2026-2027 Regional Tournament Study Guide – Science Question Set 2 - Asia

Instructions: This study guide should be your first step in preparing for the International Science Bee that runs on Science Question Set 2. Many of the facts below are found in the questions in Science Question Set 2. 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!

Biology & Anatomy

1. The fruit fly, also known as *Drosophila melanogaster*, is a commonly studied model organism.
2. In humans, the thyroid is a butterfly-shaped organ and endocrine gland in the neck that regulates metabolism.
3. Sickle cell anemia is a type of genetic blood disorder characterized by abnormally shaped red blood cells.
4. Chlorophyll is the green pigment in plants that enables photosynthesis.
5. The respiratory system is the network of organs and tissues that allows humans to breathe.
6. Albinism is a rare, lifelong genetic condition where the body produces little or no melanin.
7. A coat with a net-like pattern typifies the reticulated giraffe.
8. The flower is a specialized structure found in angiosperms which helps a plant reproduce by producing seeds.

Astronomy

1. Dwarf planets in the Solar System include Ceres and Pluto.
2. Taurus is one of the oldest recognized patterns of stars in human history and is shaped like the front half of a bull.
3. The asteroid belt lies between the orbits of Mars and Jupiter.
4. A nebula is a giant cloud of gas and dust in space.
5. Sunspots are dark regions that appear on the surface of the Sun.

Chemistry

1. Nickel is a hard, silvery-white metal with a slight golden shine that resists rust and conducts heat and electricity well.
2. Oxidation is the half of a redox reaction in which a substance loses electrons, and it produces materials such as rust, otherwise known as iron oxide.
3. Caffeine is a natural central nervous system stimulant found in coffee beans, tea leaves, and cacao beans.
4. Filtration is a process that separates solids from liquids, often for purposes of purification.
5. An acid is a chemical substance that releases hydrogen ions or donates a proton when dissolved in water.

Computer Science

1. Bluetooth is a technology that allows wireless communication across short distances.
2. Binary code represents computer bits as either a zero or a one, creating strings of numerical values that can be read as information.

Earth Science

1. Limestone is a type of natural rock made mostly of the old, crushed-up shells and skeletons of tiny sea creatures.
2. Water, wind, and ice carry away soil and rock in a process called erosion.
3. A weather front is an invisible meeting line or boundary where two large air masses, one warm and one cold, bump into each other.
4. Latitude measures distance north or south of the Equator using horizontal lines called parallels, while longitude measures position east or west.
5. An ocean current is a continuous, directed movement of seawater that flows from one part of the ocean to another.
6. Faults are fractures in Earth's crust where blocks of rock move past each other, which can cause earthquakes.
7. Ozone is a special type of gas made of three oxygen atoms stuck together, unlike the normal oxygen we breathe, which has only two oxygen atoms.
8. Acid rain is a corrosive type of precipitation characterized by a low pH value.
9. A river delta is a flat, fan- or triangle-shaped piece of land that builds up where a river empties into a larger body of water.

Math

1. A graph is a visual drawing on a grid, or coordinate plane, that shows all the answers or solutions to an equation.
2. In many cases, the probability of an event can be determined by dividing the number of desired outcomes by the number of possible outcomes.
3. A Möbius strip is a loop of paper with a half-twist that has only one side and one edge.

Physics

1. An object's velocity is its rate of change in position, a quantity that differs from speed because it has both magnitude and direction.
2. Nuclear fission is a physical process where the nucleus of an atom splits into two or more smaller nuclei, releasing a massive amount of energy.
3. As a state of matter, solids are defined by having a fixed shape and volume.
4. Inertia is the natural tendency of an object to resist any change in its motion.
5. Force is the action, such as a push or pull, applied to an object.

Engineering

1. Electrical components are connected to one another by a series of wires in an electronic circuit, an arrangement that often contains capacitors and resistors.

Terms for Further Study

1. Vitamin A
2. Roots (botany)
3. Food web
4. Hubble tuning fork diagram
5. Pulley
6. Eratosthenes
7. Data encryption
8. Eccentricity
9. Lupus
10. Laminar flow
11. Emmy Noether
12. Slurry
13. Kirkwood gap
14. Quartz
15. Glia
16. Mary Anning
17. Trachea
18. Bosons
19. George Boole
20. Density
21. Phobos
22. Deep space exploration
23. Enzymes
24. Cell nucleus
25. Laws of thermodynamics
26. Meteor showers
27. Cladogenesis
28. Absolute zero
29. Bone marrow
30. Olduvai Gorge