



International Science Bee

2025-2026 Regional Finals Study Guide – Winter Question Set

Instructions: This study guide should be your first step in preparing for the International Science Bee on the Winter Question Set. Many of the facts below are found in the questions on the Fall Question Set. Other facts in the study guide will be found in the other Question Sets being used this academic year. **However, the majority of questions in the tournament are not referenced in the study guide.** The study guide is meant to help you get started. It is not meant to be fully comprehensive as the essence of academic competition is not memorizing a list, but having wide-ranging knowledge.

As the questions are all short paragraphs on a particular topic, if a topic is found below, then it is a good idea to learn more about it (since additional facts about a topic will also be referenced in the question). It is also helpful to read the introduction of a Wikipedia page on a topic. Please also use our past question sets which are [found here](#). Many of the topics that are found in past years' questions will come up this year too. Good luck!

Note: This academic year, the study guides are slightly shorter than in past years, but we are also including a list of additional terms at the end. These are also likely to be referenced at some point in the tournament, but you will need to do some research to learn about the significance of each of these.

Biology & Anatomy

1. The fingers and toes of humans are protected by [nails](#), which are made of keratin.
2. The [Tyrannosaurus rex](#) was the largest bipedal predator in North America during the Late [Cretaceous](#) period.
3. The [heart](#) is an organ in the circulatory system that is responsible for pumping [blood](#) throughout the body.
4. A [cell](#) is the smallest functional unit of an organism.
5. The [stomach](#) is a vital organ in the abdomen that is responsible for temporarily storing food after it is swallowed. Its namesake acid is used to digest food.
6. A [termite](#) is an insect which feeds on cellulose-based materials, such as paper and wood.
7. An adult human typically has 206 [bones](#).
8. Some species of birds [lack the ability to fly](#) due to the lack of evolutionary pressure in their environments, including penguins.

Astronomy

1. [Jupiter](#) is the largest planet in the Solar System. Its moon [Europa](#) is considered a candidate for harboring extraterrestrial life.
2. [Venus](#) is the hottest planet in the solar system and is the planet closest to earth in size.
3. The [speed of light](#) measures how fast light travels in a vacuum, which is equal to approximately 299,492,458 meters per second.
4. Aside from the sun, the closest star to earth is Proxima Centauri, which is just over 4 light years away.

Chemistry

1. [Gold](#)'s high malleability and resistance to corrosion makes it high in demand for currency and jewelry.
2. [Glass](#) is a non-crystalline solid that is made by melting and cooling silica with other materials such as soda ash and limestone.
3. Though it makes up 21% of the atmosphere, [oxygen](#) is the most vital gas for human and animal respiration. Nitrogen is the gas that makes up the largest portion of the atmosphere.
4. The [periodic table](#) arranges the chemical elements into categories such as halogens, metals, and nonmetals. It was first designed by Dmitri Mendeleev.
5. [Calcium](#) is an alkaline earth metal and mineral that is needed by the body for bone health.

Computer Science

1. The macOS is an operating system that was developed by [Apple Inc.](#) for their Mac computers.
2. [Cryptocurrency](#) is a digital currency that does not rely on the use of banks.

Earth Science

1. A [lake](#) is a body of freshwater which is completely surrounded by land. Lakes are distinct from [ponds](#) in that they are generally larger and deeper.
2. [Lightning](#) is often accompanied by thunder due to the fact that light travels faster than sound.
3. The [crust](#) is the outermost layer of Earth. It is the top part of the [lithosphere](#). The mantle is the layer found beneath the crust.
4. The [Pacific Ocean](#) holds more than half of the Earth's water supply.
5. A [cave](#) is typically formed by wave erosion or the dissolution of rock.
6. An [earthquake](#) is commonly caused by the movement of tectonic plates.
7. A [fire](#) may help rejuvenate forests or negatively affect an ecosystem by causing habitat loss.
8. A [tornado](#) is a rapidly rotating column of air which stems from a thunderstorm and makes contact with the ground. The USA is the country that sees the most tornadoes.
9. The flatness of a plant [leaf](#) aids in its ability to absorb as much sunlight energy as possible.

Math

1. The [average](#), or mean, of a set of numbers is calculated by adding all the numbers and dividing the sum by the total numbers in that set.
2. A [square](#) is a two-dimensional figure with four equal sides in length.
3. There are various types of [calculators](#), including ones that have more advanced functions like trigonometry.

Physics

1. A [bridge](#) is designed to carry vertical loads over obstacles that otherwise make it difficult to cross.
2. [Friction](#) is the force resisting the motion between two surfaces in contact.
3. A [screw](#) is used as a fastener and typically binds objects with the help of a drill.
4. [Albert Einstein](#) formulated his famous mass-energy equivalence as part of his [theory of special relativity](#).

Terms for Further Study

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| 1. Radium | 11. Rayleigh scattering | 21. Microorganism |
| 2. Dwarf planet | 12. Asteroid belt | 22. Magma |
| 3. Diaphragm | 13. Nuclear fission | 23. Robert Goddard |
| 4. Slope | 14. Banana | 24. Gulf Stream |
| 5. Dementia | 15. Volume | 25. Innoculation |
| 6. Telescope | 16. Keratin | 26. Organelle |
| 7. Mesozoic Era | 17. Plasma | 27. Lithosphere |
| 8. Draugr | 18. Simple machine | 28. Edmond Halley |
| 9. Natural selection | 19. Baleen | 29. Panda |
| 10. Atomic number | 20. Fault | 30. Joule |