

# *Science Olympiad: Division B Events Listed by QCC*

## *QCC Content Standard*

### **Physical Science**

*6.1.0 Uses Process Skills of observing, classifying, communicating, measuring, predicting, inferring, identifying, and manipulating variables: recording analyzing and operationally defining, formulating models, experimenting, constructing hypotheses and draw conclusions.*

Bottle Rocket

Bridge Building

Can't Judge a Powder by its Color

Dynamic Planet

Experimental Design

Forestry

Fossils

Meteorology

Metric Estimation

Mission Possible

Naked Egg Drop

Picture This (This activity could be used to evaluate knowledge of any terms in this course depending on the term selected to picture.)

Process Skills for Life Science

Reach For The Stars

Road Scholar

Robo-Billiards

Science Crime Busters

Science Of Fitness

Storm The Castle

Water Quality

Wheeled Vehicle

Wright Stuff

Write It Do It

*6.2.0 Understand & applies laboratory safety rules and practices.*

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Storm The Castle

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Wheeled Vehicle

### *6.3.0 Defines and identifies standards of measurement.*

Bridge Building

Metric Estimation

Road Scholar

Storm The Castle

Wheeled Vehicle

### *6.3.1 Names the prefixes used in the SI system.*

Process Skills For Life Science

Metric Estimation

Road Scholar

### *6.3.2 Identifies SI units and symbols for length, volume, mass, density, time and temperature.*

Metric Estimation

Process Skills For Life Science

Road Scholar

Storm The Castle

Wheeled Vehicle

### *6.3.3 Converts measurements among related SI units.*

Metric Estimation

Road Scholar

### *6.3.4 Uses appropriate tools for determining mass, volume, temperature, density and length.*

Metric Estimation

Process Skills For Life Science

Strom The Castle

Wheeled Vehicle

*6.4.0 Selects and uses multiple types of print and nonprint sources for information on science concepts.*

Bridge Building

Dynamic Planet

Forestry

Picture This

Reach for the Stars

Science of Fitness

Water Quality

Wright Stuff

*6.5.7 Recognizes and writes common chemical symbols, chemical formulas and chemical equations.*

Can't Judge a Powder by its Color

Science Crime Busters

Water Quality

*6.6.1 Describes how the molecular motion changes in each phase of matter.*

Water Quality

*6.6.2 Discusses the nature of freezing, condensing, boiling, and evaporation.*

Water Quality

*6.7.0 Defines acid and base.*

Can't Judge a Powder by its Color

Science Crime Busters

Water Quality

*6.7.1 Describes the characteristic properties of acids and bases.*

Can't Judge a Powder by its Color

Science Crime Busters

Water Quality

*6.7.2 Lists the names, formulas, and uses of some common acids and bases.*

Can't Judge a Powder by its Color

Science Crime Busters

Water Quality

*6.7.3 Explain what a salt is and how salts form.*

Can't Judge a Powder by its Color

Science Crime Busters

*6.8.0 Describes how energy and work are related.*

Mission Possible

*6.8.1 Distinguishes between kinetic and potential energy.*

Mission Possible

Naked Egg Drop

Storm The Castle

Wright Stuff

*6.8.2 Describes different forms of energy (e.g. mechanical, electrical, radiant, nuclear,*

Mission Possible

Robo-Billiards

Wright Stuff

Wheeled Vehicle

*6.9.0 Defines speed as a rate.*

Wheeled Vehicle

*6.9.1 Performs calculations involving speed, time and distance to interpret distance-time graphs.*

Wheeled Vehicle

*6.9.2 Compares and contrasts speed, velocity, and accelerations.*

Wheeled Vehicle

*6.9.3 recognizes different examples of forces.*

Mission Possible

Robo-Billiards

Storm The Castle

*6.9.4 States and describes Newton's three laws of motion.*

Bottle Rocket

Mission Possible

Wheeled Vehicle

*6.9.5 Gives examples of the effects of gravity.*

Bottle Rocket

Bridge Building

Mission Possible

Naked Egg Drop

Robo-Billiards

Wright Stuff

*6.9.6 Relates gravitational force to mass and distance.*

Mission Possible

Storm The Castle

*6.9.7 Distinguishes between mass and weight.*

Storm The Castle

*6.10.1 Explains why objects thrown or shot follow a curved path.*

Bottle Rocket

Mission Possible

Storm The Castle

*6.10.4 analyzes action and reaction forces.*

Bottle Rocket

Mission Possible

Naked Egg Drop

Robo-Billiards

Wright Stuff

*6.11.0 Describes how particles of a fluid exert pressure.*

Bottle Rocket

*6.11.2 States Bernoulli's principle and describes a way Bernoulli's principle is applied.*

Wright Stuff

*6.12.0 Explains how machines make work easier.*

Mission Possible

Robo-Billiards

*6.12.1 Describes six types of simple machines.*

Mission Possible

*6.12.2 Recognizes the simple machines that make up a compound machine.*

Mission Possible

Robo-Billiards.

*.6.21.0 Describes the properties of magnets.*

Science Crime Busters.

## **Life Science**

*7.1.0 Uses process skills of observing, classifying, communicating, measuring, predicting, inferring,, identifying and manipulating variables. Also uses recording, analyzing and operationally defining, formulating models, experimenting constructing hypothesis and drawing conclusions.*

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Road Scholar

Robo-Billiards

Science Crime Busters

Science Of Fitness

Storm The Castle

Water Quality

Wheeled Vehicle

Wright Stuff

Write It Do It

*7.2.0 Understand and applies laboratory safety rules and practices.*

Bottle Rocket

Bridge Building  
Can't Judge a Powder by its Color  
Experimental Design  
Process Skills For Life Science  
Mission Possible  
Robo-Billiards  
Science Crime Busters  
Strom The Castle  
Water Quality  
Wheeled Vehicle

### *7.3.0 Defines and identifies standards of measurement.*

Bridge Building  
Metric Estimation  
Road Scholar  
Storm The Castle

### *7.3.1 Names the prefixes used in the SI system.*

From a Distance  
Metric Estimation  
Process Skills For Life Science  
Road Scholar

### *7.3.2 Identifies SI units and symbols for length, volume, mass, density, time and temperature.*

Metric Estimation  
Process Skills For Life Science  
Road Scholar  
Storm The Castle

### *7.3.3 Converts measurements among related SI units.*

Metric Estimation  
Road Scholar

### *7.3.4 Uses appropriate tools for determining mass, volume, temperature, density, and length.*

Metric Estimation  
Process Skills For Life Science  
Storm The Castle

*7.4.0 Selects and uses multiple types of print and nonprint sources for information on science concepts.*

Bridge Building

Dynamic Planet

Picture This

Reach for the Stars

Science of Fitness

Water Quality

Wright Stuff

*7.7.0 Identifies organs and their function in these systems: circulatory, respiratory, reproductive, skeletal, digestive, nervous, endocrine, lymphatic, and skin.*

Science of Fitness

*7.7.1 Explains and describes the features and functions of the various organ systems.*

Science of Fitness

*7.7.2 Describes and investigates body functions and make inferences regarding these functions, (e.g., heartbeat, sensory perception, lung volume, and reaction time).*

Science of Fitness

*7.9.0 Examines how health care technology has improved the quality of life, (e.g. computerized tomography (C.T.), artificial organs, bionics, Magnetic Resonance Imaging (MRI), and ultrasound) (STS).*

Science of Fitness

*7.13.0 Explains the method scientists use to classify living things for the purpose of communication and study.*

Forestry

Fossils

Water Quality

*7.13.1 Explains how living organisms can be classified according to similarities in structure, behavior, food needs and chemical make-up into kingdoms, phyla, classes, orders, families, genera, and species.*

Forestry

Fossils

Water Quality

*7.18.0 Describes the characteristics of invertebrate animals (e.g., poriferans, coelenterates, segmented worms, mollusks, echinoderms, and anthropods).*

Fossils

Water Quality

*7.18.1 Sorts and classifies invertebrates into groups according to life conditions, methods of obtaining food, methods of reproduction and behavior.*

Water Quality

*7.18.2 Describes the characteristics of vertebrates within the Chordate phylum to include jawless fishes, cartilaginous fishes, bony fishes, amphibians, reptiles, birds and mammals.*

Fossils

*7.18.3 Sorts members of the Chordate phylum into classes by observation of characteristics (e.g., life conditions, methods of obtaining food, methods of reproduction, and behavior).*

Fossils

*7.19.0 Describes the characteristics of major biomes.*

Fossils

*7.20.0 Explains the food web / food chain cycles in nature that affect living things.*

Water Quality

*7.21.1 Defines and give examples of adaptation for survival of species.*

Fossils

## **Earth Science**

*8.1.0 Uses Process Skills of observing, classifying, communicating, measuring, predicting, inferring, identifying, and manipulating variables: recording analyzing and operationally defining, formulating models, experimenting, constructing hypotheses and draw conclusions.*

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### *8.2.0 Understands and applies laboratory safety rules and practices.*

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Road Scholar

Strom The Castle

Wheeled Vehicle

*8.3.3 Converts measurements among related SI units.*

Metric Estimation

Road Scholar

*8.3.4 Uses appropriate tools for determining mass, volume, temperature, density and length.*

Metric Estimation

Process Skills For Life Science

*8.4.0 Selects and uses multiple types of print and nonprint sources for information on science concepts.*

Bridge Building

Dynamic Planet

Forestry

Fossils

Meteorology

Reach for the Stars

Science of Fitness

Water Quality

Wright Stuff

*8.5.1 Identifies ways human beings cause and can correct pollution of water bodies, the atmosphere (acid rain, ozone layer, and green house effect) and the land (soil pollution and chemical/nuclear waste).*

Dynamic Planet

*8.5.2 Examines the effects pollution from cities have on weather and the effect of burning fuels on the atmosphere, melting of polar ice caps and predicting earthquakes.*

Dynamic Planet

Meteorology

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*8.8.0 Differentiates among rocks based on origins (igneous, metamorphic and sedimentary) and mineral content.*

Fossils

*8.9.0 Recognizes that constructive and destructive Earth forces (e.g., continental drift, earthquakes, volcanoes, plate tectonics, weathering and erosion) change the Earth's surface.*

Dynamic Planet

Meteorology

*8.10.0 Recognizes major symbols, series, scales and colors conventionally used to represent features on topographic maps and various Earth models.*

Dynamic Planet

Meteorology

Road Scholar

*8.11.0 Examines how land formations influence development of an area.*

Dynamic Planet

Road Scholar

*8.16.0 Describes the water cycle and its relationship to the movement of surface and subsurface water.*

Dynamic Planet

Water Quality

*8.16.1 Identifies parts of the water cycle.*

Dynamic Planet

Water Quality

*8.16.2 Describes the formation of a river system.*

Dynamic Planet

Water Quality

*8.16.3 Describes the distribution and quality of fresh water on the Earth.*

Dynamic Planet

Water Quality

*8.19.0 Recognizes and investigates weather phenomena and their effect on the Earth's surface.*

Dynamic Planet

Meteorology

*8.19.1 Interprets weather maps and make forecasts.*

Dynamic Planet

Meteorology

*8.20.0 Describes atmospheric factors which interact to cause weather: heat energy, air pressure, winds and moisture.*

Dynamic Planet

Meteorology

*8.20.1 Identifies the three basic types of clouds and their formation.*

Dynamic Planet

Meteorology

*8.20.2 Compares the four major types of air masses and how they create fronts that affect weather patterns.*

Dynamic Planet

Meteorology

*8.20.3 Identifies factors that determine climate.*

Dynamic Planet

Meteorology

*8.20.4 Differentiates between the climate zones of the Earth.*

Dynamic Planet

Meteorology

*8.21.0 Describes the components of the solar system.*

Reach for the Stars

*8.21.1 Describes features, characteristics and motions of the planets.*

Reach for the Stars

*8.21.2 Compares and contrasts asteroids, comets and meteorites and explain their origins.*

Reach for the Stars

*8.22.0 Identifies and describes stars and star systems.*

Reach for the Stars

*8.22.1 Describes major galaxy types.*

Reach for the Stars

*8.22.2 Describes the life cycle of a star.*

Reach for the Stars

*8.22.3 Interprets a Hertzsprung-Russell Diagram.*

Reach for the Stars

*8.26.0 Describes the relationships of the motions between the sun, moon and Earth.*

Reach for the Stars

*8.26.1 Describes how seasons are caused by the Earth's revolution.*

Reach for the Stars

*8.26.2 Defines the phases of the moon.*

Reach for the Stars

*8.26.3 Compares and contrasts a lunar and solar eclipse.*

Reach for the Stars

*8.26.4 Discusses the effect of the sun and moon on tides.*

Reach for the Stars