

SRPSD Grade 8 Science Rubrics

Life Science: Cells, Tissues, Organs, and Systems (CS)

CS8.1 Analyze the characteristics of cells, and compare structural and functional characteristics of plant and animal cells.

Beginning (1)	Approaching (2)	Proficiency (3)	Mastery (4)
I can identify plant and animal cells and know what a cell is. a) b)	I can identify the parts of plant and animal cells and explain their function. g) h)	I can compare the structure and function of plant and animal cells. c) d) e) f)	I can predict and explain the effects of changing the cell structure to overall health of a cell. h)

CS8.2 Demonstrate proficiency in the use of a compound light microscope to observe plant and animal cells.

Beginning (1)	Approaching (2)	Proficiency (3)	Mastery (4)
I can identify the parts of a compound microscope. a)	I can describe the functions of the parts of a compound microscope. a)	I can use a microscope to correctly identify plant and animal cells. d)	I can calculate the magnification and draw an accurate diagram of a cell as viewed through a microscope. c) d)

CS8.3 Distinguish structural and functional relationships among cells, tissues, organs, and organ systems in humans and how this knowledge is important to various careers.

Beginning (1)	Approaching (2)	Proficiency (3)	Mastery (4)
I can summarize the main points of cell theory. g)	I can describe the functions of tissues, organs and organ systems. d)	I can explain the relationship between cells, tissues, organs, and organ systems and how this knowledge is important to various careers. e) h)	I can analyze why cells and tissues are specialized and how they relate to the human organism as a whole. c) f)

CS8.4 Analyze how the interdependence of organ systems contributes to the healthy functioning of the human body.

Beginning (1)	Approaching (2)	Proficiency (3)	Mastery (4)
I can identify organ systems within the human body.	I can describe the function of the organ systems in the human body. c)	I can analyze the interdependence of the organ system to contribute to healthy functioning of the human body. e)	I can evaluate lifestyle choices and the effect they have on the body or I can predict the impact of failure or removal of an organ. d) f) g) h)

Physical Science: Optics and Vision (OP)

OP8.1 Identify and describe, through experimentation, sources and properties of visible light including rectilinear propagation, reflection, and refraction.

Beginning (1)	Approaching (2)	Proficiency (3)	Mastery (4)
I can identify natural and artificial sources of light. a)	I can identify properties of light. b) c)	I can describe rectilinear propagation, reflection and refraction of light through observations. e) f) h) i)	I can describe applications of the properties of light in everyday life. f) g) j)

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OP8.2 Explore properties and applications of optics-related technologies, including concave and convex mirrors and lenses.

Beginning (1)	Approaching (2)	Proficiency (3)	Mastery (4)
I can identify transparent, translucent and opaque materials. a)	I can describe how light interacts with concave and convex mirrors/lenses and the effects of changes in lens/mirror position. b) c)	I can demonstrate an understanding of how light travels in optical devices. h) e)	I can design and/or construct an optical device to solve a problem. f)

OP8.3 Compare the nature and properties of human vision with optical devices and vision in other living organisms.

Beginning (1)	Approaching (2)	Proficiency (3)	Mastery (4)
I can pose questions related to human vision. a)	I can describe how the human eye sees objects. b)	I can compare the human eye to optical devices and the vision of other living organisms. c) d) e)	I can explain how colours are produced and/or describe the operation of optical technologies to enhance human vision. f) g)

OP8.4 Evaluate the impact of electromagnetic radiation-based technologies on self and community.

Beginning (1)	Approaching (2)	Proficiency (3)	Mastery (4)
I can recognize different types of electromagnetic radiation. a)	I can describe and compare characteristics of visible light and electromagnetic radiation. a) b)	I can analyze and evaluate technologies that use electromagnetic radiation. c) d) e)	I can evaluate everyday problems that are related to electromagnetic radiation and its uses. f)

Physical Science: Forces, Fluids, and Density (FD)

FD8.1 Investigate and represent the density of solids, liquids, and gases based on the particle theory of matter.

Beginning (1)	Approaching (2)	Proficiency (3)	Mastery (4)
I understand what density of a substance means.	I am able to give examples of substances with different densities. (j)	I am able to determine the density of substances using the particle theory of matter, water displacement, or formula. (a) (g) (b)	I can compare and explain densities of common substances in relation to water and temperature change. (h) (i)

FD8.2 Examine the effects of forces in and on objects in fluids, including the buoyant force.

Beginning (1)	Approaching (2)	Proficiency (3)	Mastery (4)
I understand what happens when force is applied to an object.	I am able to explain different types of forces (contact, non-contact, balanced, not balanced, and buoyant). c) d)	I understand the factors that affect whether an object will float or sink. f) g) i) j)	I apply my knowledge of buoyant force to design, problem solve or evaluate a situation in which a given object will float. h) k) l)

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FD8.3 Investigate and describe physical properties of fluids (liquids and gases), including viscosity and compressibility.

Beginning (1)	Approaching (2)	Proficiency (3)	Mastery (4)
I am able to define, fluid, viscosity and compressibility. (b)	I can explain the relationship between temperature and viscosity and why viscosity is an important quality. (d) (f)	I can use the particle theory of matter to explain the differences in compressibility particularly by adding external pressure or altering surface area. (i)(h)(g)	I can apply my knowledge of viscosity and compressibility of fluids to explain situations in which temperature, volume, and pressure are affected. (j)

FD8.4 Identify and interpret the scientific principles underlying the functioning of natural and constructed fluid systems.

Beginning (1)	Approaching (2)	Proficiency (3)	Mastery (4)
I understand the difference between natural and constructed fluid systems.	I am able to describe the difference and provide examples of hydraulic and pneumatic pressure in natural and constructed fluid systems. a)	I understand the advantages/disadvantages of hydraulic and pneumatic pressure in natural and constructed fluid systems. b)	I can apply my knowledge of natural and constructed fluid systems to design, problem solve or evaluate the functionality of a created fluid system. c) d) e)

Earth and Space Science: Water Systems on Earth (WS)

WS8.1 Analyze the impact of natural and human-induced changes to the characteristics and distribution of water in local, regional, and national ecosystems.

Beginning (1)	Approaching (2)	Proficiency (3)	Mastery (4)
I can construct the water cycle. d) e)	I can compare the physical characteristics of water systems. a) b)	I can analyze the impact of natural changes and human practices on water systems. c) f)	I can evaluate different perspectives on the impact of human practices on water systems. g) h)

WS8.2 Examine how wind, water, and ice have shaped and continue to shape the Canadian landscape.

Beginning (1)	Approaching (2)	Proficiency (3)	Mastery (4)
I can explain weathering, erosion, and deposition. a)	I can describe how wind and temperature differences cause water currents. a) b) c) d)	I can explain how wind, water, and ice have shaped and continue to shape the Canadian landscape. d) f) g) h)	I can propose new questions and technological solutions on how environmental changes may affect the landscape. e) i)

WS8.3 Analyze natural factors and human practices that affect productivity and species distribution in marine and fresh water environments.

Beginning (1)	Approaching (2)	Proficiency (3)	Mastery (4)
I can identify examples of organisms in marine and freshwater ecosystems. b)	I can identify factors that affect productivity and species distribution in aquatic environments. a) c)	I can analyze the factors that affect a selected aquatic species including its productivity and distribution. d) e) f) g)	I can evaluate examples of technologies and institutions that support the sustainability of aquatic environments. h) i)