

## Middle School Science Final Exam Study Guide 2019

### Overview:

- Part 1 will consist of 30 multiple choice questions. Each question will be one point.
- Part 2 will consist of 20 points of short answer questions. Points will vary depending on the depth of the question. Short answer questions may include answering questions, labeling, fill ins and calculations. For calculations, equations will be provided.

### Topics covered:

- Unit 1: The Solar System
- Unit 2: Geology
- Unit 3: Atoms, the Periodic Table, and Bonding
- Unit 4: Properties of Matter
- Unit 5: Chemical Reactions

### Suggestions:

- Get a good night's sleep before the test
- Eat breakfast the morning of the test (and lunch if it's in the afternoon)
- Start studying now. This will help you retain information better than "cramming"
- Use the attached guideline as a starting point
- Look over all old notes, tests, quizzes, labs, etc.

### Note:

Please bring your textbook and any other materials you have signed out with you the day of the test to hand in.

### Study questions:

The questions starting on the following page are only meant as a starting point to help you study for the test. ALL material covered this year is fair game.

### Unit 1 Questions to Consider:

- What is rotation?
- What is revolution?
- What is an orbit?
- What is an axis?
- What causes day and night?
- What causes the seasons on Earth?
- What is insolation? What factors affect how much insolation an location receives?
- What are the phases of the moon? What causes the phases of the moon?
- What are the relative positions of the Sun, Moon and Earth at each phase of the moon?
- What is a solar eclipse? When can one happen?
- What is a lunar eclipse? When can one happen?
- What is gravity?
- What two factors affect gravity? How does each affect it?
- How does gravity affect objects in our Solar System?
- What is a refracting telescope?
- What is a reflecting telescope?
- What do other types of telescopes do?
- What are space telescopes?
- What are space stations?
- What are space probes?
- What are rovers?
- What are the terrestrial planets? What are the features of each?
- What are the jovian planets? What are the features of each?
- What is an asteroid?
- What is a meteoroid? Meteor? Meteorite?
- What is a comet?

### Unit 2 Questions to Consider:

- What is relative age?
- What is the law of superposition?
- What are index fossils?
- What is an unconformity?
- What is an extrusion?
- What is an intrusion?
- What is absolute age?
- What is radioactive decay?
- What is half life?
- How do we use radioactive decay to date rocks?
- What element is useful for dating very old rocks?
- What element is useful for dating newer fossils?
- What are eras? Periods?
- What is precambrian time?
- What three eras occurred after precambrian time? What order did they occur in?
- What happened during the cambrian period?
- What happened during the ordovician period?
- What happened during the silurian period?
- What happened during the devonian period?

- What happened during the carboniferous period?
- What happened during the permian period?
- What happened during the triassic period?
- What happened during the jurassic period?
- What happened during the cretaceous period?
- What happened during the paleogene period?
- What happened during the neogene period?
- What happened during the quaternary period?
- What are the four characteristics of a mineral?
- What are the two ways minerals can form?
- Why don't we use color to identify minerals?
- What is luster?
- What is texture?
- What is streak? How is it tested?
- What is hardness? How is it measured?
- What is cleavage?
- What is fracture?
- What is density?
- What special properties do some minerals have?
- What is a gem?
- What is an igneous rock? How do they form?
- What is an extrusive igneous rock? An intrusive igneous rock?
- What is a metamorphic rock? How are they formed?
- What is a sedimentary rock? How are they formed?
- What are the different components of the rock cycle?

### Unit 3 Questions to Consider

- What is an atom?
- What did Dalton's model of the atom look like?
- What was Rutherford's experiment?
- What did Rutherford's model of the atom look like?
- What did Bohr's model of the atom look like?
- What does the current model of the atom look like?
- What is a proton? What is its charge? Where is it found?
- What is a neutron? What is its charge? Where is it found?
- What is an electron? What is its charge? Where is it found?
- What is mass number?
- What are isotopes?
- How can we determine the number of protons, neutrons and electrons in an atom?
- How is the periodic table arranged?
- What is a group?
- What is a period?
- What is average atomic mass?
- What are valence electrons?
- How can you draw an electron (Lewis) dot diagram for an atom?
- What are chemical bonds?
- How many valence electrons do most atoms want? What is the exception?
- How can you predict the number of valence electrons an atom has?
- How can you predict how many electrons are gained/ lost by an atom?
- What is an ion?

- How do positive ions form? How do negative ions form?
- What is a polyatomic ion?
- What is an ionic bond?
- What is a chemical formula?
- How can we predict the chemical formula for ionic compounds?
- How can we determine the name of an ionic compound?
- What are the general properties of ionic compounds?
- What is a covalent bond?
- What are molecules?
- What is a single covalent bond? A double covalent bond? A triple covalent bond?
- How can we predict how many covalent bonds an atom will form?
- What are the general properties of molecular compounds?
- What is a polar covalent bond?
- What is a polar molecule?
- Where are metals found on the periodic table? Nonmetals? Metalloids?
- What are the general properties of metals?
- What is the name/ properties of group 1?
- What is the name/ properties of group 2?
- What is the name/ properties of groups 3-12?
- Why are the lanthanides and actinides below the rest of the table?
- What are the general properties of nonmetals?
- What is the name/ properties of group 17?
- What is the name/ properties of group 18?
- What are the properties of metalloids?
- What is a semiconductor? What are they used for?

Unit 4 Questions to Consider:

- What is chemistry?
- What is matter?
- What is a physical property? What are some examples?
- What is a chemical property? What are some examples?
- What is a substance?
- What is an element?
- What is an atom?
- What is a compound?
- What is a chemical bond?
- What is a molecule?
- What is a mixture?
- What is a homogeneous mixture?
- What is a heterogeneous mixture?
- What is a solution?
- What are some ways to separate a mixture?
- What is a physical change? What are some examples?
- What is a chemical change? What are some examples?
- What is the law of conservation of mass?
- What is temperature?
- What is thermal energy?
- What is an endothermic change?
- What is an exothermic change?
- What happens to energy during a chemical reaction?
- What is kinetic energy?

- What is potential energy?
- What is chemical energy?
- What is electromagnetic energy?
- What is electrical energy?
- What is electrolysis?
- What are the general properties of solids?
- What are crystalline solids?
- What are amorphous solids?
- What are the general properties of liquids?
- What is a fluid?
- What is surface tension?
- What is viscosity?
- What are the general properties of gases?
- What is plasma?
- What is melting?
- What is melting point?
- What happens to temperature during a phase change?
- What is freezing?
- What is vaporization?
- What is evaporation?
- What is boiling?
- How air pressure affect boiling point?
- What is condensation?
- What is sublimation?
- What does a heating curve look like?
- What properties are used to measure gases and how are they measured?
- How can you calculate pressure mathematically?
- What is Boyle's Law?
- What is Gay-Lussac's Law?
- What is Charles' Law?

#### Unit 5 Questions to Consider:

- What is a chemical reaction?
- What are four pieces of evidence that a chemical reaction has occurred?
- What is an endothermic reaction? An exothermic reaction?
- How do you write a chemical equation?
- What are reactants? Where are they written in a chemical equation?
- What are products? Where are they written in a chemical equation?
- What is conservation of mass?
- What are the steps to balancing an equation?
- What is a coefficient?
- What is a synthesis reaction?
- What is a decomposition reaction?
- What is a replacement reaction?
- What is rate of reaction?
- What is activation energy?
- How does surface area affect rate of reaction?
- How does temperature affect rate of reaction?
- How does concentration affect rate of reaction?

- What is a catalyst?
- What is an inhibitor?