/CFU's: teacher observations ; budgeting checklist ; planning/itinerary spreadsheet ; multimedia presentation of trip plans

Materials: Chromebooks ; Google Suite Applications ; Tools to help plan trip (spreadsheet, checklist, written directions, step by step booket)

21st Century Themes and Skills: See Attached

Differentiation/Modifications: enrichment opportunities to further extend project by adding taxes; addition time; modified workload; work with a peer tutor ; varied expectations

Integration of Technology: Chromebook ; Google Suite Applications ; Research on approved websites to find real-world information

MA.5.OA.A	Write and interpret numerical expressions.
MA.5.OA.B	Analyze patterns and relationships.
MA.5.NBT.A.3	Read, write, and compare decimals to thousandths.
MA.6.NS.A.1	Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem.
MA.5.NBT.B	Perform operations with multi-digit whole numbers and with decimals to hundredths.
MA.6.NS.B.2	Fluently divide multi-digit numbers using the standard algorithm.
MA.6.NS.B.3	Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.
MA.5.NF.B	Apply and extend previous understandings of multiplication and division to multiply and divide fractions.
MA.6.NS.C.7b	Write, interpret, and explain statements of order for rational numbers in real-world contexts.
MA.6.EE.A.2a	Write expressions that record operations with numbers and with letters standing for numbers.
PFL.9.1.8.A.2	Relate how career choices, education choices, skills, entrepreneurship, and economic conditions affect income.
PFL.9.1.8.B.1	Distinguish among cash, check, credit card, and debit card.
PFL.9.1.8.B.2	Construct a simple personal savings and spending plan based on various sources of

	income.
PFL.9.1.8.B.4	Relate the concept of deferred gratification to [investment,] meeting financial goals, and building wealth.
PFL.9.1.8.B.7	Construct a budget to save for long-term, short-term, and charitable goals.
PFL.9.1.8.B.8	Develop a system for keeping and using financial records.
PFL.9.1.8.B.9	Determine the most appropriate use of various financial products and services (e.g., ATM, debit cards, credit cards, check books).
PFL.9.1.8.B.11	Evaluate the appropriate financial institutions to assist with meeting various personal financial needs and goals.