

SRPSD Grade 9 Science Rubrics

Life Science: Reproduction and Human Development (RE)

RE9.1 Examine the process of and influences on the transfer of genetic information and the impact of that understanding on society past and present.

Beginning (1)	Approaching (2)	Proficiency (3)	Mastery (4)
I can define terms chromosome, gene, DNA, and dominant & recessive traits. c) d)	I understand the relationship between chromosomes, genes, and DNA. c) e)	I can explain how our understanding of the transfer of genetic information has impacted our society. f) g)	I can apply my knowledge of the transfer of genetic information to explain genetic conditions and/or describe related careers. b) i)

RE9.2 Observe and describe the significance of cellular reproductive processes, including mitosis and meiosis.

Beginning (1)	Approaching (2)	Proficiency (3)	Mastery (4)
I can observe mitosis and meiosis in a microscope. a)	I can explain cell theory. c) e)	I can explain the significance of the processes of mitosis and meiosis. b) f)	I can apply my knowledge of mitosis and meiosis to explain differences in cell growth and division. d) g)

RE9.3 Describe the processes and implications of sexual and asexual reproduction in plants and animals.

Beginning (1)	Approaching (2)	Proficiency (3)	Mastery (4)
I can define sexual and asexual production. a)	I can compare advantages and disadvantages of sexual and asexual reproduction. b)	I can describe the processes and implications of sexual and asexual reproduction in plants and animals. c) d) f) g)	I can explain applications of asexual reproduction in the world around me. e)

RE9.4 Analyze the process of human reproduction, including the influence of reproductive and contraceptive technologies.

Beginning (1)	Approaching (2)	Proficiency (3)	Mastery (4)
I can pose questions about the process of reproduction. a)	I can compare the structure and functions of male and female reproductive systems. b)	I can explain the process of human reproduction and the impact of technology. c) e)	I can apply my knowledge of human reproductive technologies and/or contraceptives to defend a given position on a social or cultural perspective. d) f)

Physical Science: Atoms and Elements (AE)

AE9.1 Distinguish between physical and chemical properties of common substances, including those found in household, commercial, industrial, and agricultural applications.

Beginning (1)	Approaching (2)	Proficiency (3)	Mastery (4)
I can identify physical and chemical properties of matter. b) c)	I can describe and classify physical and chemical properties of a substance. d) e) g)	I can distinguish between physical and chemical properties of substances. j)	I can explain using an example of how understanding physical and chemical properties of matter leads to new scientific technologies. f) k)

SRPSD Grade 9 Science Rubrics

AE9.2 Analyze historical explanations of the structure of matter up to and including: Dalton model, Thomson model, Rutherford model, and Bohr model of the atom.

Beginning (1)	Approaching (2)	Proficiency (3)	Mastery (4)
I can define an atom and an element.	I can describe the structure of matter using appropriate terminology. a) b)	I can analyze the historical explanations of the structure of matter. d) e) h)	I can use my knowledge of the structures of matter to pose new questions and identify strength and limitations of existing models. g) i)

AE9.3 Demonstrate an understanding of the classification of pure substances (elements and compounds), including the development and nature of the Periodic Table.

Beginning (1)	Approaching (2)	Proficiency (3)	Mastery (4)
I can identify pure substances and mixtures. a)	I can use the periodic table to identify key components of atomic structures. c) d) h)	I can use the trends in the periodic table to classify pure substances. g) i) j) k) l)	I can predict properties and/or evaluate potential applications of elements based on their position on the periodic table. f) k)

Physical Science: Characteristics of Electricity (CE)

CE9.1 Demonstrate and analyze characteristics of static electric charge and current electricity, including historical and cultural understanding.

Beginning (1)	Approaching (2)	Proficiency (3)	Mastery (4)
I can define static and current electricity.	I can use appropriate terms to describe the characteristics of static and current electricity. b) c) f) k) l)	I can use multiple perspectives to analyze the characteristics of static and current electricity. h) m)	I can evaluate static or current electricity technologies that have been designed to assist or protect us. g) i)

CE9.2 Analyze the relationships that exist among voltage, current, and resistance in series and parallel circuits.

Beginning (1)	Approaching (2)	Proficiency (3)	Mastery (4)
I can define voltage, current, resistance series, and parallel circuits. a)	I can differentiate between series and parallel circuits. b) c)	I can analyze the relationship between voltage, current, and resistance. e) f) g)	I can apply knowledge of Ohm's law to explain how changes in a circuit will affect voltage current or resistance. h)

CE9.3 Assess operating principles, costs, and efficiencies of devices that produce or use electrical energy.

Beginning (1)	Approaching (2)	Proficiency (3)	Mastery (4)
I can explain how energy is transferred. a)	I can calculate the cost of using electrical devices. d)	I can evaluate the use of electrical devices with respect to operating principles, costs, and efficiencies. c) e) f)	I can make informed decisions or propose a course of action to reduce the consumption of electrical energy. g) h)

SRPSD Grade 9 Science Rubrics

CE9.4 Critique impacts of past, current, and possible future methods of small and large scale electrical energy production and distribution in Saskatchewan.

Beginning (1)	Approaching (2)	Proficiency (3)	Mastery (4)
I can provide examples of different methods of electrical energy production in Saskatchewan. a)	I can describe the relationship between energy transfer and the production of electrical energy. d)	I can critique impacts of various methods of generating electricity in Saskatchewan. b) e) f)	I can apply my knowledge to develop a proposal for an alternative energy plan in Saskatchewan. g)

Earth and Space Science: Exploring our Universe (EU)

EU9.1 Inquire into the motion and characteristics of astronomical bodies in our solar system and the universe.

Beginning (1)	Approaching (2)	Proficiency (3)	Mastery (4)
I can identify patterns of bodies visible in the night sky. b)	I can classify major components of the universe using their characteristics. c) h) j) k) i)	I can describe astronomical bodies and how they move through the solar system and universe. d) e) g)	I can predict and explain the location of an astronomical body based on my knowledge of its movement and characteristics. l)

EU9.2 Analyze scientific explanations of the formation and evolution of our solar system and the universe.

Beginning (1)	Approaching (2)	Proficiency (3)	Mastery (4)
I can describe a theory on the formation of the solar system and universe. a) b)	I can construct and describe, using appropriate terms, a visual representation of the life cycle of stars. c)	I can analyze scientific explanations of the formation and evolution of the solar system and universe. d)	I can identify new questions and provide a theory about the origins of the universe. e)

EU9.3 Examine how various cultures, past and present, including First Nations and Métis, understand and represent astronomical phenomenon.

Beginning (1)	Approaching (2)	Proficiency (3)	Mastery (4)
I can identify astronomical phenomenon.	I can describe different cultural perspectives related to astronomical phenomenon. a) b)	I can explain the importance of astronomical phenomenon in various cultures. c)	I can identify common characteristics between different cultural perspectives of astronomical phenomenon. d)

EU9.4 Analyze human capabilities for exploring and understanding the universe, including technologies and programs that support such exploration.

Beginning (1)	Approaching (2)	Proficiency (3)	Mastery (4)
I can identify technologies needed to support space exploration. a)	I can describe the function of technologies used in space exploration. f) g)	I can analyze human capabilities of exploring space with respect to current technologies and potential barriers. c) d) h) i)	I can defend a position on economic and societal benefits of space exploration. b) e)