



Official Rule Book

2014-2015



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General Information

What is the Science Decathlon?

Tucker Middle's Science Decathlon is a tournament consisting of ten team events designed to:

- Promote enthusiasm for the various fields of science through competition.
- Align with current 6th-8th grade science Georgia Performance Standards.
- Encourage a culture of analytic/systematic thinking.
- Promote Tucker Middle School's STEM initiative.

How does the Science Decathlon work?

- With the guidance of teachers & parents, students will begin preparing for tournament competition by identifying a maximum of three events that they are interested in.
- All events are team events. The size of teams are event-specific. No exceptions will be made.
- Rules and parameters vary and are defined in the event description pages. In preparation for competition, teams should read these descriptions carefully, as deviation from them could lead to disqualification.
- Teams will first compete on grade level. The winning team (1st place only) in each event will then be asked to compete against the winning teams from the other two grade levels in the Final Decathlon.
- Medals will be awarded to the winning team in each event. Ribbons will be awarded to 2nd and 3rd place.
- During the Final Decathlon, points will be awarded to competitors based on their performance in each event. Three points will be given for first place, two points for second place, and one point for third. The grade level that earns the most points in the Final Decathlon will receive the championship trophy to display until next year's Science Decathlon!

General Rules & Ethical Expectations

- Students are expected to exhibit appropriate behavior throughout the competition. This includes a display of courtesy towards fellow competitors.
- Honesty and integrity are of utmost importance during the competition.
- Normal school rules, as described in the student code of conduct, must, of course, be followed.
- Failure to follow these rules and expectations may result in a penalty. In extreme cases, teams may be disqualified from the competition.

Paper Plane Derby

DESCRIPTION:

Teams of two will bring **TWO** different planes to the competition, one for each category. The same plane **cannot** be used for more than one category and teams **must** participate in **BOTH** categories with one team member competing in *accuracy* and the other team member competing in *time in air*.

- **Accuracy** - Each team will launch its plane, attempting to sail it through a hoop. During each elimination round the hoop will be placed farther and farther away. The team that successfully launches its plane through the farthest hoop is the winner. Only one attempt is permitted.
- **Time in air**- Each team will launch its plane on the airfield. The one that stays in the air the longest is the winner. Each contestant will be allowed one attempt. *Note: This portion of the event may take place outside.*

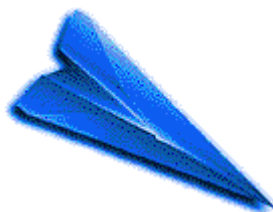
MATERIALS

The following materials (**ONLY**) can be used to build each paper airplane:

- One 8.5" x 11", 20 lb. standard copy paper (required)
- One standard paper clip (optional)
- One two-centimeter piece of masking tape (optional)

OFFICIAL RULES

- Planes are to resemble a flying type craft (i.e. you cannot ball up the paper and throw it)
- Only one sheet of paper can be used, however the entire sheet does not have to be utilized.
- The paper clip & masking tape are optional.
- Contestants may not bring any modifying accessories or tools to the competition (scissors, templates, knives, rulers, glue, etc).
- The plane **must be in one piece** (not two or more separate parts)
- Any team that does not use the material requirements or follow the official rules will be automatically disqualified and not allowed to compete.
- Points will be awarded for each category as follows:
 - 5 points for 1st place
 - 3 points for 2nd place
 - 2 points for 3rd place
 - 1 point for 4th – 5th places.
- Points will be totalled after testing is completed in all categories.



Naked Egg Drop

DESCRIPTION:

A team of two will construct a device that will be placed on the ground level to prevent an egg from breaking when dropped from increasing heights.

MATERIALS:

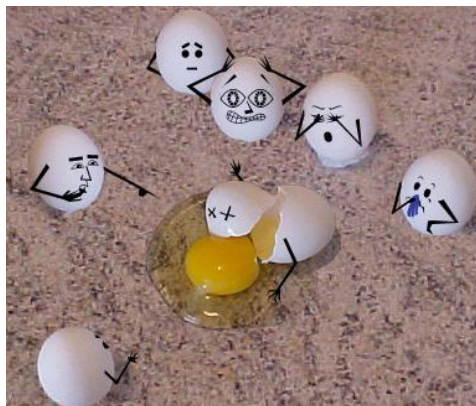
- Each team will be given a container of building materials. All containers will contain the same materials. The contents may include, but **are not limited** to: paper cups, drinking straws of any size, Popsicle sticks, string, masking tape, rubber bands, paper, bubble wrap, Styrofoam, etc. This is only a **sample list**; the actual materials supplied may be different.
- Only those materials in the container may be used to build the device. The container may not be used. No other materials or adhesives may be part of the finished device.

COMPETITION:

- All teams will be given **30 minutes** to construct a device with materials supplied on-site that will cushion the egg. The same two students who built the device must be the ones to test the device.
- The supervisor will measure and record the height of devices prior to testing.
- Each team will be given one large Grade-A raw egg, if they observe cracks or defects, another egg will be given to the team. This egg must be used in all of their drops.
- A team will begin at the lowest height and continue to next higher level, if the egg has survived the drop. Drop levels may not be skipped. A raw egg is considered to survive as long as it does not leave a wet spot on a paper towel.

SCORING:

- The score will be determined by subtracting the height of the device in millimeters (mm) from the last height (measured in mm) that the egg survived – highest score wins.
- Teams that do not survive the first drop will be ranked after teams that do according to the height of their device subtracted from zero.



Write It Do It

DESCRIPTION:

This event will test a team's ability to effectively communicate with each other in writing by having one teammate construct a device from the other's written description. Teams of two.

COMPETITION:

- A student is shown an object (which may be abstract) built from, but not limited to, such items as science materials, inexpensive materials (e.g., straw, push pins, Styrofoam balls, paper cups, Popsicle sticks, etc.) or commercial sets (e.g., Googplex, K'nex, Tinker Toys, Lego, Lincoln Logs, etc.).
- The student has twenty (20) minutes to write a description of the object and how to build it. There will be no advantage to finishing early. Only words and numerals may be used. **Drawings and diagrams are not allowed.**
- The supervisor of the event will pass the description to the remaining team member who will take the description and attempt to recreate (build) the original object in fifteen (15) minutes.

SCORING:

- The team that builds the object nearest to the original (as agreed upon by two judges) and has properly written instructions (no drawings or diagrams) is declared the winner.
- Time for the construction phase will be used as a tiebreaker



Balloon-Powered Race Cars

DESCRIPTION:

Teams of two will prebuild, using approved materials, a balloon-powered race car designed for maximum speed and distance, that can travel a distance of five meters while staying within a two-meter wide track.

MATERIALS:

- Each team may use any material excluding prefabricated items (i.e. wheels from toy car) for the following parts: base of car; wheels; axles.
- Each team may use **ONLY** the following specified materials for all additional car parts: tape (any); glue (any); one 9-inch standard size balloon; drinking straws (any).

COMPETITION:

- Each car, powered by one balloon, will be timed traveling a distance of five meters.
- Cars that deviate outside of the 2-meter wide race track or fail to travel the length of the race track will be disqualified.
- The car may not leave the ground at any time during the race and must move on its wheels (sliding is prohibited).

SCORING:

Each trial will be timed. The fastest car to successfully travel the entire length of the race track (5 meters) will be declared the winner.



No Bones About It

DESCRIPTION:

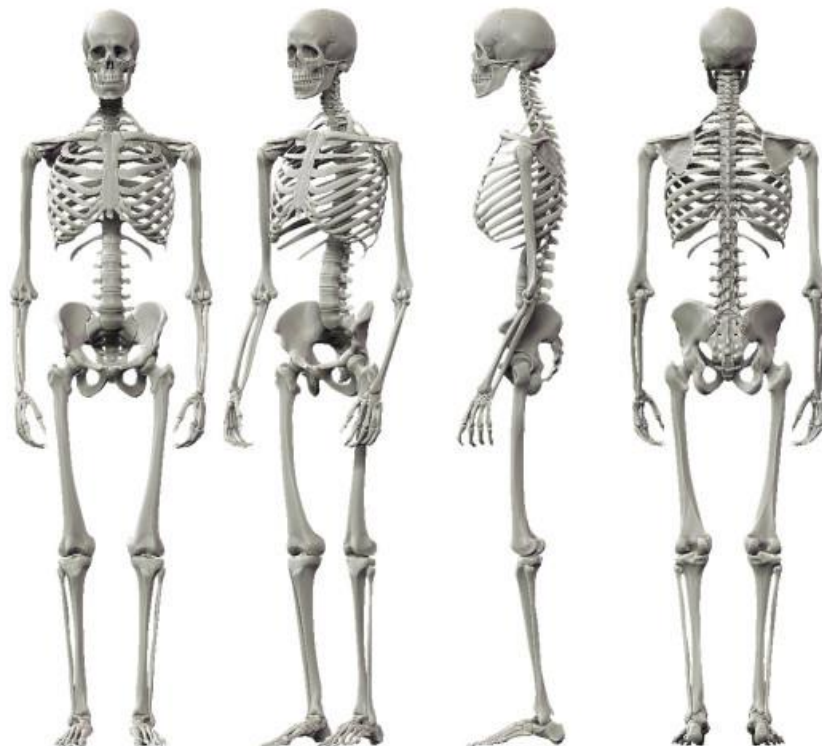
This event will test a team's knowledge of the human skeletal system. Teams of two.

COMPETITION:

- Teams will be asked to identify between 25-35 bones on a model human skeleton taken from the list of labeled bones on the *Official No Bones About It Human Skeleton Diagram*.
- Teams will be given exactly **3** minutes to complete this task . There will be no advantage to finishing early.

SCORING:

- The team that correctly identifies the most bones is declared the winner.
- Spelling accuracy will be used as a tiebreaker.



Tower of Straws

DESCRIPTION:

Teams of two must use their knowledge of architecture and engineering to construct a tower out of the provided materials.

COMPETITION:

- Teams may only use the following provided materials:
 - 40 standardized straws (no bends)
 - One meter of masking tape.
 - One pair of scissors. Scissors may be used to build the tower, but may not included into the design of the tower itself.
- Teams will have thirty minutes to build their tower. There will be no advantage to finishing early.
- Towers must be free-standing (not taped or attached to the ground, table, or any other surface).

SCORING:

- The tallest, free-standing tower wins.



Science Jeopardy

DESCRIPTION:

Teams of two must use their knowledge of earth, life, and physical science to answer questions in a Jeopardy-Style competition.

COMPETITION:

- Similar to the real game, teams will compete three-at-a-time, using a buzzer system to buzz in.
- Teams will have five categories to choose from. Questions will range in value from 100 – 500 points.
- Unlike the real game, teams **will not** be required to answer in the form of a question.
- Additional rules will be discussed by the host prior to the start of competition.

SCORING:

- The team with the highest score at the end of the game wins.
- In an effort to maintain equity, the Decathlon Finals will include multipleirs for both 6th grade and 7th grade teams of 1.5 X Total Points and 1.25 X Total Points respectively.



Rock It!

DESCRIPTION:

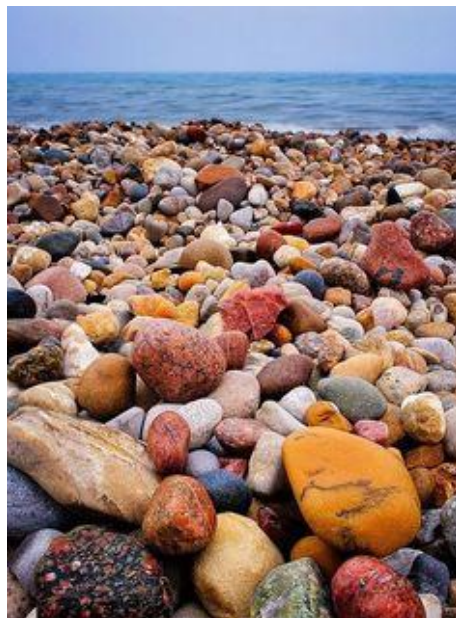
Teams of two will demonstrate their knowledge of rocks.

COMPETITION:

- Each team will be provided with a blank answer sheet, a magnifying glass, and one published field guide. Teams may bring one 3-ring binder (any size) containing information in any form from any source. The materials must be 3-hole punched and inserted into the rings.
- When the start signal is given, teams will begin work at their initial designated station. Teams will have three minutes at each station before being signaled to move on to the next (until completion of all ten stations). Participants may not move to the next station until prompted to do so, may not skip stations, or return to any previously visited station.
- Specimens and other materials placed at the various stations may not be taken to other stations.
- Only those specimens appearing on the *Official Science Decathlon Rock List* will be used in the competition.
- Topics may include: specimen identification, rock cycle, formation and properties of igneous, sedimentary, and metamorphic rocks.

SCORING:

- All stations are equally weighted, each worth ten percentage points. At the discretion of the event supervisor, a score of 0%, 5%, or 10% will be awarded per station. Total percentage scores will determine rankings in this event.



Raft Rally

DESCRIPTION:

This event requires teams of two to create a “raft” from a 30 cm X 30 cm piece of aluminum foil and 4 (or less) plastic straws that will hold the highest number of pennies.

COMPETITION:

- Each team will receive one piece of foil and four plastic straws to make their raft.
- Teams may not use any other materials (other than scissors) in the process.
- Teams will be allowed 25 minutes to build their raft.
- If a team needs another piece of foil (due to rips, tears, etc.), ten (10) points will be deducted from their final score. Teams will be allowed **one** replacement only.
- Teams may not use more than one piece of foil on their raft.
- During testing, teams must add pennies one at a time in any pattern they choose. When it appears that the raft is nearing its maximum load, teams may be asked to wait a few seconds between adding pennies. At the point that any amount of water enters the raft, testing is complete. Teams cannot “dump” pennies in the raft at the last minute - this will disqualify their score!

SCORING:

- Teams will receive one point for each penny held.
- After points are totaled, any subtractions for added foil will be taken.
- The team with the highest score will be declared the winner!



Popsicle Stick Bridge

DESCRIPTION:

This event requires teams of two to prebuild the lightest bridge that can carry up to 50 lbs of sand using only popsicle sticks and glue.

COMPETITION:

- Each team may use no more than 100 standard 4-1/2" x 3/8" x 1/12" popsicle sticks.
- Sticks may be physically altered by cutting, notching, sanding or bending.
- Sticks may not be painted, covered, coated, or soaked in anything.
- Craft (Elmer's) and/or cyanoacrylate (super/krazy glue) can be used. No other glue and no other adhesives may be used.
- The constructed bridge must be a minimum of 10 cm wide, 50 cm long, & 10 cm tall.
- The constructed bridge must have a 1 cm in diameter (or greater) hole in the roadway at the center of the bridge bottom to allow for the application of a load block. The load block will be provided during competition.

SCORING:

- Teams will be scored using the following simple equation: Load (grams)/Mass of bridge (grams)
- The team with the highest score will be declared the winner!



Official Registration Form

Note: Students must be registered in advance for each Decathlon event. Students not registered will not be allowed to participate in the Decathlon. The science teacher on each team is responsible for submitting this official registration form by 4pm on Wednesday 5/13/2015.

Team _____

<p align="center"><u>Paper Plane Derby</u></p> <p>1. _____</p> <p>2. _____</p> <p>3. _____</p> <p>4. _____</p> <p>5. _____</p> <p>6. _____</p> <p>7. _____</p> <p>8. _____</p> <p>9. _____</p> <p>10. _____</p>	<p align="center"><u>Naked Egg Drop</u></p> <p>1. _____ / _____</p> <p>2. _____ / _____</p> <p>3. _____ / _____</p> <p>4. _____ / _____</p>
<p align="center"><u>Write It Do It</u></p> <p>1. _____ / _____</p> <p>2. _____ / _____</p> <p>3. _____ / _____</p> <p>4. _____ / _____</p>	<p align="center"><u>Balloon-Powered Race Cars</u></p> <p>1. _____ / _____</p> <p>2. _____ / _____</p> <p>3. _____ / _____</p> <p>4. _____ / _____</p>
<p align="center"><u>No Bones About It</u></p> <p>1. _____ / _____</p> <p>2. _____ / _____</p> <p>3. _____ / _____</p> <p>4. _____ / _____</p>	<p align="center"><u>Science Jeopardy</u></p> <p>1. _____ / _____</p>
<p align="center"><u>Tower of Straws</u></p> <p>1. _____ / _____</p> <p>2. _____ / _____</p> <p>3. _____ / _____</p> <p>4. _____ / _____</p>	<p align="center"><u>Rock It!</u></p> <p>1. _____ / _____</p>
<p align="center"><u>Raft Rally</u></p> <p>1. _____ / _____</p> <p>2. _____ / _____</p> <p>3. _____ / _____</p> <p>4. _____ / _____</p>	<p align="center"><u>Popsicle Stick Bridge</u></p> <p>1. _____ / _____</p> <p>2. _____ / _____</p> <p>3. _____ / _____</p> <p>4. _____ / _____</p>

Competition Schedule

8 th Grade		7 th Grade		6 th Grade									
Period	Time	Period	Time	Period	Time								
Breakfast	7:45 – 8:20	Breakfast	7:45 – 8:20	Breakfast	7:45 – 8:20								
Homeroom	8:20 – 8:40	Homeroom	8:20 – 8:40	Homeroom	8:20 – 8:40								
1 st (ELT)	8:45 – 9:30	1 st ELT	8:45 – 9:30	Classes should begin heading to the gym promptly @ 8:45. Students should leave backpacks in their lockers or homeroom.									
2 nd	9:35 – 10:30	2 nd	9:35 – 10:20										
3 rd	10:35 – 12:25	3 rd	10:25 (pick-up/drop-off only)										
<div>Lunch Schedule</div> <div>All students will get sack lunches & eat in their 3rd period classrooms. Pick-up times are as follows:</div> <table><tr><td>8T</td><td>11:25</td></tr><tr><td>8S</td><td>11:30</td></tr><tr><td>8M</td><td>11:35</td></tr><tr><td>8Tigers</td><td>11:40</td></tr></table>		8T	11:25	8S	11:30	8M	11:35	8Tigers	11:40	Connections classes should begin heading to the gym promptly @ 10:25. Students should leave backpacks in their lockers or 3 rd period class.		Grade-Level Decathlon 8:55 – 10:25	
		8T	11:25										
		8S	11:30										
		8M	11:35										
		8Tigers	11:40										
		Grade-Level Decathlon 10:35 – 12:05		1 st	10:35 – 11:40								
		7 th Grade Core teachers will report to the gym at 11:30 in an effort to protect planning time for Connections teachers☺. Connections teachers should be available in their classrooms from 12:10-12:15 to allow students to retrieve their belongings.		<div>Lunch Schedule</div> <div>All students will get sack lunches & eat in their 1st period classrooms. Pick-up times are as follows:</div> <table><tr><td>6T</td><td>10:40</td></tr><tr><td>6S</td><td>10:45</td></tr><tr><td>6M</td><td>10:50</td></tr><tr><td>6Tigers</td><td>10:55</td></tr></table>		6T	10:40	6S	10:45	6M	10:50	6Tigers	10:55
6T	10:40												
6S	10:45												
6M	10:50												
6Tigers	10:55												
		4 th 12:15 – 1:20											
<div>Classes should begin heading down to the gym promptly @ 12:25. Students should leave backpacks in their lockers or 3rd period class.</div> <div>Grade-Level Decathlon 12:20– 1:50</div> <div>8th graders will <u>remain</u> in the gym for the Final Decathlon. Connections teachers will report to the gym from 12:30 – 2:00 in an effort to protect planning time for 8th grade teachers ☺ 8th grade teachers should report back to the gym no later than 2:00.</div> <div>Final Decathlon!! 2:00 – 3:30</div>		<div>Lunch Schedule</div> <div>All students will get sack lunches & eat in their 4th period classrooms. Pick-up times are as follows:</div> <table><tr><td>7M</td><td>12:30</td></tr><tr><td>7S</td><td>12:35</td></tr><tr><td>7T</td><td>12:40</td></tr><tr><td>7Tigers</td><td>12:45</td></tr></table>		7M	12:30	7S	12:35	7T	12:40	7Tigers	12:45	2 nd 11:45 – 12:25	
		7M	12:30										
		7S	12:35										
		7T	12:40										
		7Tigers	12:45										
		3 rd 12:30 – 1:20											
		4 th 1:25 – 1:50											
		5 th 1:25 – 1:50		Classes should begin heading down to the gym promptly @ 1:50 using an INDOOR ROUTE. Students should leave backpacks in their lockers or 4 th period classrooms. Connections teachers will remain in the gym from 2:00 – 3:30 in an effort to protect planning time for 6 th grade teachers ☺ <div>Final Decathlon!! 2:00 – 3:30</div>									
		Classes should begin heading down to the gym promptly @ 1:50 using an OUTDOOR ROUTE. Students should leave backpacks in their lockers or 5 th period classrooms.											
		Final Decathlon!! 2:00 – 3:30											
3 rd	3:40 - Dismissal	5 th	3:40 - Dismissal	4 th	3:40 - Dismissal								

Planning Times

6th Grade Teachers: 2:00 – 3:30pm

7th Grade Teachers: 9:30 – 11:30pm

8th Grade Teachers: 12:30 – 2:00pm

Connections Teachers: 8:45 – 9:30; 11:30 – 12:10; 12:15 – 12:30