

STEM and Destination Imagination



a: technical assembly required

Challenge Requirement: The Equipment	<p>STEM Connections: Teams will use the <i>Engineering Design Process</i> to design and construct the Equipment that will be used to pick up and transport parts.</p> <p>To determine how to design and construct the Equipment in the manner in which the team desires, the team will investigate the <i>physical concepts of motion and energy</i>.</p> <p>Teams must utilize the <i>mathematical concepts of geometry (properties of plane and solid figures) and measurement</i>.</p>
Challenge Requirement: Orders	STEM Connection: In order for teams to understand points earned in this section of the challenge, they must have <i>knowledge of computation (multiplication)</i> .
Challenge Requirements: Assembly Process and Quality Control Bonus	Practical skills related to <i>STEM careers</i> (i.e. Automotive Specialty Technicians, Avionics Technician, Electromechanical Engineering Technologists, Manufacturing Engineers, Product Safety Engineers, Transportation Vehicle, Equipment and Systems Inspectors, etc).



b: scientific the solar stage

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Challenge Requirement: The Story	STEM Connection: In order to create a successful story about one or more characters who face a situation where solar energy is needed, teams must research the <i>scientific concept of solar energy</i> .
Challenge Requirement: Solar Energy Prototype	<p>STEM Connections: This challenge requirement demonstrates the <i>scientific concept of using models</i>. It explains that a model is a simplified imitation of something and that a model's value lies in suggesting how the thing modeled works.</p> <p>Demonstrates the <i>collection and conversion of solar energy into usable energy</i>.</p> <p>Although it is not required, teams could use <i>technology</i> as part of the Solar Energy Prototype demonstration.</p>
Challenge Requirement: Theatrical Lighting	<p>STEM Connections: In order to meet this requirement, teams must research and utilize the <i>physical science concept of visible light</i>.</p> <p>Teams could use the <i>Engineering Design Process</i> to design and construct the system used for the Theatrical Lighting.</p> <p>Although it is not required, teams could use technology as part of the Solar Energy Prototype demonstration.</p>



c: fine arts

coming attractions

Challenge Requirement: Movie Trailer	STEM Connection: Other than the Cinematic Special Effect, no other technical component is required. However, many teams may use a lot of technology to produce a solution that gives a movie trailer effect.
Challenge Requirement: Cinematic Special Effect	STEM Connections: Teams can use the Engineering Design Process to design and construct a visual effect that will produce the Cinematic Special Effect. Teams will use Technical Methods to create the Cinematic Special Effect.
Challenge Requirement: Original Soundtrack	STEM Connection: The challenge does not specifically require teams to use sound effects to produce the Original Soundtrack. However, teams have the option of doing so. If they do, they will be using the properties of sound to create the desired effect.



d: improvisational

news to me

Challenge Requirement: All Improvisational Elements	STEM Connection: In this challenge, teams do not plan a presentation in advance. They research and practice a variety of improvisational elements. At the tournament, elements are randomly selected and used in the presentation. Teams can use the mathematical concept of probability to determine the chance of an improvisation element being selected.
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e: structural

hold it!

Challenge Requirement: The Structure	STEM Connection: Teams can use the Engineering Design Process to design and construct a structure that must support weight and hold golf balls.
Challenge Requirement: Structure Specifications	STEM Connections: Teams must study the properties of wood and glue in order to design and construct a structure that will support weight and hold golf balls. The team must have knowledge of customary and metric measurements in order to design and construct a structure that meets height and weight specifications.
Challenge Requirement: Golf Ball Delivery Device	STEM Connection: Teams can use the Engineering Design Process to design and construct a device that will deliver golf balls into the structure.
Challenge Requirement: Structure Scoring with Golf Ball Bonus	STEM Connections: In order for teams to practice trying to get the most points for weight placement and golf ball bonus, they must have knowledge of number computation (addition, multiplication, and division) and knowledge of ratios .



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Challenge Requirement: <i>The Advertisement</i>	STEM Connection: Although the challenge does not specifically require teams to use <i>technology</i> to create the advertisement, this challenge requirement lends itself well to teams doing so.
Challenge Requirement: <i>Marketing Brochure</i>	STEM Connection: Although the challenge does not specifically require teams to use <i>technology</i> to create the marketing brochure, this challenge requirement lends itself well to teams doing so.



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Challenge Requirement: <i>The New Toy</i>	STEM Connection: The team will use the basics of the <i>Engineering Design Process</i> to create a brand new toy.
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