

Princeton Science Olympiad 2021 Event Logistics Doc for Competitors

Anatomy & Physiology

- Special adaptations: None
- Additional materials outside of those listed in rules: None

Astronomy

- Special adaptations: There will not be content on JS9.
- Additional materials outside of those listed in rules: None

Chemistry Lab

- Special adaptations: None
- Additional materials outside of those listed in rules: Periodic table

Circuit Lab

- Special adaptations: No lab section
- Additional materials outside of those listed in rules: None

Codebusters

- Special adaptations: Exam will not be running the timed question.
- Additional materials outside of those listed in rules: Scratch paper and pencil recommended

Designer Genes

- Special adaptations: Exam is open note, open internet.
- Additional materials outside of those listed in rules: Scratch paper and writing utensils recommended.

Detector Building

- Special adaptations: Students will not be asked to demonstrate their participant-constructed temperature-sensing device (2.a., 3.a-h.) or produce a Design Log (4.a-b.). This event will be only the Written Test (5.Part II.a-c.). However, students should be prepared for questions on the test that concern the process of constructing and calibrating a detector such as a temperature-sensing device.
- Materials: Each student may have one 2" or smaller three-ring binder containing information in any form from any source. The binders of the two students on a team may be the same or different.

Disease Detectives

- Special adaptations: None
- Additional materials outside of those listed in rules: None

Dynamic Planet

- Special adaptations: None
- Additional materials outside of those listed in rules: None

Experimental Design

- Special adaptations: Students will not be provided materials to conduct experiments. Instead, students will be given a curated set of data to analyze, thereby eliminating the need for students to collect data on their own.
- Additional materials outside of those listed in rules: None

Forensics

- Special adaptations: The test will not have a lab portion. Instead, students will be asked to identify evidence from data provided.
- Additional materials outside of those listed in rules: None

Fossils

- Special adaptations: There will be no order/time limit for each station. Students can spend as much or as little time on each question and can move from question to question.
- Additional materials outside of those listed in rules: None

Geologic Mapping

- Special adaptations: None
- Additional materials outside of those listed in rules: Scratch paper recommended

Gravity Vehicle

- Special adaptations: This event normally has a build portion, but this year it will be a test event.
- Additional materials outside of those listed in rules: None

Things to know for Gravity Vehicle:

- Concepts surrounding energy: Conservation of Energy, Kinetic Energy ($\frac{1}{2} mv^2$), Potential Energy (mgh)
- Friction and its equations (Static, Kinetic, and Rolling friction equations will all be treated the same: $F_f = \mu N$)
- Work, specifically work done by friction (simply *force of friction * distance*)
- Circular Motion and its equations/concepts (centripetal acceleration, $a = mv^2 / r$)

- Moment of Inertia and how it is influenced by mass and radius (**there will not be calculations involving this concept**)
- Concepts surrounding gravitation: Law of Universal Gravitation ($F_g = Gm_1m_2/r^2$), Orbits (including orbital speed and period)
- Rules and specifications pertaining to the construction of the Gravity Vehicle and Ramp

Things that are NOT necessary to know for Gravity Vehicle:

- Angular Momentum
- Kepler's Laws
- Formulas for gravitational potential energy other than *Potential Energy = mgh*
- Escape Velocity

Machines

- Special adaptations: No build portion or charts
- Additional materials outside of those listed in rules: None

Ornithology

- Instead of timed stations, ornithology will be a regular test with no time restrictions for any individual part.
- Additional materials outside of those listed in rules: None

Protein Modeling

- Special adaptations: No pre-build
- Additional materials: None
- Jmol reference sheet will be provided

Sounds of Music

- Special adaptations: There is no instrument testing section, the test will be just a 50-min long written exam.
- Additional materials outside of those listed in rules: Scrap paper recommended, headphones or working computer speaker to hear audio clips

Water Quality

- Special adaptations: Part IV, Salinometer Testing, will be a standard test section with questions relevant to salinometer function and data interpretation. Given the changes to part IV, participants will NOT need a participant-built salinometer/hydrometer to complete the event. However, building and understanding the function of salinometers/hydrometers is still recommended to participants to prepare for this section.
- Additional materials outside of those listed in rules: None