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Date

Name

THE PROPERTIES OF MATTER

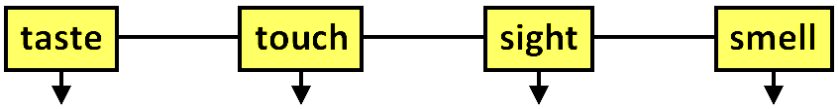
PowerPoint Worksheet

PHYSICAL AND CHEMICAL PROPERTIES OF MATTER

1. What are the differences between **physical properties** and **chemical properties** of matter? Give examples of each.

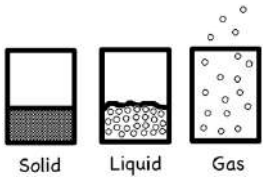
Physical Properties	Chemical Properties
Examples:	*Examples:*

2. Identify the properties of matter you can **detect with your senses**:



PHYSICAL PROPERTIES OF MATTER

3. Define each physical property of matter and fill in the blanks for each example given.

Name of the Property	Definition	Examples
1. State of Matter 		There are three states of matter. Water in a lake is found in the _____ state, water in your ice cube tray is found in the _____ state, and water in steam is found in the _____ state.
2. Taste 		Sugar tastes _____ but lemons taste _____. Nothing in a chemistry lab should ever be _____ . Even if one of the ingredients is a common food item, once it is used for a lab, it is considered potentially _____.

Name of the Property	Definition	Examples
3. Odor 		Old dirty gym socks smell _____ and roses smell _____ . Never _____ anything in a chemistry lab unless instructed to do so. If smelling a substance, the _____ method should be used to sniff it.
4. Color 		A fire truck is _____ but the sky on a sunny day is _____ . The leaves on the trees in the summer are _____, but the color of the sun is _____ . The color of an orange is _____!
5. Luster 		A piece of paper is _____ because it does not reflect much light, but the chrome on a car is _____ because it reflects a lot of light. Another dull thing is _____ and another shiny thing is _____.
6. Clarity 		A piece of glass is _____ , meaning that it lets all light pass through it, maple syrup is _____ because it lets some light through it, and mud is _____ because it lets no light pass through it.
7. Texture 		The surface of a bowl feels _____ but the surface of the cement sidewalk feels _____. The fur of a cat feels _____ . The surface of an eraser feels _____ .
8. Hardness 		On Moh's hardness scale of minerals, a _____ is the hardest thing known on Earth with a hardness level of _____. An emerald is also hard but it has a hardness level of _____ .
9. Solubility 		Water and vinegar mix together completely and therefore, vinegar is _____ in water. Salt is also _____ in water because it will dissolve completely in water. Neither oil nor sand will dissolve in water, and that is why they are considered _____ in water.

Name of the Property	Definition	Examples
10. Viscosity 		Water is _____ viscous than oil, and that is why it pours out of its container more easily than oil does. Ketchup is _____ viscous than oil, and that is why it's _____ for it to pour out of its container.
11. Malleability 		_____ is very malleable and that is why we use it to make foil to wrap our food. Other substances like glass, are _____ malleable, because it would break instead of change shape. Wood is _____ , while copper is _____.
12. Ductility 		Many metals like _____ and _____ can easily be drawn into a thin wire. Substances like water and cement are not _____ .
13. Density 		Rubber is _____ dense than water and that is why it will float in water. A penny is _____ dense than water and that is why it will sink to the bottom of the water. Water in its _____ state is less dense than water in its _____ state. That is why ice floats on water.
14. Electrical Conductivity 		_____ is a _____ electrical conductor, and that is why it is used as the main material for the wiring found in most homes and electronics. Plastic is _____ a good conductor of electricity and that is why it is used to _____ electrical wires.
15. Melting Point 		The melting point of water is ____ °C and the boiling point of water is ____ °C. The melting point of _____ is 1063°C and the _____ point of gold is 2856°C
16. Boiling Point 		

Name of the Property	Definition	Examples
17. Crystal Form 		If you look with a high powered microscope, you can observe that sugar crystals are oblong and slanted at the sides, but the crystal form of salt is shaped more like a _____.
18. Magnetism 		Substances like steel are _____ to magnets so they are considered _____ . Substances like glass are _____ attracted to magnets and are called _____ .

CHEMICAL PROPERTIES OF MATTER

4. Define each chemical property of matter and fill in the blanks for each example given.

Name of the Property	Definition	Examples
19. Combustibility 		Glass is not _____. Dry wood is _____ combustible than wet wood. _____ fuels, like coal, natural gas, and gasoline, are combustible.
20. Reactivity with Water 		Some substances, like _____ are very reactive with water, and so they have to be stored in a water-free environment. Even the water vapor in the air can cause a reaction so these substances must be stored under _____.

Name: ANSWER KEY

Date: _____

THE PROPERTIES OF MATTER

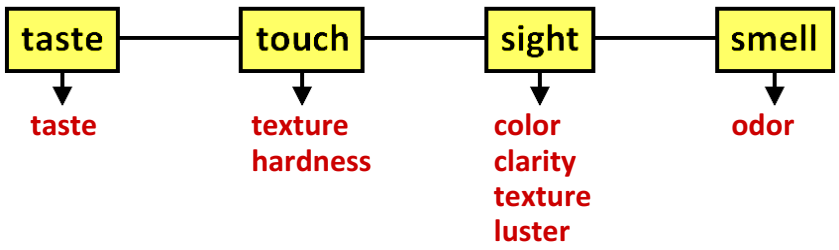
PowerPoint Worksheet

PHYSICAL AND CHEMICAL PROPERTIES OF MATTER

1. What are the differences between **physical properties** and **chemical properties** of matter? Give examples of each.

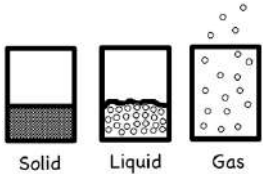
Physical Properties	Chemical Properties
A property of a substance that can be observed or measured without changing the chemical identity of the substance.	**A property of a substance that describes how it reacts to other substances and changes its chemical identity as a result.**
Examples: **color, state of matter**	*Examples:* **combustibility**

2. Identify the properties of matter you can **detect with your senses**:



PHYSICAL PROPERTIES OF MATTER

3. Define each physical property of matter and fill in the blanks for each example given.

Name of the Property	Definition	Examples
1. State of Matter 	**The property of a substance that determines whether or not it is a solid, liquid or gas.**	There are three states of matter. Water in a lake is found in the **liquid** state, water in your ice cube tray is found in the **solid** state, and water in steam is found in the **gas** state.
2. Taste 	**The property of a substance that describes how it tastes.**	Sugar tastes **sweet** and lemons taste **sour**. Nothing in a chemistry lab should ever be **tasted**. Even if one of the ingredients is a common food item, once it is used for a lab, it is considered potentially **contaminated**.

Name of the Property	Definition	Examples
3. Odor 	**The property of a substance that describes how it smells.**	Old dirty gym socks smell **bad** and roses smell **good**. Never **smell** anything in a chemistry lab unless instructed to do so. If smelling a substance, the **hand-waving** method should be used to sniff it.
4. Color 	**The property of a substance that is detected by the eyes when certain wavelengths of light are reflected off of the substance's surface.**	A fire truck is **red** but the sky on a sunny day is **blue**. The leaves on the trees in the summer are **green**, but the color of the sun is **yellow**. The color of an orange is **orange**!
5. Luster 	**The property of a substance that describes how shiny it is.**	A piece of paper is **dull** because it does not reflect much light, but the chrome on a car is **shiny** because it reflects a lot of light. Another dull thing is **an eraser** and another shiny thing is **a spoon**.
6. Clarity 	**The property of a substance that describes how much light can pass through it.**	A piece of glass is **transparent**, meaning that it lets all light pass through it, olive oil is **translucent** because it lets some light through it, and mud is **opaque** because it lets no light pass through it.
7. Texture 	**The property of a substance that describes how the surface of a substance feels.**	The surface of a bowl feels **smooth** but the surface of the cement sidewalk feels **rough**. The fur of a cat feels **soft/fluffy**. The surface of an eraser feels **rough/tacky**.
8. Hardness 	**The property of a substance that describes how difficult it is to scratch its surface.**	On Moh's hardness scale of minerals, a **diamond** is the hardest thing known on Earth with a hardness level of **10**. An emerald is also hard but it has a hardness level of **7.5**.
9. Solubility 	**The property of a substance that describes how easily it dissolves when mixed with another substance.**	Water and vinegar mix together completely and therefore, vinegar is **soluble** in water. Salt is also **soluble** in water because it will dissolve completely in water. Neither oil nor sand will dissolve in water, and that is why they are considered **insoluble** in water.

Name of the Property	Definition	Examples
10. Viscosity 	**The property of a substance that describes how easily it can pour. (i.e. How thick the liquid is.)**	Water is **less** viscous than oil, and that is why it pours out of its container more easily than oil does. Ketchup is **more** viscous than oil, and that is why it's **harder** for it to pour out of its container.
11. Malleability 	**The property of a substance that describes how easily it can be hammered into a thin sheet.**	**Aluminum** is very malleable and that is why we use it to make foil to wrap our food. Other substances like glass, are **not** malleable, because it would break instead of change shape. Wood is **not malleable** , while copper is **malleable**.
12. Ductility 	**The property of a substance that describes how easily it can be turned into a thin wire.**	Many metals like **copper** and **gold** can easily be drawn into a thin wire. Substances like water and cement are not **ductile** .
13. Density 	**The property of a substance which measures how much mass of that substance is in a volume of space.**	Rubber is **less** dense than water and that is why it will float in water. A penny is **more** dense than water and that is why it will sink to the bottom of the water. Water in its **solid** state is less dense than water in its **liquid** state. That is why ice floats on water.
14. Electrical Conductivity 	**The property of a substance that is a measure of its ability to conduct an electric current.**	**Copper** is a **good** electrical conductor, and that is why it is used as the main material for the wiring found in most homes and electronics. Plastic is **not** a good conductor of electricity and that is why it is used to **insulate** electrical wires.
15. Melting Point 	**The property of a substance that is the temperature at which its solid form turns into liquid.**	The melting point of water is **0** °C and the boiling point of water is **100** °C. The melting point of **gold** is 1063°C and the **boiling** point of gold is 2856°C
16. Boiling Point 	**The property of a substance that is the temperature at which its liquid form turns into a gas.**	

Name of the Property	Definition	Examples
17. Crystal Form 	**The property of a substance that describes the crystal shapes that it forms in its solid state.**	If you look with a high powered microscope, you can observe that sugar crystals are oblong and slanted at the sides, but the crystal form of salt is shaped more like a _____**cube**_____.
18. Magnetism 	**The property of a substance that describes if it is attracted to a magnetic field.**	Substances like steel are _____**attracted**_____ to magnets so they are considered _____**magnetic**_____ . Substances like glass are _____**not**_____ attracted to magnets and are called _____**non-magnetic**_____ .

CHEMICAL PROPERTIES OF MATTER

4. Define each chemical property of matter and fill in the blanks for each example given.

Name of the Property	Definition	Examples
19. Combustibility 	**The property of a substance that describes whether or not it will catch on fire in the presence of oxygen and heat.**	Glass is not _____**combustible**_____. Dry wood is _____**more**_____ combustible than wet wood. _____**Fossil**_____ fuels like coal, natural gas, and gasoline are combustible.
20. Reactive with Water 	**The property of a substance that describes if it is reactive with water or not.**	Some substances, like _____**sodium**_____ , are very reactive with water, so they have to be stored in a water-free environment. Even the water vapor in the air can cause a reaction so these substances must be stored under _____**mineral oil**_____.