

Anatomy & Physiology B/C

SoCal SciOly Official Rules Clarifications
As of: January 28, 2020, 04:53 PM

Rule	Question	Response
3.c.v.1	For the muscle origins and insertions, how detailed should the answer be? For example is it correct to say the insertion of the biceps muscle is the radius bone or do the students need to learn the specific part of the bone such as radial tuberosity of the radius?	Questions such as what materials to use, how to build a device, if a device complies with the rules, specifics on what is allowed, what will be covered on a test, or how to coach the event will not be answered.
3.c.v.5	under muscles that move the upper extremity, can you please specify which extensor carpi radialis. thanks	Participants are encouraged to prepare as thoroughly as possible.
3.c.v.5	under list of muscle, has both Frontalis and Occipitofrontalis, I only see Occipitofrontalis in Anatomy books, either frontal belly or occipital belly of the occipitofrontalis muscle depending on location. Google says some books consider frontalis a separate muscle, I guess my question is: will you accept both answers correct, either frontal belly of occipitofrontalis or frontalis. Thanks	Coaching questions will not be answered.
3.a.iv.12	The rules state for Integumentary system to know allergies of the skin, although the examples given are caused by plants and metals. Would hives be an allergy we'd have to learn, or would we only be needed to study skin allergies caused by plants and metals?	Although hives is not an allergen (the substance that causes an allergic reaction, like plants or metals), it is a common reaction/manifestation of an allergic reaction and may still come up on the test.
	National Rules Clarification	On the Official Event Muscle List, "vastus intermedius" replaces "vastus intermedium".
2	National FAQ: Could you please clarify the meaning of, "from any source without any annotations or labels affixed". Can they have diagrams that are pre-labeled?	Students may make a word document in which they put in notes, diagrams etc. which can be pre-labeled and print it onto a page double sided or they may hand-write the notes, diagrams etc., but they may not add anything additional to the sheet of paper such as labels, adhesive flags, sticky notes, or anything extra to the surface of your reference sheet.

Astronomy C

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Rule	Question	Response
3.vi.1	National FAQ: One of the objects is listed as MACS J1149.5+2223. There is an object on the Chandra website (https://chandra.harvard.edu/photo/2017/macsj1149/) called MACS J1149.5+2233 that seems to be the intended object.	The object MACS J1149.5+2233 on the Chandra website is the same object as MACS J1149.5+2223. The final four digits are part of the coordinates of the object, which may change slightly in different catalogues. Another possible name for the object is MACS J1149.5+223.
2.e.3	National FAQ: The rules state if they allow us to use js9.si.edu on the test, we will be allowed to use the internet. Does this mean we will be allowed to use the internet on the ENTIRE test?	No. Teams who answer the js9 question will only be accessing a dedicated NASA website designed specifically for SO competitions.

Booilever B/C

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Rule	Question	Response

Rule	Question	Response
6.i.i.1	National FAQ: Is the score rounded up or down to nearest whole number?	No, the Score should not be rounded to the nearest whole number, and as many digits as possible should be used for comparing scores. The scoring example in the rules follows proper significant figures.
5.a.v.2	Are the lines drawn 4cm to the left and 4cm to the right, total of 8cm between them, or a total space of 4cm between the 2 vertical lines, 2cm to the left and 2cm to the right?	The two vertical Contact Width Lines will be drawn 4.0 cm to the right and left side of the center of the hole for the Mounting Hook.
3.c.1	National FAQ: The loading point must be between 40-45cm away from the wall, can the boomilever extend past the 45cm mark or must the loading assembly sit on the end of the boomilever?	There is no length restriction for the boomilever.

Chemistry Lab C

SoCal SciOly Official Rules Clarifications
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Rule	Question	Response
2.d.12	National FAQ: Are we given a reagents reference table with all the stuff on it or are we just given a singular periodic table sheet?	It is up to the event supervisor. The only thing the event supervisor is required to have available in the room is a periodic table.
2.b.1	National FAQ: For both the Chemistry events, the rules say "each participant may bring one 8.5" by 11" sheet of paper." Does this mean each team is allowed two pieces of paper, or does "participant" mean team?	If a team has two participants in these events it is allowed two reference sheets; one for each participant. If for some reason the team only has a single participant in the event then that team is allowed a single reference sheet for that participant. If two sheets are used the content does not have to be exactly the same on both sheets.
	National FAQ: Can skinny jeans be a universal exception to the "loose-fitting" pants rule for chemistry events?	From the rules: Pants should be loose fitting; if the host has more specific guidelines they will notify teams in advance of the tournament. In chemistry events, any tight-fitting pants do not provide the loose-fitting safety margin necessary should a hazardous chemical be spilled on the clothing to prevent the skin from sustaining a chemical burn.

Circuit Lab B/C

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Rule	Question	Response
3.d.viii.1	National FAQ: Are capacitors valid components that may be present in Division B Circuit Lab tests?	No, but electrical capacitance may be included as a theory discussion for electric fields. RC circuits were removed as a topic.
2.d.1	National FAQ: Can I bring an auto-ranging multimeter (like Fluke 23 Series II) in place of the provided ones?	As for Circuit lab competition in general, the rule is not clear on what constitutes a basic multi-meter. But it is the discretion of event supervisor. Some hands on stations will require the student to use the provided equipment.

Codebusters B/C

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Rule	Question	Response
2.a.2	National FAQ: Can four/ five function accounting calculators be used?	No. Accounting calculators which have the switch for the number of decimal digits can not be used.

Rule	Question	Response
4.b.ii.1	National FAQ: How are questions with answers that are not "composed of letters" scored? Last year the rules specified numerical answers would be either correct or incorrect. Is that still the case?	Yes. The only possible situation where this will occur is the RSA Cipher for the State and National competitions.
3.d.1	If the questions are presented on different pages than the pages provided for the answers, will the participants be allowed to separate both the question sheets and the answer sheets?	Questions regarding the formatting of the test will not be answered.
3.e.vii	National Rules Clarification	3.e.vii. should read: "the Hill Cipher - encrypting plaintext or decrypting ciphertext given a 2x2 encryption matrix." (encryption replaces the incorrect term decryption)
3.e.vii.1	National FAQ: If the plaintext to be encoded does not cut off evenly with the size of the matrix, what value should we use as the nulls?	When encoding for a Hill Cipher, the plain text is to be padded with the letter Z up to the size of the encoding matrix.
3.e.v.1	National FAQ: Will the Baconian Cipher used be a 24 or 26 letter variant?	The 24 letter variant alphabet will be used.
3.e.viii.1	National FAQ: Is the morse code being used in the test international or American?	The Morbit and Pollux ciphers on the tests will use International Morse code.
3.a.2	National FAQ: Should the messages for decryption be made-up or should they include famous quotes?	Messages for decryption can come from any source, but should not be something that is easily guessed - particularly for the timed question. Phrases that can be guessed after identifying some of the letters are expected to have lower score values.
3.e.viii.1	For the reference sheets given at the beginning of each test, will there be morse code included for the Pollux and Morbit ciphers?	Per rule 3.i., a Morse Code table is provided.
3.f.v	National Rules Clarification	3.f.v. should read: "the Hill Cipher - Encrypting plaintext or decrypting ciphertext with a 2x2 encryption matrix or 3x3 decryption matrix provided"; ("Encrypting" was misspelled)

Crime Busters B

SoCal SciOly Official Rules Clarifications
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Rule	Question	Response
2.b.1	National FAQ: For both the Chemistry events, the rules say "each participant may bring one 8.5" by 11" sheet of paper." Does this mean each team is allowed two pieces of paper, or does "participant" mean team?	If a team has two participants in these events it is allowed two reference sheets; one for each participant. If for some reason the team only has a single participant in the event then that team is allowed a single reference sheet for that participant. If two sheets are used the content does not have to be exactly the same on both sheets.
	National FAQ: Can skinny jeans be a universal exception to the "loose-fitting" pants rule for chemistry events?	From the rules: Pants should be loose fitting; if the host has more specific guidelines they will notify teams in advance of the tournament. In chemistry events, any tight-fitting pants do not provide the loose-fitting safety margin necessary should a hazardous chemical be spilled on the clothing to prevent the skin from sustaining a chemical burn.

Density Lab B

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Rule	Question	Response

Rule	Question	Response
3.1.b.1	Regarding significant figures, how many significant figures should we keep for the final answer, for the following two problems: 1. A 175ml sample of neon had its pressure changed from 75.0 kPa to 150 kPa. What is its new volume? (assuming constant temperature) 2. A sample of oxygen gas occupies a volume of 250 ml at 740 torr pressure. What volume will it occupy at 800 torr pressure?	Please check the Significant Figures Policy posted on the National web page for your answer. If in doubt, participants should ask the Event Supervisor during the test regarding the # of significant digits for values provided in the event.
3.1.b.1	There is an online file regarding significant figures (downloadable from https://www.soinc.org/sites/default/files/uploaded_files/SO%20SIGNIFICANT%20FIGURES%20FINAL12-5-12.pdf). It says "Trailing zeros in a whole number may or may not be significant, but are significant if they were a known measured or counted value." If a problem gives you, for example, a solution of 100 ml, is "100" 3 significant figures or 1 significant figures?	It depends on the context of the question. Per the guidelines, if it is a known measured, then the "100" is 3 significant figures.
3.1.b.1	There is an online file regarding significant figures (downloadable from https://www.soinc.org/sites/default/files/uploaded_files/SO%20SIGNIFICANT%20FIGURES%20FINAL12-5-12.pdf). It says "If the digit is 5, round the significant figure to the left so that it is an even digit". Does it mean that 2.25 will be rounded to 2.2 but 2.35 will be rounded to 2.4?	Yes.

Designer Genes C

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Rule	Question	Response
2	National FAQ: Could you please clarify the meaning of, "from any source without any annotations or labels affixed". Can they have diagrams that are pre-labeled?	Students may make a word document in which they put in notes, diagrams etc. which can be pre-labeled and print it onto a page double sided or they may hand-write the notes, diagrams etc., but they may not add anything additional to the sheet of paper such as labels, adhesive flags, sticky notes, or anything extra to the surface of your reference sheet.

Detector Building C

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Rule	Question	Response
3.b.6	Where it says "the end must be immersible up to 15.0 cm in water" does this mean that the end has to be in the water for at least 15 cm or at most 15 cm?	At most.
3.1.1.1	National FAQ: We have built the detector using a Raspberry Pi. Can we program the Pi to ask us the temperatures and then automatically calibrate the device (automatically calculate the slope and y intercept)?	No. The transfer model must be derived from voltage/temperature data and graph that is shown in the log book. The coefficients should be edited within the program on competition day to ensure transparency to the judge. Preset program libraries are not allowed. Please see previous FAQ on this topic.
3.b.1	National FAQ: Are DS18B20 Temperature Sensors (Waterproof Stainless Steel) allowed as a legal sensor for the Detector Building?	No. This device does not produce a voltage output. Instead it produces a digital output of temperature.

Rule	Question	Response
4.1	National FAQ: Are students allowed to use their own version of the Steinhart-Hart Equation (ie with the coefficients they found) to convert resistance values into temperature values?	Yes, so long as they are derived from a temperature vs. voltage data and graph.
3.a.14	National FAQ: Are we allowed to use an op amp?	Yes. The device must be a DIP package inserted into a breadboard.
3.b.1	National FAQ: Can a participant-built sensor with a single analog output contain multiple thermistors of the same type for the purpose of output linearization?	Yes. There can only be one "probe" and one output, but multiple internal sensors.
3.d.1	National FAQ: Can one RGB LED be used instead of 3 LEDs in red, green, and blue?	No. Some competitions may require combinations of the three colors to be turned on concurrently. One RGB LED may be used in place of one single color LED. Three separate LEDs are need to display each unique color.
3.b.1	National FAQ: Can we use the DIKAVS 3950 NTC 10K Precision Epoxy Thermistor Temperature Sensor.	Yes the 3850 NTC 10K thermistor is legal as a basic component, as are all thermistors. However, a purchased epoxy dipped device with wire leads is NOT legal as it constitutes a prefabricated detector.
3.b.2	National FAQ: Is the TMP35/36/37 an illegal sensor? It is a temperature sensing IC that outputs a preconditioned analog signal.	These are legal sensors as long as no external pre-fabricated signal conditioning board is used in conjunction with the device.
3.b.3	National FAQ: Rule 3b states that "[t]he sensor must not be constructed using...kits." Does this mean that the Ward's and TI kits for this event are not permissible?	No. Kits that contain primary components, such as the TI kit or Wards, are legal. What is prohibited by that rule are pre-assembled circuit boards or circuit board kits.
3.a.14	National FAQ: Is a breakout board considered a circuit board (a breakout board is a board that exposes pins from a surface mounted component)?	Yes and this would not be allowed. A breakout board is a prefabricated circuit board and is illegal to use. All components must be DIP and used with a breadboard.
1.a.1	"can not be connected to an external signal conditioning board before the signal is routed to the micro-controller board". What defines a "external signal conditioning board". Is a PCB board designed by the team OK? What about a protoboard, or a breadboard? If no board is allowed, is any circuitry allowed, or must the thermistor/coupled wire be connected directly to the microcontroller?	Per the National FAQs, no PCBs (whether homemade or commercially purchased, such as shields) other than the microcontroller are allowed. However, components mounted on a breadboard are allowed.
3.b.1	National FAQ: Are thermocouples allowed as a legal sensor as long as they comply with all other rules? Thermocouples are listed as legal on the example sensor list on the soinc.org website but not explicitly listed as one of the two fundamental electric components	[Updated 10/24/19] Yes. Thermocouples are legal with student-built circuits constructed on breadboards made with fundamental components and/or DIP packaged integrated circuits (ICs).
3.a.1	National FAQ: May students add a modular analog-to-digital convertor (ADC) to their microcontroller?	[Updated 11/15/19] Prefabricated modular external signal conditioning boards are not allowed. Student built external signal conditioning boards built from fundamental components or DIP ICs on a bread board are legal.
3.a.1	National FAQ: Can I design my own printed circuit board for this event? I will make it very clear that I am using my own PCB and not a modular, pre-built board.	No. Although your skill is appreciated, the rule is no external signal conditioning PCB regardless of its origin.

Rule	Question	Response
4.b.v.5	National FAQ: Is it allowable to have more than one equation to model the voltage vs. Temperature data, for example to have different equations to cover different temperature ranges.	Yes.
3.a.1	National FAQ: The rules say "must be built using a microcontroller or microcontroller board". Can our students use a raspberry pi AND an Arduino in their build?	No, choose one. The rules list "microcontroller or microcontroller board" as singular.
3.1	National FAQ: We were wondering whether or not the Arduino TMP 36GZ temp sensor is a legal sensor that we could use for the competition?	Yes. The sensor only.
3.d.1	National FAQ: Do the 3 temperature zones need to be contiguous? That is, could they be: (a) Less than 10C, (b) Between 15C and 45C, (c) Greater than 45C. Making it possible to have a temperature (12C) that would have NO LEDs lit?	The temperature ranges will be well defined and not set where there could be an in-between zone as to which a non-led response is possible.
3.b.5	National FAQ: Does the device have to be probe-like or can the device have a base (such as an Arduino Uno) with a probe connected to it?	The sensor/probe may be connected to the microcontroller/"base" via wires/cables.
3.b.1	National FAQ: Are RTDs allowed as a legal sensor as long as they comply with all other rules? They seem to fall under the definition of a thermistor.	Yes. RTDs are allowed. However, the RTD can not be connected to an external signal conditioning board before the signal is routed to the micro-controller board.
3.a.1	National FAQ: Can the "sensor" be composed of multiple individual sensors, or can only one individual sensor be used?	No. The device can only have a single sensor.
3.b.1	National FAQ: Are we allowed to use more than one temperature sensor and use an average reading of them, or is there a limit of only one input device?	No, only one sensor per device is allowed.

Disease Detectives B/C

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2	National FAQ: Could you please clarify the meaning of, "from any source without any annotations or labels affixed". Can they have diagrams that are pre-labeled?	Students may make a word document in which they put in notes, diagrams etc. which can be pre-labeled and print it onto a page double sided or they may hand-write the notes, diagrams etc., but they may not add anything additional to the sheet of paper such as labels, adhesive flags, sticky notes, or anything extra to the surface of your reference sheet.

Dynamic Planet B/C

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Rule	Question	Response
3.x.1	National FAQ: Line x. says Division C only: etc....Is that only applicable to Line x or does that apply to Line x. and everything after it/below it?	Division C Only refers to just "x". All subsequent subparagraphs are for both Div. B & Div. C.

Elastic Launched Glider B

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Rule	Question	Response

Rule	Question	Response
5.d.2	National FAQ: Is there a maximum Chord length/wing span and/or wing area for the fore wing/horizontal stablizer?	No, but as stated in para 3.j, the horizontal stabilizer must be in front of and smaller than the main wing to meet the canard bonus. Span and chord both. There is specifically no limit on the horizontal stabilizer this year, be it behind the main wing, or in front to meet the criteria for the canard bonus. The largest horizontal surface will be considered the wing. As already stated, largest by BOTH span and chord. The next largest horizontal surface will be considered the horizontal stabilizer. There should be no significant third horizontal surface. Fuselage, so long as it does not contribute significant lifting surface will be disregarded.

Experimental Design B/C

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Rule	Question	Response
1.1.F.Qualitative observations.2	In the Qualitative Observations section, there is a table with results row and columns corresponding to before, during and after the experiment. Do these results have to match/correspond to the observations in the procedure row? Is there a good example of qualitative observations of results "before" the experiment?	We do not answer coaching questions. Regarding the qualitative observations of results, please see the National FAQ stating that the "before" observations of results is an error.
2.a.1	Can students bring in colored writing utensils such as blue pen or a highlighter to bring attention to a part of their writings?	Yes. General rule #1 applies: https://www.soinc.org/ethics_rules
4.j.2	National FAQ: How do we show example calculation for things such as Standard Deviation where all we do is plug numbers into a calculator without knowing the calculation procedure?	You must calculate the standard deviation of at least one sample using the equation/procedure to show the sample calculation if you intend to use the standard deviation. The point of having this requirement and making it part of the rubric is that you should know how to calculate standard deviation without a calculator.
4.a.1	National FAQ: On the Experimental Design Checklist does Statistics Claim refer to claiming what the statistics are, or what you are deducing from the statistics, or choosing which statistics to base your trend and interpretation of the data?	A claim is an assertion of the truth of something, typically one that is disputed or in doubt. You will then provide evidence, in this case statistics, that back up your claim. In the reasoning section, you will explain how the statistics back up your claim.
.1	National FAQ: On the top of the table, what is meant by "Before" and "After" for Procedure and Results?	As for your question about the meaning of "Before" and "After" on the Experimental Design Report Form this section is looking for participants to make observations about their procedure and approach to the experiment (e.g.; spills, limitations on measurements/accuracy, compromises for efficiency) and then make observations about the results they obtained (e.g.; trends in the data, relationships between variables/constant). The blank space asking for a results observation Before conducting the actual experiment is an error. New a form that clearly show the box shouldn't have any information is posted on the Event Page at soinc.org.
.4	For the Conclusion, can the scientific explanation and reasoning be the same as that described in the reasoning portion of the Analysis?	Coaching questions are not answered.

Rule	Question	Response
.n.51	National FAQ: When restating hypothesis in Part N (Conclusion) and Part P (Abstract), do teams need to include rationale to score full credit for those points?	No.
4.a.1	National FAQ: In the checklist section H, do the raw and condensed data tables need to be distinct, with the "raw table" containing measurements and the "condensed table" containing derived values?	Yes, the raw and condensed data tables are two separate tables.

Food Science B

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Rule	Question	Response
2.a.x.1	National FAQ: We have to know the production of chemical feedstocks, but this is very broad. What will we need to know about this topic?	The students are generally to understand broad categories of chemicals that can be fermented from feedstock, such as bio-gas, biodiesel, plastics, etc.
3.b.1	National FAQ: Is the salinometer required to be mechanical? Can it be electrical or electronic, as long as it is built and can be explained by the team?	Yes, it can be electrical.
3.a.vii.1	National FAQ: For the nutrition labeling regulations, are the questions supposed to be about the nutrition label of fermented food types only or all food types?	Students should be able to read any food label and answer questions about the information on the label.
3.1	National FAQ: FDA is in the process of changing the nutrition label format. Which format will SO be using? Old, new or both?	Study the differences between the old and new nutritional label format, as well as, the laws regarding nutritional labeling that have not changed.
3.b.1.2	National FAQ: It states in the rules that "to operate within a standard 500 mL beaker..." however 500 mL is not a standard Griffith beaker size. Should this read 400 - 600 mL?	Yes, a beaker size between 400-600 ml is fine.
3.a.ii.1	National FAQ: I do not know how to find the % moisture in a pickle without using dehydration & volume (before and after) or through commercial equipment. How are students supposed to be able to do this?	There are multiple methods that will allow the approximate percent moisture of a pickle to be determine. Complete dehydration is one. An approximation of the percent moisture can be determined by massing the pickle in a container then doing something to the pickle (i.e., crushing it) to release the moisture. The moisture released can then be removed and the pickle remnants and container can be remassed.
3.a.xi.1	National FAQ: There are quite a few yeast and bacteria out there. Can we get a list of which ones the students will need to know?	These are common examples but event supervisors may use bacteria or yeasts that are regionally appropriate. Yeast-fungus-the most common type used in fermenting is <i>Saccharomyces cerevisiae</i> - Can grow aerobically or anaerobically on sugars - Most commonly used for production of ethanol in fermentation Lactic Acid Bacteria (LAB) <i>Lactobacillus</i> , Homolactic-used for making Yogurt, souring vegetables, making sausage <i>Leuconostoc</i> , Heterolactic-used to sour vegetables <i>Streptococcus</i> , thermophiles, Homolactic-used for making Yogurt <i>Acetobactor</i> , Acetic Acid Bacteria -used in the production of chocolate & wine. <i>Bacilus</i> , spp., spore producing bacteria - used in the production of chocolate.

Rule	Question	Response
2.b.1	National FAQ: For both the Chemistry events, the rules say "each participant may bring one 8.5" by 11" sheet of paper." Does this mean each team is allowed two pieces of paper, or does "participant" mean team?	If a team has two participants in these events it is allowed two reference sheets; one for each participant. If for some reason the team only has a single participant in the event then that team is allowed a single reference sheet for that participant. If two sheets are used the content does not have to be exactly the same on both sheets.
	National FAQ: Can skinny jeans be a universal exception to the "loose-fitting" pants rule for chemistry events?	From the rules: Pants should be loose fitting; if the host has more specific guidelines they will notify teams in advance of the tournament. In chemistry events, any tight-fitting pants do not provide the loose-fitting safety margin necessary should a hazardous chemical be spilled on the clothing to prevent the skin from sustaining a chemical burn.

Forensics C

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Rule	Question	Response
2.a.2	National FAQ: Are stand-alone, programmable, graphing calculators or stand-alone non-graphing, programmable calculators allowed for Forensics?	All stand-alone calculator types are allowed for Forensics. A corrected calculator guide will be posted on soinc.org.
	National FAQ: Can skinny jeans be a universal exception to the "loose-fitting" pants rule for chemistry events?	From the rules: Pants should be loose fitting; if the host has more specific guidelines they will notify teams in advance of the tournament. In chemistry events, any tight-fitting pants do not provide the loose-fitting safety margin necessary should a hazardous chemical be spilled on the clothing to prevent the skin from sustaining a chemical burn.

Fossils B/C

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Rule	Question	Response
	National Rules Clarification	On the Official Fossils List, "Woolly Mammoth" and "Order Scleractinia" replace "Wooly Mammoth" and "Order Scleratinia" (the letter L missing from Woolly and the letter C missing from Scleractinia)
2.a.1	National FAQ: Shouldn't Limestone on the Fossils List read "Limestone (chalk/fossiliferous limestone)" instead of "Limestone (chalk/fossil limestone)" (which fits with how Rocks and Minerals names it)?	"Limestone (chalk/fossil limestone)" is equally acceptable to "Limestone (chalk/fossiliferous limestone)". Either term may be used.
	National Rules Clarification	Fossil List, Page 2, Column 2, Row 8, should read: "Species H. sapiens"; ("sapiens" was misspelled)

Gravity Vehicle C

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Rule	Question	Response
2.1	National FAQ: Are teams from the same school allowed to share a ramp?	Yes; teams from the same school may share a ramp if it is it compatible with their vehicle.

Heredity B

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Machines B/C

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Rule	Question	Response
1.III.e.0	I assume this means that the counterweight should not be attached to the device until after set up (places in equilibrium) at the event. It seem like this is done at impound. Is that correct? Or is it done in the first 5 minute session of competition. Most important, I am interpreting this correctly, counter weights are permitted? This just clarifies when they are attached to the device. What does "must not bring masses" mean	Participants may not bring any loose masses. Additionally, any masses/counterweights on the lever must only be attached to balance/equilibrate the lever. So yes, counterweights are allowed for a very specific use case.
4.e.1	National FAQ: What type of kinetic energy question might be asked that does not violate the prohibition on Dynamic calculations?	The definition of " dynamic calculations" refers to the acceleration, in other words, the velocity changes as a function of time. Any kinetic energy calculations will be based on having constant speed. Kinetic energy equations requiring calculus would not be permissible.
2.e.6	National FAQ: What is the desired format for the mass ratios?	That will be up to the individual event supervisor to specify. Any equivalent format (decimal, fraction, table format) will be accepted. However, fractions must not be complex fractions (i.e. having a decimal or fraction in the numerator or denominator). Note the official scoresheet expects it to be entered as a decimal value, but the supervisor can easily convert a fraction to a decimal if they desire.
4.c.1	National FAQ: Are related topics that are neither specified nor prohibited (such as history, work, and conservation of energy) included in the scope of the event?	The only topics to be tested are those listed in 4.Part I.c. as they relate to the simple machines listed in 4. Part I.d. For example, questions that ask trivial questions regarding historical figures, dates or publications, are prohibited. As a reminder, topics listed in 4.Part I.e are prohibited.
4.d.iii.1	National FAQ: Can you provide a definitive answer to Event Supervisors about the required length to use for IMA?	IMA of a wedge is defined as $1/\tan(\text{angle of wedge})$. The angle of the wedge can be calculated from either the length of the base and height or the length of the slope and height, depending on which specific formula you use.
3.b.1	National FAQ: Rules specify maximum beam lengths of 80.0 cm (B) and 40.0 cm (C). What is the definition of Beam Length?	The "length of the beam" is the physical length of the single beam, including any permanently affixed non-movable fixtures extending off the physical end of the beam. If either attachment point (or the fulcrum) extends beyond the physical end of the beam, the distance between the attachment point (or the fulcrum) and the end of the beam is included in the "length of the beam".

Rule	Question	Response
3.b.2	National FAQ: The Rules state "The device must be a class 1 lever connected directly in series to a class 2 or 3 lever, " does the answer to the FAQ allowing a "string" extend to other means of connection, such as a rigid link?	Yes. The link can be a rigid link.
2.e.6	National FAQ: How accurate must the measurement of the ratio be (should the answer be only a whole number, one decimal place, two decimal places, etc.)?	Students may give their answer to any number of decimal places. Their answer will be compared to the ES's calculation of the ratio, which will be calculated by using the maximal precision of the scales and observing rules of significant figures.
3.b.c.1	National FAQ: Does connecting the levers by a string satisfy the requirement that they be "connected directly?"	Yes, if the strings are used to cause a movement in one lever to induce a movement in the other lever, then the levers are "connected directly".
2.e.3	National FAQ: Must all masses simultaneously fit inside a 15x15x20cm box or must each mass separately be able to fit inside the box?	Each mass must fit within the 15 x 15 x 20cm box individually.

Mission Possible B

SoCal SciOly Official Rules Clarifications
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Rule	Question	Response
3.c.xii.3	Would a pendulum circling and swinging at the same time be still considered as a pendulum?	Yes.
3.c.ix.1	It states ball must roll 20 cm in any direction. I interpret that to mean that the ball must travel 20 cm along its path in x, y or z direction. For example, it could be travelling a spiral path where it rolls 20 cm along that path. This would also apply to section 3.c.xi.	The 20 cm is measured as displacement.
3.c.ii.1	Does the wheel need to be rigidly fixed to the axle so that the wheel and axle rotate as one? Is a wheel with a bearing acting as an idler considered a wheel and axle so that the load is simply equal on either side of the rope?	Yes, the wheel must be rigidly fixed to the axle so they rotate as one.
3.c.iv.1	Is it OK if the ball gets wet?	Yes, the ball can get wet.
3.a.iv.1	If a ball has traveled its required distance (such as 10 cm vertically in 3.c.ii) can it travel a little further to push a lever that is part of the next action and that ball not be considered as part of the next action? That ball would push the lever to the point of completing that action.	No, the ball will be considered utilized by both actions.
3.a.viii.1	When a ball is to be raised like in 3.c.ii, is it OK for the ball to be sitting in a cup that is being raised vertically?	Yes.
3.a.viii.3	National FAQ: Says.. "They may be tied but must not be glued or taped". Is it acceptable to have the golf ball inside a transparent plastic wrapper (sandwich wrap) and the wrapper has a noose which is then tied and/or taped	No. Wrapping the ball would be considered modifying the ball.
3.d.ii.1	If we implement the bonus action of moving the golf ball delivery mechanism away (so the ball is clearly unobstructed in all directions by 10 cm), is it required to be documented as the last action in the ASL to gain the bonus points? So this action will show up right after the "FINAL" action in the ASL?	Yes, the bonus should be documented after the Final Action on the ASL.

Rule	Question	Response
3.c.iii.1	Can the 4 dominos be placed on their side instead of the traditional way of standing vertically?	Yes.
3.c.xii.1	Does the pendulum clock step actually have to be a clock? Or can it be an escapement actuated by a pendulum like seen in lego videos?	We consider a "pendulum clock" anything that includes a swinging pendulum, provided it has some way of measuring or counting the number of swings. How the clock counts swings of the pendulum is up to the competitors.
3.a.viii.3	If we plan on using a golf ball as a weight, could that golf ball be glued and/or taped? We are not talking about the golf balls that are required for scorable actions in start/end actions, 3(c)ii, 3(c)iv, 3(c)vi, 3(c)vii, 3(c)viii, 3(c)ix and 3(c)xi actions. This could be an independent golf ball that serves as a weight to provide a force for one of the scorable actions.	No. The rule clearly states "All golf balls....", which applies to all golf balls, regardless of their usage.
3.a.iv.1	Can the water from action x. be used in action iv.? Or would it be considered a movable/adjustable object?	No, water is still a physical object and cannot be reused in multiple actions.
3.c.xii.1	National FAQ: Start a pendulum clock so that after running for at least 10 seconds, it initiates the next action. What part of the pendulum clock initiates the next action - can it be the weight or does it have to be the pendulum itself?	The rules do not specify which part must start the next action.
3.c.iii.1	National FAQ: Can we use commercially available Mexican Train Dominos? These have up to 24 dots per side. Other dominos of similar size have a maximum of 12 dots per side.	Yes, Mexican Train Dominos are fine.
3.d.i.2	National FAQ: Does 'original resting position' mean the first location where the ball is stopped after the Starting Action or the last such point before the start of the Final Action?	The "original resting position" means the first location where the ball is stopped after the Start Action.
3.d.ii.2	National FAQ: May part of the 10cm distance around the golf ball be outside of the outer dimensions of the device?	Yes.
3.d.ii.3	No part of the device/machine can be within 10 cm of the ball, but does that include liquids? So can something like honey be put on the tip of the tee?	No, liquid are still considered part of the device and cannot be within 10 cm of the golf ball.
4.c.i.1	National FAQ: Can any of the scorable unique actions also be used for the timer?	One of the unique tasks or the pendulum timer may count as a timer as long as all other rules are met. The task that allows the use of electricity is not allowed as a timer.
3.d.ii.1	Are we allowed to use mousetrap in the Final action to automatically move away to clear 10 cm around the ball for bonus points?	Yes - please see General Rule #1.
3.a.vi.1	Some small commercially available fans that we are considering for action 3.c.x come with non brand name unmarked batteries, but are clearly stamped to be less than 9V. Will such batteries be permitted? Or would you mandate the fan be run by commercial AA, AAA, C, 9V type of batteries?	We cannot prejudge your device. If in doubt, don't take risks of being penalized.
3.a.ii.1	"at least two vertical walls must be open or transparent for viewing all actions." Would you please clarify if the wall in shape of T, F and H shape are accepted? Thank you!	We cannot prejudge your device. If in doubt, don't take risks of being penalized.

Rule	Question	Response
3.a.iv.1	Could the golf balls that are moved in actions 3.c ii, iv, vi, vii, viii, ix & xi be used as weights for the next action? For example in 3.c.vi if the golf ball is pulled up the inclined plane, after successfully completing the action, this golf ball then falls in a container that then serves as the weight for the next action; Is that allowed or will it be considered a violation of 3.a.iv?	No, this would count as utilizing a movable object in 2 actions.
3.a.vi.1	Does a 9V rechargeable battery embedded in the fan unit meet the requirement for using a 9V commercial battery?	Yes, if it is visible or easily removable for the Event Supervisor to verify.
3.1	Can you add more rube goldberg machines to your device that is not associated with what is required on the rules(Can you add more machines not on the list)? If so, will you get points deducted or will it be the same?	Actions other than those listed in rules 3.b-d are deemed non-scorable and worth 0 points (see rule 3.e.iii). They still must pass safety inspection (2.c) to be allowed, and they can cause penalty points under certain circumstances (e.g. touches or use of electricity).
3.c.ix.1	Does the wedge need to constantly contact the golf ball while it rolls? Or the wedge just needs to be move away from the golf ball so the ball could start to roll (like foot doorstep)?	The wedged does not need to remain in contact with the ball while rolling. The ball's movement must be initiated by pulling the wedge.
3.c.iii.1	What does "free standing" exactly mean? Will the dominos be allowed to be place in a groove before they are knocked down?	Free standing means "free of support or attachment". Grooves can be considered as "support" and will not be allowed.
3.c.ii.1	National FAQ: ". . .the golf ball. . . initiates the next action." The ball may only be tied, per 3.a.viii. If the string tied around the ball hits something to initiate the next action, does that qualify?	No, the surface of the golf ball must make the contact to initiate the next action.
3.c.ii.1	National FAQ: "a 3:1 ratio gear system. . ." Does this mean output teeth/input teeth = 3, or the other way around? Thanks.	The rules don't specify the direction it must go.
3.c.v.1	National FAQ: Can the wingnut have rotational motion (i.e. the wingnut rotates with the rotating screw) or must it only have linear motion (i.e. the rotating screw only pushes the wingnut along its threads)?	The wing nut needs to move linearly. The threaded wing nut must move along a threaded rod or screw.
5.l	National Rules Clarification	5.l. (new line added) should read: "Devices impounded after the deadline will be scored after devices impounded on time."
3.d.i.2	Is it fair to say that the golf ball does NOT have to travel in a single straight line of > 20 cm from the original resting place to the golf tee, but as long as an imaginary horizontal line between the original resting place and the final resting place (golf tee) is > 20 cm, it satisfies the 20 cm distance criteria for the 250 points?	Yes, as long as the golf ball has a horizontal displacement of > 20cm, it satisfies the 20 cm criteria for 3.d.ii.
3.d.ii.1	After the final action is complete and 3 seconds have passed with the golf ball sitting on the tee, will be permitted to touch the device to move the ball delivery mechanism away? If not, will a parallel action be permitted to move the ball delivery mechanism away after the ball is delivered on the tee?	Per 3.d.ii., the Device moving the ball delivery mechanism away must occur automatically after the golf ball is delivered to the tee.

Rule	Question	Response
3.d.ii.1	National FAQ: If the Tee Holder is mounted onto the wall or base of the Device, does the wall and base count as part of the device and subject to the 10cm clearance requirement of the rule?	The wall or base may be considered as part of the "tee holder" and would not be subject to the 10cm clearance requirement. However, the top of the tee must still be at least 2.5 cm above any part of the "tee holder".
3.c.iv.1	National FAQ: Can we use salt water for Mission Possible?	No, the water that is added to the container may not be salt water.
3.c.i.1	Most other actions have a parameter on how much an object should be moved by to get 50 points. Is there a guidance on how many rotations the driving gear or the driven gear need to make before initiating the next action?	No - there is no requirement on how many rotations the gears need to make before initiating the next action. The only measurement will be to verify that the gear ratio is at least 3:1.

Mousetrap Vehicle B

SoCal SciOly Official Rules Clarifications
As of: January 28, 2020, 04:53 PM

Rule	Question	Response
3.d.1	An approximately 1/4" wooden dowel must be attached. Can we use a 1/4" metal dowel? Thank you and regards,	No, metal is not wood.
1.1	Is it required to reverse the vehicle and bring it back to the starting point?	No.
3.a.a.2	National FAQ: what does "No part of the jaw/hammer may extend 1.0cm beyond the base"?	The base of the mousetrap is usually the wooden/plastic rectangular block. The jaw/hammer should not be larger (or extend past) the edge of the base more than 1.0cm.
2.b.1	Does the eye protection have to be impounded along with the vehicle and other materials?	No.
3.f.2	The only parts allowed to contact the floor during the run are wheels/treads'. Is there a limit to the number of wheels i.e. are 3 or 5 wheeled vehicles allowed to run?	There are no specifications on the number of allowable wheels.
3.e.1	Can the vehicle be placed in the 40cm x 40cm box such that 2 rear wheels are pointing down and the front 2 are suspended in the air ? If this is permitted, it would allow constructing an arbitrarily long vehicle. If this is not permitted, it seems like the rule wants to limit the distance from the rear wheels to the front wheels to 40cm. Could you please clarify ? Thank you.	The Vehicle must be in ready-to-run configuration (participants may not be touching the Vehicle) when the dimensions are measured.
7.f	National Rules Clarification	7.f.ii. should read: "Tier 2: Runs with any competition violations" 7.f.iii. should read: "Tier 3: Runs with any construction violations" (swapped competition and construction violations)
3.d.1	May the dowel be sharpened at the bottom to create a point?	No.
3.b.2	National FAQ: can the drive string be pre-wrapped around the drive axle?	Yes, as long as all of the energy that propels the vehicle comes from the single mousetrap.

Ornithology B/C

SoCal SciOly Official Rules Clarifications
As of: January 28, 2020, 04:53 PM

Rule	Question	Response

Rule	Question	Response
3.d.1	National FAQ: Does the restriction of 50% apply only to Genus species names or also order and family names as well?	The 50% restriction in the number of questions applies to the common name as well as the scientific name; which is limited to Genus and Species. In theory, order and family could be asked about in the other half of the questions.
2.c.1	National FAQ: The 2020 National Bird List lists Clapper Rail's scientific name as Rallus longirostris, but online sources say that Rallus longirostris is instead the Mangrove Rail and that the Clapper Rail is Rallus crepitans. Is this a typo?	The National Bird List taxonomic scheme is based upon the 7th edition Checklist of North American Birds, American Ornithologists' Union, and www.allaboutbirds.org from 2019 Cornell University Laboratory of Ornithology and reflects the expectations of the event supervisors.
3.e.1	Since SoCal has its own bird list, will invitationals be based off of the National or SoCal List?	Please check with your Invitational Tournament Director on the list that will be used.
	bird list: vocalization -- the grouse does not have a very definitive vocalization, but is more known for its "thumping" -- is this what students should know? Both?	Vocalizations would test on the bird calls, but unique avian behaviors may still be tested per 3.h.
.40	National FAQ: Under the list, it says "Clapper rail" with the scientific name of Rallus Longirostris. However, Rallus Longirostris is actually the Mangrove rail, which is not in the rules. Which one should participants study?	Use the taxonomy as listed on the Official National Bird List.
3.1.2	National FAQ: Are bird eggs eligible content?	Yes
2.c.2	National FAQ: Will a separate National Ornithology list that is annotated be allowed to be taken out of the binder?	No, an annotated Bird List must remain in the binder if the event is run as a series of stations per rules 2.b. and 2.c.
2.2	National FAQ: Under Order Strigiformes, the screech owl is listed, but I believe that is a genus that doesn't pertain to a singular species. Should this be specified to a certain species (Eastern screech owl), or should this remain as a genus?	This should remain as a genus - participants should be familiar with species within the genus.
2.c.1	National FAQ: The National Bird list includes "Screech Owl" . Are students responsible for all subsets of this, eg. Eastern, Western, Whiskered, etc.? Thank you.	Yes.
	National Rules Clarification	Official Bird List, Page 2, Column 3, Last Row, should read: "European Starling Sturnus vulgaris"; ("Sturnus" was misspelled)

Ping Pong Parachute B/C

SoCal SciOly Official Rules Clarifications
As of: January 28, 2020, 04:53 PM

Rule	Question	Response
1.1	Are you allowed to make your own practice log if you do not know where to print them?	There is no posted template, so you are expected to make and format your own logs.
1.1	Are you allowed to use swivels on the strings of the parachute? The swivels are metal.	Metal of any type is prohibited anywhere on the rocket or parachute payload system
2.b.1	National FAQ: Can a weight like a washer or a glob of clay be taped to the ping pong ball. Not glued, but taped so it can be removed. Is this considered altering the ping pong ball? Is this legal?	No, a weight of any kind may not be added to the ping pong ball.

Rule	Question	Response
2.1	National FAQ: The rule states that teams must provide up to two rockets, two unaltered standard ping pong balls, and two parachutes. If they come with one rocket and one parachute, do they get to launch it twice?	Yes, teams may launch the same rocket twice per rule 5.b.
3.1	National FAQ: Is lubrication of the launcher nipple O-rings allowed or are they to be dry which leads to the question, can the inner surface of the bottles nozzle be lubricated and if so, with what?	The event supervisor would be in charge of lubricating the launcher o-rings. The inner surface of the bottle may not be lubricated or have anything applied to it that would leave a residue on the launcher.
3.a.1	The rule says to use "a single 1-liter or less plastic carbonated beverage bottle". There are no 1L cola or sprite bottles around. I searched several stores in my area. The only carbonated 1L bottles I found are carbonated water bottles. How is this different from using a regular 1L water bottle? Do we have to use 1L or less carbonated beverage bottle?	Carbonated water bottles are considered carbonated beverage bottles. Regular water bottles are not allowed due to safety concerns. These bottles may be available at convenience stores such as those with gas stations.
3.e.1	Is there a minimum requirement for the number of Fins that need to be attached to the bottle rockets? Can we bottle rockets without any Fins?	No. General rule #1 applies: https://www.soinc.org/ethics_rules
2.1	National FAQ: Does anyone know this? To practice at school: Is it possible/safe to use a bottle rocket launcher that has been used in previous years--when the rockets contained water?	Yes, it is possible to use launchers from previous years as long as the launcher has been inspected and determined to be safe by your coach/adult supervisor. You should also make sure that the launcher will launch rockets that fit the construction parameters. Depending on the launch pad you have you will need to insure that it does not damage the floor when being used.
3.c.1	National FAQ: What classifies as a blunt or rounded top?	Blunt and rounded are two separate issues. If the nose of the rocket comes to a point, the point must be rounded so that it fulfills the requirements of rule 3.c. This is specifically shown in Figure 1 in the rules. If the nose of the rocket is not pointed, the leading edge of the rocket must be blunt. Blunt means that the edge must not be sharp and still fulfill the requirements of rule 3.c. No part of the edge can fit into bottle cap as defined in rule 3.c.
3.b.3	We are using glue to put together components before they are attached to the bottle. No actual glue comes in contact with the bottle. Is this OK?	Yes.
2.b.1	National FAQ: "Parachutes must be attached to ping pong balls with tape only." Can a team tape a ping pong ball to string and tape the string to the parachute?	Yes, this does not violate the rules as stated in rule 2b. The strings that are attached to the canopy are called shroud lines and they are part of the parachute. The shroud lines may be taped to the ping pong ball.
4.a.3	Do all 15 test flights need to be using the same exact rocket/parachute combo? The examples given for the additional parameters (# fins, parachute diameter) suggest that the practice log can include flight data from different rocket and parachute combinations, and I would like clarification whether a student needs to run the same rocket/parachute combo a minimum of 15 times or not.	4.a. states that "Data must include 5 or more parameters (3 required and at least 2 additional) for 15 or more test flights prior to the competition for each rocket." It does not specify that they need to be with the same parachute. (Additionally, one of the example variables is parachute diameter, which would likely be accomplished with multiple parachutes.)

Rule	Question	Response
2.d.2	Our team is finding that the manual tire pumps have considerable variability in the pressure gauge readings. Would it be possible to bring a cordless, battery operated air compressor with a digital pressure display to fill our rockets at the competition instead of a manual tire pump?	No. 2.d. explicitly states "manual bicycle pump".
6.a.1	While launching after the parachute is deployed and the rocket touches the walls, will the launch be counted as a different tier?	No - the rocket would be tiered if it touched the ceiling or something connected to the ceiling.
3.a.4	Can the bottle label be removed from the bottle?	The label may be removed from the bottle, but should be kept to show to the Event Supervisors during inspection.
3.a.1	Is there any limit to components you can attach to the rocket pressure vessel, as long as they are attached by tape, like using multiple other bottles?	General Rule #1 applies.
2.b.1	Can you attach anything other than the parachute to the ping pong ball? For example, can you tape the ball to a structure so that the parachute assembly includes the structure and the ball?	General Rule #1 applies.
3.c.1	Can the nose of the rocket contain a hole that is larger than the cap used to test bluntness?	Yes, as long as all the leading parts of the rocket still comply with 3.c..
2.a.1	National FAQ: May multiple parachutes be combined into a single parachute payload system and attached to a single ping pong ball?	Yes. Multiple parachute systems can be used as long as they are attached to the ping pong ball. The parachute(s) ping pong ballflight time is what accounts for the score.
5.c	National Rules Clarification	5.c. added "At no time should the pressure vessel (bottle) be pressurized beyond 65 psi." after "...based on practice log data."
1.2	Can you use a pre-made (store bought) parachute?	General Rule #1 applies.
3.c.1	National FAQ: Is the nose required to fit partway into a bottle cap?	No, the nose of the rocket is not allowed to be able to touch the inside top of the cap. It is not required to fit partway into the cap.
5.e.1	National FAQ: Can other parts separate from the rocket other than the parachute payload system? For instance, can a cone covering the parachute land off to the side separated from the rocket and payload system and not be tiered?	Yes. Parts separating from the rocket/payload assembly will not cause the rocket to be "tiered." The parachute / ping pong flight time is what accounts for the score. No part of the rocket / parachute assembly can come in contact with the ceiling.
2.a.1	National FAQ: What qualifies as a parachute?	This is the definition of a parachute we will be using: parachute - a device for slowing the descent of an object through the air that consists of a canopy beneath which the object is suspended
3.e.1	Does the "No Fin Zone" in Figure 2 extend out horizontally all the way out indefinitely?	Yes.
2.b.1	National FAQ: Is glue allowed on the actual parachute itself? In other words, as long as the only thing directly holding the parachute to the ping pong ball is tape, is it legal?	Yes, glue is allowed on the parachute. It is not allowed on the pressurized bottle.
3.c.1	May the ping pong ball attached to the parachute also serve as the blunt nose?	Yes.

Rule	Question	Response
1.a-h.1	CONFIRMING that students need to bring a model, students are telling me this was NOT required last year, but was in the rules	Yes, students are required to bring a model.
2.b.1	National FAQ: For both the Chemistry events, the rules say "each participant may bring one 8.5" by 11" sheet of paper." Does this mean each team is allowed two pieces of paper, or does "participant" mean team?	If a team has two participants in these events it is allowed two reference sheets; one for each participant. If for some reason the team only has a single participant in the event then that team is allowed a single reference sheet for that participant. If two sheets are used the content does not have to be exactly the same on both sheets.
3.l.a	National Rules Clarification	3. Part I: The Pre-Built Model a. should read: "a. Participants will use the program Jmol/JSmol to visualize cytidine deaminase (chain A, residues 31-145 based on data found in the 5keg.pdb file. The atomic coordinate data file..."(Replaced "deaminase (chain A, residues 214-310) based on data found in the 5td5.pdb file".)

Reach for the Stars B

SoCal SciOly Official Rules Clarifications
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Rule	Question	Response
2.b.4	Does the RHC Competition need red-filtered flashlights and clipboards?	We do not answer questions about what will be on the test.
2.a.7	National FAQ: Are pictures and illustrations allowed on the 2 sheets of notes in Reach for the Stars and can we ID them? We don't know what no labels means.	Yes, pictures and illustrations are allowed and can be captioned or labelled. What is not permitted is the addition of anything to the surface of the sheet, such as but not limited to adhesive labels, tags, stickers, or Post-It Notes, which add surface area and space to the sheet of paper.

Sounds of Music C

SoCal SciOly Official Rules Clarifications
As of: January 28, 2020, 04:53 PM

Rule	Question	Response
4.c.1	National FAQ: Are the use of tools like wrenches and screwdrivers permitted during the device set up even if they are not considered part of the device?	Yes. General rule #1 applies, as long as the setup is done within the time limit in the rules.
3.f.2	In the rules, it states that "devices may become larger once set up." Does this allow for additional tubing to be added to an instrument between scoring (e.g. between the scale and the bonus pitch)?	No. 4.Part II.d. states that after the two minute setup time, "No further alterations of the device are allowed other than those that would occur naturally while playing different pitches..."
3.b.2	National FAQ: What happens if a team starts on a note outside of F2-F3 inclusive - do they get 0 for all pitches, or are any pitches that still lie in F2-F5 inclusive still scored?	If a team starts on an illegal note (outside of F2 to F3 inclusive) they get a 0 for all illegal notes but can still get scores for all legal notes.
3.b.1	National FAQ: Does the instrument have to play a scale of our choosing starting between F2 and F3 or does it have to be able to play ANY (every) scale starting between those two notes?	Yes, the instrument may play any major scale of your choosing as long at the start note is F2 to F3 inclusive.
3.1	National FAQ: Can any of the notes in "Twinkle, Twinkle" be the same as some of the notes in your scale?	Yes, some of the notes in the song may be ones tested for pitch, but other notes required for the song are not tested for pitch.

Rule	Question	Response
3.f.ii.1	National FAQ: The rules state that the song must be played within the skipped range. If we play the G2 Major scale like the example in the rules, the song must be played in the skipped range which is C3 and D4. Is the C3 and D4 inclusive in the playable range?	Yes, the song requires notes that are not tested for pitch so those extra notes must be playable.
5.h.2	National FAQ: Are devices that do "not meet construction parameters at the end of their setup time" still eligible for the bonus?	No, they can not participate in any of the device testing elements, including the bonus.
3.a.2	National FAQ: Can we use horsehair to make our own bow (essentially, is horsehair considered a professional instrument part)?	Yes, you can use horsehair, as long as it isn't being sold as a bow part.
3.a.1	National FAQ: Does the use of 3D printed reeds violate the rules excluding the use of reeds and reed blocks?	No. 3D printed reeds do not violate the rules excluding the use of reeds and reed blocks.
5.d.i.1	National FAQ: Can the ES give partial credit for rhythm and note accuracy?	Yes, as stated in the ES guidelines soon to be published.
3.a.1	National FAQ: If we are testing a stringed instrument, are we allowed to use a professionally-made bow?	No commercial made parts are allowed except strings, so no bows.
3.a.1	National FAQ: Is 3D printing for construction permitted?	Yes.
3.1.2	National FAQ: The rules say that the device may not contain materials such as "mouthpieces, reeds or reed blocks". Does this rule only apply to commercial products or both commercial and homemade products?	The device may not include any commercial parts except strings. Homemade parts are legal.
3.c.1	National FAQ: The rules state that in order to play the song except the device can play addition pitches within the scales skipped range. Does this mean your instrument can play notes other than the 8 notes from the pitch test to play the song?	Yes, the song includes notes not in the pitch testing range.
3.b.1	National FAQ: For a musical instrument like a guitar, there are multiple places/ways to play F3. Is there a specific F3 that I need to be within from F2?	No, any way you can play F3 is fine. The notes are measured based upon the actual frequency of them, not the specifics of how they are produced.

Water Quality B/C

SoCal SciOly Official Rules Clarifications
As of: January 28, 2020, 04:53 PM

Rule	Question	Response
3.b.i.1	National FAQ: Are participants expected to differentiate between multiple species of the same organism?	No, the students will just need to recognize all variations as a particular species.
3.a.5	National FAQ: What is meant by "recently killed coral?"	Coral that has been recently killed (died) can be used as a global indicator of coral reef health. Questions could include topics like what causes coral to die and what kind of information recently killed coral could tell us about the ecosystem health.
2	National FAQ: Could you please clarify the meaning of, "from any source without any annotations or labels affixed". Can they have diagrams that are pre-labeled?	Students may make a word document in which they put in notes, diagrams etc. which can be pre-labeled and print it onto a page double sided or they may hand-write the notes, diagrams etc., but they may not add anything additional to the sheet of paper such as labels, adhesive flags, sticky notes, or anything extra to the surface of your reference sheet.

Wright Stuff C

SoCal SciOly Official Rules Clarifications
As of: January 28, 2020, 04:53 PM

Rule	Question	Response
3.d.2	Would we receive a violation if there is a post attachment to the leading and trailing edge that would exceed the 8 cm chord limit?	Yes, this would mean that the straight line distance from leading edge of wing to trailing edge will exceed 8.0 cm.
3.e.1	Is there a limitation of number of blades? In other words, are more than 2 blades allowed?	There is no limit on the number of blades on the propeller.
4.k.1	National FAQ: Would it be allowed to catch the plane to end the flight? It never specifies if that is allowed. Would there be a disqualification if one catches a plane to end the flight?	Yes, you can catch the plane with your hands. Of course that stops the flight time. Relevant paragraph 4.f Time aloft...starts...and stops when any part of the airplane touches the floor, the lifting surfaces no longer support the weight of the airplane...or the Supervisors otherwise determine the flight to be over. Both the 'no longer support' and 'Supervisors otherwise determine' clauses are adequate to determine the end of flight. Under general rule 1. Actions and items (...) are permitted, unless they are explicitly excluded in the rules, are unsafe, or violate the spirit of the problem. - Unless you try to catch it in an unsafe manner, I don't see the other conditions applying to this action. - There is no specific exclusion in the event rules. - The spirit is competitor built and tested/optimized for longest flight. This shortens the flight to the competitor's disadvantage, their choice, not a 'spirit' issue.
3.1	National FAQ: We noticed that the way this year's rules are worded, a tandem wing plane looks perfectly legitimate:1) Multiple wings are permitted with no maximum offset specified, therefore one wing at each end of the fuselage appears legal.	No, tandem wings do not meet the rule. From Wikipedia: - A tandem wing aircraft has two main wings, with one located forward and the other to the rear. - A biplane is a fixed-wing aircraft with two main wings stacked one above the other. While no maximum offset is specified, some degree of overlap is required to meet the bi-plane definition.
3.d.3	National FAQ: What is the difference between a wing and a horizontal stabilizer?	The wing is the larger of the two surfaces perpendicular to the fuselage/motorstick/tail boom assembly. There are only two such surfaces allowed, a wing and a stabilizer. Therefore the smaller surface will be identified as the stabilizer.
3.e.2	The rules state the maximum diameter of the propeller is 8 cm. Does this mean the whole propeller or each propeller blade?	The whole propeller.

Write It Do It B/C

SoCal SciOly Official Rules Clarifications
As of: January 28, 2020, 04:53 PM

Rule	Question	Response
3.b, c.1	May writers use a language other than English, e.g., Korean?	No, the instructions must be written in English.