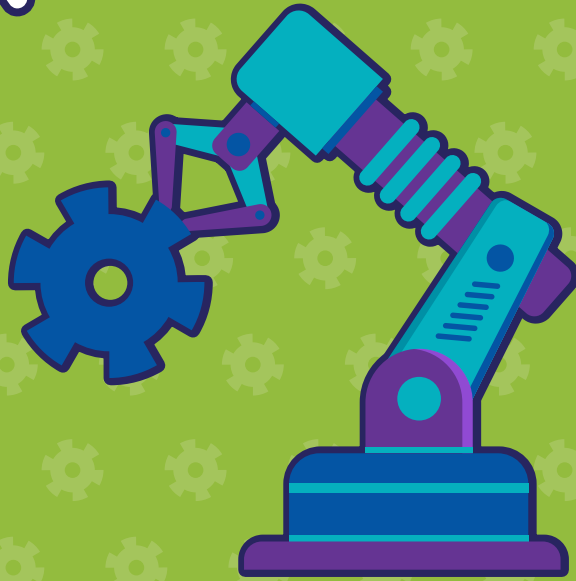




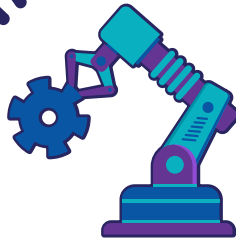
THE BIG FIX



TECHNICAL

2019-20 Challenge Season

THE BIG FIX



TECHNICAL

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1 Getting Started

Review this information before beginning work on your team's solution.

2 The Central Challenge

Read this section thoroughly to make sure your team understands it.

7 Team Choice Elements

Create two Team Choice Elements that show off your team's interests, skills, areas of strength, and talents.

8 At the Tournament

Learn about the team requirements at the tournament.

9 Scoring

Review all of the elements that will be scored during your team's Presentation.

10 Tournament Data Form

Fill out the required paperwork and bring copies to your tournament.

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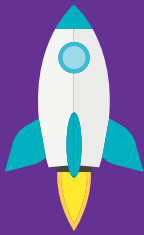
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Approaching this Challenge

This Challenge can be solved on many levels, ranging from the simple to the complex.

Focus on solving this Challenge based on the intent in which it was designed. All Challenge requirements must be met unless otherwise stated using the terms “should” or “may.” If you find the details of the Challenge unclear, we encourage you to ask for a Team Clarification. (See Rules of the Road.) Remember, if it doesn’t say you can’t, then you can.



Solving the Challenge

The information in the following materials is binding on all teams.

Your team must read and follow this Challenge in its entirety, the Rules of the Road resource for teams, and all Published Clarifications (online at [DestinationImagination.org](https://www.destinationimagination.org)).



Team Budget

The total value of the materials used must not exceed **\$200US**.



Time Limit

Complete the Presentation (including setup) in **8 minutes or less**.



Tournament Data Form

Your team must explain elements of your Challenge solution on the Tournament Data Form found at the end of this Challenge. The check mark icon pinpoints the elements that will appear on the form.

I. THE CENTRAL CHALLENGE

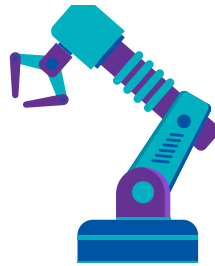
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A. Invention

1. Design and build an Invention that solves a problem. The problem may be anything your team chooses.
2. For this Challenge, an Invention is a physical device and/or software that uses Technical Methods to solve the problem.
3. To solve the problem, the Invention must actually be able to make the problem go away or reduce the size and/or impact of the problem. Dramatic simulations, which only pretend to accomplish a task, do not meet this requirement. Your team may receive an Illegal Procedure deduction if the Invention is not actually able to solve the problem.
4. For this Challenge, Technical Methods refers to the use of principles in technical fields.
5. The Technical Methods used by the Invention may come from fields such as chemistry, computer science, electricity, hydraulics, mathematics, mechanical engineering, physics, or structural engineering. Other technical fields are also acceptable.
6. The Invention must operate live during the 8-minute Presentation. Pre-recorded demonstrations do NOT meet the requirements for the Invention.
7. The Invention may be based on an original idea or it may be inspired by something that already exists.
8. The Invention and how it solves the problem should be visible and/or audible from 25ft (7.62m) away.
9. The Invention must not be any part of the Impact Scenery. **(See Section I.C.)** Your team may receive an Illegal Procedure deduction if the Invention is part of the Impact Scenery. However, the Invention may operate, power, or otherwise interact with the Impact Scenery.

I. THE CENTRAL CHALLENGE

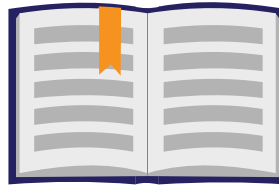
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B. Story

1. Create and theatrically present a story about how the team-selected problem is solved with the use of the team-created Invention.
2. Reserve at least one Invention Artifact to integrate into your story. For this Challenge, an Invention Artifact is a team-created planning document, diagram, mock-up, prototype, early version of the Invention, or any other documentation or data from your team's development of the Invention.
3. Include a Flashback in the story. For this Challenge, a Flashback is a scene that shows events set in a time earlier than the main story.
4. Your team may choose when the Flashback happens during the Presentation and how long the Flashback lasts. However, if the Flashback is too brief, your team's score for **IV.B.4** may be affected.
5. The story may include more than one Flashback, but only one Flashback will earn points for **IV.B.4**.
6. The story may be set in any location(s), real or imaginary, and in any time period(s): past, present, or future. The story may be based on any events, real or imaginary.

I. THE CENTRAL CHALLENGE

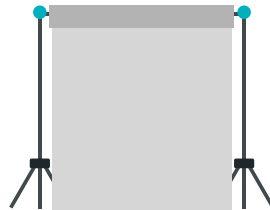
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C. Impact Scenery

1. Design and build Impact Scenery to demonstrate the impact of solving the problem. The impact may be positive, negative, or neutral.
2. Select 3 different Fields of Technology from Table 1.

Table 1: Fields of Technology

Chemistry
Computer Science
Electrical Engineering
Acoustical Engineering
Mechanical Engineering

3. Use at least one Technical Method from each of the 3 team-selected Fields of Technology to initiate, operate, and/or produce the Impact Scenery.
(See Section I.A.4.)
4. If your team chooses to use more than one Technical Method from a Field of Technology, this will only count as one of your team's 3 Fields of Technology used in the Impact Scenery.
5. If your team chooses one Technical Method that can be considered to be part of multiple Fields of Technology, it will only count as one of your team's 3 Fields of Technology.

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6. Your team may use more than 3 Fields of Technology in the Impact Scenery. However, only the 3 Fields of Technology listed on the Tournament Data Form will earn points for **IV.C.3**. The Technical Methods from the 3 Fields of Technology may be used in any order or at the same time.
7. All parts of the Impact Scenery should work together to demonstrate the impact of solving the problem. However, all parts of the Impact Scenery are not required to be physically connected.
8. A team member must not be any part of the Impact Scenery. However, team members may operate, power, or otherwise interact with the Impact Scenery.
9. The Impact Scenery must not be any part of the Invention. **(See Section I.A.)** Your team may receive an Illegal Procedure deduction if the Impact Scenery is part of the Invention. However, the Impact Scenery may operate, power, or otherwise interact with the Invention.
10. The Impact Scenery should be visible and/or audible from 25ft (7.62m) away.

I. THE CENTRAL CHALLENGE

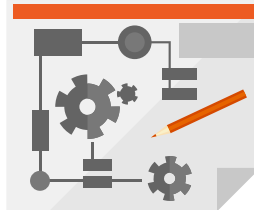
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D. Technical Innovation and Technical Design

1. Your team will earn points for Technical Design and Technical Innovation based on all Technical Methods used or attempted during the Presentation to operate the Invention and to initiate, operate, and/or produce the Impact Scenery.
2. If the operation of the Invention and/or the Impact Scenery are not successful, your team may still earn points for the Technical Design and the Technical Innovation of the methods used in the attempt. Your team's score for Technical Design may be affected.
3. Design and build all parts of the Invention and the Impact Scenery using your own ideas and skills. Your team may incorporate commercially produced items, but for scoring, Appraisers will only consider your team's changes and/or additions to those items.
4. Technical Methods using less direct team member involvement may earn more points for Technical Design and Technical Innovation than methods that have more direct team member involvement.

II. TEAM CHOICE ELEMENTS

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- A. Present TWO creations that show off your team's interests, skills, areas of strength, and talents. Your team may create anything it wishes, including props, music, technical gadgets, costumes, physical actions, etc.
- B. Each Team Choice Element should have a meaningful connection to your team's Central Challenge solution and must be presented as part of the 8-minute Presentation.
- C. A Team Choice Element may not be a specific item that is required in the Central Challenge that is already being evaluated. A Team Choice Element MAY be a single unique PART of a required item, as long as it can be evaluated as a stand-alone item. Or, a Team Choice Element MAY be a larger item that includes a required element, as long as the required element can be evaluated as a single unique part of the Team Choice Element. Examples of these can be found in Rules of the Road.
- D. Both Team Choice Elements may be presented at the same time ONLY IF both can be easily identified and scored separately.
- E. Each Team Choice Element will be evaluated in three ways: for creativity and originality, for quality, workmanship, or effort that is evident, and for integration into the Presentation.

III. AT THE TOURNAMENT

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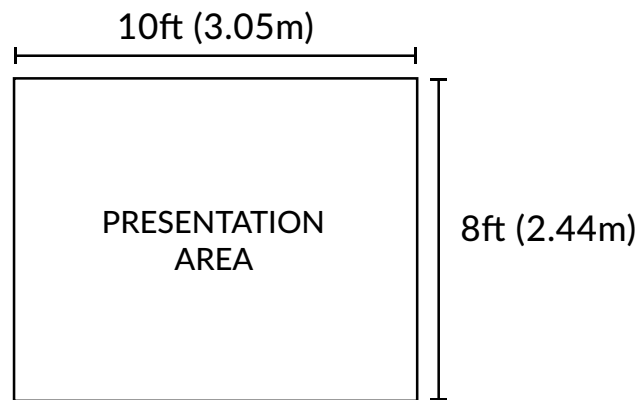
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- A. **Presentation Area:** The minimum required size is 8ft x 10ft (2.44m x 3.05m). Your team may use any additional space that tournament officials designate as available, but your team should be prepared to present your solution in the minimum space. The Presentation Area will be a large space with a



- hard floor, such as wood, linoleum, concrete, or very short-napped carpet. Your team should be prepared to deal with a variety of floor surfaces. A single 3-prong electrical outlet will be provided at the edge of each Presentation Area for your team's use.
- B. **Forms:** Your team will need to bring copies of your completed Expense Report, Declaration of Independence, and Tournament Data Form to the tournament. (See Rules of the Road for the Expense Report and Declaration of Independence. The Tournament Data Form can be found at the end of this Challenge.)
- C. **Team Identification Sign:** Your team will provide a freestanding sign displaying your team name, Team Number, school/organization, and level. The purpose of the sign is to identify your team to the Appraisers. (See Rules of the Road, Team Identification Sign.)
- D. **Instant Challenge:** At a tournament, your team will solve one Instant Challenge in addition to showcasing your Team Challenge solution. Instant Challenges are kept secret until the day of the tournament. (See Rules of the Road.) Because Instant Challenge is worth 25% of a team's overall score at a tournament, teams often practice different types of Instant Challenges throughout the season. (See Roadmap.)

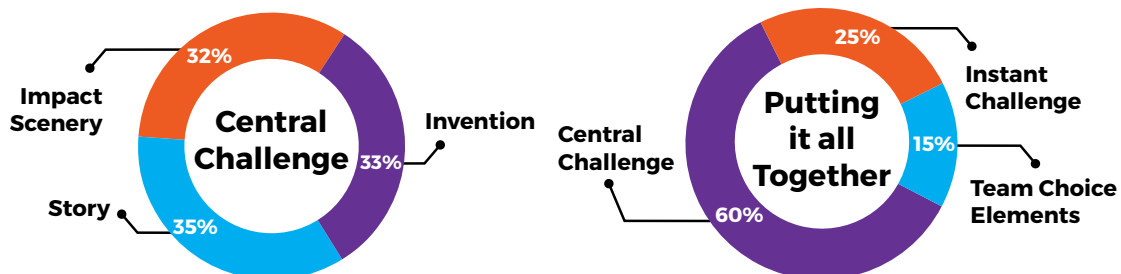
IV. SCORING

The Central Challenge: Up to 240 Points

A. Invention (See Section I.A.)		Up to 80
1.	Technical Design of the Invention Technical Design is the result of a plan for carrying out or accomplishing a task. A high-quality design shows careful planning and is effective, efficient, and reliable.	Up to 30
2.	Technical Innovation of the Invention Technical Innovation includes how new, unique, original, or creative the methods are for carrying out or accomplishing a task.	Up to 30
3.	Successful operation of the Invention	0 or 20
B. Story (See Section I.B.)		Up to 85
1.	Creativity of the story about how a problem is solved with the use of the Invention A story is more creative when there is novel development of the storyline and characters.	Up to 30
2.	Clear and effective storytelling This means the story has a beginning, a middle, and an end and is presented in a way that is easy to follow and understand.	Up to 15
3.	Integration of the Invention Artifact into the story This means the Invention Artifact is important to the story.	Up to 20
4.	Theatrical effect of the Flashback This means the Flashback enhances the story in a dramatic, interesting, and/or memorable way.	Up to 20
C. Impact Scenery (See Section I.C.)		Up to 75
1.	Technical Design of the Impact Scenery This includes all Technical Methods used in the Impact Scenery.	Up to 20
2.	Technical Innovation of the Impact Scenery This includes all Technical Methods used in the Impact Scenery.	Up to 20
3.	Successful use of Technical Method(s) from a Field of Technology in the Impact Scenery Your team will earn 5 points for each of the 3 Fields of Technology.	0, 5, 10, or 15
4.	Theatrical effect of the Impact Scenery This includes how the Impact Scenery demonstrates the impact of solving the problem.	Up to 20

Team Choice Elements: Up to 60 Points

D. Team Choice Element 1 (See Section II.)		Up to 30
1.	Creativity and originality	Up to 10
2.	Quality, workmanship, or effort that is evident	Up to 10
3.	Integration into the Presentation	Up to 10
E. Team Choice Element 2 (See Section II.)		Up to 30
1.	Creativity and originality	Up to 10
2.	Quality, workmanship, or effort that is evident	Up to 10
3.	Integration into the Presentation	Up to 10





TOURNAMENT DATA FORM PAGE 1

TEAM INFO

Team Name: Team Number: -
School/Organization: Level: EL ML SL UL

To our teams and Team Managers:

Help your Appraisers identify the required elements of your Challenge solution so they can award you all of the points you have earned. Please fill out this 3-page form completely and neatly. For Elementary Level teams only: Team Managers MAY fill out the form, writing out the words dictated by the team.

PART ONE: REQUIRED PAPERWORK

At the tournament Presentation Site, the Prep Area Appraiser will ask for your team's completed forms. A checklist of the required forms is below. None of the forms listed below can be used as a scoring item. Your team needs:

<p>6 copies Tournament Data Form Pages 1 and 2 This is PAGE 1 of the form.</p>	<p>1 copy Tournament Data Form Page 3 This page helps your team reflect on how you experienced the creative process.</p>	<p>2 copies Declaration of Independence Blank copies of this form can be found in Rules of the Road. Take one copy to your Team Challenge and the other to your Instant Challenge.</p>	<p>1 copy Expense Report This form can be found in Rules of the Road. Be sure to bring copies of your receipts in case you are asked for them. It is not necessary to attach your receipts to the form.</p>	<p>1 copy Team Clarifications Bring a copy of each Team Clarification issued to your team.</p>
<p>Team Identification Sign See Rules of the Road for more information.</p>		<p>Published Clarifications You need to be sure you are aware of any Published Clarifications for this Challenge available at DestinationImagination.org.</p>		

PART TWO: BRIEF DESCRIPTION OF TEAM CHOICE ELEMENTS

What is your Team Choice Element 1?

Please write a brief description of your Team Choice Element. Make sure that Appraisers know **exactly** what you want them to evaluate. What would you like them to know about the Team Choice Element?

What is your Team Choice Element 2?

Please write a brief description of your Team Choice Element. Make sure that Appraisers know **exactly** what you want them to evaluate. What would you like them to know about the Team Choice Element?



TOURNAMENT DATA FORM PAGE 2

TEAM INFO

Team Name: Team Number: -
 School/Organization: Level: EL ML SL UL

PART THREE: BRIEF DESCRIPTION OF SCORED ELEMENTS

This Challenge asks the team to supply the following information to help the Appraisers evaluate your solution. This is PAGE 2 of the form. Be sure to fill in all pages.

1. Briefly describe the Technical Methods used in your Invention.

2. Briefly describe your story, the problem, and how the problem is solved with the use of your Invention.

3. Briefly describe your Invention Artifact and how it is integrated into your story.

4. Briefly describe your Flashback and when it occurs in the Presentation.

5. Briefly describe your Impact Scenery and how it demonstrates the impact of solving the problem.

6. Use the table below to explain the 3 Fields of Technology your team chose.

What are the 3 Fields of Technology?	How are one or more Technical Methods from the Field of Technology used in the Impact Scenery?
Field of Technology #1:	
Field of Technology #2:	
Field of Technology #3:	



TOURNAMENT DATA FORM PAGE 3

TEAM INFO

Team Name: Team Number: -
School/Organization: Level: EL ML SL UL

PART FOUR: THE CREATIVE PROCESS

Reflect on how your team experienced each stage of the creative process as you solved the Team Challenge.

1. **RECOGNIZE:** What process did your team go through in order to understand all the issues or points of the Challenge?

2. **IMAGINE:** How did your team use your imagination to explore new ideas about possible solutions to the Challenge?

3. **COLLABORATE AND INITIATE:** How did your team take risks and go beyond the minimum as you committed to a solution? How did your team work in a collaborative way?

4. **ASSESS:** How did your team assess your solution as it was being created?

5. **EVALUATE AND CELEBRATE:** Reflect on your experience. What did your team learn? How did your team celebrate your journey and accomplishments?

THE BIG FIX



TECHNICAL

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The PDF files for the Team Challenges, Roadmap, and Rules of the Road are available for download at Resources.DestinationImagination.org.

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