

Science ISAT: General Science – Physical Science

Skills: Understand Chemical Reactions

Students:

RIT Above 250:

- *None*

Students:

RIT 241-250:

- Distinguishes between acids and bases based on their molecular composition
- Gives examples of acids and bases, using scientific names (e.g., sodium hydroxide)
- Recognizes that in a closed system, the total number of atoms always remains the same, regardless of how the atoms are arranged into molecules

Students:

RIT 231-240:

- Compares strength of strong and weak acids and bases
- Describes properties of bases (e.g., slippery, bitter tasting, contain oxygen and hydrogen, turn litmus paper blue)
- Draws conclusion from data related to indicators and pH of household acids, bases and neutral substances
- Understands how conservation of mass is expressed in chemical formulas and equations
- Identifies reactants and products of a combustion reaction
- Describes factors that can increase or decrease reaction rates

Students:

RIT 221-230:

- Describes properties of acids (e.g., sour taste, one or more hydrogen atoms, turns blue litmus red)
- Describes properties of bases (e.g., slippery, bitter tasting, contain oxygen and hydrogen, turn litmus paper blue)
- Gives examples of acids and bases, using household liquids (e.g., bleach, vinegar)
- Compares pH of strong and weak acids and bases
- Draws conclusion from data related to indicators and pH of household acids, bases and neutral substances
- Describes the law of conservation of mass
- Recognizes that the mass of a material remains the same when the material is divided or changes shape
- Understands how conservation of mass is expressed in chemical formulas and equations
- Balances equations to reflect conservation of mass
- Recognizes that compounds contain two or more types of atoms bonded together
- Explains that coefficients may be adjusted to balance chemical equations
- Infers that a new compound has been formed when new properties result after combining reagents
- Classifies examples of chemical changes that show release or absorption of energy
- Gives examples that show that some chemical reactions release energy while others require input of energy

Students:

RIT 211-220:

- Describes properties of acids (e.g., sour taste, one or more hydrogen atoms, turns blue litmus red)
- Describes properties of bases (e.g., slippery, bitter tasting, contain oxygen and hydrogen, turn litmus paper blue)
- Describes how litmus paper is used to determine whether a substance is an acid or a base
- Defines pH as a measurement of acidity
- Recognizes that products formed by chemical reactions have different properties from the reactants
- Defines reactant
- Explains that energy cannot be created or destroyed, only changed from one form to another

Students:

RIT 201-210:

- Describes properties of acids (e.g., sour taste, one or more hydrogen atoms, turns blue litmus red)
- Describes how litmus paper is used to determine whether a substance is an acid or a base
- Recognizes properties of acids (e.g., sour taste, turns blue litmus paper red, contains one or more hydrogen atoms)
- Predicts which household substance will turn blue litmus paper red
- Recognizes signs of a chemical reaction (e.g., formation of gas, color change, precipitate)
- Infers that a chemical reaction has occurred

Students:

RIT Below 201:

- *None*