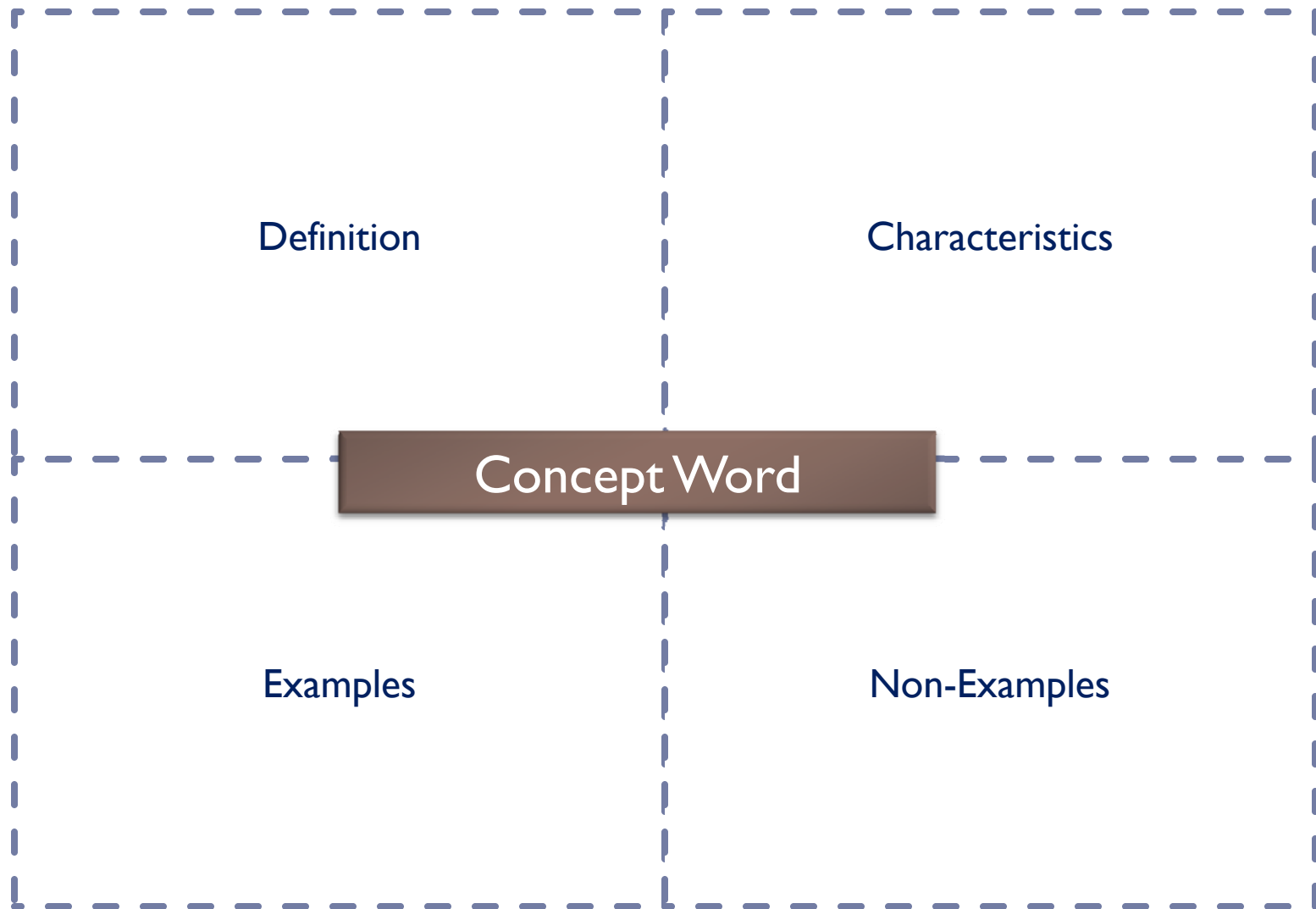


Framer Models

Terry Blanch & Jeff Spraggins: Physical Science



Chemical Properties

Framework for Learning

Def: the ability of a substance to transfer energy from one place to another.

Typically think of conductivity in terms of heat or electricity

- How well a substance can allow charge to move through it (current).

- Substance can transfer electrical or thermal energy efficiently

Conductivity

Copper (Cu)

Solution of NaCl

Examples

Glass (SiO₂)

Pure H₂O

Non-Examples

Def: the state in which a substance becomes evenly distributed throughout a solution

Think of sugar in water.

- Solvent molecules are attracted to the substance being dissolved.

- Substance spreads out and becomes surrounded by solvent molecules

Dissolved

Sugar in water.

Solution of NaCl

Examples

Glass (SiO_2)

Oil

Non-Examples



Chemical Bonding

Framework for Learning

Def: a type of chemical bond between atoms that gained or lost electrons; a bond between ions

Metal atoms 'give up' their valence electrons to non-metal atoms

- Made of metal and non-metal atoms
- Dissolves in water
- Conducts electricity when dissolved but not when solid

Ionic Bonding

NaCl

CaBr₂

Examples

O₂

CO

Non-Examples

Def: a type of chemical bond that is formed when valence electrons are shared between some atoms.

Creates small stable units within the substance.

- Made of nonmetal atoms
- Some dissolve in water, some don't
- Do not conduct electricity
- Tend to be liquids, gases, or soft solids

Molecular Covalent

CO

H₂S

Examples

KBr

MgCl₂

Non-Examples



Def: a type of chemical bond that is formed when valence electrons are shared between all surrounding atoms.

Atoms are covalently connected with each other in all directions-like a grid or network.

- Made entirely of nonmetal atoms
- Does not dissolve in water
- Do not conduct electricity
- Very hard solids

Covalent Network



Diamond (C)

Examples



NaI

Non-Examples



Def: a type of chemical bond that is formed when valence electrons are shared between all atoms in the substance

Valence electrons are free to move throughout the substance like a 'sea' of electrons

- Made entirely of metal atoms
- Does not dissolve in water
- Conducts electricity
- Bendable Solids

Metallic Bonding

Copper (Cu)

Bronze (Cu and Sn)

Examples

Graphite (C)

H₂O

Non-Examples