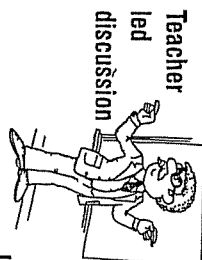




# Grade 7 Core Physical Science Chemistry

## Mechanical Mixtures, Solutions and Pure Substances



**Matter**

Matter is either a mixture or a pure substance.

**Mixtures**

**Mechanical Mixtures**

**Solutions**

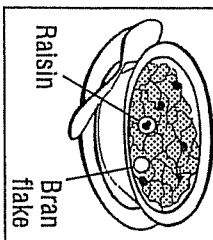
**Pure Substances**

**Elements**

**Compounds**

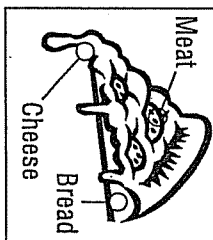
**Mixtures (Wet)**

Substances are mixed together



**Mixtures (dry)**

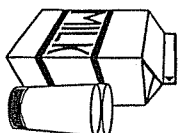
Substances are mixed together



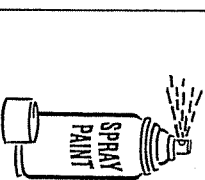
**Suspensions**

**Emulsion**

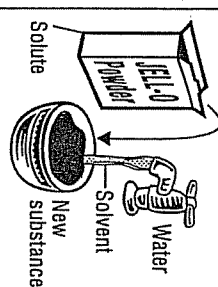
Substances are suspended together



Substances are suspended together



Substances form a new substance (e.g., Jell-O)



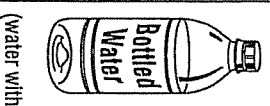
**Oxygen (O)**

O = oxygen (element)



**Water (H<sub>2</sub>O)**

H = hydrogen (element)  
O = oxygen (element)



(water without additives)

# Activity 2



Complete  
the  
Chart

## Grade 7 Core Physical Science Chemistry

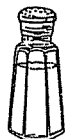
### Mechanical Mixtures and Solutions

Understanding (making logical conclusions or generalizations)

- ☐ 1 rarely makes logical conclusions or generalizations
- ☐ 2 sometimes makes logical conclusions or generalizations
- ☐ 3 usually makes logical conclusions or generalizations
- ☐ 4 always or almost always makes logical conclusions or generalizations

**Instructions:** For the diagrams below identify each as a mechanical mixture, solution or pure substance. Explain your choice.

#### Common Table Salt

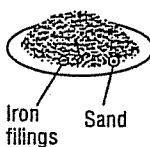


Salt =  
sodium  
(element)  
chloride  
(element)

- ☐ Mechanical mixture
- ☐ Solution
- ☐ Pure Substance

Briefly explain your choice.

#### Sand and Iron Filings



Iron filings  
Sand

- ☐ Mechanical mixture
- ☐ Solution
- ☐ Pure Substance

Briefly explain your choice.

#### Pencil



- ☐ Mechanical mixture
- ☐ Solution
- ☐ Pure Substance

Briefly explain your choice.

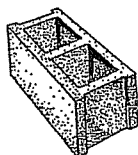
#### Soup



- ☐ Mechanical mixture
- ☐ Solution
- ☐ Pure Substance

Briefly explain your choice.

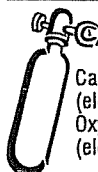
#### Concrete Block



- ☐ Mechanical mixture
- ☐ Solution
- ☐ Pure Substance

Briefly explain your choice.

#### Carbon dioxide



Carbon  
(element)  
Oxygen  
(element)

- ☐ Mechanical mixture
- ☐ Solution
- ☐ Pure Substance

Briefly explain your choice.

#### Black Coffee + Sugar



- ☐ Mechanical mixture
- ☐ Solution
- ☐ Pure Substance

Briefly explain your choice.

#### Metal Tins to be Recycled



- ☐ Mechanical mixture
- ☐ Solution
- ☐ Pure Substance

Briefly explain your choice.

#### Aluminum Can



Aluminum  
(element)  
Oxygen  
(element)

- ☐ Mechanical mixture
- ☐ Solution
- ☐ Pure Substance

Briefly explain your choice.

#### Zinc (Fish hook)

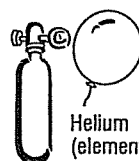


Fish hook  
Zinc (element)  
Sulphur (element)

- ☐ Mechanical mixture
- ☐ Solution
- ☒ Pure Substance

Briefly explain your choice.

#### Helium Gas



Helium  
(element)

- ☐ Mechanical mixture
- ☐ Solution
- ☐ Pure Substance

Briefly explain your choice.

#### Hair Shampoo



- ☐ Mechanical mixture
- ☐ Solution
- ☐ Pure Substance

Briefly explain your choice.

#### Perfume or Cologne

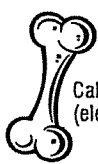


PERFUME

- ☐ Mechanical mixture
- ☐ Solution
- ☐ Pure Substance

Briefly explain your choice.

#### Calcium

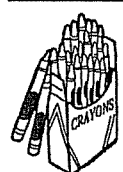


Calcium  
(element)

- ☐ Mechanical mixture
- ☐ Solution
- ☐ Pure Substance

Briefly explain your choice.

#### Box of Crayons



- ☐ Mechanical mixture
- ☐ Solution
- ☐ Pure Substance

Briefly explain your choice.

#### Toothpaste



- ☐ Mechanical mixture
- ☐ Solution
- ☐ Pure Substance

Briefly explain your choice.