

SNC 1DI EXAM REVIEW PACKAGE

~Semester 1, 2014-2015~

Study Tips:

- 1. Start your studying early.**
- 2. Read through your class notes from each unit.**
→ chunk your reading and review only 3 or 4 concepts per night
- 3. Look back at your old quizzes, unit review sheets and tests from each unit.**
→ identify the key concepts tested
- 4. Review study notes and unit outlines for each unit.**
→ create a concept map or graphic organizer for each unit
- 5. Re-do old tests and quizzes**
→ cover up your answers from your quizzes and tests, then try to answer the questions once you have completed your review!
- 6. Ask yourself questions: verbally and written.**
- 7. Re-do assigned textbook questions and review labs/activities/video worksheets.**
- 8. Do additional practice questions provided in this review package.**
- 9. See your teacher for clarification on unclear concepts.**
- 10. Attend all classes until exams start and listen for tips and hints!**

The following review package is a very good start; however you must review all of your class notes to ensure that you have covered all the topics. This review may not cover everything on the exam.

SAFETY AND LAB SKILLS REVIEW

Key Vocabulary

- | | | | |
|--|---|---------------------------------------|--|
| <input type="checkbox"/> Analysis | <input type="checkbox"/> Dependent Variable | <input type="checkbox"/> Materials | <input type="checkbox"/> Qualitative |
| <input type="checkbox"/> Biohazardous | <input type="checkbox"/> Flammable | <input type="checkbox"/> MSDS | <input type="checkbox"/> Quantitative |
| <input type="checkbox"/> Combustible | <input type="checkbox"/> HHPS | <input type="checkbox"/> Observations | <input type="checkbox"/> Reactive |
| <input type="checkbox"/> Compressed gas | <input type="checkbox"/> Hypothesis | <input type="checkbox"/> Oxidizing | <input type="checkbox"/> Scientific Method |
| <input type="checkbox"/> Conclusion | <input type="checkbox"/> Independent Variable | <input type="checkbox"/> Poisonous | <input type="checkbox"/> Variable |
| <input type="checkbox"/> Controlled Variable | <input type="checkbox"/> Infectious | <input type="checkbox"/> Purpose | <input type="checkbox"/> WHMIS |
| <input type="checkbox"/> Corrosive | | | |

Key Concepts

- Science Lab Safety Procedures
- WHMIS – 3 components of the WHMIS System
- HHPS symbols and precautions
- What MSDS sheets are and how to read an MSDS
- The parts of the Scientific Method

Review Questions

1. Identify 3 safety precautions that must be taken in the Science lab. Explain why these precautions are important.
2. Identify the following WHMIS symbols and provide one precaution associated with each symbol:



3. Identify the following HHPS symbols and one precaution associated with each symbol:



4. How are WHMIS and HHPS symbols different?
5. What is an MSDS sheet used for? What are 3 things that an MSDS provides?
6. Identify the parts of the Scientific Method.
7. What is the difference between an Independent Variable and a Dependent Variable?
8. What is a controlled variable?
9. Create an appropriate hypothesis for one of the lab experiments performed this semester.

Practice Test Questions

Please refer back to your unit quizzes and assessments for extra test questions!

ECOLOGY REVIEW

Key Vocabulary

- | | | | |
|---|--|--|---|
| <input type="checkbox"/> Abiotic factors | <input type="checkbox"/> Decomposer | <input type="checkbox"/> Fossil fuels | <input type="checkbox"/> Predation |
| <input type="checkbox"/> Atmosphere | <input type="checkbox"/> Decomposition | <input type="checkbox"/> Habitat | <input type="checkbox"/> Primary consumer |
| <input type="checkbox"/> Bioaccumulation | <input type="checkbox"/> Denitrification | <input type="checkbox"/> Herbivore | <input type="checkbox"/> Producer |
| <input type="checkbox"/> Biodiversity | <input type="checkbox"/> Density-dependent | <input type="checkbox"/> Hydrosphere | <input type="checkbox"/> Reservoir |
| <input type="checkbox"/> Biomagnification | <input type="checkbox"/> Density-independent | <input type="checkbox"/> Invasive species | <input type="checkbox"/> Scavenger |
| <input type="checkbox"/> Biome | <input type="checkbox"/> Dynamic equilibrium | <input type="checkbox"/> Limiting factors | <input type="checkbox"/> Secondary consumer |
| <input type="checkbox"/> Biosphere | <input type="checkbox"/> Ecological niche | <input type="checkbox"/> Lithosphere | <input type="checkbox"/> Special concern |
| <input type="checkbox"/> Biotic factors | <input type="checkbox"/> Ecological pyramid | <input type="checkbox"/> Mutualism | <input type="checkbox"/> Species |
| <input type="checkbox"/> Carnivore | <input type="checkbox"/> Ecology | <input type="checkbox"/> Nitrification | <input type="checkbox"/> Species richness |
| <input type="checkbox"/> Carrying Capacity | <input type="checkbox"/> Ecosystem | <input type="checkbox"/> Nitrogen fixation | <input type="checkbox"/> Sustainability |
| <input type="checkbox"/> Cellular Respiration | <input type="checkbox"/> Endangered species | <input type="checkbox"/> Omnivore | <input type="checkbox"/> Symbiosis |
| <input type="checkbox"/> Combustion | <input type="checkbox"/> Energy pyramid | <input type="checkbox"/> Parasitism | <input type="checkbox"/> Threatened |
| <input type="checkbox"/> Commensalism | <input type="checkbox"/> Eutrophication | <input type="checkbox"/> Pesticide | <input type="checkbox"/> Top carnivore |
| <input type="checkbox"/> Community | <input type="checkbox"/> Extinct species | <input type="checkbox"/> Photosynthesis | <input type="checkbox"/> Trophic level |
| <input type="checkbox"/> Compaction | <input type="checkbox"/> Extirpated | <input type="checkbox"/> Pollution | |
| <input type="checkbox"/> Competition | <input type="checkbox"/> Food chain | <input type="checkbox"/> Population | |
| <input type="checkbox"/> Consumer | <input type="checkbox"/> Food web | <input type="checkbox"/> Population Growth | |

Key Concepts

- Levels of ecological organization
- Ecological interactions → ecological niches, food chains and food web interactions
- Biotic relationships → Predation, symbiosis (parasitism, commensalism, mutualism) and competition
- Energy movement through the ecosystem → Trophic levels, energy pyramids and calculating the transfer of energy through the pyramid
- Ecosystem Cycles: The various processes involved, the importance of recycling nutrients, any chemical reactions involved (including reactants and products), the role of decomposers, and human impacts on the cycles: Water Carbon Nitrogen
- Biodiversity and human impacts on biodiversity
- Bioaccumulation and Biomagnification
- Conserving Biodiversity: Species at risk (levels of risk), invasive species, human impacts on sustainability of biodiversity
- Populations: Important formulas, limiting factors on population sizes, carrying capacity, density-dependent and density-independent factors

Review Questions

1. What is the definition of Ecology?
2. Identify 3 biotic and 3 abiotic factors that you would find in a terrestrial ecosystem.
3. What is the difference between a food chain and a food web?
4. Identify the roles of the following members of a food chain and food web:
→ herbivores, carnivores, decomposers, omnivores, primary, secondary and tertiary consumers
5. What is the primary source of energy in a food web?
6. How is matter (carbon, nitrogen, water) recycled in a food web?
7. Describe the reactions for photosynthesis and cellular respiration (reactants and products).
8. Explain the role of decomposers in recycling nutrients.
9. What is a trophic level?
10. What is biodiversity? Which is more biodiverse: a tropical rainforest or golf course ecosystem? Please explain the reasoning behind your choice.
11. Explain 3 ways in which humans affect biodiversity.
12. Describe how a toxin can undergo bioaccumulation **and** biomagnification / bioamplification in an ecosystem.
13. Identify the various types of pesticides and the effects (non-intentional) of pesticide use on ecosystems and biodiversity.
14. Identify and describe the following types of symbiotic relationships:
a) Parasitism b) Predation c) Competition d) Mutualism e) Commensalism
15. Describe a limiting factor that can affect a population size.
16. What is the carrying capacity of a population?
17. Identify 3 Density-dependent and 3 density-independent factors.
18. What is a species at risk and identify the different levels of risk?
19. What is an invasive species and how can it harm a population?
20. What is environmental Sustainability? What are 3 things that humans can do to promote sustainability?

Practice Test Questions

In addition to the homework questions assigned this unit, please complete these questions from the textbook for your ecology review.

Chapter 2 Review Questions pg 68-69: 1-7, 9-18, 24-26

Chapter 3 Review Questions pg110-111: 2-3, 12-13, 14-16, 17-18

Chapter 4: Review Questions pg150-151: 1, 6, 13-14, 16-17, 19, 22

Self-quiz : pages 70-71

Self-quiz : pages 112-113

Self-quiz : pages 152-153

Now, try the Unit Review and Self Quizzes on pages 158-165 in your textbook!

CHEMISTRY REVIEW

Key Vocabulary

- | | | | |
|--|---|--|--|
| <input type="checkbox"/> alkali metal | <input type="checkbox"/> conductivity | <input type="checkbox"/> liquid | <input type="checkbox"/> Particle Theory |
| <input type="checkbox"/> alkaline earth metal | <input type="checkbox"/> crystal form | <input type="checkbox"/> lustre | <input type="checkbox"/> period |
| <input type="checkbox"/> atom | <input type="checkbox"/> ductility | <input type="checkbox"/> malleability | <input type="checkbox"/> physical changes |
| <input type="checkbox"/> atomic mass | <input type="checkbox"/> electron | <input type="checkbox"/> matter | <input type="checkbox"/> physical property |
| <input type="checkbox"/> atomic number | <input type="checkbox"/> element | <input type="checkbox"/> melting | <input type="checkbox"/> proton |
| <input type="checkbox"/> Bohr-Rutherford diagram | <input type="checkbox"/> element symbol | <input type="checkbox"/> melting point | <input type="checkbox"/> pure substance |
| <input type="checkbox"/> boiling point | <input type="checkbox"/> energy level | <input type="checkbox"/> metal | <input type="checkbox"/> qualitative |
| <input type="checkbox"/> brittleness | <input type="checkbox"/> evaporation | <input type="checkbox"/> metalloid | <input type="checkbox"/> quantitative |
| <input type="checkbox"/> chemical changes | <input type="checkbox"/> freezing | <input type="checkbox"/> mixture | <input type="checkbox"/> solid |
| <input type="checkbox"/> chemical family | <input type="checkbox"/> freezing point | <input type="checkbox"/> molecule | <input type="checkbox"/> solubility |
| <input type="checkbox"/> chemical formula | <input type="checkbox"/> gas | <input type="checkbox"/> neutron | <input type="checkbox"/> state |
| <input type="checkbox"/> chemical properties | <input type="checkbox"/> hardness | <input type="checkbox"/> Noble gases | <input type="checkbox"/> sublimation |
| <input type="checkbox"/> compound | <input type="checkbox"/> heterogeneous | <input type="checkbox"/> non-metal | <input type="checkbox"/> viscosity |
| <input type="checkbox"/> condensation | <input type="checkbox"/> homogeneous | <input type="checkbox"/> orbitals | |

Key Concepts

- Properties of Matter → The Particle Theory of Matter, changes of state, classification of matter
- Physical vs Chemical Properties → qualitative vs quantitative properties, metals vs non-metals
- Physical vs Chemical Changes → evidence (clues) indicating physical and chemical changes
- Chemical Symbols and Formulas (counting atoms)
- Chemical Families and Trends of the Periodic Table
 - Understand how the Periodic Table is organized (names of groups/families and **trends** on the periodic table, how elements in the same families/periods are the same or different)
- Theories of the Atom → focus on Dalton, Thompson, Rutherford, Chadwick and Bohr
- Atomic Structure → subatomic particles, location in the atom, relative size, charge and important numbers associated with atoms
- Bohr diagrams, Bohr-Rutherford diagrams, Bohr energy level diagrams
- Gas tests for oxygen, carbon dioxide, hydrogen and water vapour.
- Know the name and symbol for the first 20 elements on the periodic table.

Review Questions

1. What is the difference in particle structure of a solid a liquid and a gas?
2. Compare and contrast:
 - a. elements and compounds
 - b. pure substances and mixtures
 - c. metals and non-metals
3. Define the follow physical properties: luster, brittleness, viscosity, hardness, malleability, ductility, conductivity, solubility, crystal form?
4. Explain how a substance changes state from a solid to a liquid to a gas using proper terminology.
5. What gas is present if a glowing splint reignites in its presence? What gas is present if a flaming splint makes a pop sound?
6. What classification of matter would trail mix be?
7. Name 4 properties of metals.
8. What family does Argon belong to?
9. Where are protons located in an atom and what is their charge?
10. What is the trend as you move along a period from left to right?
11. What is the trend as you move down a family from top to bottom?
12. For $5\text{Na}_3\text{PO}_4$ identify the elements in the molecule, how many atoms of each are present and the total number of atoms present.
13. Draw the Bohr-Rutherford diagram for Sodium.

Practice Test Questions

In addition to the homework questions assigned this unit, please complete these questions from the textbook for your chemistry review.

Chapter 5 Review: Pages 202 and 203 #1, 2, 10

Chapter 6 Review: Pages 248 and 249 # 1, 2, 4, 5, 10, 14, 15, 18

Chapter 7 Review: Pages 280 and 281 # 1, 4, 10

Self-quiz : pages 204-205

Self-quiz : pages 250-251

Self-quiz : pages 282-283

Now, try the Unit Review and Self Quizzes on pages 288-295 in your textbook!

ELECTRICITY REVIEW

Key Vocabulary

- | | | | |
|--|---|---|---|
| <input type="checkbox"/> alternating current (AC) | <input type="checkbox"/> electric charge | <input type="checkbox"/> induced charge separation | <input type="checkbox"/> primary cell |
| <input type="checkbox"/> ammeter | <input type="checkbox"/> electric circuit | <input type="checkbox"/> induction | <input type="checkbox"/> proton |
| <input type="checkbox"/> amps | <input type="checkbox"/> electrical energy | <input type="checkbox"/> kilowatt-hour (kW·h) | <input type="checkbox"/> power |
| <input type="checkbox"/> battery | <input type="checkbox"/> electric discharge | <input type="checkbox"/> load | <input type="checkbox"/> resistance |
| <input type="checkbox"/> charge | <input type="checkbox"/> electric Meters | <input type="checkbox"/> insulator | <input type="checkbox"/> resistor |
| <input type="checkbox"/> chemical potential energy | <input type="checkbox"/> electron | <input type="checkbox"/> negatively charged | <input type="checkbox"/> secondary cell |
| <input type="checkbox"/> circuit diagram | <input type="checkbox"/> electroscope | <input type="checkbox"/> neutral | <input type="checkbox"/> series circuit |
| <input type="checkbox"/> conduction | <input type="checkbox"/> electrostatics | <input type="checkbox"/> Non-renewable resource | <input type="checkbox"/> source |
| <input type="checkbox"/> conductor | <input type="checkbox"/> electrostatic series | <input type="checkbox"/> Ohm's Law | <input type="checkbox"/> static |
| <input type="checkbox"/> current | <input type="checkbox"/> EnerGuide | <input type="checkbox"/> ohmmeter | <input type="checkbox"/> switch |
| <input type="checkbox"/> current electricity | <input type="checkbox"/> energy efficiency | <input type="checkbox"/> parallel circuit | <input type="checkbox"/> Van der Graaff |
| <input type="checkbox"/> direct current (DC) | <input type="checkbox"/> friction | <input type="checkbox"/> positively charged | <input type="checkbox"/> voltmeter |
| <input type="checkbox"/> electric cell | <input type="checkbox"/> grounding | <input type="checkbox"/> potential difference (Voltage) | <input type="checkbox"/> voltage |

Key Concepts

Electrostatics	Current Electricity
<ul style="list-style-type: none"> <input type="checkbox"/> The Law of Electric Charges (3 parts) <input type="checkbox"/> Relate the cause of electrostatic charge to the parts of an atom. <input type="checkbox"/> Charging by Friction (Electrostatic Series) <input type="checkbox"/> Charging by Contact <input type="checkbox"/> Charging by Induction (temporary and permanent) <input type="checkbox"/> Discharging → Grounding, Discharging at a point, Environmental Discharge <input type="checkbox"/> Insulators and Conductors <input type="checkbox"/> Common practical applications of static electricity (ie. Electrostatic painting) 	<ul style="list-style-type: none"> <input type="checkbox"/> Parts of a Circuit <input type="checkbox"/> Circuit symbols <input type="checkbox"/> Circuit diagrams (loads and sources in series and in parallel) <input type="checkbox"/> Reading ammeters and voltmeters <input type="checkbox"/> Primary and Secondary Cells <input type="checkbox"/> Alternating and Direct Current <input type="checkbox"/> Current calculations: V, I, R, % efficiency and Cost <input type="checkbox"/> Ohm's Law <input type="checkbox"/> Measuring current and voltage in series and parallel circuits <input type="checkbox"/> Calculating energy efficiency and reading ENERGUIDE labels <input type="checkbox"/> Electrical energy production and alternative energy sources

Review Questions

1. State the Law of Electrostatics (3 parts)
2. Relate the cause of electrostatic charge to the parts of an atom.
 - a) Explain Charging by Friction (with aid of diagrams).
 - b) Explain and know how to use an Electrostatic Series.
 - c) Explain how to Charge by Contact with aid of diagrams.
 - d) Explain Charging by Induction with aid of diagrams.
3. Explain the difference between conductors and insulators.
4. Explain the three different ways to discharge a charged object.
5. Explain the difference between:
 - a) cell and battery
 - b) primary cell and secondary cell
 - c) voltage and current (be able to give their formulas)
 - d) series and parallel hookup of cells
6. Be able to draw an electric circuit with the proper symbols.
 - a) Explain the functions of the different parts of the circuit (switch, load, source, conductors, voltmeter, ammeter)
 - b) Explain what happens to the current when loads are added in series
 - c) Explain what happens to the current when loads are added in parallel
7. Be able to explain how to hookup a voltmeter and an ammeter to a circuit.
 - a) Be able to do word problems involving voltage, energy and charge.
 - b) Be able to do word problems involving current, charge and time.
8. State Ohm's Law in words as well as in a formula.
 - a) Be able to do word problems with Ohm's Law.
 - b) When graphing Voltage vs. Current, which goes on the x-axis? y-axis? What does the slope of the line refer to? If we keep the voltage the same but decrease the current, what happens to the resistance?
9. Be able to identify when a more expensive yet more efficient appliance become a better value over time.
10. An electric pencil sharpener that draws a 10 A current is connected into a 120 V circuit. Please calculate the sharpener's resistance.

SPACE REVIEW

Key Vocabulary

- | | | | |
|--|--|---|---|
| <input type="checkbox"/> axis | <input type="checkbox"/> dark energy | <input type="checkbox"/> orbit | <input type="checkbox"/> solar flare |
| <input type="checkbox"/> Big Bang Theory | <input type="checkbox"/> dark matter | <input type="checkbox"/> orbital period | <input type="checkbox"/> solar prominence |
| <input type="checkbox"/> black hole | <input type="checkbox"/> galaxy | <input type="checkbox"/> photosphere | <input type="checkbox"/> solar system |
| <input type="checkbox"/> Chris Hadfield | <input type="checkbox"/> International Space Station | <input type="checkbox"/> red giant | <input type="checkbox"/> supernova |
| <input type="checkbox"/> chromosphere | <input type="checkbox"/> lunar eclipse | <input type="checkbox"/> revolution | <input type="checkbox"/> Sun |
| <input type="checkbox"/> comet | <input type="checkbox"/> nebula | <input type="checkbox"/> rotation | <input type="checkbox"/> sun spot |
| <input type="checkbox"/> constellation | <input type="checkbox"/> neutron star | <input type="checkbox"/> satellite | <input type="checkbox"/> universe |
| <input type="checkbox"/> corona | <input type="checkbox"/> non-luminous | <input type="checkbox"/> star | <input type="checkbox"/> white dwarf |
| <input type="checkbox"/> corona | <input type="checkbox"/> nuclear fusion | <input type="checkbox"/> solar eclipse | <input type="checkbox"/> supernova |

Key Concepts

- Understand and explain the structure of the universe. (section 8.1)
- Rotation vs Revolution of the Earth, the Sun and the Moon
→ how these terms are used to describe days, weeks, months and years (section 8.5)
- The key characteristics of our Earth, our Sun and our Moon
- The reasons for the seasons on Earth → in the Northern Hemisphere and Southern Hemisphere.(322-323)
- Phases of the Moon (pages 224 and 325)
- The composition of the Sun
- The key characteristics of a lunar and solar eclipse. (page 326)
- The effects of microgravity on the human body
- Ancient astronomy

Review Questions

1. Identify these items from smallest to largest: planet, universe, galaxy, solar system.
- 1.Name the planets in order.
- 2.What do the outer planets have in common?
- 3.What is Earth's orbital period? How does it compare to Mercury's and Neptune's orbital periods?
- 4.List the layers of the sun from inner to outer layers.
- 5.What are solar eclipse and why is it special?
- 6.Describe the life cycle of a star.
- 7.How has space exploration benefitted us here on earth?
- 8.Name three technologies that have been used to study outer space.
- 9.Describe Chris Hadfield's mission on the International Space Station.
- 10.Describe what Chris Hadfield has done to further Canada's contributions to space exploration.
- 11.Who are Julie Payette, Steve MacLean and Marc Garneau?
- 12.Describe Canada's contributions to the ISS.

Practice Test Questions

In addition to the homework questions assigned this unit, please complete these questions from the textbook for your space review.

Chapter 8 review: Pages 356 and 357 #1, 4, 7, 11-13, 18, 20, 21, 25

Chapter 9 review: Pages 400 and 401 # 1, 6, 12, 16, 17, 18

Chapter 10 review: Pages 440 and 441 # 9, 20, 21, 27, 31

Now, try the Unit Review and Self Quizzes on pages 448-455 in your textbook!

GOOD LUCK WITH YOUR STUDYING 😊