Meeting STEAM, Common Core, and 21st Century Skills through Creative Problem Solving

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PROBLEM 1 (VEHICLE)
Problem 1: Escape vroOM

Odyssey teams take their problem-solving skills inside a box as they create a performance that includes one or more team-created vehicles that will help a group of characters escape an unusual room. The vehicle will travel to areas within the room and complete tasks. Each time it completes a task it will release a "clue" that the group will use in the next area to release the next clue, and so on. When the vehicle performs the final task, it will reveal a final clue that allows the group to escape the room and they discover the mystery behind the room!

STEM Initiative

Science	Technology	Engineering	Mathematics
Understand the properties of objects and materials, and the changes in properties and matter in order to create one vehicle and its method of propulsion. Research/understand energy, its sources, and how it applies to different propulsion systems. Research/understand simple machines, transmissions, leverage, mechanics of motion, inertia, friction, braking. Research/understand the construction and materials in the design of vehicles and propulsion systems. Apply scientific principles to design, construct, and test a device that either minimizes or maximizes energy transfer. Research/understand simple reactions and their outcomes.	Use technology tools to enhance learning, increase productivity, and promote creativity. Research different methods of control, steering, and propulsion in designing and building the vehicle. Research different sources of energy for vehicle's propulsion. Use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources. Demonstrate the ability to use technology for research, critical thinking, decision making, communication and collaboration, creativity and innovation.	Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem. Apply a structured approach to solving problems: define problem, brainstorm ideas, research, identify criteria, explore the possibilities, make a model, evaluate, communicate results, and revise to improve performance. Develop an understanding that engineers need to communicate effectively as individuals and as members of a team. Design, test and build systems, components, or processes to meet desired needs within realistic constraints as they relate to vehicles, propulsion systems, obstacles, etc. Evaluate competing design solutions based on jointly developed and agreed-upon design criteria.	Use visualization, spatial reasoning, and geometric modeling to solve problems in the creation of the vehicle and propulsion systems, etc. Utilize estimation, measurement, computational skills, and spatial/geometric relationships in order to: (a) Work within budgetary, time, and space limitations. (b) Analyze scoring criteria to prioritize problem elements such as vehicle and design, and propulsion systems. Solve real-world and mathematical problems involving area, surface area, and volume. Use digital tools and/or mathematical concepts and arguments to test and compare proposed solutions to an engineering design problem.

PROBLEM 2 (TECHNICAL)

Odyssey ReOMvention

While no one knows what the future holds, it's likely OMers will have an important role in it! To prove just that, teams will present a performance that identifies an original threat to the environment that self-replicates until a team-created technical reOMvention removes the threat. The team's setting will reflect the threat and then return to its original state. The performance will also include original music, two animal characters, and must use ARM & HAMMER™ Baking Soda. Sponsored by ARM & HAMMER™

STEM Initiative

Science	Technology	Engineering	Mathematics
Understand the properties of objects and materials, and the changes of properties in matter in order to create devices. Research and develop an understanding of how energy may be used to power devices. Research and develop an understanding of simple machines, leverage, laws of motion, mechanics and the effect of applied force on objects to complete the tasks. Research/understand simple reactions and their outcomes.	Use technology tools to enhance learning, increase productivity, and promote creativity. Use productivity tools to collaborate in constructing technology-enhanced models. Employ technology in the development of strategies for solving problems in the real world. Understand and use technology systems. Use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources.	Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem. Apply a structured approach to solving problems: define problem, brainstorm ideas, research, identify criteria, explore the possibilities, make a model, evaluate, communicate results, and revise to improve performance. Develop an understanding that engineers need to communicate effectively as individuals and as members of a team. Design, create and build a solution in which an animated creature can change appearance and complete tasks.	Use visualization, spatial reasoning, and geometric modeling to solve problems in the creation of devices to complete tasks. Utilize estimation, measurement, computational skills, and spatial relationships in order to: (a) Work within budgetary, time, and space limitations. (b) Explore multiple ways an animated creature might be able to change appearance. (c) Analyze scoring criteria to prioritize problem elements such as quality and creativity of the performance, creativity of engineering of how the creature changes appearance and completes tasks, and the originality and effectiveness of the searcher character.

PROBLEM 3 (CLASSICS)
(*Name Here*) …The Musical Production

Historical figures get an encore as OMers re-tell their stories in musical form. In this problem, teams will create a biographical musical about a selected historic figure. There will be three songs: an opening number, an emotional number whose music conveys an emotion, and one determined by the team. The performance will also include a lighting special effect, movement of scenery, and a membership sign that will appear as a marquee for the team's musical.

STEM Initiative

Science	Technology	Engineering	Mathematics
Understand the properties of objects and materials, and the changes of properties in matter in order to design the "recreation.

Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.

Ask questions that can be investigated and predict reasonable outcomes based on patterns such as cause and effect relationships.

Define a simple design problem that can be solved through the development of an object, tool, process, or system and includes several criteria for success and constraints on materials, time, or cost.

Develop a diagram or simple physical prototype to convey a proposed object, tool, or process. | Use technology tools to enhance learning, increase productivity, and promote creativity.

Use productivity tools to collaborate in constructing creative works.

Know and use a deliberate design process for generating ideas, testing theories, creating innovative artifacts and solving authentic problems.

Communicate complex ideas clearly and effectively by creating or using a variety of digital objects such as visualizations, models or simulations.

Utilize technology in research and design in all aspects of the solution. | Design, test, and build a system, component, or process to meet desired needs within realistic constraints.

Apply the engineering design process, troubleshooting, research and development, invention and innovation, and experimentation in problem solving and engineering design.

Use engineering as a vehicle for creative and critical thinking and inquiry.

Develop an understanding that engineers need to communicate effectively as individuals and as members of a team.

Undertake a design project, engaging in the design cycle, to construct and/or implement a solution that meets specific design criteria and constraints.

Evaluate competing design solutions based on jointly developed and agreed-upon design criteria. | **Use visualization, spatial reasoning, and geometric modeling to solve problems in the "recreation."**

Utilize estimation, measurement, computational skills, and spatial/geometric relationships in order to:
(a) Work within budgetary, time, and space limitations.
(b) Analyze scoring criteria to prioritize problem elements such as the team-created court, the historic royal court, the team created instrument, etc.

Use digital tools and/or mathematical concepts and arguments to test and compare proposed solutions to an engineering design problem.

Look closely to discern a pattern or structure. |

PROBLEM 4 (STRUCTURE)
Matryoshka Structure

It's always the more the merrier with nesting dolls, also known as Matryoshka! In this problem, teams will design and build a Matryoshka Structure made of only balsa wood and glue that holds as much weight as possible. The 8+" structure will hold additional structures nested one inside the other. The more structures that are nested, the higher the score! Before weight placement can begin, the nested structures will be removed one-by one to reveal a tiny character nested inside the smallest structure. The performance will have a theme about storage that includes placing weights, the structures, and the tiny character.

STEM Initiative

Science	Technology	Engineering	Mathematics
Understand the properties of objects and materials, and the changes in properties and matter in order to create weight-bearing structures. Research and understand material properties of balsa and various adhesives. Understand effects of various environments on materials. Understand how design of a structure affects weight transfer through the structure and how weight placement impacts the ability to hold weight without collapsing. Evaluate safety issues involved with materials being used in construction of the structure, particularly relating to structural collapse.	Use technology tools to enhance learning, increase productivity, and promote creativity. Use productivity tools to collaborate in constructing technology-enhanced models and produce other creative works. Utilize technology in research and design in all aspects of the solution. Use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources. Demonstrate the ability to use technology for research, critical thinking, decision making, communication and collaboration, creativity and innovation.	Apply a structured approach to solving problems: define problem, brainstorm ideas, research, identify criteria, explore the possibilities, make a model, evaluate, communicate results, and revise to improve performance. Develop an understanding that engineers need to communicate effectively as individuals and as members of a team. Apply contemporary engineering tools and technology to define, analyze, model, and build prototype structures made of multiple, separate components. Evaluate structural characteristics of balsa wood and glued connections. Evaluate connections – surface area of joining pieces, geometry of joints.	Use visualization, spatial reasoning, and geometric modeling to solve problems in the creation a balsa wood structure. Utilize geometry and trigonometry to analyze component structures and how those components will be stacked as the final structure. Utilize estimation, measurement, computational skills, and spatial relationships in order to: (a) Work within budgetary, time, and space limitations. (b) Analyze scoring criteria to prioritize problem elements such as weight held, creativity of the performance, etc. Use digital tools and/or mathematical concepts and arguments to test and compare proposed solutions to an engineering design problem.

PROBLEM 5 (PERFORMANCE)
Life is a Circus!

Sometimes life seems like a circus! Teams will create a performance about a young person enjoying a regular life in our world who wakes up one day to discover they somehow were transported into a circus world. In the circus world there will be original animals performing unexpected tricks, a clown, circus acts, and a ringmaster who announces the activities. The young person returns to the regular world thinking it was all a dream until they see a mysterious figure that turns out to be from the circus.

STEM Initiative

Science	Technology	Engineering	Mathematics
Understand the abilities of technological design. Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem. Ask questions that can be investigated and predict reasonable outcomes based on patterns such as cause and effect relationships. Define a simple design problem that can be solved through the development of an object, tool, process, or system and includes several criteria for success and constraints on materials, time, or cost. Develop a diagram or simple physical prototype to convey a proposed object, tool, or process.	Use technology tools to enhance learning, increase productivity, and promote creativity. Use productivity tools to collaborate in constructing technology-enhanced models and produce other creative works. Employ technology in the development of strategies for solving problems in the real world, including those related to social situations. Communicate complex ideas clearly and effectively by creating or using a variety of digital objects such as visualizations, models or simulations to create attention-getting effects.	Design, test, and build a system, component, or process to meet desired needs within realistic constraints. Apply the engineering design process, troubleshooting, research and development, invention and innovation, and experimentation in problem solving and engineering design. Use engineering as a vehicle for creative and critical thinking and inquiry. Develop an understanding that engineers need to communicate effectively as individuals and as members of a team. Undertake a design project, engaging in the design cycle, to construct and/or implement a solution that meets specific design criteria and constraints. Evaluate competing design solutions based on jointly developed and agreed-upon design criteria.	Make decisions about units and scales that are appropriate for problem situations involving measurement in order to design attention-getting effects. Utilize estimation, measurement, computational skills, and spatial relationships in order to: (a) Work within budgetary, time, and space limitations. (b) Analyze scoring criteria to prioritize problem elements. Use digital tools and/or mathematical concepts and arguments to test and compare proposed solutions to an engineering design problem. Look closely to discern a pattern or structure.

PRIMARY PROBLEM (Grades K-2)
Tri-Cycle Transport

We all know where the wheels on the bus take us, how about the wheels on an OM-Mobile? In this problem teams will design and build one or more vehicles used to transport something. Teams will build a vehicle that is powered three ways: human power, gravity, and free choice (e.g. battery, wind). The vehicle will travel forward, backward, and turn to a side. The performance will also include a funny narrator, a mechanic character, a salesperson, and a song about transportation that has a lyric repeated three times.

STEM Initiative

Science	Technology	Engineering	Mathematics
Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem. Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem. Ask questions, make observations, and gather information about a situation. Research/understand energy, its sources, and how it applies to different propulsion systems. Research/understand simple machines, transmissions, leverage, mechanics of motion, inertia, friction, braking.	Use technology tools to enhance learning, increase productivity, and promote creativity. Use productivity tools to collaborate in constructing technology-enhanced models of various displays other creative works. Employ technology in the development of strategies for solving problems in the real world. Understand and use technology systems.	Design, test, and build a system, component, or process to meet desired needs within realistic constraints. Apply the engineering design process, troubleshooting, research and development, invention and innovation, and experimentation in problem solving and engineering design. Use engineering as a vehicle for creative and critical thinking and inquiry. Develop an understanding that engineers need to communicate effectively as individuals and as members of a team. Recognize design is a creative process and everyone can design solutions to problems.	Use visualization, spatial reasoning, and geometric modeling to solve problems in the creation of various features, exhibits and displays. Utilize estimation, measurement, computational skills, and spatial relationships in order to: (a) Work within budgetary, time, and space limitations. (b) Analyze scoring criteria to prioritize problem elements such as creativity, presentation quality, display use and impact, performance, humor and character.

SPONTANEOUS

Spontaneous is the "short term" portion of Odyssey of the Mind, in which students are given a problem and must solve it in a given amount of time, on the spot. Some spontaneous problems build verbal skills, some build mechanical skills, and some build both; all help improve problem solving skills. Spontaneous problems vary from hands-on problems (e.g., use materials to build/design/change an item), to verbal problems (e.g., name types of trees).

STEM Initiative

Science	Technology	Engineering	Mathematics
Use innovation to solve problems. Apply an intuitive understanding of gravity, motion, force and other physics concepts. Apply an understanding of the composition, properties, and creative use of materials. (e.g., what can we use to support the structure, what can we use to make it taller, etc.) Test alternate hypotheses. (e.g., what is another way to build this?) Evaluate results. Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.	Utilize innovation in the creative use of everyday objects (e.g., toothpicks, clay, and paper plates) as tools and materials to solve problems. Implement nontraditional communication methods (gestures, tapping on table) to brainstorm and solve problems.	Apply knowledge of science, technology, engineering, and mathematics to define, analyze, and solve problems Utilize engineering design process to define roles of team members (who will build, who will keep track of time), brainstorm (what materials will be used, how will solution be presented), and communicate possible solutions, and to reflect upon outcomes. Develop an understanding that engineers need to communicate effectively as individuals and as members of a team. Evaluate competing design solutions based on jointly developed and agreed-upon design criteria.	Utilize estimation, measurement, computational skills, and spatial relationships in order to: (a) Work within time and space limitations outlined in the problem. (b) Analyze scoring criteria (what is worth the most points) to prioritize problem elements (what should we do first to get a higher score?)

Odyssey of the Mind and Educational Initiatives

COMMON CORE

Common Core is aligned with
- Includes rigorous content and application of knowledge through higher-order skills
- Built upon strengths and lessons of current state standards
- Informed by top-performing countries, so that all students are prepared to succeed in our global economy
- Evidence and/or research-based
- Aligned with college and work expectations

English/Language Arts	Odyssey Teams
Key Ideas and Details	All problems require team members to read closely to determine what the text says explicitly and to make logical inferences from it. Cite specific textual evidence when writing or speaking to support conclusions drawn from the text. Analyze how and why individuals, events, and ideas develop and interact over the course of a text.
Craft and Structure	Integrate and evaluate content presented in diverse formats and media, including visually and quantitatively, as well as in words. Analyze the structure of texts. Interpret words and phrases as they are used in a text, including determining technical, connotative, and figurative meanings, and analyze how specific word choices shape meaning or tone.
Integrations of Knowledge and Ideas	Team members analyze how two or more texts address similar themes or topics in order to build knowledge. Delineate and evaluate the argument and specific claims in a text. Integrate and evaluate content presented in diverse formats and media, including visually and quantitatively, as well as in words.
Range of Reading and Level of Text Complexity	Each problem requires students to read and comprehend complex literary and informational texts independently and proficiently in order to solve the problems.

Odyssey of the Mind and Educational Initiatives

Math	Odyssey Teams
Make sense of problems and persevere in solving them	Team members start by explaining to themselves the meaning of a problem and looking for entry points to its solution. They analyze givens, constraints, relationships, and goals. They make conjectures about the form and meaning of the solution and plan a solution pathway rather than simply jumping into a solution attempt.
Reason abstractly and quantitatively	Quantitative reasoning entails habits of creating a coherent representation of the problem at hand; consider the unit/parts involved; attend to the meaning
Construct viable arguments and critique the reasoning of others	The student must understand and use stated assumptions, definitions, and previously established results in constructing arguments.
Model with mathematics	Utilizing problems arising in everyday life, society, and the workplace, students model mathematics in many phases of the problems.
Use appropriate tools strategically	These tools might include pencil and paper, concrete models, a ruler, a protractor, a calculator, a spreadsheet, a computer, a statistical package, or dynamic geometry software. Proficient students are sufficiently familiar with tools appropriate for their grade to make sound decisions about when each of these tools might be helpful, recognizing both the insight to be gained and their limitations solving the problem they choose.
Attend to precision	Students, as team members, try to communicate precisely to others. They try to use clear definitions in discussion with others and in their own reasoning. They calculate accurately and efficiently, express numerical answers with a degree of precision appropriate for the problem context.

Odyssey of the Mind and Educational Initiatives

Math Cont'd	Odyssey Teams
Look for and make use of structure	Students look closely to discern a pattern or structure within a given problem. They also can step back for an overview and shift perspective. They can see complicated things as single objects or as being composed of several objects.
Look for and express regularity in repeated reasoning	Students notice if calculations are repeated, and look both for general methods and for shortcuts.

Writing Standards For Literacy in History/Social Studies, Science, and Technical Subjects	Odyssey Teams
Write arguments focused on a discipline-specific content	Many teams write a script to address the specifics of their solution.
Produce clear and coherent writing appropriate to task, purpose, and audience	Teams are encouraged to focus their script and their performance on a specific task, purpose, and audience.
Conduct short as well as sustained research projects to answer a question	Many aspects of Odyssey of the Mind require teams to conduct research to answer specific questions.
Gather relevant information from multiple sources	Odyssey teams gather material from multiple sources.

Odyssey of the Mind and Educational Initiatives

Reading Standards for Literacy in Science and Technical Subjects (RST)	Odyssey Teams
Follow precisely a multistep procedure when carrying out experiments or performing technical tasks	Teams follow many multistep procedures as they test and retest possible solutions.
Translate quantitative or technical information expressed in words in a text into a visual form	Odyssey teams take quantitative and technical information and transform it into a creative visual expression.
Compare and contrast findings presented, noting when findings support or contradict previous explanations	Students work as a team to compare and contrast findings as they develop their solutions.
Integrate and evaluate multiple sources of information presented in diverse formats and media	Students use multiple sources of information including a diversity of formats and media in their quest for solutions.
Evaluate the hypothesis, data, analysis, and conclusions found in science, verifying the data when possible and corroborating or challenging conclusions	Students naturally use the scientific method as they work through their long term solutions.
Synthesize information from a range of sources into a coherent understanding	The synthesis of information from a range of sources comes together in a coherent presentation of the team's solution.

Odyssey of the Mind and Educational Initiatives

Reading Standards for Literacy in History/Social Studies (RH)	Odyssey Teams
Determine the central ideas or information of a primary or secondary source	Team members work together to analyze both primary and secondary sources as they work with the problem and access resources as they search for a solution.
Determine the meaning of words and phrases as they are used in a text	The meaning of words and phrases in the Odyssey of the Mind problems has an impact on each solution.
Integrate visual information	Visual information can become an integral part of an Odyssey solution.
Distinguish among fact, opinion, and reasoned judgment	As teams search for a solution, the ability to distinguish between fact, opinion, and reasoned judgment can be critical.
Integrate and evaluate multiple sources of information presented in diverse formats and media in order to address a question or solve a problem	Teams integrate information from a wide variety of sources into their solutions.

Odyssey of the Mind and Educational Initiatives

Next Generation Science Standards of Science and Engineering Practices	Odyssey Teams
Analyzing and Interpreting Data	Throughout the problem solving process teams continuously review, analyze, and interpret data as they develop their solutions building on past experiences and knowledge and seeking new information.
Asking Questions and Defining Problems	Questioning and defining problems is an integral part of the problem solving process.
Constructing Explanations and Defining Problems	Odyssey teams collaborate to define problems and construct and often reconstruct explanations supported by multiple sources of evidence consistent with scientific knowledge, principles, and theories.
Developing and Using Models	Students develop, design, and use models to predict, explain, or collect data to test ideas and develop solutions.
Engaging in Argument from Evidence	Using both oral and written arguments, teams use empirical evidence and data to design and support their solutions.
Obtaining, Evaluating, and Communicating Information	Odyssey teams generate, synthesis, communicate, and critique methods and designs as they seek solutions.
Planning and Carrying out Investigations	Students plan and carry out investigations that use multiple variables and provide evidence to support solutions.
Using Mathematics and Computational Thinking	Teams use mathematical and computational thinking to support solutions.

Odyssey of the Mind and Educational Initiatives

21st CENTURY SKILLS

21stCentury Skills	Odyssey Teams
Global Awareness	Global competitiveness and understanding. Teams meet other teams from around the world at the annual World Finals.
Intellectual curiosity	Research to find information needed to solve the problem. Choosing a problem and idea that is personally exciting.
Interpersonal and Collaborative Skills Communication	Teamwork: consensus, collaboration, communication. Understanding and valuing the power of diversity within the team. Understanding personal strengths and weaknesses. Practicing active listening skills. Learning to value other team member's ideas and contributions.
Problem Solving & Creative and Critical Thinking	Analyze complex open-ended real world problems. Identifying challenges within the problem. Brainstorm possible technical solutions. Brainstorm possible thematic and artistic solutions. Evaluate potential solutions – How creative is this solution? Will other teams have thought of this? Spontaneous: training your mind to generate creative solutions by analyzing and evaluation your ideas and learning to use targeted thinking strategies.
Self-Direction	No outside assistance rule: teams generated research, solutions and decision making. Select potential solutions using scoring criteria. Planning for tournaments.
Authentic Assessment Accountability and Adaptability	Team reflection of effectiveness during spontaneous practice. Team reflection of tournament results. Planning and refining for future tournaments. Create-test-improve-retest best solutions.

Odyssey of the Mind and Educational Initiatives

Art Standards				
DANCE	**MUSIC**	**THEATRE**	**VISUAL ARTS**	**MEDIA ARTS**
• Identify ideas for choreography generated from a variety of stimuli • Construct and solve multiple movement problems to develop choreographic content • Improve a series of movements that have a beginning, middle, and end • Revise movement choices in response to peer feedback and self-reflection to improve a short dance study • Demonstrate locomotor and non-locomotor movements that change body shapes, levels, and facings • Replicate body shapes, movement characteristics, and movement patterns in a dance sequence with awareness of body alignment and core support • Judge spaces as distance traveled and use space three-dimensionally. Perform movement sequences in and through space with intentionality and focus • Change use of energy and dynamics by modifying movements and applying specific characteristics to heighten the effects of their intent • Dance with sensibility toward other dancers while executing complex spatial, rhythmic and dynamic	• Generate a simple rhythmic, melodic, and harmonic phrases within AB and ABA forms that convey expressive intent • Generate musical ideas (rhythms, melodies, and accompaniment patterns) • Demonstrate selected and organized musical ideas for an improvisation, arrangement, or composition to express intent and explain connection to purpose and context • Present the final version of personal created music to others that demonstrates craftsmanship and explain connection to expressive intent • Demonstrate understanding of the structure in music selected for performance • With limited guidance, apply personal, teacher and peer feedback to refine performances • Rehearse to refine technical accuracy and expressive qualities and address performance challenges • Perform music for a specific purpose with expression and technical accuracy • Perform appropriately for the audience and purpose • Evaluate musical works and performances, applying	• With prompting, and support, invent and inhabit an imaginary elsewhere in dramatic play or guided drama experience • Investigate multiple perspectives and solutions to staging challenges in a drama/theatre work • Collaborate with peers to conceptualize scenery in a guided drama experience • Visualize and design technical elements that support the story and given circumstances in a drama/theatre work • Collaborate to determine how characters might move and speak to support the story and given circumstances in drama/theatre work • Develop a scripted or improvised character by articulating the character's inner thoughts, objectives, and motivations in a drama/theatre work • Collaborate to devise original ideas for a drama/theatre work by asking questions about characters and plots • Compare ideas with peers and make selections that will enhance and deepen group drama/theatre work • Collaborate with peers to revise, refine, and adapt ideas to fit the given parameters of a drama theatre work • Refine, transform, and re-imagine a devised or scripted drama/theatre work using the	• Demonstrate willingness to experiment, innovate, and take risks to pursue ideas, forms, and meaning that emerge in the process of art-making or designing • Brainstorm multiple approaches to a creative art or design problem • Collaboratively set goals and create artwork that is meaningful and ha purpose to the makers • When making works of art, utilize and care for materials, tools, and equipment in a manner that prevents danger to oneself and others • Design or redesign objects, places, or systems that meet the identified needs of diverse users • Distinguish between different materials or artistic techniques for preparing artwork for presentations • Analyze multiple ways that images influence specific audiences • Develop and apply relevant criteria to evaluate a work of art • Generate a collection of ideas reflecting current interests and concerns that could be investigated in art making • Interpret art by analyzing art making approaches, the characteristics of form and structure, relevant contextual	• Formulate variations of goals and solutions for media artworks by practicing chosen creative processes, such as sketching, improvising, and brainstorming • Organize, propose, and evaluate artistic ideas, plans, prototypes, and production processes for media arts productions, considering purposeful intent • Experiment with multiple approaches to produce content and components for determined purpose and meaning in media arts productions, utilizing a range of associated principles, such as point of view and perspective • Refine and modify media artworks, honing aesthetic quality and intentionally accentuating stylistic elements, to reflect an understanding of personal goals and preferences • Demonstrate how a variety of academic arts, and media forms and content may be mixed and coordinated into media artworks, such as narrative, dance, and media • Exhibit basic creative skills to invent new content and solutions within and through media arts production • Demonstrate how a variety of academic, arts, and media

sequences to meet performance goals • Dance for and with others in a space where audience and performers occupy different areas • Explore the use of simple props to enhance performance • Demonstrate and describe observed or performed dance movements from a specific genre or culture • Describe, create, and/or perform a dance that expresses personal meaning • Observe illustrations from a story. Discuss observations and identify ideas for dance movement and demonstrate the big ideas of the story • Observe a dance and relate the movement to the people or environment in which the dance was created and performed	established criteria, and explain appropriateness to the content • Demonstrate how interests, knowledge, and skills relate to personal choices and intent when creating, performing, and responding to music • Present the final version of created music for others • Demonstrate understanding of relationships between music and the other arts, other disciplines, varied context, and daily life • Using digital tools and demonstrate attention to technical accuracy and expressive qualities in prepared and improvised performances of a varied repertoire of music • Assemble and organize multiple sounds or musical ideas to create initial expressive statements of selected sonic events, memories, images, concepts, texts, or storylines	rehearsal process to invent or re-imagine style, genre, form, and conventions • Develop physical and vocal exercise techniques for an improvised or scripted drama/theatre work • Create innovative solutions to design and technical problems that arise in rehearsal for a drama/theatre work • Interpret story elements in a guided drama experience • Use body, face, gestures, and voice to communicate character traits and emotions • Choose a variety of technical elements that can be applied to a design in a drama/theatre work • Perform a scripted drama/theatre work for a specific audience • Identify artistic choices made in a drama/theatre work through participation and observation • Recognize and share artistic choices when participating in or observing a drama/theatre work • Consider multiple ways to develop a character using physical characteristics and prop or costume design choices that reflect cultural perspectives in drama/theatre work	information, subject matter, and use of media to identify ideas and mood conveyed - • Identify how art is used to inform or change beliefs, values, or behaviors of an individual or society • Engage in constructive critique with peers, then reflect on, re-engage, revise, and refine works of art and design in response to personal artistic vision • Interpret art by analyzing how the interaction of subject matter, characteristics of form and structure, use of media, art-making approaches, and relevant contextual information contributes to understanding messages or ideas and mood conveyed	forms and content may be mixed and coordinated into media artworks, such as narrative, dance, and media • Demonstrate adaptability using tools and techniques in standard and experimental ways to achieve an assigned purpose in constructing media artworks • Evaluate the results of and implement improvements for presenting media artworks, considering impacts on personal growth and external effects • Identify, describe, and analyze how message and meaning are created by components in media artworks • Describe, compare, and analyze how various forms, methods, and styles in media artworks interact with personal preferences in influencing audience experience • Identify and apply basic criteria for evaluating and improving media artworks and production process, considering context • Access, evaluate, and use internal and external resources to create media artworks such as knowledge, experiences, interests, and research • Analyze and interact appropriately with media arts tools and environments considering fair use and copyright, ethics, and media literacy