

Science DesCartes: General Science – Physical Science

Skills: Understand the Structure of Atoms

Students:	DesCartes Skills: (Highlight the skills related to your chosen standard/concept)
	RIT 231-240: <ul style="list-style-type: none"> • Determines the number of neutrons in an atom of an element given the atomic mass of the element • Interprets data related to electron configuration • Explains how a magnet can be used to produce electric current
	RIT 221-230: <ul style="list-style-type: none"> • Recognizes that atomic number represents the number of protons found in the nucleus of a particular type of element • Describes the relationship between atomic number and atomic mass • Determines the number of protons in an atom of an element when given that atom's atomic number • Determines the number of neutrons in an atom of an element given the atomic mass of the element • Determines the atomic mass of an atom, given the number of protons, electrons and neutrons for this atom • Describes the electron cloud (quantum) model of atomic structure • Makes predictions of reactivity based on electron configuration • Determines the electrical charge of an atom or ion • Recognizes that for an element, the number of protons and electrons remains the same, but the number of neutrons may vary • Differentiates between parallel and series circuits • Explains that negatively charged materials have an excess of negative charges • Describes properties of magnets • Determines the polarity of a magnet based on its interaction with other magnets • Explains how to build a simple compass • Describes the usefulness of a compass to detect magnetic fields • Describes magnetic fields • Describes ways to increase the strength of an electromagnet
	RIT 211-220: <ul style="list-style-type: none"> • Describes how elements are ordered by atomic number in the periodic table • Determines the number of neutrons in an atom of an element given the atomic mass of the element • Recognizes the subatomic structure of the atom • Describes the locations where each atomic particle may be found • Understands that the nucleus consists of protons and neutrons • Explains that all matter is made of tiny particles called atoms • Uses models to show the structure of the atom • Recognizes that atoms interact by transferring or sharing valence electrons • Compares electrical conducting ability of various materials • Analyzes series circuits

	<ul style="list-style-type: none"> • Uses analogies to explain the flow of current in an electrical wire • Describes hazards of radioactivity • Makes comparisons related to static electricity • Describes the usefulness of a compass to detect magnetic fields • Describes magnetic fields
	RIT 201-210: <ul style="list-style-type: none"> • Describes characteristics of each subatomic particle • Explains that all matter is made of tiny particles called atoms • Recognizes that atoms are composed of smaller particles (e.g., protons, neutrons, and electrons) • Analyzes direct current electrical circuits • Gives examples of electrical insulators • Analyzes the parts of a light bulb • Distinguishes between open and closed circuits • Explains how fuses are used in electrical circuits • Explains why magnets attract or repel other magnets • Recognizes that like poles of magnets will repel and that unlike poles will attract • Explains that a compass needle will align to Earth's magnetic north and south poles • Explains why a compass can be used to find north
	RIT 191-200: <ul style="list-style-type: none"> • Classifies materials according to their magnetism • Explains that all matter is made of tiny particles called atoms • Compares electrical insulating ability of different materials • Gives examples of electrical conductors • Analyzes parallel circuits • Makes inferences about the working of circuits • Recognizes a simple circuit • Recognizes that an electrically charged substance will attract or repel other charged materials • Gives examples of static electricity • Analyzes the charging of objects due to transfer of electrons by friction • Recognizes that magnets' forces can pass through paper, glass, and water • Selects evidence that supports the idea that magnets attract only some kinds of metal • Makes predictions about the interaction of magnets
	RIT 181-190: <ul style="list-style-type: none"> • Classifies materials according to their magnetism • Recognizes that magnets can move some things without touching them • Generalizes that magnets attract only certain types of metals (e.g., iron) • Recognizes that magnets attract certain other types of materials • Recognizes that electricity creates magnetic fields • Describes sources of magnetic fields

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Lesson Title:

Standard/Concept for All:

Introduction: (Get Attention; Connect to Prior Knowledge)

For Students Ready for a Challenge:

Lesson/Activity:

Resources:

Means of Assessment:

For Most Students:

Lesson/Activity:

Resources:

Means of Assessment:

For Students Needing Extra Support:

Lesson/Activity:

Resources:

Means of Assessment:

Closure/Summary for All: