

AMERICAN SOCIETY OF CIVIL ENGINEERS®  
TRANSPORTATION & DEVELOPMENT INSTITUTE  
NATIONAL COMPETITION

2021



**A**ROUND  
*THE* **W**ORLD  
*IN* **XX** DAYS *USING*  
**YY** WAYS

RULES & REGULATIONS



TRANSPORTATION  
& DEVELOPMENT  
INSTITUTE

**ASCE**  
AMERICAN SOCIETY OF CIVIL ENGINEERS

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# 1. INTRODUCTION

***Around the World in XX Days Using YY Ways***— a Student Competition developed by the American Society of Civil Engineers, Transportation & Development Institute (ASCE/T&DI).



Jules Verne

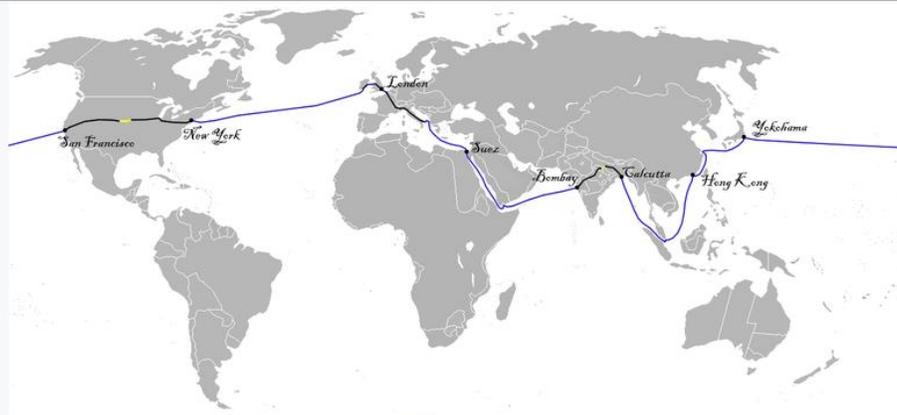
Inspired by the 1873 adventure novel penned by Jules Verne, where main character Phileas Fogg of London accepts a £20,000 wager (£2,221,600 in 2018) set by his friends to circumnavigate the world in 80 days. It was believed that with the completion of railroads in India and the United States, global travel was possible in 80 days. Phileas accepted the challenge and so the adventure began.

The planned itinerary and selected modes of transportation provided in Verne’s story are provided below. The world of transportation has changed tremendously in 150 years since. The automobile hadn’t made its debut yet, and flight hadn’t taken off yet.

Think how quickly we can span the globe now. The world has truly gotten smaller, and advancements in technology have played a major role. With the industrial revolution first, ushering in automobiles and airplanes in the early 1900s, then the computer revolution followed by the network and communications revolution, there now are many modes of transportation to choose from. Trips can be planned to minimize time, minimize cost, minimize energy consumption, while at the same time maximizing the thrill of the adventure.

The itinerary (as originally planned)

London to Suez, Egypt	Rail to Brindisi, Italy, and steamer (the <i>Mongolia</i> ) across the Mediterranean Sea.	7 days
Suez to Bombay, India	Steamer (the <i>Mongolia</i> ) across the Red Sea and the Indian Ocean.	13 days
Bombay to Calcutta, India	Rail.	3 days
Calcutta to Victoria, Hong Kong	Steamer (the <i>Rangoon</i> ) across the South China Sea	13 days
Hong Kong to Yokohama, Japan	Steamer (the <i>Carnatic</i> ) across the South China Sea, East China Sea, and the Pacific Ocean.	6 days
Yokohama to San Francisco, United States	Steamer (the <i>General Grant</i> ) across the Pacific Ocean.	22 days
San Francisco to New York City, United States	Rail.	7 days
New York to London	Steamer (the <i>China</i> ) across the Atlantic Ocean to Liverpool and rail.	9 days
<b>Total</b>		<b>80 days</b>



Map of the trip

## 2. GENERAL RULES & GUIDELINES

Your adventure will be similar, and your challenge will be to minimize the number of days to circumnavigate the world/globe using as many modes of transportation as possible. The only restriction you have is the mode of transportation must be suitable for the terrain (i.e., bicycles cannot traverse across the Mediterranean Sea). In addition, there are a few locations or check points you must travel through on your journey. Other than that, you are free to choose your route, mode of transportation used along the way, and other pertinent details to compile for judging and scoring your adventure.

This is a planning and logistics competition .... you need **not physically complete** the travel and prove it with a stamped passport! You can work individually or in groups of no more than 6, but if you work in groups, your journey should reflect only 1 person traveling.

### How it Works

**Starting Point and Ending Point:** Space Needle, Seattle (USA) 

**Touch Points:** shown graphically with the arrow symbol  in map below

Montreal Canada

Istanbul Turkey

Bangkok Thailand

Madrid Spain

Wellington New Zealand

Buenos Aires Argentina

### 7 continents map with 5 oceans



### 3. COMPETITION METRICS

There will be six mandatory requirements for this competition. No points will be awarded, but each must be satisfied. Your entry will be automatically dismissed if any of these requirements is not satisfied. Points will either be added or deducted based solely on the extras that are achieved.

1. You must register with ASCE to compete. We will use the Collaborate platform for this purpose. Instructions for how to obtain Collaborate credentials are provided in the Appendix. Only one member of your team should create a credential if you elect to compete as a team.
2. Start and end in Seattle at the Space Needle. Day 1 will begin at 1500 (3PM, Pacific Time) on Friday, March 19, 2021-
3. Arrange to pass through the 6 touch points— demonstrate travel around the world (must cross the Pacific Ocean or Bering Strait to do that).
4. Use a minimum of 10 modes of transportation.
5. The same mode of transportation may only be used a maximum of 15 times throughout your journey while commercial modes may only be used a maximum of 7 times.
6. Complete your journey in 30 days or less.

Once your adventure has been authenticated as meeting these mandatory requirements, the following metrics and scoring system will be assessed:

7. Complete your trip in less than 20 days and you will receive **100-points** for each day under 20 days. You will be penalized **500-points** for every day beyond 20 days. Your entry will be disqualified if your trip lasts longer than 30 days.
8. Each mode of transportation used beyond the minimum of 10 will be given **300-points** each. The mode chosen must be realistic for the terrain (i.e., do not try to bicycle across the Mediterranean Sea). Recognizing the possibility of using numerous modes of transportation within an urban area in a very short distance, minimum travel distances must be adhered to for various modes (see **Table 1**).
9. Visit a project listed as an ASCE Historic Landmark and receive **175 -points** for each location visited (<https://www.asce.org/landmarks/#/e6ea0cd2d528ba2f3cdec3a624404fef>). To qualify as a visit, you must demonstrate an interaction with the historical landmark or structure and document it in the daily diary (see below –Submittal Requirements). For example, crossing the Mason-Dixon Line using a scooter is considered a landmark interaction while taking a hot-air balloon over the Manhattan Bridge is not.
10. Visit the special sites and utilize the adventurous travel options shown in **Table 2** and be awarded **600-points** per each adventure.
11. Visit a location on the 6<sup>th</sup> and/or 7<sup>th</sup> continent not required by the itinerary and be awarded **750-points** for each continent visited.
12. You must budget for each mode of transportation used in your journey applying the rates provided in **Table 1**. All costs must be recorded in US dollars. Standard modes of transportation will be available to you 24-7, but the distance traveled (minimum distances will apply, see **Table 1**) and the time of travel should be accounted for in your documented journey (diary and Excel summary, see below- Submittal Requirements). The submittal with the lowest cost will receive the greatest point total and the submittal with the highest cost will receive the least point total. All others between these extremes will receive proportionate point totals.
13. You must arrive 2 hours prior to departure for any mode of transportation used that is run by a commercial company (i.e., airline, long-haul bus service, rail line, cruise line) and a receipt is required to show **date • time of departure • time of arrival • departure city • arrival city**. Exceptions to early arrival are MaaS (taxi, Uber, Lyft, etc.), mass transit (bus, light rail) and other services that are convenient and available around the clock for rent (cars, scooters, bicycles, animals, etc.). Cost and time of travel can be computed using **Table 1** information for these modes.
14. You are considered super-human; that is, you require no food or drink, nor do you require sleep or rest. As such, costs such as lodging and meals are excluded and can/should be ignored.

## 4. SUBMITTAL REQUIREMENTS

Your submittal will require the completion of both a Word document and Excel travel template. Entries should contain:

- Title Page: Name, email address, College or University, year of study (Fr/So/Jr/Sr-undergraduate, MS or PhD candidate) for each member of your team (up to 6 students – show which member of the team is traveling the fictitious journey). To be eligible for this competition, an active ASCE student membership is required for each participant, and the membership account number must also be included on the Title Page.
- Show your trip path on a suitable World Map. Annotate where on the map you will be at the end of each day.
- Provide a daily diary – trip journal – documenting each day of your journey. Make it interesting for the reader, and highlight the modes(s) of transportation used and landmarks visited (e.g., landed at 09:15 at \_\_\_\_\_ International Airport, took an Uber to the train station, and boarded the train for a 13:45 departure to \_\_\_\_\_. The highlight of the day was a visit to a 180-year old covered wooden bridge in \_\_\_\_\_ and a hydro dam in \_\_\_\_\_).
- Summarize your trip in tabular form using the *Around the World logging template\_2021.xlsx* spreadsheet:

Day #	Date	Time	Location			ASCE Site?	Mode of Transportation Used	Unique?	Adventurous?	Vendor	miles traveled	time of travel (hr)	Cost	Exhibit/Receipt
			City	Country	Sites Visited									
1	3/19/2021	15:00	Seattle	USA	Space Needle									
2	3/20/2021													
3	3/21/2021													
4	3/22/2021													

An example of how to complete this template is provided at the end of these instructions, and also contained in the Excel file under the worksheet/TAB named Instructions.

### Due Date

Submittals are due by ***April 23, 2021 (11:59pm EDT)***. Questions may be asked through ASCE Collaborate up to April 9<sup>th</sup>. Submittals shall be electronically submitted to Leanne Shroeder ([lshroeder@asce.org](mailto:lshroeder@asce.org)). Please include **STUDENT COMPETITION SUBMISSION** in the subject line of your email.

### Award

It is anticipated that 3 finalists (individual or team) will be selected from the entry pool, based on a total point scale, as well as any WOW-factor the judging panel considers pertaining to the thrill of the adventure and the creative use of transportation modes integrated into your journey. These finalists will

be notified by email of their selection by May 14, 2021. Each of these 3 finalists will be invited to the ASCE T&DI flagship conference (ICTD) to be held virtually the summer of 2021. A special session will be arranged at the ICTD 2021 Virtual Event to allow each of the 3 finalists to provide a 15-minute presentation (PowerPoint, Poster or Video) and a final vote will be made for 1<sup>st</sup>, 2<sup>nd</sup>, and 3<sup>rd</sup> place. Gold, Silver and Bronze Medals will be shipped to our winners following the virtual event. Failure to accept the conference invitation will result in an award made to the next highest scored/rated entry.

## **5. FINALIST'S PRESENTATION & AWARD CEREMONY**

The Award Ceremony for the competition finalists will be held during the ICTD 2021 Virtual Event. Exact date and time to be determined.

<https://www.asce-ictd.org/>

Organized by American Society of Civil Engineers (ASCE) Transportation & Development Institute (T&DI), ICTD 2021 offers a unique opportunity for public agencies, private industry, and research institutes to share their vision, exchange experience, collaborate on research, and showcase practical solutions on smart and integrated mobility solutions.

# APPENDIX

**Table 1- Standard Travel Modes**

Mode	Min. Distance (miles)	Max. Distance (miles)	Avg. Speed (mi/hr)	Cost (\$US/mi)
Commercial Airline <sup>1,6</sup>	500	No Limit	600	0.11
Commercial Long-haul Bus <sup>2,6</sup>	200	No Limit	70	0.10
Commercial Train (high-speed rail) <sup>3,6</sup>	200	No Limit	120	0.25
Commercial Ship <sup>4,6</sup>	300	No Limit	40	0.35
scooter	2	15	5	0.75
hot-air balloon	5	150	10	20.00
helicopter	20	100	85	5.00
bicycle	5	100	10	0.25
motor cycle	50	500	65	0.25
dog sled	5	100	15	1.00
car (rental)	100	750	65	0.50
car (MaaS)	10	25	45	2.50
row boat/canoe	5	15	5	1.00
power boat (think Miami intercoastal)	20	150	100	20.00
horse, camel, elephant	5	40	10	1.00
hitch hike	50	500	65	0.00
sail boat	50	300	30	0.50
hop a train (hobo style)	80	500	50	0.00
transit - train (rail and/or light rail) <sup>5</sup>	3	100	50	0.25
transit - bus	5	25	35	0.25
walk-jog-run	2	26	5	0.00
<b>other modes - be creative</b>	<b>5</b>	<b>20</b>	<b>5</b>	<b>1.00</b>

- Notes:**
1. United, Delta, Alaska, Korean, American, KLM, ....., many others
  2. Greyhound, etc.
  3. Any high speed or conventional rail service connecting cities throughout the world (Amtrak, Qufu, Via are a few examples)
  4. Holland, Norwegian, Viking, Princess to name a few
  5. BART (San Francisco), Metro (Wash DC), MARTA (Atlanta), MAX (Portland) are just a few examples of transit-train or lightrail mode
  6. A receipt is required with a planned itinerary (dates of travel, begin-end locations, cost)

**Table 2 - Adventurous Travel Modes**

Location	Adventurous Travel Mode	Cost (USD)	Time (hrs.)
Shanghai, China	Maglev	\$10.00	0.2
Lapland, Finland	Reindeer Sled	\$200.00	3
Portland, Oregon, USA	Gondola (aerial tram)	\$6.00	0.75
India	Tuktuk (rickshaw)	\$5.00	0.5
Philippines	Jeepney	\$30.00	0.75
Venice, Italy	Gondola (canal boat)	\$85.00	0.5
Wuppertal, Germany	Suspension Railway	\$3.50	0.5
Vietnam	Cyclo	\$6.00	0.5
Pittsburgh, Pennsylvania, USA	Duquesne Incline	\$5.00	0.33
Guatemala	Chicken Bus	\$4.00	2
Klein Matterhorn, Switzerland	Aerial Tramway	\$15.00	0.75
Madeira, Portugal	Monte Toboggan	\$35.00	0.2
Egypt	Felucca Boat	\$20.00	1
Seattle, Washington OR Wisconsin Dells, Wisconsin, USA	Duck Tour Ferry	\$32.00	1
Battambang, Cambodia	Bamboo Train (norry/nori)	\$5.00	0.2
Hong Kong, China	Junk Boat	\$30.00	0.75
Aegina, Greece	Hydrofoil	\$20.00	0.75
Portsmouth, United Kingdom	Hovercraft	\$27.00	0.2
Fairbanks, Alaska, USA	Dog Sled Ride	\$120.00	2
Beyoglu, Turkey	Underground Funicular (tünel)	\$0.65	0.25
Lake Titicaca, Peru	Barco de Totora (reed boat)	\$0.10	0.75
Queenstown, New Zealand	Zorb	\$25.00	0.5
Athabasca Glacier, Canada	Terra Bus	\$50.00	1.5
Costa Rica	Zip Line	\$45.00	0.75
Northern Wisconsin, USA	Ice Angel	\$10.00	0.5
Luang Prabang, Laos	Elephant	\$25.00	1
Philippines	Habal Habal	\$1.00	0.5

### Simplified Scoring Format

<b>+100</b>	Points awarded per day for returning in under 20 days
<b>-500</b>	Points penalized per day for returning over 20 days
<b>+175</b>	Points awarded per ASCE historic landmark visited
<b>+300</b>	Points awarded per transportation method used beyond minimum of 10
<b>+600</b>	Points awarded per "adventurous" modes experienced (see Table 2)
<b>+750</b>	Points awarded per each non-required continent visited
<b>Proportional based on submissions</b>	Points allocated for total cost of journey

## Example of Scoring (hypothetical-partially complete)

Day #	Date	Time	City	Country	Location	ASCE Site?	Mode of Transportation Used	Unique?	Adventurous?	Vendor	miles traveled	time of travel (hr)	Cost	Exhibit/Receipt
1	3/20/2021	15:00	Seattle	USA	Space Needle		bicycle	✓		n.a.	5	0.5	\$ 1.25	
		15:30	Seattle	USA	Lacey V Murrow Bridge	✓	MaaS	✓		Uber	15.5	0.34	\$ 38.75	
		16:15	Seattle	USA	Seattle-Tacoma Airport (SEA)		Commercial Airline	✓		Alaska Airlines	811	2.25	\$ 114.00	A
		20:20	San Francisco	USA	San Francisco Airport (SFO)		car (rental)	✓		Avis Car Rental	391	6.02	\$ 271.00	
2	3/21/2021	2:20	Los Angeles	USA	Los Angeles Airport (LAX)									
			Tokyo	Japan										
3														

Hypothetical Example intended to illustrate scoring metrics

15	4/4/2021	10:47	Seattle	USA	Space Needle									
15	Number of Days to Complete		Number of ASCE Historic Landmark Sites Visited=			23	Modes Used:		29	2	Total Cost:		\$17,278.79	

a transportation mode utilized is counted only once, and is counted the first time of its use

### Bonuses

Did entrant make it to Africa?	<input checked="" type="checkbox"/>	750 points
Did entrant make it to Antarctica?	<input type="checkbox"/>	750 points

### Point Total:

Days to Complete Bonus: 20-15 = 5 (x100points/day) = **500 points**

ASCE Historic Landmark Sites: 23 (x 175points/site) = **4,025 points**

Modes of Transportation Used: 29-10 = 19 (x 300 points/mode beyond 10) = **2,700 points**

Modes of Adventurous Transportation Used: 2 (x 600 points/mode) = **1,200 points**

Total Cost: \$17,278.79 (ranked 17 lowest out of 74) = **770 points** [see TAB:cost ranking for calculation <<> 100-(17-100/74)\*10]

Additional Continents: Africa = **750 points**

**GRAND TOTAL POINTS AWARDED: 9,945**

Received 74 entries for this competition  
This entry represented the 17th lowest cost

amplification multiple

## Example of receipt for commercial travel mode

Receipt A - Flight from Seattle to San Francisco

Choose flight:  
Seattle (SEA) to San Francisco (SFO)

Day	Price
Wednesday Mar 17	\$99
Thursday Mar 18	\$119
Friday Mar 19	\$119
<b>Saturday Mar 20</b>	<b>\$99</b>
Sunday Mar 21	\$119
Monday Mar 22	\$119
Tuesday Mar 23	\$99

Lowest Fare Refundable

Sort by Stops

Compare fare types

	Saver	Main	First Class
Most restricted			
Most popular			
Most comfortable			

Preferred times

Flight	Saver	Main	First Class
<b>Alaska 1258 SEA 6:05 pm .SEQ 8:20 pm</b> 2h 15m   Nonstop   Preview seats	\$99	\$114	\$159
Alaska 376 SEA 7:25 pm .SEQ 9:38 pm 2h 13m   Nonstop   Preview seats	\$99	\$114	\$159
Alaska 1328 SEA 9:15 pm .SEQ 11:28 pm 2h 13m   Nonstop   Preview seats	\$99	\$114	\$159

**Instructions on how to register for the competition and obtain an account and privileged access to the Around the World Competition page on ASCE Collaborate:**

1. Using a web browser, open the ASCE Collaborate homepage at <https://collaborate.asce.org/home>
2. Click on the SIGN IN button at the top right of the webpage.



3. On the login page, select the Create a New Account option below the credential inputs.



4. On the Welcome page, enter your preferred email and fill in the subsequent prompts to create your account.



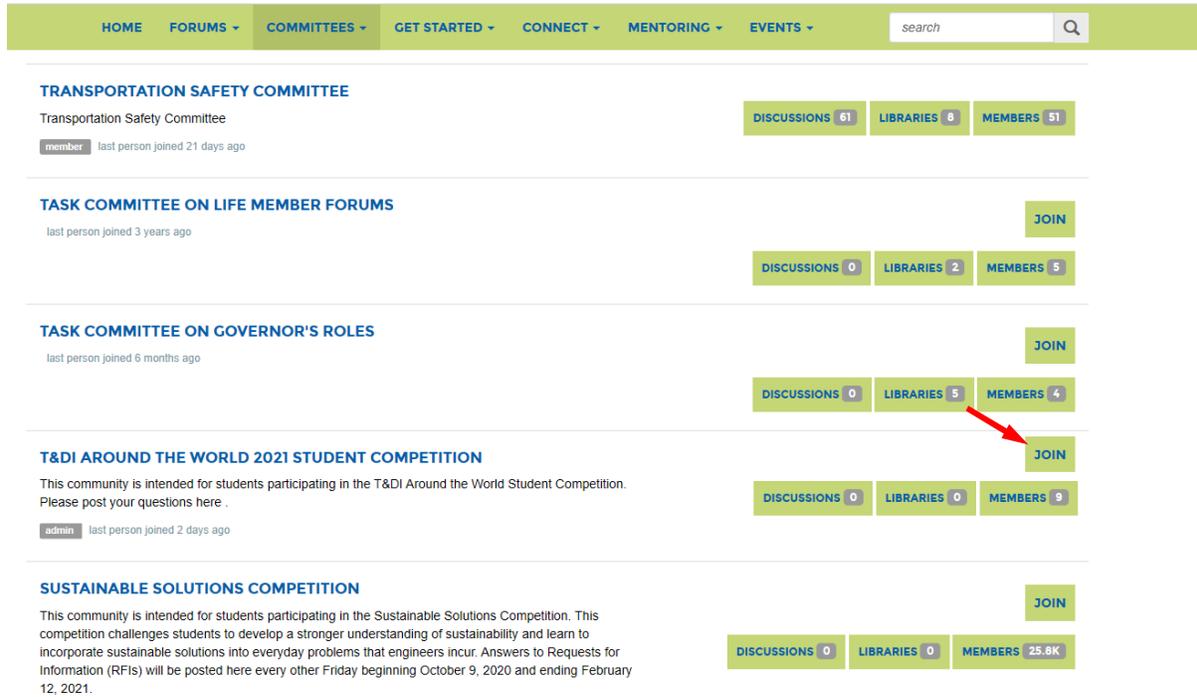
5. Agree to the code of conduct and return to the ASCE Collaborate homepage.



6. In the search box type: **T&DI Around the World 2021 Student Competition**



7. Find **T&DI Around the World 2021 Student Competition** from the list and hit **JOIN** to formally register.



Once registered, you will be informed of any changes made by the Rules Committee. This will also be the repository of the Rules Document and Excel logging template (see Library).

This will also be an interactive platform in which announcements and or discussion topics will be posted and requests for rules clarifications or any question arises that you may feel needs clarification. Any questions posted and the Rules Committee responses will be available for everybody registered in this Collaborate Community to view.

