BELLEVILLE PUBLIC SCHOOLS

TALENTED & GIFTED

PROGRAM GUIDE

2019-2020

CURRICULUM COMMITTEE

Belleville Public Schools
Talented and Gifted Program

T &G Mission Statement

The mission of Belleville Public Schools is to cultivate critical thinkers and creative minds so that lifelong learners become 21st century leaders. Within this mission, the Talented and Gifted (T&G) program accentuates this concept by providing unique educational opportunities to our gifted learners.

Gifted children are defined as those students who possess or demonstrate high levels of ability, in one or more content areas, when compared to their chronological peers in the local district and who require modification of their educational program if they are to achieve in accordance with their capabilities.

Belleville's elementary students qualify for the T&G program in 3rd grade through 6th grade. Selection to the program is based upon characteristics defined by an eligibility rubric assessing a combination of students' cognitive abilities and other alternate measures. The T&G program is designed to meet the needs of gifted students by creating rigorous problem-solving activities to foster 21st century leaders.

2019-2020 TAG Events

Date	Event	Hours	Grades / Population	Location
September 27, 2019	County Meeting	12:30 - 2:30	County T and G	Belleville Large Conference Room
M - September 30, 2019	Battle of the Books Meeting http://www.battleofthebooks.org/			
T October 1st, 2019	SPHERO	12:30 - 2:30	Grades 1-6 teachers at least 1 per school to turn key All schools will receive their kits	TBA (High School STEM LAB)
R October 3rd, 2019	TAG Mentor Meeting	12:30 - 2:30	Elementary TAG Mentors and Middle School Honors Teachers	Large Conference Room
T October 8th 2019	We-Do Teacher Training	12:30 - 2:30	Grades 1-6 teachers pref at least 1 per school to turn key (any schools that did not receive their We-Do kits will receive them - any other schools should bring 1 kit per teacher or team of teachers for training	TBA (High School STEM LAB)

October 10th, 2019	Teacher training for Solar Sprint Racing/ 3 D Printing racing	9:30 - 2:00	6th grade Science and or Math teachers along with 7th and 8th grade science/MATH teachers TAG Mentors	TBA (High School STEM LAB)
October 17th Permission Slips Scanned and Send - along with shared drive roster for TAG District Problem Solving				
October 21st, 2019	EVO Training	12:30 - 2:30	Grades 1-6 teachers pref at least 1 per school to turn key All schools will receive their kits	TBA (High School STEM LAB)
October 24, 2019	TAG District Problem Solving Competition 9:15 - 12:00 All 5th and 6th TAG grade students			
October 25th, 2019	SNAP Circuit Training	Elementary Teachers grades 2 and 3	At least 1 teacher from each school. Each School will receive their kits	High School Science Lab
November 6, 2019	Challenge 24 training	12:30 - 2:30	Grades 1-8 teachers pref at least 1 per school to turn key All schools will receive their kits if they have not received them - TAG Mentors	TBA (High School STEM LAB)
November 5, 2019 Permission Slips Scanned and Send - along with shared drive roster for STEAM District Competition				

November 12, 2019	STEAM District Competition 9:15 - 12:00			
November 7, 2019 Permission Slips Scanned and Send - along with shared drive roster for Essex Fells Problem Solving				
November 14, 2019	Problem Solving 9-12:30 5 and 6th (6 students) Essex Fells			
November 18th, 2019	LEGO Coding Train - Teacher Training	Elementary School Teachers pre-K- 2 grade	At least 1 teacher per school to turnkey information - teachers will be given their supplies at this time	STEM Lab at High School
November 12, 2019 Permission Slips Scanned and Send - along with shared drive roster for Interpretive Forensics Prep Meeting				
November 19, 2019	Interpretive Forensics Prep Meeting 9:15 - 12:00 TAG 5th and 6th grade 7th and 8th identified Honors English Students Middle School?			
December	STEAM Competition	10-1	TBA	Nutley
December 4th, 2019	Solar Sprint Racing/ 3 D Printing racing TAG 6th Grade	9:00 - 11:30	6th grade TAG students along with their Mentors	TBA (High School STEM LAB)

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December 6, 2019	County Meeting	1-2:30	County T and G	West Essex Middle School
December 12th, 2019	PD for Coding Train	1-2:30	Pre-K, K or 1st grade teachers at least 1 per school to turn key	High School STEM Lab
M- January 6, 2020	TAG Mentor Meeting	12:30 - 2:30	Elementary TAG Mentors and Middle School Honors Teachers	TBA (Large Conference Room)
January 8th, 2020	Solar Sprint Racing/ 3 D Printing racing TAG 6th Grade	9:00 - 11:30	6th grade TAG students along with their Mentors	TBA (High School STEM LAB)
January 10, 2020 Snow date January 17th	Interpretive Forensics	9-1	J.V. 5th and 6th Varsity 7th and 8th	Montclair State University
January 16th or 23rd	Totally Global	9:15 - 12:00	TAG 4th and 5th grade	
January 10, 2020 Snow date January 17th	Interpretive Forensics	9-1	J.V. 5th and 6th Varsity 7th and 8th	Montclair State University
January 24th or 31st	County Meeting	1-2:30	County T and G	Winston Churchill Elementary School

January 28th, 2020	District TAG Totally Global Competition			
January 24th or 31st	County Meeting	1-2:30	County T and G	Winston Churchill Elementary School
February 5, 2020	Solar Sprint Racing/ 3 D Printing racing TAG 6th Grade	9:00 - 11:30	6th grade TAG students along with their Mentors	TBA (High School STEM LAB)
February 27th, 2020	Totally Global	9-1	Grades 4 and 5	Essex Fells
March 3, 2020	You be the chemist - TAG 5th and 6th Grade	9:00 - 11:30	6th grade TAG students along with their Mentors	TBA (High School STEM LAB)
March 4, 2020	Solar Sprint Racing/ 3 D Printing racing TAG 6th Grade	9:00 - 11:30	6th grade TAG students along with their Mentors	TBA (High School STEM LAB)
March 5, 2020	You be the chemist - TAG 5th and 6th Grade	9:00 - 11:30	6th grade TAG students along with their Mentors	TBA (High School STEM LAB)
March 6, 2019	County Meeting	1-2:30	County T and G	Cedar Grove Memorial Middle School

March 24, 2020	Academically Speaking			
April 6, 2020	Solar Sprint Racing/ 3 D Printing racing TAG 6th Grade	9:00 - 11:30	6th grade TAG students along with their Mentors	TBA (High School STEM LAB)
April 20, 2020	District Declarative Forensics Workshop			
April 22, 2020	District Solar Sprint Competition TBA			
May 18, 2020	Elementary and Middle School Solar Sprints- State Competition - The regional competition will be one day the week prior			
May 19, 2020	District 24 Competition JV - School 4			
May 20, 2020	District 24 Competition Varsity - Middle School			
May 22, 2020	Declamation Forensics	8:30-1	J.V. 5-6 Varsity - 7-8	Montclair State University

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May 28, 2020	Academically Speaking	8:30-1	J.V. 4-6 Varsity 7-8	West Orange
May 22nd or May 29th	Declamation Forensics	8:30-1	J.V. 5-6 Varsity - 7-8	Montclair State University
June 1, 2020	TAG Mentor Meeting	12:30 - 2:30	Elementary TAG Mentors and Middle School Honors Teachers	TBA (Large Conference Room)
June 3, 2020	District STEM Night and Engineering Night			
June 4th	Challenge 24	9-1	J.V. 5-6 Varsity 7-8	Milburn
June 5th	County Meeting	1-2:30	County T and G	Bloomfield

Field Trip Information Due:

School Number	TG Teacher	Students
School 3		
School 4		
School 5		
School 7		
School 8		

School 9		
School 10		

Gifted Programming Standards (K-12)

National Association for Gifted Children

Gifted Education Programming Standard 1: Learning and Development

Introduction

For teachers and other educators in PreK-12 settings to be effective in working with learners with gifts and talents, they must understand the characteristics and needs of the population for whom they are planning curriculum, instruction, assessment, programs, and services. These characteristics provide the rationale for differentiation in programs, grouping, and services for this population and are translated into appropriate differentiation choices made at curricular and program levels in schools and school districts. While cognitive growth is important in such programs, affective development is also necessary. Thus many of the characteristics addressed in this standard emphasize affective development linked to self-understanding and social awareness.

Standard 1: Learning and Development

Description: Educators, recognizing the learning and developmental differences of students with gifts and talents, promote ongoing self-understanding, awareness of their needs, and cognitive and affective growth of these students in school, home, and community settings to ensure specific student outcomes.

Student Outcomes	Evidence-Based Practices
1.1. Self-Understanding. Students with gifts and talents demonstrate self-knowledge with respect to their interests, strengths, identities, and needs in socio-emotional development and in intellectual, academic, creative, leadership, and artistic domains.	1.1.1. Educators engage students with gifts and talents in identifying interests, strengths, and gifts.
	1.1.2. Educators assist students with gifts and talents in developing identities supportive of achievement.
1.2. Self-Understanding. Students with gifts and talents possess a developmentally appropriate understanding of how they learn and grow; they recognize the influences of their beliefs, traditions, and values on their learning and behavior.	1.2.1. Educators develop activities that match each student's developmental level and culture-based learning needs.
1.3. Self-Understanding. Students with gifts and talents demonstrate understanding of and respect for similarities and differences between themselves and their peer group and others in the general population.	1.3.1. Educators provide a variety of research-based grouping practices for students with gifts and talents that allow them to interact with individuals of various gifts, talents, abilities, and strengths.
	1.3.2. Educators model respect for individuals with diverse abilities, strengths, and goals.
1.4. Awareness of Needs. Students with gifts and talents access resources from the community to support cognitive and affective needs, including social interactions with others having similar interests and abilities or experiences, including same-age peers and mentors or experts.	1.4.1. Educators provide role models (e.g., through mentors, bibliotherapy) for students with gifts and talents that match their abilities and interests.
	1.4.2. Educators identify out-of-school learning opportunities that match students' abilities and interests.
1.5. Awareness of Needs. Students' families and communities understand similarities and differences with respect to the development and characteristics of advanced and typical learners and support students with gifts and talents' needs.	1.5.1. Educators collaborate with families in accessing resources to develop their child's talents.
1.6. Cognitive and Affective Growth. Students with gifts and talents benefit from meaningful and challenging learning activities addressing their unique characteristics and needs.	1.6.1. Educators design interventions for students to develop cognitive and affective growth that is based on research of effective practices.
	1.6.2. Educators develop specialized intervention services for students with gifts and talents who are underachieving and are now learning and developing their talents.
1.7. Cognitive and Affective Growth. Students with gifts and talents recognize their preferred approaches to learning and expand their repertoire.	1.7.1. Teachers enable students to identify their preferred approaches to learning, accommodate these preferences, and expand them.
1.8. Cognitive and Affective Growth. Students with gifts and talents identify future career goals that match their talents and abilities and resources needed to meet those goals (e.g., higher education opportunities, mentors, financial support).	1.8.1. Educators provide students with college and career guidance that is consistent with their strengths.
	1.8.2. Teachers and counselors implement a curriculum scope and sequence that contains person/social awareness and adjustment, academic planning, and vocational and career awareness.

Gifted Education Programming Standard 2: Assessment

Introduction

Knowledge about all forms of assessment is essential for educators of students with gifts and talents. It is integral to identification, assessing each student's learning progress, and evaluation of programming. Educators need to establish a challenging environment and collect multiple types of assessment information so that all students are able to demonstrate their gifts and talents. Educators' understanding of non-biased, technically adequate, and equitable approaches enables them to identify students who represent diverse backgrounds. They also differentiate their curriculum and instruction by using pre- and post-, performance-based, product-based, and out-of-level assessments. As a result of each educator's use of ongoing assessments, students with gifts and talents demonstrate advanced and complex learning. Using these student progress data, educators then evaluate services and make adjustments to one or more of the school's programming components so that student performance is improved.

Standard 2: Assessment

Description: Assessments provide information about identification, learning progress and outcomes, and evaluation of programming for students with gifts and talents in all domains.

Student Outcomes	Evidence-Based Practices
2.1. *Identification*. All students in grades PK-12 have equal access to a comprehensive assessment system that allows them to demonstrate diverse characteristics and behaviors that are associated with giftedness.	2.1.1. Educators develop environments and instructional activities that encourage students to express diverse characteristics and behaviors that are associated with giftedness.
	2.1.2. Educators provide parents/guardians with information regarding diverse characteristics and behaviors that are associated with giftedness.
2.2. *Identification*. Each student reveals his or her exceptionalities or potential through assessment evidence so that appropriate instructional accommodations and modifications can be provided.	2.2.1. Educators establish comprehensive, cohesive, and ongoing procedures for identifying and serving students with gifts and talents. These provisions include informed consent, committee review, student retention, student reassessment, student exiting, and appeals procedures for both entry and exit from gifted program services.
	2.2.2. Educators select and use multiple assessments that measure diverse abilities, talents, and strengths that are based on current theories, models, and research.
	2.2.3 Assessments provide qualitative and quantitative information from a variety of sources, including off-level testing, are nonbiased and equitable, and are technically adequate for the purpose.
	2.2.4. Educators have knowledge of student exceptionalities and collect assessment data while adjusting curriculum and instruction to learn about each student's developmental level and aptitude for learning.
	2.2.5. Educators interpret multiple assessments in different domains and understand the uses and limitations of the assessments in identifying the needs of students with gifts and talents.
	2.2.6. Educators inform all parents/guardians about the identification process. Teachers obtain parental/guardian permission for assessments, use culturally sensitive checklists, and elicit evidence regarding the child's interests and potential outside of the classroom setting.
2.3. *Identification*. Students with identified needs represent diverse backgrounds and reflect the total student population of the district.	2.3.1. Educators select and use non-biased and equitable approaches for identifying students with gifts and talents, which may include using locally developed norms or assessment tools in the child's native language or in nonverbal formats.
	2.3.2. Educators understand and implement district and state policies designed to foster equity in gifted programming and services.
	2.3.3. Educators provide parents/guardians with information in their native language regarding diverse behaviors and characteristics that are associated with giftedness and with information that explains the nature and purpose of gifted programming options.
2.4. *Learning Progress and Outcomes*. Students with gifts and talents demonstrate advanced and complex learning as a result of using multiple, appropriate, and ongoing assessments.	2.4.1. Educators use differentiated pre- and post- performance-based assessments to measure the progress of students with gifts and talents.
	2.4.2. Educators use differentiated product-based assessments to measure the progress of students with gifts and talents.
	2.4.3. Educators use off-level standardized assessments to measure the progress of students with gifts and talents.

	2.4.4. Educators use and interpret qualitative and quantitative assessment information to develop a profile of the strengths and weaknesses of each student with gifts and talents to plan appropriate intervention.
	2.4.5. Educators communicate and interpret assessment information to students with gifts and talents and their parents/guardians.
2.5. *Evaluation of Programming*. Students identified with gifts and talents demonstrate important learning progress as a result of programming and services.	2.5.1. Educators ensure that the assessments used in the identification and evaluation processes are reliable and valid for each instrument's purpose, allow for above-grade-level performance, and allow for diverse perspectives.
	2.5.2. Educators ensure that the assessment of the progress of students with gifts and talents uses multiple indicators that measure mastery of content, higher level thinking skills, achievement in specific program areas, and affective growth.
	2.5.3. Educators assess the quantity, quality, and appropriateness of the programming and services provided for students with gifts and talents by disaggregating assessment data and yearly progress data and making the results public.
2.6. *Evaluation of Programming*. Students identified with gifts and talents have increased access and they show significant learning progress as a result of improving components of gifted education programming.	2.6.1. Administrators provide the necessary time and resources to implement an annual evaluation plan developed by persons with expertise in program evaluation and gifted education.
	2.6.2. The evaluation plan is purposeful and evaluates how student-level outcomes are influenced by one or more of the following components of gifted education programming: (a) identification, (b) curriculum, (c) instructional programming and services, (d) ongoing assessment of student learning, (e) counseling and guidance programs, (f) teacher qualifications and professional development, (g) parent/guardian and community involvement, (h) programming resources, and (i) programming design, management, and delivery.
	2.6.3. Educators disseminate the results of the evaluation, orally and in written form, and explain how they will use the results.

Gifted Education Programming Standard 3: Curriculum Planning and Instruction

Introduction

Assessment is an integral component of the curriculum planning process. The information obtained from multiple types of assessments informs decisions about curriculum content, instructional strategies, and resources that will support the growth of students with gifts and talents. Educators develop and use a comprehensive and sequenced core curriculum that is aligned with local, state, and national standards, then differentiate and expand it. In order to meet the unique needs of students with gifts and talents, this curriculum must emphasize advanced, conceptually challenging, in-depth, distinctive, and complex content within cognitive, affective, aesthetic, social, and leadership domains. Educators must possess a repertoire of evidence-based instructional strategies in delivering the curriculum (a) to develop talent, enhance learning, and provide students with the knowledge and skills to become independent, self-aware learners, and (b) to give students the tools to contribute to a multicultural, diverse society. The curriculum, instructional strategies, and materials and resources must engage a variety of learners using culturally responsive practices.

Standard 3: Curriculum Planning and Instruction

Description: Educators apply the theory and research-based models of curriculum and instruction related to students with gifts and talents and respond to their needs by planning, selecting, adapting, and creating culturally relevant curriculum and by using a repertoire of evidence-based instructional strategies to ensure specific student outcomes.

Student Outcomes	Evidence-Based Practices
3.1. *Curriculum Planning*. Students with gifts and talents demonstrate growth commensurate with aptitude during the school year.	3.1.1. Educators use local, state, and national standards to align and expand curriculum and instructional plans.
	3.1.2. Educators design and use a comprehensive and continuous scope and sequence to develop differentiated plans for PK-12 students with gifts and talents.
	3.1.3. Educators adapt, modify, or replace the core or standard curriculum to meet the needs of students with gifts and talents and those with special needs such as twice-exceptional, highly gifted, and English language learners.
	3.1.4. Educators design differentiated curricula that incorporate advanced, conceptually challenging, in-depth, distinctive, and complex content for students with gifts and talents.
	3.1.5. Educators use a balanced assessment system, including pre-assessment and formative assessment, to identify students' needs, develop differentiated education plans, and adjust plans based on continual progress monitoring.
	3.1.6. Educators use pre-assessments and pace instruction based on the learning rates of students with gifts and talents and accelerate and compact learning as appropriate.
	3.1.7. Educators use information and technologies, including assistive technologies, to individualize for students with gifts and talents, including those who are twice-exceptional.
3.2. *Talent Development*. Students with gifts and talents become more competent in multiple talent areas and across dimensions of learning.	3.2.1. Educators design curricula in cognitive, affective, aesthetic, social, and leadership domains that are challenging and effective for students with gifts and talents.
	3.2.2. Educators use metacognitive models to meet the needs of students with gifts and talents.
3.3. *Talent Development*. Students with gifts and talents develop their abilities in their domain of talent and/or area of interest.	3.3.1. Educators select, adapt, and use a repertoire of instructional strategies and materials that differentiate for students with gifts and talents and that respond to diversity.
	3.3.2. Educators use school and community resources that support differentiation.
	3.3.3. Educators provide opportunities for students with gifts and talents to explore, develop, or research their areas of interest and/or talent.
3.4. *Instructional Strategies*. Students with gifts and talents become independent investigators.	3.4.1. Educators use critical-thinking strategies to meet the needs of students with gifts and talents.
	3.4.2. Educators use creative-thinking strategies to meet the needs of students with gifts and talents.
	3.4.3. Educators use problem-solving model strategies to meet the needs of students with gifts and talents.

	3.4.4. Educators use inquiry models to meet the needs of students with gifts and talents.
3.5. *Culturally Relevant Curriculum*. Students with gifts and talents develop knowledge and skills for living and being productive in a multicultural, diverse, and global society.	3.5.1. Educators develop and use challenging, culturally responsive curriculum to engage all students with gifts and talents.
	3.5.2. Educators integrate career exploration experiences into learning opportunities for students with gifts and talents, e.g. biography study or speakers.
	3.5.3. Educators use curriculum for deep explorations of cultures, languages, and social issues related to diversity.
3.6. *Resources*. Students with gifts and talents benefit from gifted education programming that provides a variety of high quality resources and materials.	3.6.1. Teachers and administrators demonstrate familiarity with sources for high quality resources and materials that are appropriate for learners with gifts and talents.

Gifted Education Programming Standard 4: Learning Environments

Introduction

Effective educators of students with gifts and talents create safe learning environments that foster emotional well-being, positive social interaction, leadership for social change, and cultural understanding for success in a diverse society. Knowledge of the impact of giftedness and diversity on social-emotional development enables educators of students with gifts and talents to design environments that encourage independence, motivation, and self-efficacy of individuals from all backgrounds. They understand the role of language and communication in talent development and the ways in which culture affects communication and behavior. They use relevant strategies and technologies to enhance oral, written, and artistic communication of learners whose needs vary based on exceptionality, language proficiency, and cultural and linguistic differences. They recognize the value of multilingualism in today's global community.

Standard 4: Learning Environments

Description: Learning environments foster personal and social responsibility, multicultural competence, and interpersonal and technical communication skills for leadership in the 21st century to ensure specific student outcomes.

Student Outcomes	Evidence-Based Practices
4.1. *Personal Competence*. Students with gifts and talents demonstrate growth in personal competence and dispositions for exceptional academic and creative productivity. These include self-awareness, self-advocacy, self-efficacy, confidence, motivation, resilience, independence, curiosity, and risk taking.	4.1.1. Educators maintain high expectations for all students with gifts and talents as evidenced in meaningful and challenging activities.
	4.1.2. Educators provide opportunities for self-exploration, development and pursuit of interests, and development of identities supportive of achievement, e.g., through mentors and role models.
	4.1.3. Educators create environments that support trust among diverse learners.
	4.1.4. Educators provide feedback that focuses on effort, on evidence of potential to meet high standards, and on mistakes as learning opportunities.
	4.1.5. Educators provide examples of positive coping skills and opportunities to apply them.
4.2. *Social Competence*. Students with gifts and talents develop social competence manifested in positive peer relationships and social interactions.	4.2.1. Educators understand the needs of students with gifts and talents for both solitude and social interaction.
	4.2.2. Educators provide opportunities for interaction with intellectual and artistic/creative peers as well as with chronological-age peers.
	4.2.3. Educators assess and provide instruction on social skills needed for school, community, and the world of work.
4.3. *Leadership*. Students with gifts and talents demonstrate personal and social responsibility and leadership skills.	4.3.1 Educators establish a safe and welcoming climate for addressing social issues and developing personal responsibility.
	4.3.2. Educators provide environments for developing many forms of leadership and leadership skills.
	4.3.3. Educators promote opportunities for leadership in community settings to effect positive change.
4.4. *Cultural Competence*. Students with gifts and talents value their own and others' language, heritage, and circumstance. They possess skills in communicating, teaming, and collaborating with diverse individuals and across diverse groups.[1] They use positive strategies to address social issues, including discrimination and stereotyping.	4.4.1. Educators model appreciation for and sensitivity to students' diverse backgrounds and languages.
	4.4.2. Educators censure discriminatory language and behavior and model appropriate strategies.
	4.4.3. Educators provide structured opportunities to collaborate with diverse peers on a common goal.
4.5. *Communication Competence*. Students with gifts and talents develop competence in interpersonal and technical communication skills. They demonstrate advanced oral and written skills, balanced biliteracy or multiliteracy, and creative expression. They display fluency with technologies that support effective communication	4.5.1. Educators provide opportunities for advanced development and maintenance of first and second language(s).
	4.5.2. Educators provide resources to enhance oral, written, and artistic forms of communication, recognizing students' cultural context.
	4.5.3. Educators ensure access to advanced communication tools, including assistive technologies, and use of these tools for expressing higher-level thinking and creative productivity.

Gifted Education Programming Standard 5: Programming

Introduction

The term programming refers to a continuum of services that address students with gifts and talents' needs in all settings. Educators develop policies and procedures to guide and sustain all components of comprehensive and aligned programming and services for PreK-12 students with gifts and talents. Educators use a variety of programming options such as acceleration and enrichment in varied grouping arrangements (cluster grouping, resource rooms, special classes, special schools) and within individualized learning options (independent study, mentorships, online courses, internships) to enhance students' performance in cognitive and affective areas and to assist them in identifying future career goals. They augment and integrate current technologies within these learning opportunities to increase access to high level programming such as distance learning courses and to increase connections to resources outside of the school walls. In implementing services, educators in gifted, general, special education programs, and related professional services collaborate with one another and parents/guardians and community members to ensure that students' diverse learning needs are met. Administrators demonstrate their support of these programming options by allocating sufficient resources so that all students within gifts and talents receive appropriate educational services.

NAGC Standards

Standard 5: Programming

Description: Educators are aware of empirical evidence regarding (a) the cognitive, creative, and affective development of learners with gifts and talents, and (b) programming that meets their concomitant needs. Educators use this expertise systematically and collaboratively to develop, implement, and effectively manage comprehensive services for students with a variety of gifts and talents to ensure specific student outcomes.

Student Outcomes	Evidence-Based Practices
5.1. *Variety of Programming*. Students with gifts and talents participate in a variety of evidence-based programming options that enhance performance in cognitive and affective areas.	5.1.1. Educators regularly use multiple alternative approaches to accelerate learning.
	5.1.2. Educators regularly use enrichment options to extend and deepen learning opportunities within and outside of the school setting.
	5.1.3. Educators regularly use multiple forms of grouping, including clusters, resource rooms, special classes, or special schools.
	5.1.4. Educators regularly use individualized learning options such as mentorships, internships, online courses, and independent study.
	5.1.5. Educators regularly use current technologies, including online learning options and assistive technologies to enhance access to high-level programming.
	5.1.6. Administrators demonstrate support for gifted programs through equitable allocation of resources and demonstrated willingness to ensure that learners with gifts and talents receive appropriate educational services.
5.2. *Coordinated Services*. Students with gifts and talents demonstrate progress as a result of the shared commitment and coordinated services of gifted education, general education, special education, and related professional services, such as school counselors, school psychologists, and social workers.	5.2.1. Educators in gifted, general, and special education programs, as well as those in specialized areas, collaboratively plan, develop, and implement services for learners with gifts and talents.
5.3. *Collaboration*. Students with gifts and talents' learning is enhanced by regular collaboration among families, community, and the school.	5.3.1. Educators regularly engage families and community members for planning, programming, evaluating, and advocating.
5.4. *Resources*. Students with gifts and talents participate in gifted education programming that is adequately funded to meet student needs and program goals.	5.4.1. Administrators track expenditures at the school level to verify appropriate and sufficient funding for gifted programming and services.
5.5. *Comprehensiveness*. Students with gifts and talents develop their potential through comprehensive, aligned programming and services.	5.5.1. Educators develop thoughtful, multi-year program plans in relevant student talent areas, PK-12.
5.6. *Policies and Procedures*. Students with gifts and talents participate in regular and gifted education programs that are guided by clear policies and procedures that provide for their advanced learning needs (e.g., early entrance, acceleration, credit in lieu of enrollment).	5.6.1. Educators create policies and procedures to guide and sustain all components of the program, including assessment, identification, acceleration practices, and grouping practices, that is built on an evidence-based foundation in gifted education.
5.7. *Career Pathways*. Students with gifts and talents identify future career goals and the talent development pathways to reach those goals.	5.7.1. Educators provide professional guidance and counseling for individual student strengths, interests, and values.
	5.7.2. Educators facilitate mentorships, internships, and vocational programming experiences that match student interests and aptitudes.

Gifted Education Programming Standard 6: Professional Development

Introduction

Professional development is essential for all educators involved in the development and implementation of gifted programs and services. Professional development is the intentional development of professional expertise as outlined by the NAGC-CEC teacher preparation standards and is an ongoing part of gifted educators' professional and ethical practice. Professional development may take many forms ranging from district-sponsored workshops and courses, university courses, professional conferences, independent studies, and presentations by external consultants and should be based on systematic needs assessments and professional reflection. Students participating in gifted education programs and services are taught by teachers with developed expertise in gifted education. Gifted education program services are developed and supported by administrators, coordinators, curriculum specialists, general education, special education, and gifted education teachers who have developed expertise in gifted education. Since students with gifts and talents spend much of their time within general education classrooms, general education teachers need to receive professional development in gifted education that enables them to recognize the characteristics of giftedness in diverse populations, understand the school or district referral and identification process, and possess an array of high quality, research-based differentiation strategies that challenge students. Services for students with gifts and talents are enhanced by guidance and counseling professionals with expertise in gifted education.

Standard 6: Professional Development

Description: All educators (administrators, teachers, counselors, and other instructional support staff) build their knowledge and skills using the NAGC-CEC Teacher Standards for Gifted and Talented Education and the National Staff Development Standards. They formally assess professional development needs related to the standards, develop and monitor plans, systematically engage in training to meet the identified needs, and demonstrate mastery of standard. They access resources to provide for release time, funding for continuing education, and substitute support. These practices are judged through the assessment of relevant student outcomes.

Student Outcomes	Evidence-Based Practices
6.1. *Talent Development*. Students develop their talents and gifts as a result of interacting with educators who meet the national teacher preparation standards in gifted education.	6.1.1. Educators systematically participate in ongoing, research-supported professional development that addresses the foundations of gifted education, characteristics of students with gifts and talents, assessment, curriculum planning and instruction, learning environments, and programming.
	6.1.2. The school district provides professional development for teachers that models how to develop environments and instructional activities that encourage students to express diverse characteristics and behaviors that are associated with giftedness.
	6.1.3. Educators participate in ongoing professional development addressing key issues such as anti-intellectualism and trends in gifted education such as equity and access.
	6.1.4. Administrators provide human and material resources needed for professional development in gifted education (e.g. release time, funding for continuing education, substitute support, webinars, or mentors).
	6.1.5. Educators use their awareness of organizations and publications relevant to gifted education to promote learning for students with gifts and talents.
6.2. *Socio-emotional Development*. Students with gifts and talents develop socially and emotionally as a result of educators who have participated in professional development aligned with national standards in gifted education and National Staff Development Standards.	6.2.1. Educators participate in ongoing professional development to support the social and emotional needs of students with gifts and talents.
6.3. *Lifelong Learners*. Students develop their gifts and talents as a result of educators who are life-long learners, participating in ongoing professional development and continuing education opportunities.	6.3.1. Educators assess their instructional practices and continue their education in school district staff development, professional organizations, and higher education settings based on these assessments.
	6.3.2. Educators participate in professional development that is sustained over time, that includes regular follow-up, and that seeks evidence of impact on teacher practice and on student learning.
	6.3.3. Educators use multiple modes of professional development delivery including online courses, online and electronic communities, face-to-face workshops, professional learning communities, and book talks.
	6.3.4. Educators identify and address areas for personal growth for teaching students with gifts and talents in their professional development plans.
6.4. *Ethics*. Students develop their gifts and talents as a result of educators who are ethical in their practices.	6.4.1. Educators respond to cultural and personal frames of reference when teaching students with gifts and talents.
	6.4.2. Educators comply with rules, policies, and standards of ethical practice.

BELLEVILLE PUBLIC SCHOOLS
Office of the Superintendent
102 Passaic Avenue
Belleville, New Jersey 07109
www.bellevilleschools.org

October 24th District TAG Problem Solving Competition

Talented and Gifted Program

Dear Parent/Guardian:

Your child _____ has been selected to participate in a District Event for Talented and Gifted Students. On **October 24, 2019**, the 1st annual Problem Solving Competition will be held . During this event, 5th and 6th grade students from Belleville will compete with one another in a problem solving competition. No preparation for this competition is necessary as the questions will use basic math and logic skills. If you would like to have your child participate in this competitive field trip, please review the information below and sign and return the permission slip to your teacher by October 12, 2019.

NOTE: The bus will pick your child up at their elementary school and return them for dismissal at regular time.

Belleville Public Schools
Talented and Gifted Program

2019 TAG 1st Annual Problem Solving Competition

Location:
Date:
Time:

***Each student should bring a bagged lunch (preferably peanut-free).**
***Questions about the event can be directed to Mr. Michael Vargas at 973-450-3500, ext 1036.**

Student:_____ School #: _____

☐ My child will be attending
☐ My child will NOT be attending the event.

NOTE: Students will be dropped off at their schools in the afternoon and will be dismissed from their usual locations.

Name of parent/guardian: _____

Signature of parent/guardian giving permission to attend event on October 24th

Sign Here >>>_____

Emergency Contact: _____

Medical Concerns: _____

Medications needed to carry on trip: _____ Yes____ No ____

Allergies to food or Medication if yes please list type yes _____ No _____

Other _____

Restrictions and comments:
Consent for Emergency Treatment of Minors – In case of emergency children are transported to the nearest hospital when a minor is brought to the emergency room for treatment and the parent cannot be located a teacher, principal, or school nurse may act on behalf of the parents

Patients Name: _____ Please render needed medical services on behalf of the named patient.

DATE:_____ SIGNED:_____
RELATIONSHIP_____

BELLEVILLE PUBLIC SCHOOLS
102 Passaic Avenue
Belleville, New Jersey 07109
www.bellevilleschools.org

November 12th District STEAM Competition

Talented and Gifted Program

Dear Parent/Guardian:

Your child _____ has been selected to participate in a District Event for Talented and Gifted Students. On **November 12, 2019**, the 1st Annual STEAM Competition will be held. Students will be preparing for a County Wide STEM event where they will complete a task in teams using science technology, engineering, and math. During this event, 5th and 6th grade students from Belleville will compete with one another. If you would like to have your child participate in this competitive field trip, please review the information below and sign and return the permission slip to your teacher by November 1, 2019.

NOTE: The bus will pick your child up at their elementary school and return them for dismissal at regular time.

2019 TAG STEAM Competition

Location:
Date:
Time:

***Each student should bring a bagged lunch (preferably peanut-free).**
***Questions about the event can be directed to Mr. Michael Vargas at 973-450-3500, ext 1036.**

Student:_____ School #: _____

☐ My child will be attending
☐ My child will NOT be attending the event.

NOTE: Students will be dropped off at their schools in the afternoon and will be dismissed from their usual locations.

Name of parent/guardian: _____

Signature of parent/guardian giving permission to attend event on November 12, 2019

Sign Here >>>_____

Emergency Contact: _____

Medical Concerns: _____

Medications needed to carry on trip: _____ Yes____ No ____

Allergies to food or Medication if yes please list type yes _____ No _____

Other _____

Restrictions and comments:
Consent for Emergency Treatment of Minors – In case of emergency children are transported to the nearest hospital when a minor is brought to the emergency room for treatment and the parent cannot be located a teacher, principal, or school nurse may act on behalf of the parents

Patients Name: _____ Please render needed medical services on behalf of the named patient.

DATE:_____ **SIGNED:_____**
RELATIONSHIP_____

BELLEVILLE PUBLIC SCHOOLS
102 Passaic Avenue
Belleville, New Jersey 07109
www.bellevilleschools.org

November 14th Essex County Problem Solving Event

Talented and Gifted Program

Dear Parent/Guardian:

Your child _____ has been selected to participate in an Essex County Event for Talented and Gifted Students. On **November 14th, 2019 the Essex County Problem Solving Event** will be held at Essex Fells School in Essex Fells, New Jersey. During this event, 5th and 6th grade students from Belleville will compete in a geography event with students from other districts in Essex County. Participation in this event is limited to 6 students per school district, so please let us know if your child will not be attending as soon as possible. No preparation for this competition is necessary. Please have your student bring a bagged lunch with no glass and that is nut free. If you would like to have your child participate in this competitive field trip, please review the information below and sign and return the permission slip to your teacher by November

NOTE: The bus will be leaving at **8:45am** from Belleville High School. Please drop your child off at Door #26 by the Belleville Board of Education office (102 Passaic Ave.) by **8:30am on the day** of the trip. Members of the Talented & Gifted staff will be accompanying the students to this event. Students will be dropped off at their schools in the afternoon and will be dismissed from their usual locations.

2019 Essex County Problem Solving

Location: Essex Fells School
Essex Fells, New Jersey
Date: Tuesday, November 14, 2019
Time: 9:00am

***Trip will be leaving from Belleville Board of Education Office. Please drop your child off there on the morning of the trip. Students will be dropped off and dismissed from their home schools.**
***Each student should bring a bagged lunch (preferably peanut-free).**
***Questions about the event can be directed to Mr. Michael Vargas at 973-450-3500, ext 1036.**

Student:_____ School #: _____

☐ My child will be attending The Essex County Problem Solving Competition
☐ He/she will be dropped off at Belleville BOE Door #26
☐ My child will NOT be attending the event.

NOTE: Students will be dropped off at their schools in the afternoon and will be dismissed from their usual locations.

Name of parent/guardian: _____

Signature of parent/guardian giving permission to attend event onNovember 14th

_____

Emergency Contact: _____

Medical Concerns: _____

Medications needed to carry on trip: _____ Yes____ No ____

Allergies to food or Medication if yes please list type yes _____ No _____

Other _____

Restrictions and comments:
Consent for Emergency Treatment of Minors – In case of emergency children are transported to the nearest hospital when a minor is brought to the emergency room for treatment and the parent cannot be located a teacher, principal, or school nurse may act on behalf of the parents

Patients Name: _____ Please render needed medical services on behalf of the named patient.

DATE:_____ SIGNED:_____
RELATIONSHIP_____

BELLEVILLE PUBLIC SCHOOLS
102 Passaic Avenue
Belleville, New Jersey 07109
www.bellevilleschools.org

November 19th District Interpretive Forensics Seminar

Talented and Gifted Program

Dear Parent/Guardian:

Your child _____ has been selected to participate in a District Event for Talented and Gifted Students. On **November 19th 2019** we will be holding a work session for students who wish to compete in Interpretive Forensics. Students in 5th and 6th grade will have the opportunity to compete on the Belleville JV Team and 7th and 8th grade students will be competing on the Varsity Team . During this event, students will be working with district personnel to choose and prepare the piece they would like to perform. If you would like to have your child participate in this competitive field trip, please review the information below and sign and return the permission slip to your teacher by November 7, 2019.

NOTE: The bus will pick your child up at their elementary school/middle school and return them for dismissal at regular time. Please pack a lunch for your students as they will not be returned in time to each lunch at their home school.

2019 TAG Interpretive Forensics Seminar

Location:
Date:
Time:

***Each student should bring a bagged lunch (preferably peanut-free).**
***Questions about the event can be directed to Mr. Michael Vargas at 973-450-3500, ext 1036.**

Student:_____ School #: _____

☐ My child will be attending
☐ My child will NOT be attending the event.

NOTE: Students will be dropped off at their schools in the afternoon and will be dismissed from their usual locations.

Name of parent/guardian: _____

Signature of parent/guardian giving permission to attend event on November 19, 2019

Sign Here >>>_____

Emergency Contact: _____

Medical Concerns: _____

Medications needed to carry on trip: _____ Yes____ No ____

Allergies to food or Medication if yes please list type yes _____ No _____

Other _____

Restrictions and comments:
Consent for Emergency Treatment of Minors – In case of emergency children are transported to the nearest hospital when a minor is brought to the emergency room for treatment and the parent cannot be located a teacher, principal, or school nurse may act on behalf of the parents

Patients Name: _____ Please render needed medical services on behalf of the named patient.

DATE:_____ SIGNED:_____
RELATIONSHIP_____

BELLEVILLE PUBLIC SCHOOLS
102 Passaic Avenue
Belleville, New Jersey 07109
www.bellevilleschools.org

December Essex County STEAM Competition

Talented and Gifted Program

Dear Parent/Guardian:

Your child _____ has been selected to participate in an Essex County Event for Talented and Gifted Students. On **December _____** , a STEAM Competition will be held. Students will complete a task in teams using science technology, engineering, and math. During this event, 5th and 6th grade students from Belleville will compete with one another. If you would like to have your child participate in this competitive field trip, please review the information below and sign and return the permission slip to your teacher as soon as possible

NOTE: The bus will pick your child up at their elementary school and return them for dismissal at regular time.

2019 TAG STEAM Competition

Location:
Date:
Time:

***Each student should bring a bagged lunch (preferably peanut-free).**
***Questions about the event can be directed to Mr. Michael Vargas at 973-450-3500, ext 1036.**

Student:_____ School #: _____

☐ My child will be attending
☐ My child will NOT be attending the event.

NOTE: Students will be dropped off at their schools in the afternoon and will be dismissed from their usual locations.

Name of parent/guardian: _____

Signature of parent/guardian giving permission to attend event on December

Sign Here >>>_____

Emergency Contact: _____

Medical Concerns: _____

Medications needed to carry on trip: _____ Yes____ No ____

Allergies to food or Medication if yes please list type yes _____ No _____

Other _____

Restrictions and comments:
Consent for Emergency Treatment of Minors – In case of emergency children are transported to the nearest hospital when a minor is brought to the emergency room for treatment and the parent cannot be located a teacher, principal, or school nurse may act on behalf of the parents

Patients Name: _____ Please render needed medical services on behalf of the named patient.

DATE:_____ **SIGNED:_____**

RELATIONSHIP_____

BELLEVILLE PUBLIC SCHOOLS
102 Passaic Avenue
Belleville, New Jersey 07109
www.bellevilleschools.org

December 4 Solar Sprint Racing/3D Printing Program

Talented and Gifted Program

Dear Parent/Guardian:

Your child _____ has been selected to participate in a District Event for Talented and Gifted Students. During this event students in the 6th grade will be learning how to use 3-D printing techniques and various building materials to make a solar powered race car. This car will be used in April and May to race against district and regional teams. Teams that win during the preliminary races will be eligible to compete in the state tournament. This trip will be to the STEM Lab at the High School. Students should bring a shoe box to the event as they will be able to pick out materials for their build. Since the team of the race is renewable resources, students may also want to start to gather materials such as; washed out containers such as butter or yogurt; washed out soda container (must have tab); small boxes; soda bottle caps etc. Please make sure the shoe box has your child's name on it and their school number.

NOTE: The bus will pick your child up at their elementary school and return them for dismissal at regular time.

Belleville Public Schools
Talented and Gifted Program

December Solar Sprint Racing/3D Printing Program

Location:
Date:
Time:

***Each student should bring a bagged lunch (preferably peanut-free).**
***Questions about the event can be directed to Mr. Michael Vargas at 973-450-3500, ext 1036.**

Student:_____ School #: _____

☐ My child will be attending
☐ My child will NOT be attending the event.

NOTE: Students will be dropped off at their schools in the afternoon and will be dismissed from their usual locations.

Name of parent/guardian: _____

Signature of parent/guardian giving permission to attend event on

Sign Here >>>_____

Emergency Contact: _____

Medical Concerns: _____

Medications needed to carry on trip: _____ Yes____ No ____

Allergies to food or Medication if yes please list type yes _____ No _____

Other _____

Restrictions and comments:
Consent for Emergency Treatment of Minors – In case of emergency children are transported to the nearest hospital when a minor is brought to the emergency room for treatment and the parent cannot be located a teacher, principal, or school nurse may act on behalf of the parents

Patients Name: _____ Please render needed medical services on behalf of the named patient.

DATE:_____ **SIGNED:_____**

RELATIONSHIP_____

BELLEVILLE PUBLIC SCHOOLS
102 Passaic Avenue
Belleville, New Jersey 07109
www.bellevilleschools.org

January 8 Solar Sprint Racing/3D Printing Program

Talented and Gifted Program

Dear Parent/Guardian:

Your child _____ has been selected to participate in a District Event for Talented and Gifted Students. During this event students in the 6th grade will be learning how to use 3-D printing techniques and various building materials to make a solar powered race car. This car will be used in April and May to race against district and regional teams. Teams that win during the preliminary races will be eligible to compete in the state tournament. This trip will be to the STEM Lab at the High School. Students should bring a shoe box to the event as they will be able to pick out materials for their build. Since the team of the race is renewable resources, students may also want to start to gather materials such as; washed out containers such as butter or yogurt; washed out soda container (must have tab); small boxes; soda bottle caps etc. Please make sure the shoe box has your child's name on it and their school number.

NOTE: The bus will pick your child up at their elementary school and return them for dismissal at regular time.

Belleville Public Schools
Talented and Gifted Program

Solar Sprint Racing/3D Printing Program

Location:
Date:
Time:

***Each student should bring a bagged lunch (preferably peanut-free).**
***Questions about the event can be directed to Mr. Michael Vargas at 973-450-3500, ext 1036.**

Student:_____ School #: _____

☐ My child will be attending
☐ My child will NOT be attending the event.

NOTE: Students will be dropped off at their schools in the afternoon and will be dismissed from their usual locations.

Name of parent/guardian: _____

Signature of parent/guardian giving permission to attend event on

Sign Here >>>_____

Emergency Contact: _____

Medical Concerns: _____

Medications needed to carry on trip: _____ Yes____ No ____

Allergies to food or Medication if yes please list type yes _____ No _____

Other _____

Restrictions and comments:
Consent for Emergency Treatment of Minors – In case of emergency children are transported to the nearest hospital when a minor is brought to the emergency room for treatment and the parent cannot be located a teacher, principal, or school nurse may act on behalf of the parents

Patients Name: _____ Please render needed medical services on behalf of the named patient.

DATE:_____ **SIGNED:_____**

RELATIONSHIP_____

BELLEVILLE PUBLIC SCHOOLS
102 Passaic Avenue
Belleville, New Jersey 07109
www.bellevilleschools.org

February 5th Solar Sprint Racing/3D Printing Program

Talented and Gifted Program

Dear Parent/Guardian:

Your child _____ has been selected to participate in a District Event for Talented and Gifted Students. During this event, students in the 6th grade will be learning how to use 3-D printing techniques and various building materials to make a solar powered race car. This car will be used in April and May to race against district and regional teams. Teams that win during the preliminary races will be eligible to compete in the state tournament. This trip will be to the STEM Lab at the High School. Students should bring a shoe box to the event as they will be able to pick out materials for their build. Since the team of the race is renewable resources, students may also want to start to gather materials such as; washed out containers such as butter or yogurt; washed out soda container (must have tab); small boxes; soda bottle caps etc. Please make sure the shoe box has your child's name on it and their school number.

NOTE: The bus will pick your child up at their elementary school and return them for dismissal at regular time.

Belleville Public Schools
Talented and Gifted Program

Solar Sprint Racing/3D Printing Program

Location:
Date:
Time:

***Each student should bring a bagged lunch (preferably peanut-free).**
***Questions about the event can be directed to Mr. Michael Vargas at 973-450-3500, ext 1036.**

Student:_____ School #: _____

☐ My child will be attending
☐ My child will NOT be attending the event.

NOTE: Students will be dropped off at their schools in the afternoon and will be dismissed from their usual locations.

Name of parent/guardian: _____

Signature of parent/guardian giving permission to attend event on

Sign Here >>>_____

Emergency Contact: _____

Medical Concerns: _____

Medications needed to carry on trip: _____ Yes____ No ____

Allergies to food or Medication if yes please list type yes _____ No _____

Other _____

Restrictions and comments:
Consent for Emergency Treatment of Minors – In case of emergency children are transported to the nearest hospital when a minor is brought to the emergency room for treatment and the parent cannot be located a teacher, principal, or school nurse may act on behalf of the parents

Patients Name: _____ Please render needed medical services on behalf of the named patient.

DATE:_____ **SIGNED:_____**

RELATIONSHIP_____

BELLEVILLE PUBLIC SCHOOLS
102 Passaic Avenue
Belleville, New Jersey 07109
www.bellevilleschools.org

March 4th Solar Sprint Racing/3D Printing Program

Talented and Gifted Program

Dear Parent/Guardian:

Your child _____ has been selected to participate in a District Event for Talented and Gifted Students. During this event, students in the 6th grade will be learning how to use 3-D printing techniques and various building materials to make a solar powered race car. This car will be used in April and May to race against district and regional teams. Teams that win during the preliminary races will be eligible to compete in the state tournament. This trip will be to the STEM Lab at the High School. Students should bring a shoe box to the event as they will be able to pick out materials for their build. Since the team of the race is renewable resources, students may also want to start to gather materials such as; washed out containers such as butter or yogurt; washed out soda container (must have tab); small boxes; soda bottle caps etc. Please make sure the shoe box has your child's name on it and their school number.

NOTE: The bus will pick your child up at their elementary school and return them for dismissal at regular time.

Belleville Public Schools
Talented and Gifted Program

Solar Sprint Racing/3D Printing Program

Location:
Date:
Time:

***Each student should bring a bagged lunch (preferably peanut-free).**
***Questions about the event can be directed to Mr. Michael Vargas at 973-450-3500, ext 1036.**

Student:_____ School #: _____

☐ My child will be attending
☐ My child will NOT be attending the event.

NOTE: Students will be dropped off at their schools in the afternoon and will be dismissed from their usual locations.

Name of parent/guardian: _____

Signature of parent/guardian giving permission to attend event on

Sign Here >>>_____

Emergency Contact: _____

Medical Concerns: _____

Medications needed to carry on trip: _____ Yes____ No ____

Allergies to food or Medication if yes please list type yes _____ No _____

Other _____

Restrictions and comments:
Consent for Emergency Treatment of Minors – In case of emergency children are transported to the nearest hospital when a minor is brought to the emergency room for treatment and the parent cannot be located a teacher, principal, or school nurse may act on behalf of the parents

Patients Name: _____ Please render needed medical services on behalf of the named patient.

DATE:_____ **SIGNED:_____**

RELATIONSHIP_____

BELLEVILLE PUBLIC SCHOOLS
102 Passaic Avenue
Belleville, New Jersey 07109
www.bellevilleschools.org

April 6th Solar Sprint Racing/3D Printing Program

Talented and Gifted Program

Dear Parent/Guardian:

Your child _____ has been selected to participate in a District Event for Talented and Gifted Students. During this event, students in the 6th grade will be learning how to use 3-D printing techniques and various building materials to make a solar powered race car. This car will be used in April and May to race against district and regional teams. Teams that win during the preliminary races will be eligible to compete in the state tournament. This trip will be to the STEM Lab at the High School. Students should bring a shoe box to the event as they will be able to pick out materials for their build. Since the team of the race is renewable resources, students may also want to start to gather materials such as; washed out containers such as butter or yogurt; washed out soda container (must have tab); small boxes; soda bottle caps etc. Please make sure the shoe box has your child's name on it and their school number.

NOTE: The bus will pick your child up at their elementary school and return them for dismissal at regular time.

Solar Sprint Racing/3D Printing Program

Location:
Date:
Time:

***Each student should bring a bagged lunch (preferably peanut-free).**
***Questions about the event can be directed to Mr. Michael Vargas at 973-450-3500, ext 1036.**

Student:_____ School #: _____

☐ My child will be attending
☐ My child will NOT be attending the event.

NOTE: Students will be dropped off at their schools in the afternoon and will be dismissed from their usual locations.

Name of parent/guardian: _____

Signature of parent/guardian giving permission to attend event on

Sign Here >>>_____

Emergency Contact: _____

Medical Concerns: _____

Medications needed to carry on trip: _____ Yes____ No ____

Allergies to food or Medication if yes please list type yes _____ No _____

Other _____

Restrictions and comments:
Consent for Emergency Treatment of Minors – In case of emergency children are transported to the nearest hospital when a minor is brought to the emergency room for treatment and the parent cannot be located a teacher, principal, or school nurse may act on behalf of the parents

Patients Name: _____ Please render needed medical services on behalf of the named patient.

DATE:_____ **SIGNED:_____**

RELATIONSHIP_____

BELLEVILLE PUBLIC SCHOOLS
102 Passaic Avenue
Belleville, New Jersey 07109
www.bellevilleschools.org

Totally Global District Competition

Talented and Gifted Program

Dear Parent/Guardian:

Your child _____ has been selected to participate in a district event for our Talented and Gifted Students. On January 28th the district **Totally Global Competition will be held at** _____. During this event, 4th and 5th grade students from Belleville will compete in a geography event with students from around the district. This event will prepare students to participate in the Essex County Competition that will be held in March. No preparation for this competition is necessary- as the only things needed will be geographic knowledge and a bagged lunch. If you would like to have your child participate in this competitive field trip, please review the information below and sign and return the permission slip to your teacher by *January 10th, 2020.*

NOTE: The bus will pick your child up at their elementary school/middle school and return them for dismissal at regular time. Please pack a lunch for your students as they will not be returned in time to each lunch at their home school.

Belleville Public Schools
Talented and Gifted Program

Totally Global District Competition

Location:
Date:
Time: 9:00am

***Each student should bring a bagged lunch (preferably peanut-free).**
***Questions about the event can be directed to Mr. Michael Vargas at 973-450-3500, ext 1036.**

Student:_____ School #: _____

☐ My child will be attending Totally Global
☐ My child will NOT be attending the event.

NOTE: Students will be dropped off at their schools in the afternoon and will be dismissed from their usual locations.

Name of parent/guardian: _____

Signature of parent/guardian giving permission to attend event on

_____

Emergency Contact: _____

Medical Concerns: _____

Medications needed to carry on trip: _____ Yes____ No ____

Allergies to food or Medication if yes please list type yes _____ No _____

Other _____

Restrictions and comments:
Consent for Emergency Treatment of Minors – In case of emergency children are transported to the nearest hospital when a minor is brought to the emergency room for treatment and the parent cannot be located a teacher, principal, or school nurse may act on behalf of the parents

Patients Name: _____ Please render needed medical services on behalf of the named patient.

DATE:_____ SIGNED:_____
RELATIONSHIP_____

BELLEVILLE PUBLIC SCHOOLS
102 Passaic Avenue
Belleville, New Jersey 07109
www.bellevilleschools.org

Forensics Tournament - Interpretative Reading

Talented and Gifted Program

Dear Parent/Guardian:

Your child _____ has been selected to participate in an Essex County Event for Talented and Gifted Students. **On January 17th with a snow date of January 17th,** a Forensics Tournament in Interpretive Reading will be held at Montclair State University, New Jersey. During this event, 5th and 6th grade students from Belleville will compete in an event with students from other districts in Essex County on the JV Team with our 7th and 8th grade students on our Varsity Team. Participation in this event is limited to 6 students per school district, so please let us know if your child will not be attending as soon as possible.

Students will need to prepare a 4– 5.5 min piece. Students and Chaperones should bring a bagged lunch and drink with **NO GLASS and should be nut free.** Due to safety and security reasons there is no observers. We will gladly take photos as allowed.

NOTE: The bus will be leaving at 8:30am from Belleville High School. Please drop your child off at Door #26 by the Belleville Board of Education office (102 Passaic Ave.) by 8:15 am on the day of the trip. Members of the Talented & Gifted staff will be accompanying the students to this event. Students will be dropped off at their schools in the afternoon and will be dismissed from their usual locations.

Belleville Public Schools
Talented and Gifted Program

2020 Forensic Teams

Location: Montclair State University
*Date:*January 10th, 2020 - SNOW DATE January 17th
Time: 9:00am

*Trip will be leaving from Belleville Board of Education Office. Please drop your child off there on the morning of the trip. Students will be dropped off and dismissed from their home schools
.
*Each student should bring a bagged lunch (preferably peanut-free). **NO GLASS**

*Questions about the event can be directed to Mr. Michael Vargas at 973-450-3500, ext 1036.

Student:_____ School #: _____

☐ My child will be attending the January 10th event (snow date January 17th)
  ☐ He/she will be dropped off at Belleville BOE Door #26 on January 10th event
☐ My child will NOT be attending the event.

Name of parent/guardian: _____

Signature of parent/guardian giving permission to attend event on January 10th(snow date January 17th)**:**

_____

Emergency Contact: _____

Medical Concerns: _____

Medications needed to carry on trip: _____ Yes____ No ____

Allergies to food or Medication if yes please list type yes _____ No _____

Other _____

Restrictions and comments:

Consent for Emergency Treatment of Minors – In case of emergency children are transported to the nearest hospital when a minor is brought to the emergency room for treatment and the parent cannot be located a teacher, principal, or school nurse may act on behalf of the parents

Patients Name: _____ Please render needed medical services on behalf of the named patient.

DATE:_____ SIGNED:_____ RELATIONSHIP_____

BELLEVILLE PUBLIC SCHOOLS
102 Passaic Avenue
Belleville, New Jersey 07109
www.bellevilleschools.org

January Solar Sprint Racing/3D Printing Program

Talented and Gifted Program

Dear Parent/Guardian:

Your child _____ has been selected to participate in a District Event for Talented and Gifted Students. On the 1st annual STEAM Competition will be held. Students will be preparing for a County Wide STEM event where they will complete a task in teams using science technology, engineering, and math. During this event, 5th and 6th grade students from Belleville will compete with one another. If you would like to have your child participate in this competitive field trip, please review the information below and sign and return the permission slip to your teacher by.

NOTE: The bus will pick your child up at their elementary school and return them for dismissal at regular time.

Belleville Public Schools
Talented and Gifted Program

January Solar Sprint Racing/3D Printing Program

Location: Nutley, NJ
Date:
Time:

***Each student should bring a bagged lunch (preferably peanut-free).**
***Questions about the event can be directed to Mr. Michael Vargas at 973-450-3500, ext 1036.**

Student:_____ School #: _____

☐ My child will be attending
☐ My child will NOT be attending the event.

NOTE: Students will be dropped off at their schools in the afternoon and will be dismissed from their usual locations.

Name of parent/guardian: _____

Signature of parent/guardian giving permission to attend event on

Sign Here >>>_____

Emergency Contact: _____

Medical Concerns: _____

Medications needed to carry on trip: _____ Yes____ No ____

Allergies to food or Medication if yes please list type yes _____ No _____

Other _____

Restrictions and comments:
Consent for Emergency Treatment of Minors – In case of emergency children are transported to the nearest hospital when a minor is brought to the emergency room for treatment and the parent cannot be located a teacher, principal, or school nurse may act on behalf of the parents

Patients Name: _____ Please render needed medical services on behalf of the named patient.

DATE:_____ **SIGNED:_____**

RELATIONSHIP_____

BELLEVILLE PUBLIC SCHOOLS
102 Passaic Avenue
Belleville, New Jersey 07109
www.bellevilleschools.org

Essex County Totally Global Competition

Talented and Gifted Program

Dear Parent/Guardian:

Your child _____ has been selected to participate in a district event for our Talented and Gifted Students. On January 28th the district **Totally Global Competition will be held at Essex Fells School in Essex Fells, NJ**. During this event, 4th and 5th grade students from Belleville will compete in a geography event with students from around the county. No preparation for this competition is necessary- as the only things needed will be geographic knowledge and a bagged lunch. If you would like to have your child participate in this competitive field trip, please review the information below and sign and return the permission slip to your teacher by *January 10th, 2020.*

NOTE: Students should bring a bagged lunch and water with them.

Belleville Public Schools
Talented and Gifted Program

Totally Global District Competition

Location:
Date:
Time: 9:00am

***Each student should bring a bagged lunch (preferably peanut-free).**
***Questions about the event can be directed to Mr. Michael Vargas at 973-450-3500, ext 1036.**

Student:_____ School #: _____

☐ My child will be attending Totally Global
☐ My child will NOT be attending the event.

NOTE: Students will be dropped off at their schools in the afternoon and will be dismissed from their usual locations.

Name of parent/guardian: _____

Signature of parent/guardian giving permission to attend event on

_____

Emergency Contact: _____

Medical Concerns: _____

Medications needed to carry on trip: _____ Yes____ No ____

Allergies to food or Medication if yes please list type yes _____ No _____

Other _____

Restrictions and comments:
Consent for Emergency Treatment of Minors – In case of emergency children are transported to the nearest hospital when a minor is brought to the emergency room for treatment and the parent cannot be located a teacher, principal, or school nurse may act on behalf of the parents

Patients Name: _____ Please render needed medical services on behalf of the named patient.

DATE:_____ SIGNED:_____

RELATIONSHIP_____

BELLEVILLE PUBLIC SCHOOLS
102 Passaic Avenue
Belleville, New Jersey 07109
www.bellevilleschools.org

March 24th District Academically Speaking Competition

Dear Parent/Guardian:

Your child _____ is being asked to attend Academically Speaking, a T&G event taking place on March 24th, 2020. Students in grades 4-6 will compete on the JV Team while students in grade 7-8 will compete with our Varsity Team. Students should bring bottled water and a packed lunch. Students will be dropped off at their home schools before dismissal.

Belleville Public Schools
Talented and Gifted Program

District Academically Speaking

Location: Belleville School Number 8
Date: March 24, 2020
****Each student should bring a bagged lunch (preferably peanut-free) and extra water.**
**** Students need to meet at door 26 at the Board of Education/High School at 8:45**
***Questions about the event can be directed to Mr. Michael Vargas at 973-450-3500, ext 1036.**

Student:_____ School #: _____

☐ My child will be attending Academically Speaking
☐ My child will NOT be attending the event.

NOTE: Students will be dropped off at their schools in the afternoon and will be dismissed from their usual locations.

Name of parent/guardian: _____

Signature of parent/guardian giving permission to attend event on March 24, 2020

Sign here ------>>>>_____

Emergency Contact: _____

Medical Concerns: _____

Medications needed to carry on trip: _____ Yes____ No ____

Allergies to food or Medication if yes please list type yes _____ No _____

Other _____

Restrictions and comments:
Consent for Emergency Treatment of Minors – In case of emergency children are transported to the nearest hospital when a minor is brought to the emergency room for treatment and the parent cannot be located a teacher, principal, or school nurse may act on behalf of the parents

Patients Name: _____ Please render needed medical services on behalf of the named patient.

DATE:_____ SIGNED:_____
RELATIONSHIP_____

BELLEVILLE PUBLIC SCHOOLS
102 Passaic Avenue
Belleville, New Jersey 07109
www.bellevilleschools.org

April 20th Declarative Forensics Seminar

Talented and Gifted Program

Dear Parent/Guardian:

Your child _____ has been selected to participate in a District Event for Talented and Gifted Students. On **April 20th, 2020,** we will be holding a work session for students who wish to compete in Interpretive Forensics. Students in 5th and 6th grade will have the opportunity to compete on the Belleville JV Team and 7th and 8th grade students will be competing on the Varsity Team . During this event, students will be working with district personnel to choose and prepare the piece they would like to perform. If you would like to have your child participate in this competitive field trip, please review the information below and sign and return the permission slip to your teacher as soon as possible

NOTE: The bus will pick your child up at their elementary school/middle school and return them for dismissal at regular time. Please pack a lunch for your students as they will not be returned in time to each lunch at their home school.

2019 TAG Interpretive Forensics Seminar

Location:
Date:
Time:

***Each student should bring a bagged lunch (preferably peanut-free).**
***Questions about the event can be directed to Mr. Michael Vargas at 973-450-3500, ext 1036.**

Student:_____ School #: _____

☐ My child will be attending
☐ My child will NOT be attending the event.

NOTE: Students will be dropped off at their schools in the afternoon and will be dismissed from their usual locations.

Name of parent/guardian: _____

Signature of parent/guardian giving permission to attend event on November 19, 2019

Sign Here >>>_____

Emergency Contact: _____

Medical Concerns: _____

Medications needed to carry on trip: _____ Yes____ No ____

Allergies to food or Medication if yes please list type yes _____ No _____

Other _____

Restrictions and comments:
Consent for Emergency Treatment of Minors – In case of emergency children are transported to the nearest hospital when a minor is brought to the emergency room for treatment and the parent cannot be located a teacher, principal, or school nurse may act on behalf of the parents

Patients Name: _____ Please render needed medical services on behalf of the named patient.

DATE:_____ SIGNED:_____
RELATIONSHIP_____

BELLEVILLE PUBLIC SCHOOLS
102 Passaic Avenue
Belleville, New Jersey 07109
www.bellevilleschools.org

April 22nd District Solar Sprints Competition

Dear Parent/Guardian:

Your child _____ has been building a solar powered race car. We will be holding a district wide competition on April 22nd. Students from around the district will be racing their cars against one another. Students will enter the race for speed, design, and creativity. Please complete the below and return to your TAG Teacher as soon as possible.

Solar Sprint Race

Location:
Date:

****Each student should bring a bagged lunch (preferably peanut-free) and extra water. Please note that the event is outside and we will be outside for the majority of the day.**
**** Students need to meet at door 26 at the Board of Education/High School at 8:45**
***Questions about the event can be directed to Mr. Michael Vargas at 973-450-3500, ext 1036.**

Student:_____ School #: _____

☐ My child will be attending the Solar Sprint Race – Finals
☐ He/she will be dropped off at Belleville BOE Door #26

☐ My child will NOT be attending the event.

NOTE: Students will be dropped off at their schools in the afternoon and will be dismissed from their usual locations.

Name of parent/guardian: _____

Signature of parent/guardian giving permission to attend event on May 18, 2020

_____

Emergency Contact: _____

Medical Concerns: _____

Medications needed to carry on trip: _____ Yes____ No ____

Allergies to food or Medication if yes please list type yes _____ No _____

Other _____

Restrictions and comments:
Consent for Emergency Treatment of Minors – In case of emergency children are transported to the nearest hospital when a minor is brought to the emergency room for treatment and the parent cannot be located a teacher, principal, or school nurse may act on behalf of the parents

Patients Name: _____ Please render needed medical services on behalf of the named patient.

DATE:_____ SIGNED:_____
RELATIONSHIP_____

BELLEVILLE PUBLIC SCHOOLS
102 Passaic Avenue
Belleville, New Jersey 07109
www.bellevilleschools.org

May Solar Sprints Regional Competition

Dear Parent/Guardian:

Your child _____ has been building a solar powered race car. If we place at regionals then we will be attending the State Finals on May 18th, 2020. The finals will take place at Unity Charter School in Morristown. Students will meet with their teacher at 8:15 at **Belleville High School at Door #26 (entrance to the Belleville Board of Education Office).** Students should bring bottled water and a packed lunch and **note that we will be outside for most of the day please also remember sunscreen etc**. Students will be dropped off at their home schools before dismissal. **Please be on time as any missed races are counted as forfeited matches.**

Solar Sprint Race

Location:
Date:

****Each student should bring a bagged lunch (preferably peanut-free) and extra water. Please note that the event is outside and we will be outside for the majority of the day.**
**** Students need to meet at door 26 at the Board of Education/High School at 8:45**
***Questions about the event can be directed to Mr. Michael Vargas at 973-450-3500, ext 1036.**

Student:_____ School #: _____

☐ My child will be attending the Solar Sprint Race – Finals
☐ He/she will be dropped off at Belleville BOE Door #26

☐ My child will NOT be attending the event.

NOTE: Students will be dropped off at their schools in the afternoon and will be dismissed from their usual locations.

Name of parent/guardian: _____

Signature of parent/guardian giving permission to attend event on

_____

Emergency Contact: _____

Medical Concerns: _____

Medications needed to carry on trip: _____ Yes____ No ____

Allergies to food or Medication if yes please list type yes _____ No _____

Other _____

Restrictions and comments:
Consent for Emergency Treatment of Minors – In case of emergency children are transported to the nearest hospital when a minor is brought to the emergency room for treatment and the parent cannot be located a teacher, principal, or school nurse may act on behalf of the parents

Patients Name: _____ Please render needed medical services on behalf of the named patient.

DATE:_____ SIGNED:_____
RELATIONSHIP_____

BELLEVILLE PUBLIC SCHOOLS
102 Passaic Avenue
Belleville, New Jersey 07109
www.bellevilleschools.org

May 18th Solar Sprints Finals Competition

Dear Parent/Guardian:

Your child _____ has been building a solar powered race car. If we place at regionals then we will be attending the State Finals on May 18th, 2020. The finals will take place at Unity Charter School in Morristown, NJ. Students will meet with their teacher at 8:15 at **Belleville High School at Door #26 (entrance to the Belleville Board of Education Office).** Students should bring bottled water and a packed lunch and **note that we will be outside for most of the day please also remember sunscreen etc**. Students will be dropped off at their home schools before dismissal. **Please be on time as any missed races are counted as forfeited matches.**

Belleville Public Schools
Talented and Gifted Program

Solar Sprint Race

Location: Unity Charter School
1 Evergreen Place
Morristown, NJ
Date: May 18, 2020
****Each student should bring a bagged lunch (preferably peanut-free) and extra water. Please note that the event is outside and we will be outside for the majority of the day.**
**** Students need to meet at door 26 at the Board of Education/High School at 8:45**
***Questions about the event can be directed to Mr. Michael Vargas at 973-450-3500, ext 1036.**

Student:_____ School #: _____

☐ My child will be attending the Solar Sprint Race – Finals
☐ He/she will be dropped off at Belleville BOE Door #26

☐ My child will NOT be attending the event.

NOTE: Students will be dropped off at their schools in the afternoon and will be dismissed from their usual locations.

Name of parent/guardian: _____

Signature of parent/guardian giving permission to attend event on May 18, 2020

_____

Emergency Contact: _____

Medical Concerns: _____

Medications needed to carry on trip: _____ Yes____ No ____

Allergies to food or Medication if yes please list type yes _____ No _____

Other _____

Restrictions and comments:
Consent for Emergency Treatment of Minors – In case of emergency children are transported to the nearest hospital when a minor is brought to the emergency room for treatment and the parent cannot be located a teacher, principal, or school nurse may act on behalf of the parents

Patients Name: _____ Please render needed medical services on behalf of the named patient.

DATE:_____ SIGNED:_____
RELATIONSHIP_____

BELLEVILLE PUBLIC SCHOOLS
102 Passaic Avenue
Belleville, New Jersey 07109
www.bellevilleschools.org

May 19th 2020 2nd Annual District Challenge 24 Competition

Dear Parent/Guardian:

Your child _____ has been selected to compete in the 2nd annual district Challenge 24 Competition. The competition will be hosted by School 4 on May 19rd, 2020. Students will be picked up at their school in the morning sometime after rise and shine. Students should bring a brown bag lunch and drink. Students will be dropped off at their individual schools after the event is over and before the end of the day. Please return this permission slip as soon as possible.

Belleville Public Schools
Talented and Gifted Program

2020 2nd Annual District Challenge 24 Competition

Location: Belleville Elementary School 4
30 Magnolia Street
Belleville, NJ 07109

Date: May 19, 2020
****Each student should bring a bagged lunch (preferably peanut-free) and extra water.**
***Questions about the event can be directed to Mr. Michael Vargas at 973-450-3500, ext 1036.**

Student:_____ School #: _____

☐ My child will be attending the 2nd annual district Challenge 24 Competition

☐ My child will NOT be attending the event.

NOTE: Students will be dropped off at their schools in the afternoon and will be dismissed from their usual locations.

Name of parent/guardian: _____

Signature of parent/guardian giving permission to attend event on May 19, 2020

_____

Emergency Contact: _____

Medical Concerns: _____

Medications needed to carry on trip: _____ Yes____ No ____

Allergies to food or Medication if yes please list type yes _____ No _____

Other _____

Restrictions and comments:
Consent for Emergency Treatment of Minors – In case of emergency children are transported to the nearest hospital when a minor is brought to the emergency room for treatment and the parent cannot be located a teacher, principal, or school nurse may act on behalf of the parents

Patients Name: _____ Please render needed medical services on behalf of the named patient.

DATE:_____ SIGNED:_____

RELATIONSHIP_____

BELLEVILLE PUBLIC SCHOOLS
102 Passaic Avenue
Belleville, New Jersey 07109
www.bellevilleschools.org

Forensics Tournament - Declamation Forensics

Talented and Gifted Program

Dear Parent/Guardian:

Your child _____ has been selected to participate in an Essex County Event for Talented and Gifted Students. a Forensics Tournament in Declamation Forensics will be held at Montclair State University, New Jersey. During this event, 5th and 6th grade students from Belleville will compete in an event with students from other districts in Essex County on the JV Team with our 7th and 8th grade students on our Varsity Team. Participation in this event is limited to 6 students per school district, so please let us know if your child will not be attending as soon as possible.

Students will need to prepare a 4– 5.5 min piece. Students and Chaperones should bring a bagged lunch and drink with **NO GLASS and should be nut free.** Due to safety and security reasons there is no observers. We will gladly take photos as allowed.

NOTE: The bus will be leaving at 8:30am from Belleville High School. Please drop your child off at Door #26 by the Belleville Board of Education office (102 Passaic Ave.) by 8:15 am on the day of the trip. Members of the Talented & Gifted staff will be accompanying the students to this event. Students will be dropped off at their schools in the afternoon and will be dismissed from their usual locations.

Belleville Public Schools
Talented and Gifted Program

2020 Forensic Teams

Location: Montclair State University
*Date:*May 22nd, 2020 or May 29th, 2020
Time: 9:00am

*Trip will be leaving from Belleville Board of Education Office. Please drop your child off there on the morning of the trip. Students will be dropped off and dismissed from their home schools
.
*Each student should bring a bagged lunch (preferably peanut-free). **NO GLASS**

*Questions about the event can be directed to Mr. Michael Vargas at 973-450-3500, ext 1036.

Student:_____ School #: _____

☐ My child will be attending Declamation Forensics Event
  ☐ He/she will be dropped off at Belleville BOE Door #26
☐ My child will NOT be attending the event.

Name of parent/guardian: _____

Signature of parent/guardian giving permission to attend event on May 22nd or 29th 2020

Sign Here ----->>>>>>_____

Emergency Contact: _____

Medical Concerns: _____

Medications needed to carry on trip: _____ Yes____ No ____

Allergies to food or Medication if yes please list type yes _____ No _____

Other _____

Restrictions and comments:

Consent for Emergency Treatment of Minors – In case of emergency children are transported to the nearest hospital when a minor is brought to the emergency room for treatment and the parent cannot be located a teacher, principal, or school nurse may act on behalf of the parents

Patients Name: _____ Please render needed medical services on behalf of the named patient.

DATE:_____ SIGNED:_____ RELATIONSHIP_____

BELLEVILLE PUBLIC SCHOOLS
102 Passaic Avenue
Belleville, New Jersey 07109
www.bellevilleschools.org

2020 Essex County Academically Speaking Competition

Dear Parent/Guardian:

Your child _____ is being asked to attend Academically Speaking, a T&G event taking place on May 28, 2020. Students in grades 4-6 will compete on the JV Team while students in grade 7-8 will compete with our Varsity Team. Students should arrive at **Belleville High School at Door #26 (entrance to the Belleville Board of Education Office) at 8:30am.** Students should bring bottled water and a packed lunch. Students will be dropped off at their home schools before dismissal.

Please sign and return the attached permission form.

Belleville Public Schools
Talented and Gifted Program

2020 Academically Speaking

Location: Edison School
75 William Street
West Orange, New Jersey
Date: May 28th, 2020
****Each student should bring a bagged lunch (preferably peanut-free) and extra water.**
**** Students need to meet at door 26 at the Board of Education/High School at 8:45**
***Questions about the event can be directed to Mr. Michael Vargas at 973-450-3500, ext 1036.**

Student:_____ School #: _____

☐ My child will be attending Academically Speaking
☐ He/she will be dropped off at Belleville BOE Door #26

☐ My child will NOT be attending the event.

NOTE: Students will be dropped off at their schools in the afternoon and will be dismissed from their usual locations.

Name of parent/guardian: _____

Signature of parent/guardian giving permission to attend event on May 28th, 2020

Sign here ------>>>>_____

Emergency Contact: _____

Medical Concerns: _____

Medications needed to carry on trip: _____ Yes____ No ____

Allergies to food or Medication if yes please list type yes _____ No _____

Other _____

Restrictions and comments:
Consent for Emergency Treatment of Minors – In case of emergency children are transported to the nearest hospital when a minor is brought to the emergency room for treatment and the parent cannot be located a teacher, principal, or school nurse may act on behalf of the parents

Patients Name: _____ Please render needed medical services on behalf of the named patient.

DATE:_____ SIGNED:_____
RELATIONSHIP_____

BELLEVILLE PUBLIC SCHOOLS
102 Passaic Avenue
Belleville, New Jersey 07109
www.bellevilleschools.org

June 4th Essex County Challenge 24 Competition

Dear Parent/Guardian:

Your child _____ has been selected to compete in the Challenge 24 Competition in Millburn Middle School on June 4th, 2020. We will be meeting at **Belleville High School at Door #26 (entrance to the Belleville Board of Education Office)**. Please have your student bring a bagged lunch with no nuts or glass. Students will be dropped off at their own school in the afternoon in time for dismissal. Please return this permission slip as soon as possible.

Belleville Public Schools
Talented and Gifted Program

2020 Challenge 24 Competition

Location: Millburn Middle School
25 Old Short Hill Road
Millburn, NJ 07109

Date: June 4, 2019
****Each student should bring a bagged lunch (preferably peanut-free) and extra water.**
***Questions about the event can be directed to Mr. Michael Vargas at 973-450-3500, ext 1036.**

Student:_____ School #: _____

☐ My child will be attending the 2020 County Challenge 24 Competition
☐ The student will be dropped off at door 26 at the Belleville BOE/High School

☐ My child will NOT be attending the event.

NOTE: Students will be dropped off at their schools in the afternoon and will be dismissed from their usual locations.
Name of parent/guardian: _____

Signature of parent/guardian giving permission to attend event on June 4, 2019

Sign Here ___>>>_____

Emergency Contact: _____

Medical Concerns: _____

Medications needed to carry on trip: _____ Yes____ No ____

Allergies to food or Medication if yes please list type yes _____ No _____

Other _____

Restrictions and comments:
Consent for Emergency Treatment of Minors – In case of emergency children are transported to the nearest hospital when a minor is brought to the emergency room for treatment and the parent cannot be located a teacher, principal, or school nurse may act on behalf of the parents

Patients Name: _____ Please render needed medical services on behalf of the named patient.

DATE:_____ SIGNED:_____
RELATIONSHIP_____

TAG SUGGESTED MATERIALS

Below is a list of materials that would be helpful to have on-hand in each building for potential T&G activities throughout the year.

- ❏ Balloons
- ❏ Beach balls
- ❏ Beads
- ❏ Bottle caps
- ❏ Bubble wrap
- ❏ Buttons
- ❏ Cardboard scraps
- ❏ Cereal boxes
- ❏ Combs
- ❏ Corks
- ❏ Cotton balls
- ❏ Decks of cards
- ❏ Foam
- ❏ Foil
- ❏ Glue
- ❏ Index cards
- ❏ Magnets
- ❏ Mailing labels
- ❏ Markers
- ❏ Newspaper
- ❏ Packing popcorn
- ❏ Paperclips
- ❏ Paper goods (cups, plates, bowls, forks, spoons)
- ❏ Pasta
- ❏ Pencils
- ❏ Ping pong balls
- ❏ Pipe cleaners
- ❏ Popsicle sticks
- ❏ Poster board
- ❏ Plastic bottles
- ❏ Plastic lids
- ❏ Plastic wrap
- ❏ Ribbon
- ❏ Rubber bands
- ❏ Rulers
- ❏ Scissors
- ❏ Small containers (yogurt butter)
- ❏ Small scraps of wood
- ❏ Sticky dots
- ❏ Sticky notes
- ❏ String
- ❏ Straws
- ❏ Tape (various types)
- ❏ Tissue box
- ❏ Tissue paper
- ❏ Toothpicks
- ❏ Twist ties
- ❏ Toilet paper rolls/paper towel rolls
- ❏ Yarn
- ❏ Wheels (any type)

Independent Study

Independent Inquiry Project
Grades K-2

The intent of this project is to allow the student to extend the core curriculum and develop skills according to their capabilities. Therefore, the completion of this project is not for classroom extra credit and will not affect the student's grade in any subject.

Students will be given the opportunity to investigate something new that he/she wonders about and has not had the opportunity to explore on their own yet. Students will present their findings to their peers. Not only will they be using the core subjects of reading, writing, and social studies (as well as math and science depending on the topic), they will also be practicing public speaking skills and developing self-confidence - all useful for future endeavors.

Project Directions

Step 1: Start Planning

Use the table below to help you plan.

My favorite subject in school is:
I love learning about:
Some of my interests are:
In my free time, I like to...
Some things I wonder are...

Questions I have about the things I wonder are...

I prefer to read.... And the last book I loved was about ...

Step 2: Thinking about Topics

Completing a research map: Look at your answers to your Step 1 questions and choose at least 2 but no more than 10 topics and list them

Complete a pre- search Map on at least two of the topics

Pre-research Sample Map

Pre-research Map

Pre-research Map

Pre-research Map

Pre-research Map

Pre-research Map

Step 3: Narrow Down Your Ideas

Look at all the topics in the table. What are you most curious about? What excites you the most? Write 2 or 3 of them here:

1. _____

_____

2. _____

_____

3. _____

_____

Now, narrow it down to your favorite!

_____

What do you want to learn about this topic?

Step 4: Teacher Review

Please check-in with your teacher at this point. Have him/her review what you have done so far and help you formulate your BIG question.

The **BIG QUESTION** I will investigate is:

_____

_____

_____?

My Research Question

Print Research Scavenger Hunt

Step 4: Research Your Topic

It's now time to research your **BIG QUESTION**! Use the internet, books, magazines, interviews, videos, etc., to investigate your question.

My research Notes

My research Notes

My research Notes

My research Notes

My research Notes

My research Notes

Bibliography

Important Ideas From My Notes
Analysis and Conclusion
What have I learned from my Big Question

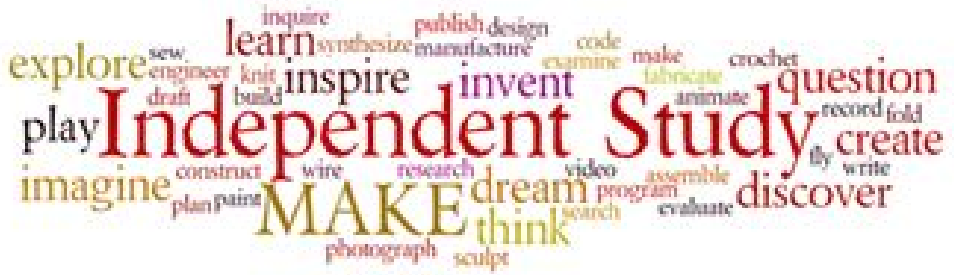
Step 5: Present Your Project

It's now time to decide how you will share what you learned with your class! Choose how you would like to present your work:

- ❑ Documentary
- ❑ Play
- ❑ Video Presentation
- ❑ Article
- ❑ Brochure
- ❑ News Report
- ❑ Poetry
- ❑ Art Piece
- ❑ Game
- ❑ Map
- ❑ Magazine
- ❑ Model
- ❑ Display
- ❑ Picture Book
- ❑ Photo Essay
- ❑ Exhibit
- ❑ Comic
- ❑ Mural
- ❑ Collage
- ❑ Website
- ❑ Short Story

Step 6: Project Rubric

Here is a rubric to help you plan and reflect on your final project!


inquire
publish
design
learn
synthesize
manufacture
code
explore
sew
engineer
knit
examine
make
crochet
inspire
invent
fabricate
question
draft
build
animate
play
Independent Study
record
fold
create
fly
write
imagine
construct
wire
research
video
assemble
dream
program
discover
plan
paint
MAKE
search
evaluate
think
photograph
sculpt

Independent Study Grades 3-6

The TED Talk format has globally evolved into a way for people to share their expertise, develop their passions, and to offer radical new ideas and solutions to the world's problems.This project will give students the chance to explore what makes them special as an individual and give them a platform to share their ideas with classmates and teachers. Students will write and present a five-to-eight minute presentation using visuals and/or props. Not only will they be using the core subjects of reading, writing, and social studies (as well as math and science depending on the topic), they will also be utilizing public speaking skills and practicing self-confidence - all useful for future endeavors.

The intent of this project is to allow students to extend the core curriculum and develop his/her skills according to his/her capabilities. Therefore, the completion of this project is not for classroom extra credit and will not affect the student's grade in any subject.

This Independent Inquiry Project packet includes:

- An Action Plan
- Project Directions
- Rubric

Action Plan

Project Topic	Date to be Completed
Step 1: Let's Build Some Background Knowledge!	
Step 2: Get Those Creative Juices Flowing: FFOE	
Step 3: Using a Mind Map	
Step 4: Creating a Happy Thesis Statement	
Step 5: Writing the Middle of Your Speech	
Step 6: Writing the End of Your Speech	
Step 7: Practice, Practice, Practice	
Step 8: Visual Aids	
Step 9: Memorizing Your Speech	
Step 10: Practice Even More!	
Final Presentation Ready for the World	

Possible Resources For This Project

Information Types	Possible Resources
Books, Periodicals	
Websites	
Interviews	
Experiences	

Student Signature: _____

Parent Signature: _____

Teacher Signature: _____ **Date: _____**

Project Directions

Step 1: Let's Build Some Background Knowledge!

Research what a TED Talk is and answer the questions below.

1. What is a Ted Talk?

2. What is the goal/purpose of a Ted Talk?

3. Watch these example Ted Talks:
   - Adora Svitak: "What Adults Can Learn From Kids"

4. Based on the Ted Talks you've already watched on your own, brainstorm a list of attributes a successful TED Talk should have and write them in the spaces provided.

Step 2: Get Those Creative Juices Flowing!

Learn the principles of FFOE (Fluency, Flexibility, Originality, Elaboration) and brainstorm your topic. (Activities adapted from NuMinds Enrichment.)

Fluency is about turning on the faucet and letting ideas flow, without judging or critiquing them. Set a timer for five minutes. List 20 + things you could give a TED Talk on in the spaces provided. Your job right now is to brainstorm. *Remember, don't judge the ideas, just let them flow!*

1)	2)	3)
4)	5)	6)
7)	8)	9)
10)	11)	12)
13)	14)	15)
16)	17)	18)
19)	20)	21)

Flexibility: How flexible is your thinking? To find out, we are going to see how many different categories you came up with based on the list you just created. For example, can your ideas be categorized as school topics, sports topics, etc.

How many categories do you have? _____

Why did you group your ideas into these categories? _____

_____

OK, now we can start judging, just a little bit. Scan your list again and pull out the TOP three ideas, in your opinion, for a TED Talk and list them below.

1. _____

2. _____

3. _____

Originality is all about how unique your idea is. An original idea makes you say, “Brilliant, why didn’t I think of that?!” A non-original idea just blends into the background and seems “normal” because it’s been done/heard/created before!

To test the originality of your three ideas, talk with an adult. Share your ideas and get feedback. Allow them to rank your ideas 1st, 2nd, and 3rd in terms of originality. Record their ranking of your ideas below:

1st:_____

2nd:_____

3rd:_____

What feedback did you receive from the adult you ask? How did it help you grow?

_____

_____

_____

_____

_____

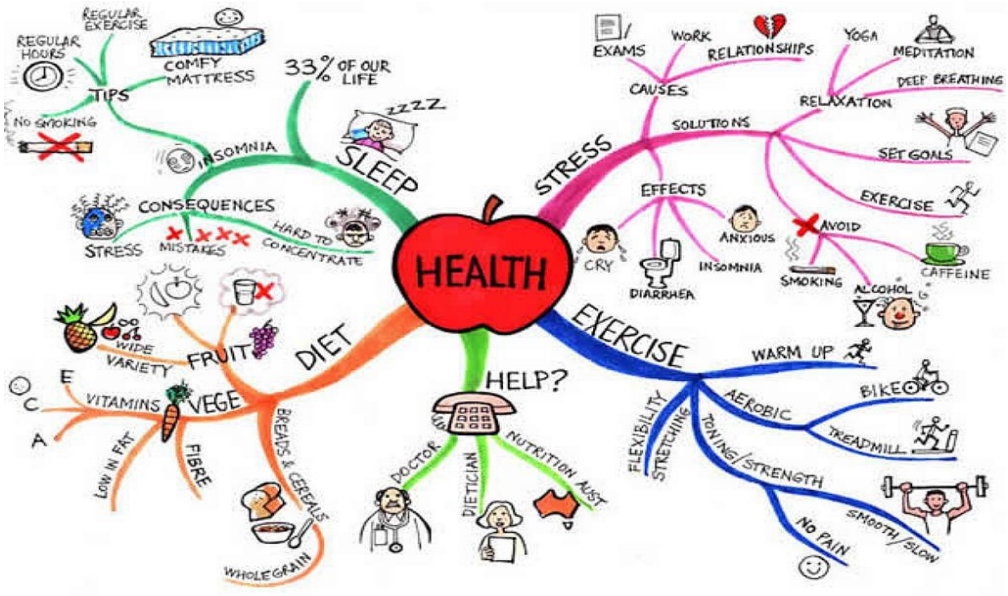
Elaboration is the last piece of FFOE, and it is about adding layers and layers of details to your most original idea. The rest of this project will help you with this last step.

Step 3: Using a Mind Map to Elaborate on Your Original Idea

Look at the mind map example below and create one for your TED Talk topic. You may use paper and markers/colored pencils, Google Drawings, Popplet, etc.

Remember these key points:

- Have a central idea in the center represented by large text or an image.
- Show structure and hierarchy visually: text, lines, etc. should get smaller as they move out from the center.
- Use color to distinguish different “branches” of the mind map.
- Use images, doodles, and symbols to replace words and represent ideas whenever possible.



Step 4: Creating a Happy Thesis Statement

(Activities adapted from NuMinds Enrichment.)

What's a "Happy" Thesis Statement? The main idea of your talk! A "road map" for what the talk will be about. Your opinion about the topic. This is the beginning of your speech.

What's a "Sad" Thesis Statement? A title (*Why I Love Cats*), A question (*Did you know that cats are awesome?*), An announcement (*My talk will tell you why cats are awesome.*)

1. Brainstorm the first sentence of your speech. Use this thesis template to strengthen its structure.
    - I believe that _____ is _____ because _____.
    - Example: I believe that cats make great pets because they are independent, loyal, and are fun to be around.
    - Write yours!

      _____

      _____
2. Now, take off the first person and play around with the word order.
    - ___REASONS___, ___SUBJECT___ is ___CLAIM___
    - Example: Because they are independent, loyal to their owners, and fun to be around, cats make great pets.
    - Try a few of your own!

      _____

      _____

      _____

      _____

Which is the best hook? Now that you have your thesis statement, the beginning of your speech is complete!

Step 5: Writing the Middle of Your Speech

The middle of any speech is tricky because it can be organized in various ways. Choose the form that best fits your topic.

- Tell a story that relates to your topic.
- Include facts and research.
- Include scientific observations.
- Include personal comments and opinions.
- Address any counter arguments or doubts your audience may have.

Step 6: Writing the End of Your Speech

- Summarize your main point (making sure your ideas are clear).
- Call listeners to action (teach them how to change the world).
- Here is an example from Adora Svitak: "*What Adults Can Learn From Kids*"

"Adults and fellow TEDsters, you need to listen and learn from kids, and trust us and expect more from us. You must lend an ear today, because we are the leaders of tomorrow, which means we're going to take care of you when you're old and senile. No, just kidding.

No, really, we are going to be the next generation, the ones who will bring this world forward. And in case you don't think that this really has meaning for you, remember that cloning is possible, and that involves going through childhood again, in which case you'll want to be heard, just like my generation. Now, the world needs opportunities for new leaders and new ideas. Kids need opportunities to lead and succeed. Are you ready to make the match? Because the world's problems shouldn't be the human family's heirloom. Thank you."

Step 7: Organizing Your Speech with Notecards

Once your speech is written, note cards (also known as index cards) are a great way to organize everything into smaller pieces.

Remember, the best note cards...

1. Have **ONE main heading or idea per card.**
2. Are **written clearly using larger than usual font.**
3. Have **plenty of white space** around each word or phrase to help them stand out.
4. Use **bullet points or numbers** to itemize the supporting ideas under the main heading.
5. Are **written on ONE side of the card only**.
6. Are clearly **numbered** so you know the order they come in.
7. Are **color-coded** to show your main idea, supporting details, examples, and transitions or links.
8. Have **where props are shown**.
   For example: Main Idea One - Supporting Idea - Example - Show Slide 1

Step 8: Practice, Practice, Practice

Practice your speech so far with someone at home. Have your audience help you fill in each area of the charts below.

After 1st speech delivery:

Number of "ums" or "ahs":	
My pace was…	
My voice volume was…	
My voice inflection was…	
My eye contact was…	
My gestures were…	
Things to Celebrate:	
My goals for improvement are…	

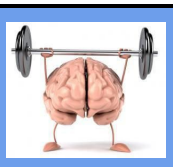
Try it again! After 2nd speech delivery:

Number of "ums" or "ahs":	
My pace was…	
My voice volume was…	
My voice inflection was…	
My eye contact was…	
My gestures were…	
Things to Celebrate:	
My goals for improvement are…	

Step 9: Visual Aids

- Plan what visual aids you will use to enhance your presentation.

Step 10: Memorizing Your Speech



- The best TED Talks are mostly memorized so that speakers can make eye contact with the audience.

Belleville Public Schools
Talented and Gifted Program

Name_____

Date____/_____/20___

Presentation Title:_____

TED Talk Rubric

	Description	4 Exceeding	3 Meeting	2 Progressing
Eye Contact with Audience	Holds attention of entire audience with the use of direct eye contact, rarely looking at notes.			
Volume, Articulation, Clarity & Intonation/Inflection	Speaks with variations in volume and inflection to maintain audience interest and emphasize key points.			
Body Language	"Works" the room without fidgeting or swaying. Gestures are helpful in delivering content information.			
Information was well Organized	Provides clear purpose and subject; important examples, facts...; demonstrates full knowledge by answering all audience questions with explanations and elaboration (if applicable).			
Content was Appropriate for the Task/Project	Presentation was on-task for the project.			
Evidence of Rehearsal	The student, not the visuals, drives the talk.			
Time Frame	The presentation was properly timed			

Comments :

Step 11: Practice Even More!

Practice your full speech now that it is complete and use your visual aids in front of a small audience. Have your audience members help by filling out a sample rubric.

Answer these questions:

- Which rubric category did you do well on? Why?

  _____

  _____

- Which rubric category do you need to improve on? How?

  _____

  _____

- How can you make your speech even better?

  _____

  _____

Step 12: Reflection

This step gives you the opportunity to reflect on your learning journey. Write a one paragraph reflection of this process.

Below are some guiding questions to help you:

- Why did you choose this topic?
- What is one thing that you learned that surprised you?
- What is something you hope people will take away from your presentation?
- What did you learn about yourself as you worked on this project?
- Do you have plans for a next step, such as presenting to a larger audience?
- Will you complete another talk about a similar topic or a different one?

Project Rubric

	4	3	2	1
Meaning	Thorough knowledge of content that is clearly evident throughout the piece.	Knowledge of content that is clearly evident throughout the piece.	Some knowledge of content is evident throughout the piece.	Knowledge of content is not displayed in the piece
Structure	Effectively creates a dynamic and compelling presentation that looks professional and delivers the necessary information; emphasizes visuals over text	Creates an interesting and professional looking presentation and delivers the necessary information; emphasizes visuals over text.	Creates a presentation that may deliver the necessary information; may emphasize visuals over text.	Creates a presentation that does not deliver the necessary information
Focus	FFOE elements are clearly identified and are integral to the TED Talk. TED Talk comprehensively addresses the thesis (uses evidence such as information, data, storytelling, and more).	FFOE elements are identified and are integral to the TED Talk. TED Talk addresses the thesis (uses evidence such as information, data, storytelling, and more).	FFOE elements may be identified and may be integral to the TED Talk. TED Talk may not fully address the thesis (may or may not use evidence such as information, data, storytelling, and more).	FFOE elements are not identified and are not integral to the TED Talk. TED Talk does not fully address the thesis.
Introduction and Conclusion	Introduction effectively hooks the audience, is creative and compelling. Conclusion restates the thesis and reasons in a new and interesting way. It includes an interesting/unique call to action.	Introduction hooks the audience, is interesting and engaging. Conclusion restates the thesis and reasons. It includes a call to action.	Introduction may hook the audience, could be more engaging. Conclusion may restate the thesis and reasons. It may include a call to action, but it may not be fully connected to the content.	Introduction does not hook the audience. Conclusion and call to action are not included.
Conventions in Visuals	• Effectively connected to the content. • Little to no grammatical errors. • Correct, fresh, vivid use of images.	• Connected to the content. Slides/photos are incorporated. • Some use of props	• Somewhat connected to the content. • A few slides/photos are incorporated. • Minimal use of props.	• Not connected to the content. • Many grammatical errors. • Incorrect word choice may be apparent. • Does not use punctuation • No slides/photos are incorporated. • No use of props

QUICK GUIDES

4

SUGGESTED ACTIVITIES FOR T&G Lunchtime Sessions

The activities on the following pages are provided as options for Lunchtime T&G Sessions. T&G teachers at each school can choose their own activities based on student interest, featured T&G themes, upcoming events, or current events. The following activities are sorted by thematic categories in accordance with the defined themes of the T&G calendar.

Most materials needed for suggested activities are identified on Page 59 of this manual. However, please refer to the required materials for each individual lesson for a complete list of specific materials.

Featured activities will continually be added to this list by T&G teachers.

Theme: Problem-Solving

Essential Question: Can you design a hot air balloon that will rise slowly?

Activity: Teams design and build a model of a hot air balloon and test the balloon to see how high it will fly in 15 seconds.

Goal:
Measure and estimate lengths
Relate addition and subtraction to length
Represent and interpret data
Reason with shapes and their attributes
Research and development
Experimentation in problem-solving
Engage in the design process

Materials needed:
"Curious George and the hot air balloon" by Margret and HA Rey
Ketchup cups (from fast food restaurant)
Small dixie cups
Construction paper
Balloons
String
Fishing line
Thread
Masking tape
Scissors
Hole punch
Paper clips
Straws
Popsicle sticks
Toothpicks
Small dried beans
Hair dryer

Steps: The challenge: The balloon must be designed using the engineering design model, be able to fly for 15 seconds and must not use more than 15 balloon credits to purchase supplies

1. Read Curious George and his adventures in a hot air balloon
2. Form teams: team must create a hot air balloon for George
3. Brainstorm ideas use computer, library, asking questions
4. Teams draw sketch or blueprint of their balloon
5. Each team has 15 credits to spend at balloon store. Teacher assigns items as 1,2,or 3 credit items
6. Teams build balloons and test using a hair dryer as the source for hot air.
7. Review your balloon- what can they do differently, redesign?
8. Present to one another

Timeline: 3-4 sessions

Theme: Problem-Solving

Essential Question: How can we think differently?

Activity: Idea Generating

Goal: To discover options you might not have considered
To build collaboration and cooperation
To develop fluency of ideas

Materials needed: Whiteboard
Paper
pencils

Steps: 1. Draw a grid. On each line place the letter of the alphabet. On the first line, it says A, the second line B and so on until the 26th line says Z.

2. Pose a question or problem to the group. What are different function that a chair might serve? What can you do with a ball point pen? A paperclip?

3. Students work in teams to try to fill each letter and line striving for as many ideas as possible to the question that was asked in a set amount of time.

Timeline: 1 session

Belleville Public Schools
Talented and Gifted Program

Theme: Problem-Solving

Essential Question: How can we replicate color configurations?

Activity: Creating Rubik's Cube Mosaic Art

Goal: Build students' creativity, collaboration, cooperation, computer skills, photo editing, and pattern recognition

Materials needed: 9 (or more) Rubik's cubes*can be borrowed from YouCanDoTheCube.com
crayons/colored pencils/markers
Optional: computers with Gimp 2 software (free), Google Chrome
Graph paper/grid paper with 81 squares (or more depending on number of cubes)

Steps:

1. Show students mosaics made with Rubik's Cubes (and not)
2. Students use graph paper and pencils (only yellow, blue, orange, red, green) and create a picture or pattern
3. Students cut the graph paper into 9 3x3 squares
4. Group students together, give the group 9 Rubik's cubes and build each other's mini mosaics. *Your group sizes depend on number of cubes you have.
5. Optional: Can use Gimp 2 software to design Rubik's mosaic and/or Twist the Web. Students can take pictures and transform into Rubik's mosaics. (Cartoon and clip art work better).

Timeline: 2-3 sessions

Belleville Public Schools
Talented and Gifted Program
Theme: Problem-Solving

Essential Question: What games are played around the world?

Activity: Ancient Games and Puzzles Around the World

Goal: Gain cross-cultural understanding of history of gaming
Connect history with archaeological record
Create own interpretations and games

Materials needed: Computers with internet access
Paper, color pencils and/or markers
Classic games (ie dominos, cards, chess, checkers, rubik's cube)
Various "found" materials
Copy of World map

Steps: 1. Ask students why they play games? Who plays games? How old do they think games are?

2. Research games: Native American, ancient versions of Mancala, Ancient Egyptian games as ancestor to Backgammon, playing cards were invented in China, Chess and Checkers are among the oldest known games.

a. Students complete graphic research organizer and or presentation discovering and explaining the history (optional- play games)
b. Play Senet and game of Ur (game of twenty squares)

3. Label world map with games' origins
4. Using "found" materials students create own twist on an historical game

Timeline: 2-4 sessions

Belleville Public Schools
Talented and Gifted Program
Theme: Problem-Solving

Essential Question: How can we calculate the volume and area of a cube?

Activity: Geometry of the Rubik's cube *you can use any cube such as a cardboard box

Goal: Explore mathematics concepts (two-dimensional, three dimensional, cube, rectangle, length, width, height, perimeter, area, volume, ratio)

Materials needed: Rubik's cube * can use other items that are cubes
6 sided dice
Tape measure
tape/glue
Scissors
Cardboard boxes
Wrapping paper

Steps:
1. Ask students why is a cube a cube? What makes it a cube?
2. Identify other 2D and 3D shapes in the room or that the teacher brought in
3. Measure Length and width of each side of the Rubik's cube
4. Calculate Area of each face
5. If it were hollow, how much water can you pour into it?
6. Calculate volume of a 6 sided die
7. Compare the relationship between the di and the Rubik's Cube, use fractions, how many six-sided dice would fit inside the Rubik's cube?
8. Complete with other cubes\
9. How much wrapping paper would you need to wrap the cube?
10. How many cubes would fit in the room?

Timeline: 1-2 sessions

Belleville Public Schools
Talented and Gifted Program
Theme: Design

Essential Question: How can we engage in the design process?

Activity: In collaborative teams, build a water tower that will hold a water tank, design a company name and logo.

Goal: To work collaboratively and engage in the design process: (ask, imagine, plan, create, improve)

Materials needed: Soda can (full)
Paper, pencils
Tape (limit the amount students receive)
Straws
Toothpicks

Steps: 1. Students must create a water tower that is free standing to hold the water tank (full soda can) at least 4 inches above the base. Soda can can't move or fall
2. Students form groups and create a logo and company name
3. Students must make at least 3 sketches of water tower design before choosing one
4. Students reflect on improvements they should make

Timeline: 1-2 sessions

Belleville Public Schools
Talented and Gifted Program

Theme: Design

Essential Question: What is potential energy and kinetic energy?

Activity: Build a roller coaster

Goal: Calculate speed, potential energy and kinetic energy
Collaborating on the design process

Materials needed: Tape
Scissors
Clear flexible tubing *optional
Cardstock and printouts of Paper Roller Coaster templates
Lesson ideas and extension activities found on paperrollercoasters.com
Marbles
String
Rulers

Steps:

1. Tape a piece of plastic tubing to the wall to form a U shape
2. Insert the marble into the tubing. Mark how high the marble rises. Repeat several times
3. Tape the tubing to form a small hill at the bottom of the U to form a W shape
4. Insert the marble and repeat step 2.
5. Experiment with other tubing, cardboard and paper coasters to construct a roller coaster. How long can you make the “ride”
6. Discuss: How high did the marble go? What about with a hill? Why? What happened when you made a loop? Why does a roller coaster never reach the same height as the ride continues?

Extensions:

If making the paper roller coaster, divide the coaster track into 3 equal sections and label them.

Measure the distance the marble must go from point A to point B (use a string) Then measure from B to C and C to D

Use a stopwatch to record the time it takes from A to B, B to C and C to D. Do this 3 times and record the data. Calculate the average. Calculate the average speed. Divide the distance by the time.

Discuss: Where was the highest average speed? Where was the lowest? Why? If you wanted to make a roller coaster with the slowest average speed how would you design it?

Timeline: 1-4 sessions

Belleville Public Schools
Talented and Gifted Program

Theme: Design

Essential Question: What is cause and effect and the significance of step by step?

Activity: Create a "Rube-Goldberg" contraption to pop a balloon.

Goal: To communicate designs, procedure, results
Use simple equipment and simple machines (levers, pulleys, inclined planes, wheels)
Investigate force, direction, mass
Relate potential and kinetic energy as applied to motion

Materials needed: Book: "Because the Little Bug went Ka-Choo" *optional
Any materials you would like

Examples: string, yarn, balls, legos, wheels, toys, magnets, pens, pencils, tape, empty cartons, boxes, pipe cleaners, paperclips, paper towel tubes etc….

Steps: 1. Show students Rube Goldberg contraptions on Youtube and/or read aloud the book "Because the Little Bug went Ka-Choo"
2. Work with a partner(s) to do through the design process and brainstorm/plan
3. The device must use a minimum of 6 steps and at least 3 recycled items
4. Students write a detailed description that explains each step of the contraption
Extension: Create Contraptions to do other things beside pop a balloon and/or only use recycled materials

Timeline: 4-6 sessions

Belleville Public Schools
Talented and Gifted Program
Theme: Design

Essential Question: Can you design a structure to get the 3 Billy Goats from one side of the creek to the other, without crossing the troll?

Activity: Build a bridge to cross a creek that is 11 inches wide and 6 inches deep and can withstand the weight of 10 pounds, 12 pounds and/or 15 pounds

Goal: Use creativity for problem solving
Use the design process
Use technology
Exploring science, technology, engineering, and mathematics

Materials needed: Pipe cleaners
Craft sticks
Hot glue
String
Modeling clay
Foam wedges
Construction paper
Q-tips
*note: you can vary the level of difficulty by assigning credits or limiting the amount of materials students use

Steps: 1. Discuss the story of 3 billy goats gruff- optional to read the text
2. Research bridges- what they are made of, bridge builders (Romans), different types of bridges, historical bridges
3. Students work in teams and need to complete the engineering design process including planning the bridge before materials are given.
4. Parameters: Must reach across an 11 inch ravine
Support at least 6 inches tall
Withstand the weight of the goats (10 lbs,12 lbs, 15 lbs)
5. Test the bridges
6. Optional if the bridge withstands the weight, continue to add weight to see which bridge can withstand the most weight
7. Can extend activity with K'nex Bridges Kit

Timeline: 2-4 sessions

Theme: Design

Essential Question: Can you design a boat that, when placed in water, can stay floating while weight is added?

Activity: Build a boat that is at least 6 inches long and can float for at least 10 seconds using only the materials provided

Goal:
Use creativity for problem solving
Use the design process
Use technology
Exploring science, technology, engineering, and mathematics

Materials needed: Per group:
6 inches of masking tape
6 inches of Duct tape
12 inches of yarn
Hot glue
6 by 12 aluminum foil
Cardboard
½ pound of clay
2 sheets of paper
5 craft sticks
Ruler

Steps:
1. Optional read aloud: Curious George and the Boat Show
2. Discuss and research topics: shapes, weight, force, buoyancy, density, mass. Discuss what objects float and which sink and why. Other discussions and research can include boats- history, shapes, parts of a boat
3. Students design boat and take part in the design process
4. Test boats- use pennies or washers to see which ones hold the most weight

Timeline: 2-3 sessions

Theme: Design

Essential Question: Can you design a shelter that will withstand the winds of a tornado?

Activity: Build a shelter using only one material that will withstand a tornado.

Goal:

Use creativity for problem solving
Use the design process
Use technology
Exploring science, technology, engineering, and mathematics
Attributes of shapes and abilities to survive storms

Materials needed:

Book: “Huff and Puff” (optional)
Straws
Craft sticks
Spaghetti
Cellophane
Construction paper
Glue
Heavy tape
Hair dryer to test structures

Steps:

1. Discuss terms such as: instability, cylinder, simulation, fujita scale and the classifications of tornadoes
2. Have students design and build a shelter that will stay during strong winds.
3. Students need to complete brainstorm, planning, design before giving them materials. They are only allowed to use from the resource list, Shelter must be at least 6 inches tall, 7 inches wide, 7 inches long. You must attach it to a cardboard base
4. Test with a hair dryer.

Timeline: 2-3 sessions

Theme: Design

Essential Question: Can you build a pyramid without touching the cups?

Activity: Stack em Up

Goal: Without touching the cups, use the materials provided to build a pyramid in 6 minutes with base of 5 cups ending up with one cup (lip up) on top that will hold 3 ping pong balls.

Materials needed:
15 cups
4 straws
2 pipe cleaners
2 rubber bands
2, 1 ft pieces of string
3 ping pong balls
1 tube
3 mailing labels

Steps: 1. Teams complete the goal and earn: 10 points for teamwork, 10 points if pyramid is structurally sound, 10 points if it holds 3 ping pong balls, 10 points for creativity and artistic design

Timeline: 1 session

Theme: Design

Essential Question: Can you build a bridge between two beach balls that will hold weight using only the materials provided?

Activity: Build a bridge between two beach balls with as much span as possible after adding weight. Once students have measured their bridge attach a box of paper clips to the middle of the bridge.

Goal: To build a bridge: structural engineering
Architectural design
Mathematical theory
Design process

Materials needed: 2 buckets
2 beach balls
10 toothpicks
1 box of paper clips
1 “s” hook
3 rubber bands
5 pipe cleaners
3 mailing labels
2 pieces of paper

Steps: Once students complete the bridge, they will earn 1 point for every inch of distance under the bridge between the two beach balls, 10 points if it holds box of paper clips, up to 10 points for creativity and design, up to 10 points for teamwork

Timeline: 1 session

Theme: Design

Essential Question: How many freestanding towers at least 12 inches high can you build using as many different materials as you can that will hold a balloon on top in 10 minutes?

Activity: Use the materials provided to build freestanding towers that are at least 12 inches tall with a balloon on top.

Goal:
Structural engineering
Creative expression
Problem solving
Design process

Materials needed:
1 piece of foil
5 pipe cleaners
2 mailing labels
Balloons
4 straws
3 rubber bands
3 paper clips
4 index cards
2 pencils
2 pieces of paper
2 plastic gloves
1 coffee cup
Ruler
12 inches of string

- Teacher can be creative with materials provided

Steps: Once student groups make the tower(s) they will earn 10 points, 60 points max for each freestanding tower built that is at least 12 inches high, up to 20 points for creativity, up to 20 points for teamwork

Timeline: 1 session

Theme: Design

Essential Question: What is the tallest freestanding tower you can build with 100 toothpicks and 2 cups of marshmallows?

Activity: 100 toothpick engineering challenge

Goal:
structural engineering
Creative expression
Problem solving
Design process

Materials needed: 100 toothpicks and 2 cups of marshmallows per group

Steps: Students- pairs work best here, have the materials and must build the tallest tower possible.

Timeline: 1 session

Theme: Design

Essential Question: Can you build a maze?

Activity: Maze building

Goal:

Structural engineering
Creative expression
Problem solving
Design process

Materials needed: Legos (can use cardboard or blocks or other building material)
Marble(s)

Steps: 1. Research mazes. Have students look up mazes and discuss different types of mazes, optional to complete some on the computer or on paper

2. Students design and build their 3d mazes with legos and marbles can be used to solve the maze

3. Optional to have other groups solve each other's mazes

Timeline: 2 sessions

Belleville Public Schools
Talented and Gifted Program

Theme: Inventions/Innovations

Essential Question: What is an innovation? What is an invention?

Activity: Shark Tank or "Innovation/Invention Tank"

Goal: Building creativity and curiosity
Public speaking
Presentation skills using chrome books
Design process
Persuasive writing

Materials needed: Chrome books with apps
Various recycled materials students can use to build model

Steps: 1. Students research famous innovators and inventions
2. Design process to brainstorm and plan ideas (students can work individually or in groups)
3. Students create a model of their invention (it does not have to work)
4. Students create presentation convincing sharks to invest with their product or idea
5. Optional to invite other staff members to be the sharks on presentation day

Timeline: 4-6 sessions

Belleville Public Schools
Talented and Gifted Program

Theme: Innovation/Invention

Essential Question: Can you invent a way to prevent an egg from breaking when dropped?

Activity: Egg Drop

Goal:
Solving structural problems
Technology literacy
Physical science
Design process

Materials needed:
Eggs
Straws
Shredded paper
Newspaper
Paper towel rolls
Ziplock bags
Foam
Tape
Glue
Popcorn
Cardboard
Bags
Cotton

Steps:
1. Present the problem of helping Humpty Dumpty survive the fall off the wall
2. Have students research and present sketches of designs for their potential containers
3. Allow students to work through the design process- having them create and test their designs with other objects other than an egg before introducing eggs into the test
4. The completed design must be as lightweight as possible, be no bigger than 8 inches by 8 inches by 8 inches, show creativity, look pleasing to the eye, be able to withstand being dropped from different heights

Timeline: 4-5 sessions

Theme: Innovation/invention

Essential Question: Can a frog, turtle and fish help us?

Activity: Design an invention to help human beings in some way that is based upon the body parts and abilities of a frog, turtle and/or fish.

Goal:
Design process
Biology understanding
compare/contrast
Persuasive writing
Technology literacy
Presentation skills

Materials needed:
Chromebook
Various recycled materials to build a model

Steps:
1. Research frogs, turtles or fish and their features that help them survive
2. Design an invention based on that survival feature
3. Who might be interested in buying that product? Write a persuasive letter to them convincing them to buy the product.
4. Students present to the GT group, optional to invite guests to attend.

Timeline: 4 sessions

Belleville Public Schools
Talented and Gifted Program

Theme: Creativity

Essential Question: Can we write an original modern day myth to target a young audience teaching self-esteem and positive body image?

Activity: Write an original myth. .

Goal: To explore various literary elements
Analyze messages from media
Express feeling, mood and theme
Research content
Follow the writing process

Materials needed: Chromebooks
Myths to use as model texts

Steps: 1. Explain Medusa and the Medusa Myth: Connect to messages and morals applicable to today's society

2. Follow the writing process and have students write their own myth. Myths should have : a hero, a conflict related to body image, maintain 3rd person, be set in modern day, use narrative techniques, be able to share with younger audience

3. Optional to include illustrations, use google apps to write myth, share with younger grades

Timeline: 2-3 sessions

Theme: Creativity

Essential Question: Can you help townspeople build a castle for the king to see for miles?

Activity: . Use the design process, create a castle with at least 3 rooms, which allows the king to see far away.

Goal: Use science, technology, engineering, mathematics to create a castle
To work together using teamwork

Materials needed:
Paper
Scissors
Markers, paints
Toothpicks
Glue
Things found outside (rocks, leaves, sticks)
Cardboard (cereal boxes, paper towel rolls)
Stapler
Coffee cans, pringles cans

Steps: 1. Share content information about castles. Students research middle ages and kings. For younger kids reading “Yertle the Turtle” can prompt discussions on kings and power. Examine castle blueprints and books about castles.

2. Students work together to create a castle. They must have at least 3 parts used in an actual castle for example: chapel, drawbridge, king’s bedroom. Then answer “Can the king see for miles?” No limitations!

3. Students plan and use the design loop. They can also present castles to the class.

Timeline: 3-6 sessions

Belleville Public Schools
Talented and Gifted Program

Theme: Creativity

Essential Question: Can you demonstrate creativity and develop a new television show for kids?

Activity: Students work in teams to use their imagination to create and practice a new television show, then up to 2 minutes to present the show and perform an excerpt. .

Goal:
Performance art
Creative expression
Communication
Collaboration
Idea generating and processing

Materials needed:
Markers
Paper
Scissors
Paper
Pencil
Chromebooks- optional

Steps: 1. Kids have been watching tv and youtube for many years. KYD-TV station needs a new show and has hired you and your team to develop the show.

2. Have students work together on the idea and the mini script. They can practice and then perform for the group or optional invite others to watch the team's pitch.

Timeline: 1-2 sessions (can go longer depending on interest and depth)

Theme: Creativity

Essential Question: Can you create a new constellation and then give a performance in which you tell the story of how the constellation got its name?

Activity: . Use imagination and problem solving skills to create a constellation, as well as to plan and practice a performance, with up to 2 minutes to present your performance.

Goal:
Imagination
Critical thinking
Creativity
Communication
Collaboration
Creative expression
Artistic expression
Performance art

Materials needed:
Markers
Sticky dots
Poster paper or cardboard

Steps:
1. Research constellations in our night sky and different stories behind them.
2. Place sticky dots on paper to create own constellation, then connect the dots.
3. Students create a story and a name for their constellation, and then they can write, practice and perform a no more than 2 minute skit based on the constellation.

Timeline: 2 sessions

Belleville Public Schools
Talented and Gifted Program

Theme: Community

Essential Question: Can you discover an outstanding, unsung hero?

Activity: Students research a hero for Black History Month, Women's History month and/or Multicultural Fair and student's choose how to present and share that information.

Goal:
Research
Design Process
Performance based
Art/creative Expression

Materials needed:
Chromebooks
Bottles/recycled goods
Posters
Art supplies
Costumes
*optional and open to variations since this is a student choice assignment

Steps: 1. Students research their interests and discover an unsung hero in their field.
2. Students can create: living museum, facebook profile, write a poem, bottle models, a presentation, etc… There are numerous ways to sharing the information and students are encouraged to find their way.
3. These can be displayed, shared at the district wide events.

Timeline: 2-4 sessions

Theme: Community

Essential Question: Can you design a map of the surrounding area that you can use to find your way home?

Activity: Students create 3D maps of the surrounding area, including landmarks and a compass.

Goal:
Constructing maps
Mathematical measurements
Artistic expression
Collaborating

Materials needed:
Empty clean milk cartons
Paper
Markers
Ruler
Yarn
String
Foil
Egg cartons
*other found recycled materials

Steps:
1. Maps should have 5-10 landmarks, contain a compass, have titles, colorful, and the map is 3D- standing on the map.
2. Depending on student interest- can use scale and can get as detailed as desired.

Timeline: 4 sessions

Theme: Curiosity/Leadership

Essential Question: Can you create a model home using the design process out of materials that meets the parameters and that is unique and reflects your individual personality?

Activity: Create a home that reflects your own personality.

Goal:
Critical analysis
Artistic expression
Technology, engineering
Design under constraint

Materials needed:
Cardboard base as foundation
1 cereal box per student
Various other recycled materials
Tape
Popsicle sticks
Paint
Construction paper
Materials found on a nature walk
Glue
Magazines to cut

Steps: 1. Students create their own home based on their own unique personality, they can share with one another and present their homes building a community.

Timeline: 3-4 sessions

Theme: Environment

Essential Question: Can you create a windmill that will lift and hold a weight for 30 seconds?

Activity: Windmills for Power

Goal:
Design process
Problem based learning
Engineering and creativity

Materials needed:
Water bottle
Straws
Plastic plates
Notecards
Skewers
Small dowel rods
Cups
String
Tape
Blowdryer

optional to do: wind powered car or water as a power source

Steps:
1. Students can work in teams to make a windmill.
2. Have them engage and follow the design process
3. Use a hairdryer to create the wind- the goal would be to have the windmill be able to lift several pennies.

Timeline: 2 sessions

Belleville Public Schools
Talented and Gifted Program

Theme: Problem-Solving

Essential Question: Can you spend a million dollars?

Activity: Budget one million dollars

Goal: Practice addition and subtraction of money (decimals)
Practice place value skills up to one million
Learn about budgeting and real world expenses
research

Materials needed: one million dollar “checks”, recording sheets, laptops,

Steps: Students are given the task of spending one million dollars. Students must follow the following rules: 1. You must choose a city to live in. 2. You must buy at least 1 vehicle. 3. You must set aside money for a four year college education at a school of your choice. 4. You must spend the entire one million dollar amount. The rest of the money can be spent on furniture, vacations, or luxuries.

Students can create a poster with pictures of everything they purchased and then present their project. You can also take it one step further and add in car insurance, utility expenses on the house, etc to calculate monthly expenditures and budget.

Helpful sites for research: www.zillow.com, www.bb.com/new-cars, collegecost.edu.gov

Timeline: 3-4 sessions

Belleville Public Schools
Talented and Gifted Program

Theme: Problem-Solving

Essential Question: Can you survive on a desert island?

Activity: Complete several tasks to determine whether or not survival is achieved.

Goal: Engineering
Engaging in the design process
problem solving
research
Mimic real world scenarios
planning and carrying out investigations
Using mathematics and computational thinking
Constructing explanations and designing solutions
obtaining, evaluating and communicating information

Materials needed: Possible materials but not limited to - popsicle sticks, tape, string, plastic spoons, pipe cleaners, paper, foil, plastic wrap, rubber bands, plastic cups, toilet paper rolls, straws, cardboard, bottle caps, twist ties, yarn, hair dryer for wind

Steps: 1. Tell a story of a shipwrecked traveler stranded on a deserted island. The students will become the traveler and complete 5 different challenges.

1. Island Architect - Construct a Hut - plan, design and build a hut that will withstand a wind storm
2. Build a Bridge - build a bridge that will hold the weight of 1 eraser for at least 5 seconds
3. Message in a Bottle - create a watertight container that can float
4. Catapult Defense - create a devices that can launch a projectile at least 12”
5. Raft Design - build a raft with a mast that floats and holds weight

Test all completed designs. Students must successfully complete one challenge before they area able to move on the the next one.

*These challenges can also be used separately.

Timeline: 2-3 sessions

Belleville Public Schools
Talented and Gifted Program

Theme: Problem Solving

Essential Question: Using the single bag of pipe cleaners what is the tallest tower your team can build?

Activity: Bend, fold or cut the pipe cleaners to build the tallest tower possible.

Goal: Measurement
Design

Materials needed: pipe cleaners (same amount for each team)

Steps: 1. Brainstorm possible design ideas.
2. Use pipe cleaners to build the tallest free-standing tower possible. No other materials can be used.
3. Measure the height of each tower.

Timeline: 1 session

Belleville Public Schools
Talented and Gifted Program

Theme: Design

Essential Question: Can you create a chair that can hold a stuffed animal using only paper and tape?

Activity: Create a paper chair that is strong enough to hold a stuffed animal.

Goal: Manipulate and evenly distribute weight
Engineering
Engage in the design process

Materials needed: paper, tape, stuffed animal

Steps: 1. Students are given the task of creating a chair using only the paper and tape given to them. The chair must be strong enough to hold the weight of a stuffed animal.

Timeline: 1 session

Belleville Public Schools
Talented and Gifted Program

Theme: Design

Essential Question: Can you design and run your own food truck or fast food restaurant?

Activity: Design a food truck or fast food restaurant from logo to menu options.

Goal:

Represent and interpret data
Research and development

Materials needed: paper, crayons and colored pencils, books or videos about food trucks, menus from restaurants

Steps: 1. Students will create a restaurant title, design logos, and create important marketing options to help advertise their business.

2. The truck or restaurant should focus on one central theme and the students will build their menu for their truck, including main dishes, sides and drinks. Prices will be added to each menu.

3. Use graph paper to design the layout of the truck or the restaurant. Use knowledge of area and perimeter to find the measurements of each part.

4. The project can be extended further by having the students brainstorm different jobs they'll need to successfully run their business and then decide how much the will pay each person. They will research different jobs and take into account that more skilled workers will have to be paid more money.

Watch: How to Hire Like a Shark https://youtu.be/MHT-DnTEZK0
Students will then create help wanted posters and come up with interview questions. Students may choose a business to "apply" to and go on a mock interview.

Timeline: 3-4 sessions

Belleville Public Schools
Talented and Gifted Program

Theme: Design

Essential Question: Can you create your own Newton's Cradle?

Activity: Create a Newton's cradle to demonstrate the conservation of momentum energy using a series of swinging spheres

Goal:

Engage in the design process
Measurement
Review Newton's Laws of Motion
Research and development

Materials needed: popsicle sticks, string, marbles

Steps: 1. Students will build a frame for the device, a way to attach the string to the marbles, and a way to attach the string to the frame.

Timeline: 1 session

Belleville Public Schools
Talented and Gifted Program

Theme: Design

Essential Question: What is a suspension bridge and how does it work?

Activity: To create a suspension bridge that stands and will hold the weight of small toy car.

Goal: Engage in the design process
Test and improve designs

Materials needed: popsicle sticks, glue, string, cardboard, crayons/markers (optional to decorate the bridge)

Steps: 1. Introduce the task by talking about bridges. What supports a bridge? What is a suspension bridge? How is it different from a beam bridge or a bridge with steel support legs? 2. Students will design and create a model of a suspension bridge.
3. Students will come up with a blueprint for their design.
4. The final model must have the features of a suspension bridge without additional supports. Bridges can have either center or end supports. The deck or roadway of the bridge should be connected to the suspended string. The string is part of the support system of the bridge and will help hold the roadway in place.
5. Test the bridge to see if it is sturdy enough to support a small toy car.

Timeline: 2-3 sessions

Belleville Public Schools
Talented and Gifted Program
Theme: Invention/Innovation

Essential Question: What are you passionate about?

Activity: “Mini Genius Hour”

Goal: Create a proposal for something that you think would benefit people

Materials needed: laptop, google slides or docs, OR construction paper, art supplies

Steps: 1. Have students brainstorm things that they are passionate about.
2. Students come up with a plan for something they would like to create or some kind of business/organization they would like to start.
3. Students can make a poster or a model to present their idea.

Timeline: 1-2 sessions

*This activity can be used more than once allowing students to work on more than one of their ideas

Belleville Public Schools
Talented and Gifted Program
Theme: Creativity

Essential Question: What can you code in a class period?

Activity: Code an interactive story, animation or game

Goal: Learn the basics of block coding

Materials needed: laptops, scratch.mit.edu accounts OR code.org accounts

Steps: 1. Review the basics of coding (can watch a video tutorial from either website).
2. Students may choose a project to work on that builds off of an already established project idea or is completely their own. Both websites provide several options and each student can be working on a different type of coding project.

Timeline: 1 session (This is something that can also be revisited and used again as long as the students have accounts)

Belleville Public Schools
Talented and Gifted Program

Theme: Creativity

Essential Question: Can you create your own cereal box and commercial?

Activity: Create a cereal box (unique name and logo) and a commercial to present/advertise your new product.

Goal:

Represent and interpret data
design and marketing
Research and development

Materials needed: empty cereal boxes, tag board, poster board or card stock, tape, rulers, scissors, glue, crayons, packing peanuts or something to fill the boxes

Steps: 1. Students will brainstorm about cereal boxes, and learn about special symbols found on products.
2. .Students will investigate volume by using a filler material to test the different amounts a box can hold.
3.Students will measure and calculate volume and surface area of their boxes.
4. Students will be given a piece of poster board (OR tag board or card stock) and be challenged to apply what they have learned about what makes a box have a larger volume. The task is to create the box with the greatest possible volume. Their box must include their logo and cereal information.
5. Students will present their work to the entire class - either by simple presenting their final project or creating a “commercial” skit to advertise

Timeline: 2-3 sessions

Belleville Public Schools
Talented and Gifted Program

Theme: Community/Leadership

Essential Question: How can we grow food throughout the year to donate to the local soup kitchen?

Activity: Design a plan for producing and sustaining food throughout the school year in order to have enough to donate.

Goal: applying science concepts to the real world
engage in the design process
research

Materials needed: planning pages, laptops, other materials will vary based on designs that the students come up with and if they will be building prototypes/executing their plans

Steps: 1. Students will research different ways to grow food inside or outside without using traditional garden space.
2. They will identify a solution and prepare a proposal that includes the concept design as well as costs. (examples include an aquaponics design and a vertical garden

3. Students will then come up with a proposal presentation that could include a visual display, cost, and an argument including claims with supporting evidence

Timeline: 3-4 sessions (including presentation time)

Belleville Public Schools
Talented and Gifted Program
Theme: Community/Leadership

Essential Question: How can we help the homeless?

Activity: Establish a plan for a community for the homeless that includes services and activities.

Goal: research a real life issue and design a solution that will help to alleviate the problem

Materials needed: laptops, google slides, paper to plan and design

Steps: 1. Research the different causes and effects homelessness.
2. Visit the website of an existing community to observe the layout, houses and offered services (https://mlf.org/community-first/)
3. Students will then design the layout of their community and write a description
4. Decide on a name, vision, mission, and values of the community
5. Decide on the services the community will provide (examples: entertainment center, outdoor area, garden and farm, arts center)
6. Decide and design what kinds of homes the community will offer (mobile home, tiny house) and what furniture will be included
7. Final projects can be displayed on a poster or in Google slides

Timeline: 2-4 sessions

Belleville Public Schools
Talented and Gifted Program
Theme: Leadership

Essential Question: How can you create the tallest freestanding structure with only the given materials

Activity: Work together in a group to create the tallest freestanding structure with only the given materials

Goal: Engage in the design process

Materials needed: 1 large marshmallow, 20 strands of spaghetti, 1 yard of tape, 1 yard of string

Steps: 1. Students will work together to create the tallest freestanding structure - students are allowed to use some or all of the materials, but they may not receive any extras
2. Measure each structure
Timeline: 1 session

Theme: Environment

Essential Question: How can we reduce the drain on our natural energy resources at our school? In our community? Beyond our community?

Activity: Propose ways to conserve energy in our school.

Goal: inquiry research

Materials needed: laptops

Steps: 1. Research different renewable and nonrenewable energy forms.
2. Evaluate the energy uses of the school (lights, chargers, SMART TVs, etc)
3. Identify where we can conserve the most energy
4. Propose a solution to the district board of education or town council to influence change.
5. Construct an argument including claims with supporting evidence
6. Students can create a poster or use the computer to create a presentation

Timeline: 2-3 sessions

Theme: Environment

Essential Question: What are the environmental effects of an oil spill? How can we help animals during an oil spill?

Activity: Your engineering company has been tasked with cleaning up a major oil spill. You can only use the materials provided to clean up all the oil from the feathers and the water

Goal: Understand the lasting effects of oil spills on the environment

Materials needed: containers, water, vegetable oil, cocoa powder (or something similar to make the oil look like crude oil), oil spill video, feathers, soap (Dawn dish soap), cotton balls, sponge, plastic cup

Steps: 1. Show students either video. https://www.youtube.com/watch?v=3DbSlAg3F3A
https://www.youtube.com/watch?v=A0XvAdwFW8Q

2. Make student groups
3. Give students a container full of water and oil mix with 1 or 2 feathers in it
4. Groups will have a sponge, cotton balls and some dish soap
5. Students will work together to clean their feathers and try to remove the oil from the water

Timeline: 1 session (This is a fun activity to do outside if possible)

Belleville Public Schools
Talented and Gifted Program
Theme: Environment

Essential Question: How can we use the sun to cook something? How if at all would this help the environment?

Activity: Create a solar oven to make smores

Goal: Create an oven that will cook something using only the heat from the sun
Engage in the design process

Materials needed: boxes, thermometer, foil, straws, paper towels, plastic wrap, marshmallows, chocolate bars, graham crackers, scissors, tape

Steps: 1.Students will choose which materials they think will be best to create their ovens
2. Sketch a design
3. Students will take the materials and arrange them in the box in a way they think will become hot enough in the sun to melt their marshmallows
4. Place a thermometer in each box and record the starting temperature and the starting Time
5. Take the ovens outside to test
6. Observe to see when and if any changes occur
7. Record final temperature and the time it took to cook/melt
8. If any of the ovens did not work, have students discuss what they could change to Improve their design

Timeline: 2 sessions (1 to build the oven, 1 to go outside to see if it works)

*can substitute cookie dough, eggs, cheese or anything you feel will cook or melt enough to see a change

Theme: Environment/Community

Essential Question: Why do we need bees? How can we help save the bees if they are being displaced?

Activity: Create a bee hotel to place outside somewhere around the school

Goal: Raise awareness about bees being endangered

Materials needed: an empty food or coffee can, paper straws or rolled card stock, string, sticks, paint or other art supplies to decorate

Steps:
1. Discuss the importance of bees and what would happen if they went extinct (optional resource - https://www.cheerios.com/bring-back-the-bees/)
2. Groups or individual students will design their be hotels to withstand weather conditions and provide bees with shelter from rain and too much sun. They must be able to be suspended off the ground and provide the space necessary for the bees to lay eggs
3. Punch a hole in the can to attach the string or allow the students to design a way to suspend the can off the ground
4. Cut the straws or cardstock rolls and sticks to a size slightly smaller than the can
5. Arrange the straws or cardstock rolls and sticks in the can until it can be turned upside down without anything falling out

Timeline: 1 or 2 sessions

Belleville Public Schools
Talented and Gifted Program
Theme: Curiosity

Essential Question: What makes your country a place that tourists should visit?

Activity: Create a travel brochure that would make someone want to visit the county of your choice.

Goal: Explore the geography of the world

Materials needed: laptop, google slides

Steps: 1. Show students examples of brochures.
2. Student groups or individual students will choose a country from anywhere around the world.
3. They will then research important facts and details about their country and use that information to create a brochure using Google Slides.
4. Each group or student will then have then opportunity to present this to the rest of the class.

Timeline: 1-2 sessions

Belleville Public Schools
Talented and Gifted Program
Theme: Curiosity

Essential Question: What makes your state a place that tourists should visit?

Activity: Create a travel brochure that would make someone want to visit the state of your choice.

Goal: Explore the geography of the United States

Materials needed: laptop, google slides

Steps: 1. Show students examples of brochures.
2. Student groups or individual students will choose a state from one of the 50 in the USA.
3. They will then research important facts and details about their state and use that information to create a brochure using Google Slides.
4. Questions to give students: What is the capital of your state? What important landmarks or tourist attractions are in your state? What is the climate? Are there any special foods that tourists should try? What landforms are there?
5. Each group or student will then have then opportunity to present this to the rest of the class.

Timeline: 1-2 sessions

Belleville Public Schools
Talented and Gifted Program

Theme: Curiosity

Essential Question: Where does your god or goddess fit in Greek Mythology?

Activity: Research a Greek god or goddess

Goal: Inquiry research

Materials needed: laptop

Steps: 1. Watch a short video (possible video - https://www.youtube.com/watch?v=JWdy2EGjJ9E) and discuss Greek Mythology as a whole.
2. Students will choose a Greek god or goddess to research. Possible choices: Zeus, Poseidon, Hera, Hades, Athena, Ares, Apollo, Artemis, Hermes, Aphrodite, Hephaestus, Hesta
3. Students will research and create a google slides presentation to present their project.

Helpful research tools: https://greekmyths4kids.com, https://www.ducksters.com/history/ancient_greek_mythology.php

Timeline: 2-3 sessions

Belleville Public Schools
Talented and Gifted Program
Theme: Curiosity

Essential Question: What does DNA look like?

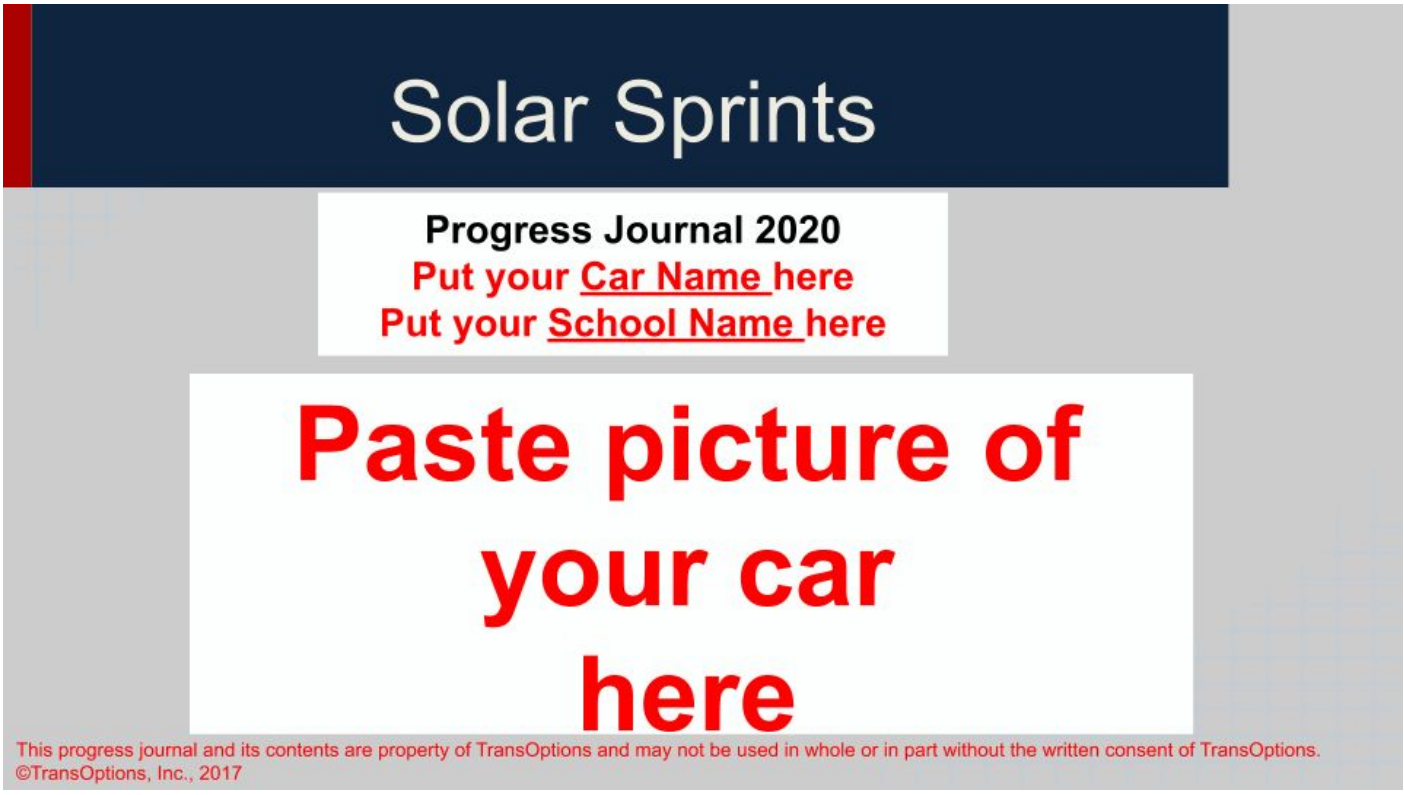
Activity: Extract and isolate DNA from strawberries

Goal: Isolate and examine DNA

Materials needed: rubbing alcohol, measuring cup or small glass container, dish soap, salt, Ziploc bag, strawberries, strainer, smaller container, water, microscope or magnifying glasses, tweezers, DNA video https://www.youtube.com/watch?v=921XdtoRAoo

Steps:
1. Explain DNA, show video.
2. Put the bottle of rubbing alcohol in the freezer.
3. Measure 90 ml of water into the measuring cup or glass container
4. Add 2 tsp (10 ml) of dish soap to the water.
5. Stir in ¼ tsp salt and mix until the salt dissolves (this is the extraction mixture)
6. Place 1 strawberry into a plastic Ziploc bag
7. Pour the extraction mixture into the bag with the strawberry.
8. Remove as much air from the bag as possible and seal it closed.
9. Smash the strawberry inside the bag until no large pieces remain
10. Pour the strawberry pulp and extraction mixture through a strainer and into a medium glass bowl or container - use a spoon to push as much of the mixture as possible into the container
11. Pour the extraction mixture into a smaller glass container that only holds up to ½ cup liquid
12. Add 1tsp of the chilled rubbing alcohol to the solution - the white layer that separates from the mixture is the DNA
13. Use the tweezers to remove the DNA from the solution and examine.

Timeline: 1-2 sessions



SOLAR SPRINT RACES

https://www.transoptions.org/jss-materials-and-resources

How to Use This Journal

Record keeping during the design process is an important part of Junior Solar Sprints. This document is here to help guide you through important investigations that will help your team understand the science behind your model solar car.

Red text indicates something for you to do, answer or fill in a white box.

Blue text indicates a hyperlink when viewing in "presentation mode." Click for hints!

This is a **template**. We **STRONGLY** encourage you to add additional related slides and to change the document's theme to adhere to the overall look of your car.
See next slide for scoring rubric.

To edit this document go to "**File,**" "**Make a Copy...**" and save file to your own Google Drive or computer hard drive. Feeling stuck? Email me with any questions or concerns at:
Ktomasicchio@transoptions.org

Progress Journal Scoring Rubric	Poor (0 -1)	Satisfactory (2-3)	Good (3-4)	Excellent (4-5)
CONTENT is interesting, original, striking and substantial.	No changes made to the template provided, blank slides, content missing.	Team completed provided slides.	Team changed template entirely (or almost) to reflect a theme or personality while retaining legibility and coherence	Team changed template entirely. They utilized an innovative approach to displaying their information and maintained concepts from the original template
ORGANIZATION is well structured and exhibits chronological order, spatial order, comparison/contrast, etc..	No apparent organization.	Team followed provided organization in template and presented their information coherently.	Team changed some of the provided organizational structure to fit their theme/personality and presented their information coherently.	Team changed the provided organizational structure entirely. Their unique organization resulted in information presented clearly and interestingly.
EXPERIMENTS, TESTING, CHANGES TO DESIGN, SCHEMATIC are organized, reasonable and coherent. Each supporting paragraph/description has a controlling idea, that is explored and results that are explained	No experiments were explored. No results were shown. No testing was explored. No design changes explored or explained. No schematic, drawing or image was presented.	Team completed at least 1 experiment from each Investigation category (Solar Power & Gears). Team provided at least 1 result for each experiment performed. Team completed some of the Materials chart. Team provided at least 1 design change. Team provided at least one schematic, drawing or image.	Team completed 2-3 experiments per Investigation category (Solar Power & Gears). Team provided results for each experiment listed. Team completed all of the Materials chart. Team provided at least 1 design change with explanation. Team provided multiple schematics, drawings or images.	Team completed 2-3 experiments per Investigation category (Solar Power & Gears) as well as additional experiments in categories not provided in template (Ex: Aerodynamics). Team completed all of the Materials chart. Team presented several design changes with explanations and provided multiple schematics, drawings or images.
GRAMMAR, SPELLING grammar, spelling, and mechanics	Contained mostly errors. No attempt at editing work made.	Contained some spelling, grammar or mechanics errors on no more than 50% of the total submitted work.	Contained few spelling, grammar or mechanics errors across total submitted work.	Contained no, or very minor spelling, grammar or mechanics errors across total submitted work.

Task 1 - Solar Sprint Races

In May Belleville participates in Solar Sprint Races. There are three phases. In the pre-phase students within our districts will build cars and compete in a district wide competition. Student Teams will then be selected to represent all seven elementary schools and the middle school in the next phase. In the regional phase students compete at regional events throughout the northern counties in New Jersey. If a team wins or places in the top three then we will also go to the State Competition. The State Competition is the last phase.

Students will work throughout the year on their cars. You should use this journal throughout the process. You can also take pictures or draw sketches and scan them into this journal. This process is to help you understand both the importance of solar energy but also engineering design.

Solar Sprint Races

Approximate Timeline

October - Teacher PD
October/November - Solar Sprint Workshop
January - Students should have teams, team name, and possible themes. Students should have completed section on solar panels and gear ratios.
January - Student Building Days - Students should bring a box - at least the size of a shoebox. In addition Mentors/Teachers should bring 1 paper box for each 3 students with the students names on them. before they have their building day they should have a preliminary sketch. On the building days students should weigh all materials in grams and mentors should look to the science kits for balances. Students should also read the rules and regulations along with viewing the gallery of pictures. Each student group should have three 12 oz soda cans that have been emptied, washed, and dried. Please weigh the soda cans and place a piece of masking tape with the weight on each of the cans.

Solar Sprint Races

Approximate Timeline

March/April - Second Building Day (if the mentor/teacher requests we can have a second building day at the home school

March/April - District Challenge - If possible we will try to have transoptions come in and have a district challenge.

May - Regional Challenge and State Challenge

Solar Sprint Workshop

Step 1 - Getting Started

Today you are going to work with a sample of a chassis, motor, and battery pack to make a car that moves or drives. Answer these questions after you discuss with your group:

1.) **How did you choose the gears you used in your car?**
2.) **How did you decide which gear went on your tire and which went on the motor?**
3.) **Did you change gears? If you did what happened?**
4.) **Did your car work right away? If it did not what did you do to make it work?**

Choosing your teams

Teams need to be no less than 2 and no more than 4 students. Students should realize that this is a year long project and that students can not break apart groups or change groups without approval.

School Name	Student Last	Student First	Grade

Team Name

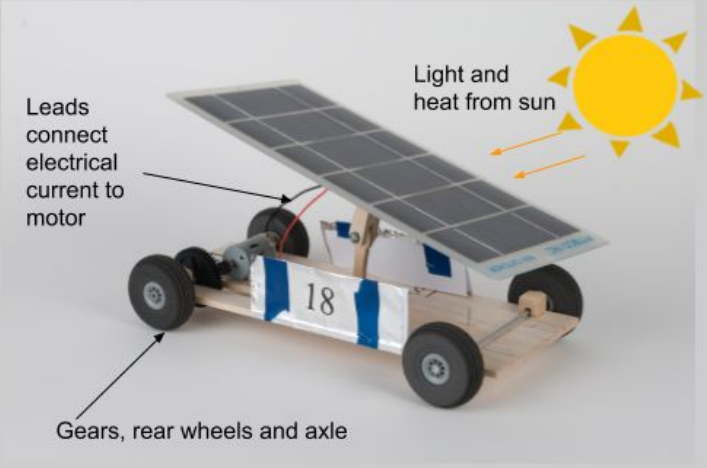
Teams are important parts of any design and engineering project. Your team should think about what makes it special, unique, fun, different etc. You should come up with a team name. Your name should be respectful and representative of a school atmosphere. Think carefully about your team name and remember that this name will represent you and the school.

Theme

In this challenge you are going to design a car. We will be going through some of the design aspects and how you will choose materials etc. You could have a theme to your car. The theme could be something that everyone likes or enjoys, it could be a mascot, or movie etc. Think of some themes with your group. Write as many ideas out as you can. Think of what kind of materials that you will need in order to make your design. This list will change as you go through the process.

Investigation: Solar Power

Solar power is light and heat radiation from the sun converted into electrical power.



1. Sunlight contains tiny particles of energy called protons.
2. When sun rays hit the solar panel, the panel absorbs light and heat from the sun, forming an electrical current.

1. Electrical current is transferred by leads to power the motor.
2. Motor powers the driving gear.
3. While gears rotate they cause the axle and car's wheels to spin, ultimately moving the car forward.

Investigation: Solar Power

Hypothesize on what things may affect how your solar panel works.
Use the formula "if_____, then_____becasuse_____."

Example:

1	*If my solar panel is inside it will not generate electricity because solar cells do not respond to incandescent lighting.*
2	Type your investigation here
3	Type your investigation here

Investigation: Solar Panels

Choose one of your hypotheses and design an experiment that will determine if your hypothesis is correct.

Example:
What we are testing: If electricity is generated by a solar panel when it's under incandescent light.
How we are testing: Hook the solar panel up to a small motor with a wheel attached. While under incandescent light, see if the solar panel will generate electricity to cause the wheel that is attached to the motor to spin.

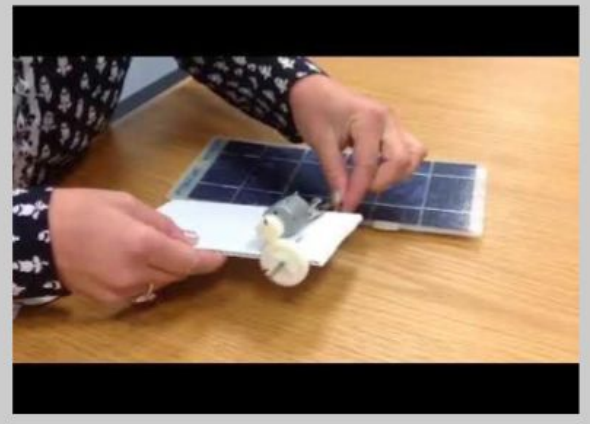
Type your investigation here:

Investigation: Solar Panels

Explain the results of your investigation here:

Investigation: Gear Ratio

Gear Ratio explains the rate at which two meshing gears spin. Gear ratio can be used to calculate the speed of two meshed gears. It is expressed in a fraction or ratio format *(ex: ½ or 1:2)*.

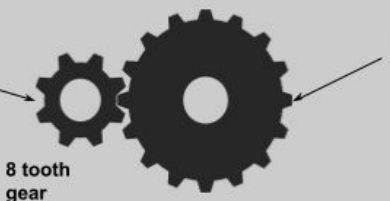


1. Electric energy produced by the solar panel causes your car's motor to spin.
1. Motor powers the *driving* gear.
2. Driver gear meshes with the *follower* gear. The *follower* is the gear placed on your axle.
3. While gears rotate they cause the axle and car's wheels to spin, ultimately moving the car forward.

Investigation: Gear Ratio

To determine the size of each gear, count the "teeth" around the outside. When representing in a ratio the driver gear is always written first, so in the example below we write 8:16 instead of 16:8.

Driver- gear on the motor.



Follower- gear on the axle

How does gear ratio effect your car?
In the example above the gear ratio is 8:16, which we can also write as ½. This tells us that for every one complete turn the driver makes, the follower will only turn half way around. Cars with a gear ratio similar to ½ are likely to have more speed than torque (power). Experiment with the gears in your kit to find the best gear combination for your design!

Investigation: Gear Ratio

Fill in the chart. Use the gears in your kit to help you visualize each scenario below:

Driver Gear (size determined by counting the number of teeth around the gear's edge)	Follower Gear (size determined by counting the number of teeth around the gear's edge)	Gear Ratio (represent as a fraction or ratio)	If the driver turns once, how many times will the follower turn?
20	40		
10	50		
60	30		

Investigation: Gear Ratio

Hypothesize on how gears matter to your model car construction.
Use the formula "if_____, then_____becasuse_____."

Example:

1	*If my model car's gears don't fit together my car won't move because it's the connection of gears that transfers motion/energy to move my car.*
2	Type your investigation here
3	Type your investigation here

Investigation: Gear Ratio

Choose one of your hypotheses to test. Design an experiment that will help decide if your hypothesis is correct.

Example:
What we are testing: If my car's gears don't fit together it won't move because there will be no connection of energy
How we are testing: Set up one car with meshing gears and one car without. See which car moves.

Type your investigation here:

Investigation: Gear Ratio

Explain the results of your investigation here:

Engineering Design

Start to sketch your car. What do you want it to look like. How will what it looks like determine the way and speed that your car will travel. What do materials might you want to use

Investigation: Materials

Record the different materials you tried while designing your car in the chart below:

Part of Car	Material	Durable? (yes/no)	Was this piece recycled? (yes/no)	Can this piece be salvaged and reused? (yes/no)	Does this piece come from a renewable resource? (yes/no)	What is the weight of this piece? (in grams)
Chassis						
Motor mount						
Wheels						
Axles						
Race line attachment						
Soda can compartment						

Design Schematic

A ***Design schematic*** is a plan, drawing or diagram to help illustrate and convey the concept/ideas of your design.

Paste any hand drawn or digital images of your initial plans for your JSS car. You can use photos too!

Prototypes and Testing

Explain any issues or problems you had to deal with when testing your car. Also discuss solutions to those problems. Include pictures or videos when possible.

Prototype	Did it work on battery power? (yes/no)	Did it work on solar power? (yes/no)	If it did not work on solar, how did you try to fix/improve your design?
1			
2			
3			

Test your car and make modifications based on your results. Use the chart below to help record your data and draw conclusions from each trial.

Describe the modifications made to your car here:

Trial #	Distance (*cm*)	Time (*s*)	Speed (*cm/s*)
1			
2			
3			

Junior Solar Sprint Rules

Spirit of the Sprint Junior Solar Sprints (JSS) offers students the opportunity to learn by means of a friendly competition against their peers. Students design, construct and race a model solar powered vehicle. The role of the educator is to nurture the spirit of excitement and the joy of discovery and learning that awaits students. Educators should let students assume the responsibility for decisions, building and performance on race day. The races are separated into 5 division races that culminate in an Inter County Final. The dates are posted on transoptions.org/junior-solar-sprints.

Materials and Vehicle Specifications

1. The Ray Catcher solar panel sold by Pitsco is the official solar panel to be used for this race. No homemade panels or other commercial panels can be used. The use of *Solar Made* brand panels will not be accepted starting in 2017. Panels are loaned to schools and must be returned after race day. If your team moves on to the finals, panels can be kept until after finals. Solar panels are TransOptions' property. In the event you lose your panel, you must pay back TransOptions the retail value of the panel, $41. You are allowed to purchase your own panels, but they must be the Pitsco Ray Catcher, product ID W37942. Only 1 solar panel per vehicle is allowed. The solar panel can't be part of the structure of the vehicle. It must be easily disconnected from the vehicle as solar panels are shared.

2. The motor provided by TransOptions must be the only motor used in the vehicle design (Pitsco, motor 280, product ID 54428). Motors may not be rewound or disassembled. Only 1 motor per vehicle is allowed.

3. The vehicle must include in its design a compartment for an empty, 12oz. soda can representing a passenger in the vehicle. The tab must still be attached. Only soda cans are accepted and must be provided by participants. Don't expect to receive a soda can on race day. Only 1 soda can per vehicle. Soda cans may be shared. The soda can must be able to be removed from the compartment easily. It cannot be taped, glued or otherwise directly adhered to the vehicle. The soda can must stay in its compartment from the start line to the finish line. It will be counted as a loss if the soda can leaves the compartment during the race. The soda can itself can't be part of the structure of the vehicle. The soda can and compartment must retain their original shapes; the soda can compartment must retain its original shape with or without the soda can.

4. The vehicle with its solar panel must be powered solely by the sun's energy. **No energy storage devices may be used in conjunction with the solar panel.** If the weather is not conducive towards solar only races, the races will switch to battery power. The participants will be provided with faux panels that are made to be similar size and weight to the actual solar panel. The faux panel will have a positive and negative lead and various pieces of Velcro on the back. It will be powered by a single AA battery that will be provided. The panel has an on/off toggle switch and a micro switch. The students will connect the leads to their motor and switch the toggle to on. Then they will hold down the micro switch and wait for the "Ready, Set, Go" instructions, releasing the micro switch on "Go." Students will be shown the panel in

advance and informed on how to use it before their race. The construction of this faux panel is based on an example provided by the originators of JSS, the Northeast Sustainable Energy Association (NESEA).

5. The vehicle will be attached to a guide wire in the center of the lane and runs the length of the track, with no free end. The attachment device must not be potentially damaging to the line. The wire will be a small diameter line such as 60# fishing line. The wire will be no higher than 1.5cm above the track surface. Included in the kits are eye hooks that can be used to connect the vehicle to the guide wire. The eye hooks must be opened before they can be used.

6. The race track is 66 feet long. The tracks are set on blacktops and tennis courts. In the event of inclement weather, the race is moved inside and the tracks are set on the gym floor of the hosting school.

7. The vehicle must be a student team's own design and manufactured from the current school year. **No vehicle or major component from a previous year will be allowed to compete.** Solar panels, motors and other individual parts may be reused in a new design.

8. The name of the vehicle must be clearly visible. The name of the vehicle must correspond with the team registration paperwork submitted prior to race day.

9. Student model cars must be no larger than 12"x24"x12".

Conduct of the Race:

1. Teams will consist of 1 to 4 participants max. Participants must be middle school students (6^{th}-8^{th} grade) or children ages 11 – 13.

2. The races will be divided into heats. A scoreboard will detail who is racing now and who is up next, referred to as "on deck." The announcer will alert the crowd over the loudspeaker who is racing and who is on deck. It is the responsibility of the participants and educators to listen to all announcements. There will be some flexibility in regard to moving teams to different heats but as the race continues we will not be able to move teams. Teams that are not announced as racing or on deck should go to the Judges Table to be scored in the following categories Craftsmanship, Engineering, and Best Use of Recycled Materials. Teams that are not racing or on deck may also participate in the Student Choice competition or visit the Fix-It table if their vehicle needs repairs.

3. The races will be run in a double elimination format. Teams must lose twice before being knocked out of the Speed competition.

4. A vehicle needs to be one of the first 3 vehicles to cross the finish line to count as a win in a heat. If not all vehicles cross the finish line, the winners are the 3 vehicles that went the furthest down the track.

5. The following counts as a loss: being in the bottom 3 in a heat , the vehicle disconnecting from the guide wire, losing the soda can during the race, pushing/touching the vehicle or any attempts at cheating.

6. One team member at the start and one team member at the finish line is allowed. No extra team members are allowed in the track area.

7. The vehicle will start from behind the starting line with all wheels touching the track. The solar panel

will be completely shaded by a supplied opaque material cover held above the panel by a team member. No member of the team can touch their vehicle. The team will wait for the “Ready, Set, Go” call and remove the cover so the panel is exposed to sunlight. Once the race is started, no member of the team can touch the vehicle.

8. One team member at the finish line will catch the vehicle **after** it crosses the finish line. Participants aren’t allowed to touch their vehicle until after the race is officially called by the announcer. Participants can remove their vehicle from the guide wire when told to do so by the announcer.

9. The Speed competition will begin at 9am and will continue until a clear winner is determined. Teams placing in the top 10 will be assigned points that will count towards their overall score.

10. Vehicles that place in 1st, 2nd or 3rd in Craftsmanship, Engineering, Best Use of Recycled Materials, Progress Journal or Speed qualify to move on to the Inter County Final.

Challenge 24 Official Rules

SEATING - Students sit three or four to a table, by grade level or section level (i.e. 4th & 5th grades combined). Students sit toward one side with the proctor (sitting or standing) on the opposite side.

NUMBER OF ROUNDS PLAYED - Tournaments consist of four rounds, each lasting 10 to 20 minutes. Points won by each student in Rounds 1 and 2 are added to determine who advances to the Semi-final Round 3. Semi-final Round 3 and Final Round 4 are face-off rounds; the highest scoring student at each table advances. Students may be given a break between rounds. If the players at a table finish early, they should wait for the round to end, so as to not disturb other students.

NUMBER OF CARDS PLAYED - A fixed number of cards are played in each round. (Preferred over a timed round because it is not dependent upon the speed with which proctors put the cards into play and does not put a table with a slow proctor at a disadvantage.)

PROCTORS - One Proctor is needed at each table. (Proctors must be familiar with all 24 Challenge® Tournament Rules of Play.)

PUTTING CARDS INTO PLAY - A proctor puts a card into play by “cupping” the card in the palm of one hand. The proctor places the cupped card into the center of the table and then withdraws the hand to reveal the numbers.

STUDENTS' HAND POSITION - Student fingertips should be placed on blue area of Tournament Mat - where the cards are put into play. If a special Tournament Mat is used, students must keep their hands on the blue area only.

MAKING A DECLARATION - Student declares by touching anywhere on the card, but with no more than three fingertips. Proctor determines first student to touch the card. That student must announce the pattern (last step of the solution to make 24; i.e. “3 times 8” or “15 plus 9”) within 3 seconds of touching the card, before given the opportunity to giving a solution.

GIVING THE SOLUTION - The complete solution (all three steps) must then be completed within 15 seconds. A student cannot change the pattern that he states within the first 3 seconds, and must complete his solution using this same pattern. A student may correct himself and change the first and second steps of his solution until he “fixes” the solution by saying “equals, makes or

is 24".

PENALTY FLAGS - If a student cannot give the solution or gives an incorrect solution, he/she receives a penalty flag (use Post-it® brand notes or tokens). Students who receive three penalties in a round, during rounds 1 and 2, are disqualified from further play during that round. Students are limited to two penalty flags in Rounds 3 and 4. Disqualified students keep points scored up to the point of disqualification. Penalty flags do not follow a player. All players start with a clean slate at the beginning of each round. When a student gets a penalty flag, the card is taken out of play and returned to the deck to be played again later.

FIVE WAYS TO DRAW A PENALTY FLAG:

1) Student does not announce a pattern within three seconds.

2) Student does not complete solution within 15 seconds.

3) Solution given is incorrect.

4) Student touches card with more than 3 fingertips.

5) Student touches proctor's hand before it is withdrawn.

STUMPED CARDS - If all students at the table agree that they are stumped, or if no student makes an attempt to answer a card after 15 seconds, the proctor removes that card for later play.

Rounds of Play

ROUND 1 - Play for 48 cards. Take the first half of a 96-card deck and arrange the cards so that all the red sides (color of center square on the cards) are facing up. (The first half of the deck will give you 12 one point, 24 two point and 12 three point cards.) Shuffle the cards and you are ready to begin. Make sure that all tables are using the same cards. All students play Round 1.

ROUND 2 - Flip the above 48 cards over and play the white side. Students change tables to get a chance to play with different players in their own grade or section level. All students play Round 2.

SCORING - Proctors tally points at the end of each round. Remember to count points and not just the number of cards, as a card may be worth three points (look for the number of dots in the card's corner to determine the point value). 1 Dot cards are worth one point, 2 Dot cards are worth two points and 3 Dot cards are worth three points. Proctors enter each student's score on his/her

scorecard. Scores from Rounds 1 & 2 will be added together. The sixteen highest scores from each grade level advance to the Semi-final Round 3. Semi-finalists are seated four to a table.

SEMI-FINAL ROUND 3 - Play for another 48 cards (ex-second half of the 96 card deck), red side. This third round is a “face-off” round. Only the points earned in this round are used to determine the winners, the scores from the previous rounds are disregarded. The highest scoring student at each semi-final table advances to the Final Round 4 to determine the grade/section level champions.

FINAL ROUND 4 - Flip over the above 48 cards and play the white side. The highest-scoring student in this final round is the overall grade or section level champion. As in Round 3, all previous scores are disregarded.

MISCELLANEOUS - In the case of a tie, tied players play a five-minute round. In case of a protest, it is up to the proctor at each table to settle the protest. To encourage mental math, we suggest that pencil and paper not be used by students during play.

Special Instructions (playing both Single Digits cards and Double Digits)

ROUND 1 may be played with 48 Single Digits cards.

ROUND 2 may be played with 48 Double Digits cards.

SEMI-FINAL ROUND 3 and FINAL ROUND 4 may be played with a combination of Single Digits, Double Digits and Variables cards.

Solar Sprint's 3 D Guide

Activity Learning Outcomes

After completing this activity, students will have achieved the following learning outcomes:

- Students will understand how an engineer takes an idea from paper to a 3-D printed prototype.
- Students will understand what CAD is and how it is used by engineers.
- Students will understand what CAM is and how it is used by engineers.
- Students will develop a design solution using given design constraints.
- Students will evaluate competing conceptual design solutions using a decision matrix for decision making.
- Students will collect and interpret data gathered by physical experiments.
- Students will plan and execute an experiment.
- Students will use experimental data to compare and draw conclusions that lead to an improved design solution.
- Students will discuss the intended/unintended consequences of design changes.
- Students will apply the mathematical concept of ratios to improve their design solution.
- Students will understand the difference between the mass and weight of their vehicle.

Standards Addressed

This classroom activity was specifically developed to address the Next Generation Science Standards Engineering, Technology, and Applications of Science (ETS) performance expectations. Specifically, this activity addresses the following Middle School (6-8) Engineering Design performance expectations:

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.

MS-ETS1 -2. MS-ETS1-3. MS-ETS1-4.Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.

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.

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.

For information on additional standards addressed by this classroom activity, please review Appendix A.

Engineering Notebook

Purpose

The purpose of the *Engineering Notebook* is to document students' work and guide them through the engineering design process. The *Engineering Notebook* relies on supplemental content contained in the *Competition Catalog.*

How to Use

Each student should be given an *Engineering Notebook* that he or she is expected to complete. While students will work in teams to complete many of the activities in their notebooks, each student will be expected to turn in a notebook for grading.

Experiments

There is one experiment template included in the *Engineering Notebook.* The purpose of the experiment is to allow students to learn the experimental process (engineers often call this designing experiments). The worksheets that the students complete before planning their experiment are intended to give them ideas and a template to work from when planning their experiment.

In addition to the lecture on experiments, the"Resources"section of the *Competition Catalog* contains information on experiment planning that the students can refer to.

Many students will struggle when trying to plan their own experiment. To help them, you may point them to Step 3 in the"Decision Matrix"section of the *Engineering Notebook.* Step 3 contains a list of technical questions that the team identified and then set aside earlier. If that doesn't do the trick, here are some experiments that you can suggest:

- What is the effect of tire size on the_of the car? The blank could be speed, acceleration, or hill-climbing ability.
- What is the effect of the battery location on the car's ability to climb a hill?
- Is a front- or rear-wheel-drive car better at_?
- What gear/pulley ratio will produce the fastest car?

Students will typically need two full class periods (sometimes three) to plan and complete the experiment.

Competition Catalog

Purpose

The purpose of the *Competition Catalog* is to provide a central information resource for each student team. The *Competition Catalog* contains the official costs, weights, and build times of each of the components. In addition, the catalog contains additional information on key concepts and a glossary of terms.

How to Use

Each student team should have one copy of the *Competition Catalog.* The catalog can be reused for multiple class periods.

A copy of the *Competition Catalog* is provided in Appendix D. In addition, a digital (PDF) file of the catalog is included in the disc that was provided with this curriculum. The provided template may be photocopied for use only within the classroom. Please do not copy or distribute this teacher's guide. By honoring our copyright, you enable us to invest in research for education.

Print Day Guidance

Each team will be allowed one class period to use the 3-D printer. Before using the printer, they should have completed the"Decision Matrix"section of the *Engineering Notebook.* Make sure to thoroughly review the information that was provided with your 3-D printer and complete some test prints before working with students. The following is the suggested process for meeting with each team on their print day:

1. Confirm that they have completed their *Engineering Notebook* through (and including) the "Decision Matrix"section.
2. Review which parts they would like to print with the team. Hint: You might ask them to come with a print list.
3. Discuss with the team which worksheet(s) they plan on completing. If they plan on complet- ing the"Gears Versus Pulleys"worksheet, make sure they print the proper pulleys required for that experiment.
4. Review the Afinia 3D Printer machine with the students. Make sure to point out:
   A. The build platform
   B. The material spool
   C. The extruder head
   D. The x-y gantry
5. Prepare the machine for a new print.
6. Open the printer software and add the agreed upon parts to the build.
   A. It is likely the students' parts won't all fit on the build plate. Work with the students to down-select.
   B. If there is time and student interest, let them arrange the parts on the tray
7. After you are ready, execute the build. Make sure to point out that the software is slicing the CAD model into layers that the machine can build. CAM translates CAD files into machine code.
8. Allow the students to watch the build.
9. Allow the students to remove the parts and clean the build plate for the next team.

Design Review Presentations

Each team should be required to give a design review presentation to the class. This presentation should be five to seven minutes long. Allow about three minutes of questions so that the total length of each presentation is approximately 10 minutes.

For the presentation, students should use their vehicle as a visual aid and be allowed to write on a flip

chart or whiteboard as needed. Students should describe:

- The most difficult design decision they made and how they made it.
- Unique features of their vehicle.
- How they have improved their vehicle based on the experiment they performed.

Teams may have one designated presenter if they desire, but they should all stand at the front of the class. It should be made clear that questions can be directed to any student.

Some questions to ask include:

- What is the gear/pulley ratio of your drivetrain?
- Have you done anything to make the car lighter/heavier?
- Were there any changes you made that didn't improve performance like you

expected?

Academically Speaking Rules

General things to remember:

- Teams consist of three to six players, plus one alternate.
- Three participants play at one time.
- Two tables on either side of a podium, three kids at each table.
- All questions are read.
- Pencils and scrap paper are provided.
- Passed questions are not reread.
- Moderators wait three seconds before moving on.

Round 1- buzzers round

+10 correct ANSWERS, -5 incorrect
4 minutes for round or 30 questions--whichever comes first

- Participants will have three seconds to answer the question.
- Teams compete at the same time.
- No discussion among teammates is permitted.
- If a participant buzzes in, they must answer.
- Participants may interrupt the question to answer without penalty. If a player knows the answer, they should interrupt ahead of time.
- If a question is being asked at the end of the four minute period, the question is dropped.
- If the question is completed, or a player is answering the answer is permitted.

Round 2- no buzzers

+20 correct, -20 incorrect, 0 PASSED

- Each team gets 90 seconds to answer 10 questions.
- Discussion among teammates is permitted.
- Participants may pass questions. These questions will be asked at the end of the round.
- Participants may interrupt moderator to answer a question they have passed…"I would like to answer the passed question."
- Teams earn a 50 point bonus if all questions are answered correctly.
- After 90 seconds, passed questions become available to the other team.
- Incorrect questions are not available to other team.

+20 correct -20 incorrect for stealing passed questions.

After round 2, COACHES MAY substitute some or ALL PARTICIPANTS.

Round 3- no buzzers

PLAYERS ARE ALLOWED to double before round begins
+20 correct, -20 incorrect, 0 PASSED
+40 or -40 if points ARE doubled

- Each team gets 90 seconds to answer 10 questions.
- Discussion among teammates is permitted.
- Participants may pass questions. These questions will be asked at the end of the round.
- Participants may interrupt moderator to answer a question they have passed…"I would like to answer the passed question."
- Teams earn a 50 point bonus if all questions are answered correctly.
- After 90 seconds, passed and incorrect questions become available to the other team.

+20 correct -20 incorrect for stealing questions.

Round 4- buzzers round

+20 correct, -20 incorrect
4 minutes for round or 30 questions--whichever comes first

- All players play at one time, similar to round one.
- Discussion among teammates is permitted.
- Participant who buzzes in must answer the question.
- Moderator may be interrupted. If interrupted question is wrong, it will be read in its entirely for the other team.
- Passed questions are not repeated.
- If a team answers incorrectly, a player from the other team may try to answer question immediately.

Good luck to ALL TEAMS!

If you HAVE ANY questions ABOUT the rules, PLEASE CONTACT Arturo AT:
ARODRIGUEZ@WESTORANGESCHOOLS.ORG.