

1. BEVERAGES

category	Natural	Artificial	function
Hard(alcoholic)	Malwa, Kwete, Mulamba etc	Simanof, Vodka, Uganda Walagi	✓ Has water which hydrates the body. ✓ Used to kill bacteria since it contains ethanol ✓ Used as preservatives because contain ethanol ✓ Acts as fuel since it contains ethanol which can burn. ✓ As a solvent for other ingredients.
Soft(Non-alcoholic)	Juice from oranges, mangoes, apples etc	CocaCola, Fanta, Sprite, Dr Pepper	✓ Used as a source of energy since contain sugars ✓ Used for refreshment and cooling the body, especially in hot weather.(hydrate the body) ✓ Used in social events like parties and celebrations to entertain guests. ✓ Used as mixers in alcoholic drinks to improve taste. ✓ Used in cooking, like tenderizing meat or flavoring agent.

Dangers of soft drinks and their mitigations.

- ✓ They cause tooth decay because soft drinks contain sugars and acids that erode tooth enamel leading to cavities; this can be mitigated by brushing teeth and rinsing the mouth after drinking/ avoid them/ reduce.
- ✓ They lead to obesity since they are high in sugar and calories which cause fat buildup; this is mitigated by limiting intake and exercising regularly.
- ✓ They increase the risk of type 2 diabetes because too much sugar causes insulin resistance; this can be mitigated by choosing sugar-free drinks and monitoring sugar intake.
- ✓ They cause stomach problems like acidity and bloating due to carbonation and acids; this can be mitigated by avoiding them on an empty stomach and drinking in moderation.(reduce the amount consumed)

Dangers of Hard drinks

- ✓ They cause liver damage because excessive alcohol intake over works the liver, leading to diseases like cirrhosis; this can be mitigated by drinking in moderation and taking alcohol-free breaks.

- ✓ They lead to poor judgment and coordination since alcohol affects the brain and nervous system; this can be mitigated by avoiding drinking before driving or operating machinery or doing important task.
- ✓ They increase the risk of addiction because frequent use can lead to alcohol dependence; this can be mitigated by setting personal drinking limits and seeking support when needed.
- ✓ They raise the risk of certain cancers, especially of the liver, mouth, and throat, due to toxic by-products; this can be mitigated by reducing alcohol intake and going for regular health checkups.
- ✓ They cause stomach and digestive issues because alcohol irritates the stomach lining, leading to ulcers or indigestion; this can be mitigated by eating before drinking and avoiding excessive intake.
- ✓ They may weaken the immune system since alcohol reduces the body's ability to fight infections; this can be mitigated by limiting alcohol and maintaining a balanced, healthy lifestyle.
- ✓ They contribute to poor mental health by increasing the risk of depression and anxiety; this can be mitigated by seeking therapy and reducing alcohol use as a coping method.

Differences and similarities between hard and soft drinks

Similarities

- Both cause health problems when consumed excessively
- Both can be addictive if taken regularly.
- Both are commonly used in social gatherings and celebrations
- Both hydrate the body and refresh it.

Differences

- Soft drinks do not contain alcohol while hard drinks contain alcohol
- Soft drinks have no legal age restriction while hard drinks are restricted to adults(18+)
- Soft drinks are used mainly for refreshment while hard drinks are used to induce relaxation or intoxication.
- Soft drinks are lightly regulated while hard drinks are strictly regulated due to health and social risks.

Sample Item 1

At a community sports celebration held in honour of coach Muwangu's team victory, guests enjoyed a variety of drinks, including locally made passion fruit juice and waragi-a strong local drink distilled from banana by a resident.

One of the organizers, excited by the event, requested a mix of Waragi and passion fruit juice. It tasted sweet and harmless, so he drank freely. Shortly afterward, he began showing unusual excitement and slurred speech.

Later, after recovering, he approached you-a chemistry student-to ask to find out some information about the drinks.

Task

As a learner of chemistry,

- (a) Help him know the category of the drinks he drunk at the celebration

Passion fruit juice is a natural soft drink

Waragi is a natural hard drink

- (b) State any one use of the drink made from passion fruits.

Used as a source of energy since they contain sugars.

- (c) Explain why the excessive use of the drink that made him drunk is bad.

They cause liver damage because excessive alcohol intake over works the liver, leading to disease like cirrhosis; this can be mitigated by drinking in moderation and taking alcohol-free breaks.

They increase the risk of addiction because frequent use can lead to alcohol dependence; this can be mitigated by setting personal drinking limits and seeking support when needed.

- (d) Evaluate the products.

Similarity

Both cause health problems when consumed excessively.

Both can be addictive if taken regularly.

Both hydrate the body and refresh it.

Difference

Soft drinks do not contain alcohol while hard drinks contain alcohol

Soft drinks have no legal age restriction while hard drinks are restricted to adults.

Sample Item 2

A senior six schoolgirl attended an introduction ceremony and got excited when she noticed a new drink called Vodka, among other drinks like soda and juice. Curious, she asked to try it, not knowing much about it. However, her parents refused to let her have it. Back at school, she approached you, her friend and a Chemistry student, wanting to understand more about the drink.

Task

As a learner of chemistry,

(a) Identify the category of the new drink

Artificial hard drink

(b) Briefly explain any other use of the new drink.

Can act as preservative, fuel, sanitizer etc

(c) Explain the impact of excessive consumption of the new drink.

They increase the risk of addiction because frequent use can lead to alcohol dependence; this can be mitigated by setting personal drinking limits and seeking support when needed.

(d) Help her decide which drink is better for her consumption.

Similarity

- Both cause health problems when consumed excessively.
- Both hydrate the body.

Difference

- Soft drinks like soda and juice do not contain alcohol while hard drinks like Vodka contain ethanol (alcohol).

Therefore, soda and juice would be better for her consumption so as to avoid being drunk.

Sample Item 3

A teenage schoolgirl attended an introduction ceremony and got excited when she saw a beverage called Smirnoff among many drinks like soda being served. She requested both drinks, although she knew little about them.

Task: As a chemistry student,

(a) Identify the category of the drink(s).

Smirnoff is an artificial hard drink.

Soda is an artificial soft drink.

(b) Briefly explain the use of the drinks(s) when consumed.

Smirnoff is used to hydrate the body.

Soda is used to provide energy to the body.

(c) Explain the impact of excessive consumption of the drink(s).

- Excessive consumption of Smirnoff leads to addiction because of over dependence; this can be mitigated by drinking in moderation.
- Excessive consumption of soda leads to tooth decay, because of acids and sugars which erode the enamel. This can be mitigated by regular brush of the teeth or rinsing the mouth with water.

(d) Compare the drinks.

Similarity: Both hydrate the body.

Difference: Smirnoff has legal age restriction while soda has no legal age restriction.