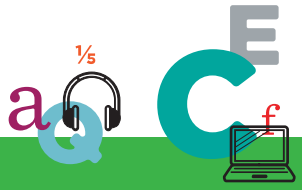

RIT TO CONCEPT

You can enhance the instruction of students who scored within a given range with the following word lists and associated concepts. These word lists and concepts can prepare English language learners for the MAP Growth assessment because they are likely to appear on the test. However, please remember that these word lists aren't comprehensive. Because tests are adaptive, the words aren't guaranteed to appear. For best results, use these lists in conjunction with other vocabulary lists associated with your curriculum.

Relation to Norms

The words within each RIT band represent the difficulty level that MAP Growth measures, regardless of your state standard. To see how the RIT ranges correspond to grade level, see the charts in the Normative Data Overview.

Relation to Learning Statements

These words and concepts correspond directly to the learning statements found in Learning Continuum. If you want more context, especially how these topics evolve across the RIT bands, please refer to the Learning Continuum.

Subjects

Mathematics Concepts by RIT

Mathematics	
RIT Band	**Concepts to Introduce**
131–140	**Whole Numbers—Counting and Cardinality:** number
141–150	**Whole Numbers—Addition/ Subtraction:** compare quantities sum
	Length: length height width
	Identification and Classification of 2-D Shapes: circles measure rectangles squares triangles
	Additional Learning Continuum topic: Data Analysis
151–160	**Concepts building on topics from prior RIT bands:** add category equal parts hexagon octagon parallelogram pentagon rhombus subtract trapezoids
	Number Sentences/Equations/Equivalence: difference parts of addition and subtraction problems
	Time: hour
	Spatial Concepts and Symmetry: location words
	Whole Numbers—Compare / Order: backwards count order

Mathematics	
RIT Band	**Concepts to Introduce**
	Identification and Classification of 3-D Shapes: cones cubes spheres corners cylinders
	Additional Learning Continuum Topics: - Fractions: Equivalence - Fractions: Represent/Model - Whole Numbers: Multiplication/Division - Whole Numbers: Represent and Solve Word Problems - Whole Numbers: Place Value
161–170	**Concepts building on topics from prior RIT bands:** digit hundreds start, change, end fourths ones tens halves open or closed shape thirds
	Money: coins dollar
	Problem Solving with Units: foot mile yard inch ruler yardstick
	Data Representation: bar graph pictograph measurement scale scale
	Additional Learning Continuum Topics: - Decimals—Addition/Subtraction - Angle Measurement - Area

Mathematics	
RIT Band	**Concepts to Introduce**
171–180	**Concepts building on topics from prior RIT bands:** denominator edges even faces fraction half-past hundred thousands line of symmetry minute model numerator odd quarter hour second ten thousands thousands vertices
	Fractions—Compare/Order: equivalent
	Numerical Expressions: expanded form parentheses in expressions unknowns in number sentences
	Whole Numbers; **Decimals—Rounding/Estimation:** estimation rounds
	Additional Learning Continuum Topics: - Conversion of Units - Coordinate Geometry - Decimals—Represent and Solve Word Problems - Perimeter/Circumference - Probability - Properties and Relationships of Operations - Whole Numbers—Concepts/Properties
181–190	**Concepts building on topics from prior RIT bands:** a.m. / p.m. chart coordinates degree equations hundred millions million multiples scatter plot table ten millions
	Fractions: Addition/Subtraction: mixed number

Mathematics	
RIT Band	**Concepts to Introduce**
	Angle Measurement; **Points, Lines, Segments, Rays, and Angles:** acute angle obtuse angle parallel protractor right angles
	Additional Learning Continuum Topics: - Decimals—Multiplication/Division - Bivariate Data - Rates/Ratios/Proportions/Percents
191–200	**Concepts building on topics from prior RIT bands:** decimals dividend divisor dot plot estimate equilateral isosceles likelihood (of event) line segments lines positive proportion negative number line perimeter points prime rays solution unit rate variable
	Fractions—Represent and Solve Word Problems: composite converts factor simplest form
	Capacity; **Weight/Mass:** capacity cups gallons liter ounces pints pounds quarts
	Additional Learning Continuum topics: - Decimals—Multiplication/Division - Fractions—Multiplication/Division - Patterns/Sequences/Series - Rational Numbers—Equivalence and Represent/Model - Algebraic Expressions - Linear Functions - Sample Spaces

Mathematics	
RIT Band	**Concepts to Introduce**
201–210	**Concepts building on topics from prior RIT bands:** associative property centimeter commutative property diagonal distance distributive property inverse kilometer liter mean median meter milliliter millimeter mode nets outliers quadrants scalene y-intercept
	Decimals—Compare/Order; **Decimals—Represent/Model:** hundredths tenths thousandths
	Volume: prism pyramid unit cube
	Similarity: scale factor
	Rational Numbers—Solve Real-World and Mathematical Problems: rate simplify
	Additional Learning Continuum topics: - Congruence - Measures of Center and Spread (Variability) - Populations/Random Processes - Transformations

Mathematics	
RIT Band	**Concepts to Introduce**
211–220	**Concepts building on topics from prior RIT bands:** box plot combine terms complementary diameter improper fractions joint probability mixed number outliers perpendicular quartiles radius range reasonableness reflection rotation rule for patterns or sequences supplementary translation vertical angle
	System of Equations/Inequalities: standard form
	Rate of Change/Slope: linear
	Exponents; **Scientific Notation:** base power / powers square root
	Additional Learning Continuum topics: - Rational Numbers—Compare/Order - Integers—Computation
221–230	**Concepts building on topics from prior RIT bands:** cube root experimental probability exponential form histogram independent events line of best fit parameters theoretical probability
	Inequalities; **Linear Functions:** dependent variable independent variable substitution

Mathematics	
RIT Band	**Concepts to Introduce**
	Relationships involving Lines, Angles, and Polygons: exterior angle interior angle transversal
	Additional Learning Continuum topics: - Absolute Value—Concepts/Properties - Rational Numbers—Computation - Real/Complex Numbers—Concepts/Properties - Quadratic Functions
231–240	**Concepts building on topics from prior RIT bands:** conditional probability dilation irrational number replacement
	Exponential and Logarithmic Functions; **Piecewise/Absolute Value Functions;** **Properties and Operations of Functions;** **Real/Complex Numbers—Computation:** axis of symmetry binomial domain exponential decay exponential growth monomial polynomials zeros of a function
	Pythagorean Theorem; **Trigonometry;** **Circles:** chord midpoint
241–250	**Trigonometric Functions / Radian Measure** cosine radians sine tangent
	Additional Learning Continuum topics: Rational Functions; Radicals; and Surface Area

Mathematics	
RIT Band	**Concepts to Introduce**
251–260	**Concepts building on topics from prior RIT bands:** arc inscribed angle rotational symmetry slant height
	Geometric Proof: postulate theorem

Reading Concepts by RIT

Reading	
RIT Band	**Concepts to Introduce**
Below 161	**Base Words, Affixes:** base beginning beginning sound ending ending sound prefix word
	Inferences, Conclusions, Predictions; and Locating Information: where
	Context Clues—Unknown and Multiple-Meaning Words; **Picture Vocabulary;** **Word Relationships;** **Text Features, Visuals:** activity animals describes find guess main meaning paragraph picture same similar story
	Additional Learning Continuum topic: - Academic and Content Vocabulary
161–170	**Concepts building on topics from prior RIT bands:** author chart clue contraction feel feelings graph hear hint label nature note root see sentence smell taste think Venn diagram visual
	Main or Central Idea, Topic, Titles; central classify compound description determine different important lesson main point people problem reason text title topic

Reading	
RIT Band	**Concepts to Introduce**
	Following Directions: categorize, directions, group, information, instructions, learn, list, locate, order, question, set, sort **Additional Learning Continuum Topics:** - Author's Craft—Figurative Language, Imagery + Description - Characteristics of Genre —Business, Technical, Procedural —Literary Nonfiction —Persuasive, Argumentative - Plot - Purpose - Sequencing - Setting - Theme, Moral, Lesson - Word Categorization

Reading	
RIT Band	**Concepts to Introduce**
171–180	**Concepts building on topics from prior RIT bands:** action, change, conclusion, event, illustration, locate, location, main character, plot, predict, sequence, setting, suffix
	Characteristics of Genre—Literary; **Author's Craft—Perspective, Attitude:** fairy tale, fiction, make-believe, poem, poet, poetry, short story, speaker
	Characteristics of Genre—Informational: informational, nonfiction, purpose, reference, source
	Facts and Opinions: belief, fact, factual, opinion, real, statement, true, truth, view
	Additional Learning Continuum Topics: - Assertions and Claims - Author's Craft—Persuasive and Rhetorical Techniques

Reading	
RIT Band	**Concepts to Introduce**
181–190	**Concepts building on topics from prior RIT bands:** antonym develop dictionary genre glossary graphic organizer homonym realistic realistic fiction resource synonym thesaurus timeline title page
	Summarizing, Paraphrasing: in your own words paraphrase related restate retell summarize summary theme
	Mood; **Point of View:** compare differ effect mood narrator (perspective, attitude) point of view third-person viewpoint
	Additional Learning Continuum Topic: - Word Nuances and Shades of Meaning

Reading	
RIT Band	**Concepts to Introduce**
191–200	**Concepts building on topics from prior RIT bands:** author's focus captions† character relationship claim climax conflict context contrast definition drama first-person point of view homophone index† lead newspaper writing characteristics reference materials† resolution rising action subheadings† supporting character table of contents† title (choose the best) †purpose of each
	Supporting Details; **Inferences, Conclusions, Predictions:** cause-effect central idea characterize detail main idea reinforce support supporting details
	Additional Learning Continuum Topic: - Author's Craft—Foreshadowing, Flashback

Reading	
RIT Band	**Concepts to Introduce**
201–210	**Concepts building on topics from prior RIT bands:** alliteration analyze bias character motivation characteristics conclude comparative contribute convince evaluate evidence exposition falling action figurative language flashback foreshadow idiom inform library literal description literary device literary element metaphor persuade onomatopoeia persuasive resolve secondary source simile stereotype superlative
	Text Structure—Organization: form organization structure varied typeface* white space* *purpose in informational text
	Dialogue: conversation converse dialogue
	Additional Learning Continuum Topic: - Author's Craft—Style, Voice, Tone
211–220	**Concepts building on topics from prior RIT bands:** analogy argue argumentative assumption drama historical document (relationship between two parts) history imagery intent intention irony paradox style summarizing strategies technique tone voice

Reading	
RIT Band	**Concepts to Introduce**
221–230	**Concepts building on topics from prior RIT bands:** allegory all-knowing extended metaphor fables† legends† myths† sonnet tales† †distinguish between
231–240	**Concepts building on topics from prior RIT bands:** ironic point of view (effect on meaning) stage directions tone
241–250	**Concepts building on topics from prior RIT bands:** satirical passage (understand author's point)

Language Usage Concepts by RIT

Language Usage	
RIT Band	**Concepts to Introduce**
Below 161	**Capitalization–First Word Rules:** action capital letter capitalize complete correct / right describe form incorrect move sentence **Additional Learning Continuum Topics:** - Adjectives - Agreement - Apostrophe - Coordination, Subordination - Prepositions, Conjunctions, Interjections - Pronouns - Sentence Completeness - Spelling—Commonly Misspelled Words - Verbs

Language Usage	
RIT Band	**Concepts to Introduce**
161–170	**Concepts building on topics from prior RIT bands:** base ending pronoun

Language Usage	
RIT Band	**Concepts to Introduce**
	Capitalization—Proper Nouns and Titles: date days of the week month name place title
	Ending Punctuation: complete sentence end mark excited exclamation exclamation point explanation mark period question question mark what when where who why
	Drafting; **Main Ideas / Topic Sentence / Supporting Details;** **Prewriting;** **Revising:** add arrange change combine correct plan topic
	Subject/Predicate: action verb verb
	Nouns; **Phrases;** **Sentence Meaning:** compare future nouns passage past plural present singular subject word endings word order

Language Usage	
RIT Band	**Concepts to Introduce**
161–170, continued	**Additional Learning Continuum Topics:** - Commas - Editing and Proofreading - Initials and Abbreviations - Sentence Types - Spelling—Affixes and Roots - Syntax - Writing Techniques —Figurative and Descriptive Language —Literary and Poetic Devices
171–180	**Concepts building on topics from prior RIT bands:** address (abbreviate) apostrophe audience book title* collective noun comma command common noun connect conjunctions contraction description details directions error essay fiction fictional logical order main idea misspelled mistake narrative organize paragraph personal title*# phrase possessive prepositions proper noun* punctuate punctuation restate sequence short story shorten words to make contractions steps support supporting details surprise topic sentence *capitalize, #abbreviate

Language Usage	
RIT Band	**Concepts to Introduce**
	Spelling **—Compound Words;** **—Patterns;** **—Plurals;** **Initials and Abbreviations:** a.m. / p.m. abbreviate abbreviation* centimeter# combine compound foot# holidays* inch# measurements# patterns shorten time# vowels word list *capitalize, #abbreviate
	Additional Learning Continuum Topics: - Adverbs - Introductions / Transitions / Conclusions - Multiple Punctuation Rules - Organizing Writing - Sentence Structure - Writing Forms—Genres - Writing Techniques —Literary Elements —Voice, Style, Tone, and Mood

Language Usage	
RIT Band	**Concepts to Introduce**
181–190	**Concepts building on topics from prior RIT bands:** abbreviated title / suffixes* address appropriate brainstorm caret clear closing closing*# compound sentence compound subject concluding sentence conclusion coordinating conjunction date# double consonant edit emotion entertain explanation formal essay format friendly letter geographic location* graphic organizer greeting* heading helping verb image indent inform informative introduction invitation irregular verb items in a series# linking verb margin opening organizations* personal titles and positions* personal writing poetry predicate prefix prewrite prewriting strategy publish purpose reinforce revise revision rough draft run-on sentence salutation*# semicolon senses signature# singular singular noun song and poem titles* stanza strengthen suffix summarize task tone topic sentence transition writing process *capitalize, #comma
	Additional Learning Continuum Topics: - Capitalization—Quotations and Dialogue - Frequently Confused Words - Quotation Marks and Dialogue

Language Usage	
RIT Band	**Concepts to Introduce**
191–200	**Concepts building on topics from prior RIT bands:** argue book report cause and effect clarify clarity comma rules compare and contrast contrasting conversation# convince creative writing descriptive language descriptive writing dialogue direct address# direct quote drama future tense genre grammar informational writing informative essay introduction literary device memo modifiers modify mood outline pamphlet parody persuade persuasive poetic device point of view precise proofread quotation quotation marks resume review sensory language simile slang style steps in a process subject-verb agreement thesis statement viewpoint visualize voice #comma
	Brackets, Dashes, Hyphens, Ellipses, Parentheses; Underlining: book title* colon compound word divided quotations# hyphen underline *underline, #comma
	Additional Learning Continuum Topics: - Clauses - Writing Techniques—Rhetorical Strategies - Writing Techniques—Argument, Counterargument

Language Usage	
RIT Band	**Concepts to Introduce**
201–210	**Concepts building on topics from prior RIT bands:** allusion argumentative argumentative essay article titles* autobiography chronological order clause cluster comma splice declarative sentence direct quotation exclamatory sentence expository writing figurative language fluency formal language fragment free-write humor imperative sentence interrogative sentence introductory phrase or clause# introductory word# introductory sentence literary analysis language literary element movie titles# multiple viewpoints mystery parentheses periodical plural possessive poem titles* process essay satire short story titles* simple sentence singular possessive song titles* symbolism syntax word choice play titles# *quotation marks, #comma
	Modifiers: antecedent complex sentence compound-complex sentence dependent clause direct object indirect object prepositional phrase verb phrase
	Research Questions, Sources, Thesis Statement: evaluate sources evidence plagiarism plagiarize primary and secondary sources research question visual support
	Additional Learning Continuum Topics: - Colons, Semicolons - Writing Techniques—Point of View

Language Usage	
RIT Band	**Concepts to Introduce**
211–220	**Concepts building on topics from prior RIT bands:** adjective clause adjective phrase adverb clause analyze application content-specific vocabulary counterargument dangling modifier demonstrative develop character future perfect how-to essay hyperbole idiom imagery independent clause irony irregular comparative irregular spelling patterns limerick main clause metaphor misplaced modifier movie titles* noun clause objective pronoun onomatopoeia participle past perfect past progressive persuasive argument positive possessive pronoun present participle present perfect professional title relative clause rhetorical question subjective pronoun subordinate clause superlative verse *underline
	Parallelism: comparative consistency of verb tense consistent voice/tone maintain organization parallel shift in verb tense structure
221–230	**Concepts building on topics from prior RIT bands:** active voice allegory alliteration appositive# appropriate tone conjunctive adverb consistency of verb voice dash epic poem foreshadowing formal style infinitive literary response organizational strategy predicate noun pronoun-antecedent agreement rhyme scheme tragedy *underline, #punctuate/abbreviate

Language Usage			
RIT Band	**Concepts to Introduce**		
231–240	**Concepts building on topics from prior RIT bands:**		
	anticipate	gerund	nonrestrictive phrase or clause*
	colloquialism	indicative mood	reflexive pronoun
	complex list#	italics	single quotation marks
	ellipsis	nominative pronoun	supporting evidence
	*comma, #semicolon		

Physical Science Concepts by RIT

Physical Science	
RIT Band	**Concepts to Introduce**
181–190	**Effects of Force on Motion;** **Effects of Mass on Motion:** cause / effect / force / measurement / model / motion / object / pull / push
	Electric Charges and Forces: static electricity
	Electric Circuits: circuit
	Energy Conversions: conversions / energy / energy from the Sun
	Engineering Problems: problem
	Light: visible
	Magnetism and Electromagnetism: magnet / metal
	Measurement of Physical Properties: height / length / width
	Motion: distance / location / time
	Phase Changes and States of Matter: solid / liquid / temperature
	Sound Waves: loudness / pitch / sound / vibration
191–200	**Chemical Properties of Matter:** chemical / properties / particles / physical properties / material properties / matter / substances
	Chemical Reactions: mixing substances / new substances
	Conservation of Mass and Matter: mass/weight as a property of matter / conservation of matter
	Effects of Force on Motion: balance forces / claim / direction / evidence / investigation / mass / pattern / speed / strength / unbalanced forces
	Electric Charges and Forces: static charge / electric interactions / objects not in contact
	Electric Circuits: electric current / electrical devices / voltage

Physical Science	
RIT Band	**Concepts to Introduce**
	Energy Conversions: convert energy from one form to another
	Energy Forms: motion energy
	Engineering Design Solutions: solutions
	Light: illuminate / shadow / bending
	Magnetism and Electromagnetism: magnetic
	Motion: direction / rate / speed
	Phase Changes and States of Matter: gas / liquid / observation / states of matter
	Pure Substances, Mixtures, and Solutions: dissolve
	Wave Properties: amplitude / wavelength
201–210	**Atomic Structure:** atoms / compounds / elements
	Chemical Reactions: chemical change / chemical reaction
	Conservation of Mass and Matter: conservation / cooling substances / heating substances / mass (amount of matter) / mixing substances
	Effects of Force on Motion: air resistance / force diagram / friction / macroscopic object / minimize / stability / sum of forces
	Energy Forms: kinetic energy / stored (potential) energy / temperature as average kinetic energy of particles of matter / thermal energy
	Engineering Design Solutions: evaluate / minimize / maximize
	Engineering Problems: constraint / criteria
	Engineering Solution Optimizations: optimize

Physical Science	
RIT Band	**Concepts to Introduce**
	Gravity: gravity / weight as force due to gravity
	Light: absorbed / color / reflected / transmitted
	Machines: mechanical advantage / simple machines
	Magnetism and Electromagnetism: electromagnet / magnetic field
	Measurement of Physical Properties: volume
	Molecular Structure and Bonding: molecules
	Motion: average speed / distance-time data / velocity
	Phase Changes and States of Matter: boiling point / condensation / evaporation / freezing point / melting point / phase change
	Work and Power: power / work
211–220	**Acceleration and Free Fall:** free fall
	Atomic Structure: atomic number / atomic mass / electron / ion / neutron / periodic table / proton
	Chemical Reactions: combustion / concentration / interaction / oxidation
	Conservation of Mass and Matter: mathematical representation
	Effects of Force on Motion: colliding objects / force diagrams / Newton's second and third laws of motion / speed / distance-time data / sum of forces
	Electric Charges and Forces: electrostatic forces / electric fields / Coulomb's law
	Electromagnetic Waves: electromagnetic radiation
	Engineering Design Solutions: analyze / cost-benefit ratio
	Forces:

Physical Science	
RIT Band	**Concepts to Introduce**
	Newton's third law of motion
	Information Transfer: analog / digital
	Molecular Structure and Bonding: chemical formula / oxidation
	Momentum: momentum as a measure of motion / positive and negative velocity
	Motion: speed-time data
	Physical Properties of Matter: density / pressure / physical change
	Wave Properties: frequency / medium or media / wave energy / wave speed
221–230	**Chemical Properties of Matter:** acid / base / chemical properties / neutral
	Chemical Reactions: bond energy / chemical formula / chemical reactions / reaction rate
	Effects of Force on Motion: mathematical relationships / momentum / net force / stability / velocity
	Electric Charges and Forces: Coulomb's law
	Electric Circuits: electrical resistance / Ohm's law / parallel circuits / series circuits
	Electromagnetic Waves: radio waves / microwaves / infrared light / visible light / ultraviolet light / X-rays / gamma rays / medium / particle model
	Gravity: Newton's law of gravitation
	Heat Transfer: second law of thermodynamics
	Inertia: mass as a measure of inertia / Newton's first law of motion
	Molecular Structure and Bonding: valence electron
	Motion: acceleration / acceleration-time data

Physical Science	
RIT Band	**Concepts to Introduce**
	Nuclear Chemistry: fission / fusion / radioactive decay
231–240+	**Chemical Reactions:** energy levels of atoms / endothermic / exothermic / patterns of electrons
	Effects of Force on Motion: objects in space
	Physical Properties of Matter: moles
	Pure Substances, Mixtures, and Solutions: concentration
	Sound Waves: interference / resonance

Life Science Concepts by RIT

Life Science	
RIT Band	**Concepts to Introduce**
181–190	**Adaptation:** adapt / survive
	Behavioral Responses: human senses / external/internal cues / animal behavior / animal response
	Body Systems—System Components and Functions: external body parts / mimic
	Characteristics of Living Things: living thing / nonliving thing
	Classification—Developing and Using Keys: fish / leaves / trees
	Classification—Taxonomy: mammals
	Ecosystem Dynamics: habitat / diversity of life
	Effects of Humans on Habitats and Living Things: recycle / species
	Group Behavior: behavior
	Interactions among Organisms: environment / soil
	Interactions with the Physical Environment: flowering plants / life cycle
	Needs of Living Things: food / light / water
191–200	**Adaptation:** adaptation
	Behavioral Responses: skin sensitivity / responses / information from the senses
	Body Systems—Interacting Systems and Homeostasis: external structures
	Cells—Cellular Processes: cell theory / cellular process
	Cells—Structures and Functions: function / structure
	Classification—Taxonomy: invertebrate / vertebrate

Life Science	
RIT Band	**Concepts to Introduce**
	Ecosystem Dynamics: ecosystem
	Evolutionary Relationships and Evidence: fossils
	External Body Structures and Functions: plant seeds
	Group Behavior: migration
	Life Cycles: model / unique
	Needs of Living Things: air / sunlight
	Pathways of Energy and Matter in Ecosystems: consumers / decomposers / food chain / food web / movement of matter / producers
	Reproduction, Growth, and Development: birth / death / growth / reproduction
201–210	**Adaptation:** organism / population / trait
	Behavioral Responses: innate behaviors / migratory behaviors / extend / infer effects / transfer of information from senses to brain
	Body Systems—Interacting Systems and Homeostasis: body systems
	Cells—Structures and Functions: animal cell / cell membrane / cell wall / plant cell
	Classification—Developing and Using Keys: classification
	Genetic Crosses: asexual reproduction / sexual reproduction
	Group Behavior: cooperative behavior / individual behavior
	Microorganisms and Viruses: bacteria / microorganism
	Mitosis: cell division
	Molecular Genetics:

Life Science	
RIT Band	**Concepts to Introduce**
	neutral effects
	Natural and Artificial Selection: natural selection
	Pathways of Energy and Matter in Ecosystems: cycling of matter / flow of energy
	Photosynthesis and Respiration: photosynthesis / respiration
211–220	**Adaptation:** environment
	Behavioral Responses: microorganism responses to change
	Biological Molecules, Enzymes, and ATP: biomolecules / protein
	Body Systems—Interacting Systems and Homeostasis: chromosome / offspring
	Body Systems—Organs and Specialized Cells: multicellular organisms
	Body Systems—System Components and Functions: body systems / body subsystems / hierarchical organization
	Cells—Structures and Functions: chloroplast / DNA / gene / mitochondria / organelle
	Ecosystem Dynamics: biodiversity / trade-offs
	Evolutionary Relationships and Evidence: evolutionary relationships
	Genetic Crosses: genetic variation
	Inherited and Acquired Traits: heritable trait / inherited trait
	Microorganisms and Viruses: virus
	Mitosis: mitosis
	Natural and Artificial Selection: artificial selection / genetic modification / selective breeding / synthesize information

Life Science	
RIT Band	**Concepts to Introduce**
	Pathways of Energy and Matter in Ecosystems: carbon cycle / empirical evidence
	Reproduction and Genetic Variation: genetic variation
	Reproduction, Growth, and Development: development / germination
221–230	**Behavioral Responses:** plant response to gravity
	Biological Molecules, Enzymes, and ATP: food molecules
	Body Systems—Interacting Systems and Homeostasis: homeostasis / transpiration
	Evolutionary Relationships and Evidence: evolution / genetic variation / mutation
	Extinction and Speciation: extinction / speciation
	Interactions among Organisms: commensalism / mutualism / parasitism / symbiosis
	Pathways of Energy and Matter in Ecosystems: aerobic / conditions / anaerobic conditions / biomass / mathematical representation
	Photosynthesis and Respiration: cellular respiration
231–240+	**Classification—Taxonomy:** fungi / taxonomy
	Microorganisms and Viruses: unicellular
	Mitosis: gene expression
	Natural and Artificial Selection: advantageous / probability / statistics
	Pathways of Energy and Matter in Ecosystems: nitrogen cycle

Earth and Space Science Concepts by RIT

Earth and Space Science	
RIT Band	**Concepts to Introduce**
181–190	**Biogeology:**Moon / Sun
	Natural Hazards: natural / hazard
	Natural Resources: advantage / disadvantage / resource
	Plate Tectonics: earthquakes / volcanoes
	Rock Layers and the Fossil Record: fossil
	Rocks, Minerals, and Soil: mineral / rock / soil
	Seasons, Days, and Years: sunrise / sunset / visible
	Weather Conditions, Prediction, and Measurement: clouds / fog / rain / snow / weather / wind
191–200	**Climate:** climate / patterns / regions of the world
	Earth's Layers: atmosphere / biosphere / geosphere / hydrosphere
	Effects of Humans on Land, Water, and Air: carbon dioxide in the atmosphere
	Natural Hazards: hurricanes / tornadoes / weather-related hazards
	Natural Resources: resources / fossil fuel / human consumption / renewable resources / nonrenewable resources / combine information
	Plate Tectonics: geologic
	Rock Layers and the Fossil Record: rock formation / sediment
	Rocks, Minerals, and Soil: cycling of matter / Earth's materials / rock cycle
	Seasons, Days, and Years: graphical display / night sky / patterns of daily changes / predictable patterns / planets / seasonal appearance / shadows
	The Solar System:

Earth and Space Science	
RIT Band	**Concepts to Introduce**
	rotation of Earth / scale properties
	Weather Conditions, Prediction, and Measurement: air temperature / cloud types / frost / seasonal weather / weather forecast
	Weathering and Erosion: erosion / rate of erosion / vegetation / weathering
201–210	**Climate:** elevation effect on climate / global climate change / greenhouse effect / latitude effect on climate / local climate
	Earth's Ecosystems: biome
	Earth's Layers: coevolution / density effect / time and spatial scales
	Eclipses and Moon Phases: eclipse / cyclic pattern / lunar phase / lunar eclipse / Earth-Moon-Sun model / phases of the Moon / solar eclipse
	Effects of Humans on Land, Water, and Air: human population growth effects / per-capita consumption / personal choices
	Engineering Design Solutions: design solutions to reduce human impacts / evaluate design solutions
	Natural Hazards: catastrophic events / interpret data to forecast future / mitigate effects
	Natural Resources: explanation with evidence / groundwater resources
	Plate Tectonics: continents / plate / plate motion / seafloor structures / tectonics
	Rock Layers and the Fossil Record: geoscience processes / landscapes / mineral formation / patterns of rock formations
	Rocks, Minerals, and Soil: cycling of Earth's materials / flow of energy / igneous rocks / metamorphic rocks / sedimentary rocks
	Seasons, Days, and Years: Earth's axial tilt / cyclic pattern of seasons
	The Solar System: solar system
	The Universe, Stars, and Galaxies: effects of relative distances / galaxy / life cycle of stars / Milky Way galaxy / seasonal appearance of stars / universe

Earth and Space Science	
RIT Band	**Concepts to Introduce**
	Water on Earth: condensation / evaporation / precipitation / roll of gravity in the cycling of water / transpiration / water cycle
	Weather Conditions, Prediction, and Measurement: air density / air masses / complex interactions
	Weathering and Erosion: deposition
211–220	**Biogeology:** greenhouse gases / regional climates / unequal heating of Earth
	Earth's Ecosystems: thermal convection
	Effects of Humans on Land, Water, and Air: effects of fertilizers + phosphates / frequency of problems / impacts of human activities / pollution
	Natural Resources: extraction / resource redistribution / sustainability
	Plate Tectonics: ocean-floor features / plate boundaries / thermal convection
	Rock Layers and the Fossil Record: crustal rocks / rock strata
	The Solar System: life span of the Sun / role of gravity within solar systems / scale properties
	The Universe, Stars, and Galaxies: role of gravity within galaxies
	Water on Earth: ocean currents
	Weather Conditions, Prediction, and Measurement: Coriolis effect / predictions
	Weathering and Erosion: constructive forces / destructive forces / flow of energy
221–230	**Climate:** climate models
	Earth's Layers: atmospheric gases / topographic maps
	Effects of Humans on Land, Water, and Air: acidification of water / inference vs. fact
	Natural Resources:

Earth and Space Science	
RIT Band	**Concepts to Introduce**
	computational simulation
	Plate Tectonics: spatial and temporal scales
	The Universe, Stars, and Galaxies: big bang theory / light spectra
	Weather Conditions, Prediction, and Measurement: air pressure
231–240+	**Climate:** stability of Earth's climate