



NLSI Peace Evangelical Secondary School
Secondary 5

Language across the Curriculum (LaC)

| BOOK 2 |

Your Name: _____

Class (No.) : _____ ()

NLSI Peace Evangelical Secondary School

S5 LaC (2022-23)

1 st Term (Maths, P.E., X2)		
Period	Subject	Topic
Cycle 1	Introduction	--
Cycle 2	Maths	Linear Programming
Cycle 3	Geography(X2)	Farming in the Zhujiang Delta
Cycle 4	THS(X2)	Types of accommodation
Cycle 5	ICT (X2)	E- Commerce
1st UT (40mins)		
Cycle 6	PE	Trampoline P. 3
Cycle 7	Chinese History(X2)	Self-Strengthening Movement P. 12
Cycle 8	Chemistry(X2)	Pollutants P. 19
Cycle 9	VA (X2)	What Visual Arts are P. 28
1st Exam(45mins)		
2 nd Term (Music, CSD, X1)		
Cycle 13	--	--
Cycle 14	History (X1)	The world between wars
Cycle 15	BAFS(X1)	Franchise
Cycle 16	Music	Pop Music
2nd UT (40mins):		
Cycle 17	CSD	?
Cycle 18	Biology (X1)	Cancer
Cycle 19	Physics (X1)	Currents
Cycle 20	ICT (X1) -Part B only	E- Commerce
2nd Exam (45mins)		

Cycle 6 - PE

Trampoline

Trampoline

The sport first developed in the early 1930's in America and was spread to Europe countries. Hong Kong and Japan started to develop this sport among other Asian countries. Trampoline was brought from the English Army in 1950's, then became popular in local sports clubs and schools. A lot of teenagers and students were attracted to participate in Trampoline training courses or competitions. And the Hong Kong Trampoline **squad** was formed in 1980's. In 2000, **individual** Trampoline became a competitive Olympic sport.



Gymnasts just simply bounce on the Trampoline with jumps in **pike**, **tuck** or **straddle** positions to more complex movements. Most people will think that it is very exciting while they stay in the air for a long time with **impressive** jumping height. However, the most difficult skills of Trampoline are to control and display **elegant** body shapes. Gymnasts are able to learn how to overcome challenges and **chase** for **perfection** through **intensive** training.

Besides Individual Trampoline, the competition of **Synchronized** Trampoline also attracts a lot of **spectators**. In synchronized trampolining, two gymnasts perform the same **element** at the same time and must start facing in the same direction, but they do not need to twist in the same direction.

How to Judge for Trampoline Routines Yourself

It's possible to **pick out** a great **routine** without knowing every scoring **nuance**. When watching trampoline routines you should look for:

Good Form and Execution: In all positions, the feet and legs should be together, and the toes should be pointed. The body should be in one of three positions at all times: tucked (knees bent), piked (legs are straight and hip angle is less than 135 degrees), or straight (legs are straight and the angle of the hips is greater than 135 degrees). Arms should be straight and close to the body as much as possible.

A High Degree of Difficulty: As mentioned earlier, part of the score a gymnast receives is due to the difficulty of his/her routine. In general, the more **flips** and twists a gymnast performs before hitting the trampoline, the more difficult his/her routine is.

Variety of Elements: No skill may be repeated during a routine. Performing a skill in the straight position and in the pike position counts as two different skills. (e.g. A full-in straight and a full-in piked are two different elements). In the qualifying rounds of the Olympics, this carries over to both of the routines a gymnast performs. S/he may not

repeat the same element in either of his/her routines in that competition.

Continuous Flow of the Routine: The gymnast must perform a skill on every bounce, without taking an extra bounce between skills. S/he may not stop at any point, receive help from a spotter or touch anything besides the trampoline bed, and s/he must land every skill with both feet hitting the trampoline simultaneously.

The Right Ending: The gymnast must end his/her 10-skill routine with both feet on the trampoline, standing upright. S/he must stand upright and in control for three seconds or a deduction is incurred.

Reference:

Amy, V.D. (2019, JANUARY 30). Olympic gymnastics: trampoline rules & judging. ThoughtCo. Retrieved from

<https://www.thoughtco.com/olympic-gymnastics-trampoline-rules-1714882>

Key Learning Points

- 1 Trampoline: History, Skills, Types of Competition
- 2 How to Judge for Trampoline Routines Yourself

Part A Language

1. Glossary (24 items, 24 marks)

Please fill in the meanings and Parts of Speech. Then, read the phrases in the last column aloud.

No.	Vocabulary	Meanings	Parts of Speech	Collocations/Phrases
1.1	squad (p.1)			the Hong Kong Trampoline squad was formed in 1980's
1.2	individual (p.1)			individual Trampoline became a competitive Olympic sport
1.3	gymnasts (p.1)			Gymnasts just simply bounce on the Trampoline...
1.4	pike (p.1)			jumps in pike , tuck or straddle positions
1.5	tuck (p.1),			jumps in pike, tuck or straddle positions
1.6	straddle (p.1)			jumps in pike, tuck or straddle positions
1.7	impressive (p.1)			they stay in the air for a long time with impressive jumping height
1.8	elegant (p.1)			to control and display elegant body shapes
1.9	chase (p.1)			chase for perfection through intensive training
1.10	perfection (p.1)			chase for perfection through intensive training
1.11	intensive (p.1)			chase for perfection through intensive training
1.12	synchronized (p.2)			the competition of Synchronized Trampoline
1.13	spectators (p.2)			attracts a lot of spectators

1.14	element (p.2)			gymnasts perform the same element
1.15	pick out (p.2)			It's possible to pick out a great routine
1.16	routine (p.2)			It's possible to pick out a great routine
1.17	nuance (p.2)			without knowing every scoring nuance
1.18	execution (p.2)			Good Form and Execution
1.19	flips (p.2)			the more flips and twists a gymnast performs
1.20	spotter (p.3)			help from a spotter
1.21	simultaneously (p.3)			both feet hitting the trampoline simultaneously
1.22	upright (p.3)		adv.	standing upright
1.23	deduction (p.3)			a deduction is incurred.
1.24	incurred (p.3)			a deduction is incurred .

2. Fill in each blank with an appropriate word. (14 items, 28 marks)

In the early 1930's, (2.1) _____ developed in (2.2) _____, and was (2.3) _____ to Europe. Then Asian countries, like (2.4) _____ and (2.5) _____ started to develop this sport. Most people will become (2.6) _____ while gymnasts stay in the air and jump (2.7) _____ high. The most difficult skills of Trampoline are to control and display body shapes (2.8) _____. Gymnasts (2.9) _____ learn how to overcome (2.10) _____ through (2.11) _____ training. Except (2.12) _____ Trampoline, spectators are also (2.13) _____ by the competition of (2.14) _____ Trampoline.

3. True (T) or False (F) and Not Given (NG) (5 items, 5 marks)

- 3.1 _____ Trampoline first developed by the American in the early 1930's. (p.1)
- 3.2 _____ The English Army developed Trampoline in Hong Kong and Japan in 1950's. (p.1)
- 3.3 _____ Individual Trampoline is one of the sports at the upcoming Olympic Games.
- 3.4 _____ There are two types of competition, Individual and Synchronized. (p.1)
- 3.5 _____ In the competition, two gymnasts must start facing in the same direction and twist in the same direction. (p.1)

4. Proofread the following paragraphs. Underline the mistakes, insert any missing words using a “A” and write the correct words on the lines on the right. (13 items, 13 marks)

Variety of Elements:

No skill may be repeated during a routine. Perform a skill in the straight position and in the pike position count as two different skills. (e.g. A full-in straight and a full-in piked were two different elements). In the qualifying rounds of the Olympics, this carries over to both of the routines gymnast performs. S/he may not repeat the same element in either of his/her routines in this competition.

- 1. _____
- 2. _____
- 3. _____
- 4. _____
- 5. _____
- 6. _____

Continuous Flow of the Routine:

The gymnast must perform a skill on every bounces, without taking an extra bounce between skills. S/he may not stop in any point, receive help from a spotter or touch anything beside the trampoline bed, and s/he must land every skill with both foot hitting the trampoline simultaneously.

- 7. _____
- 8. _____
- 9. _____
- 10. _____

The Right Ending:

The gymnast must end his/her 10-skills routine with both feet on the trampoline, standing upright. S/he must standing upright and in control for three seconds or a deduction incurred.

- 11. _____
- 12. _____
- 13. _____

Part A: Score : _____/70

Part B Knowledge & Skills

1. Describe the development of Trampoline in Hong Kong and Asian countries. (10 marks)

Hong Kong and Japan started to develop Trampoline among other Asian countries. (2marks) It was brought from the English Army in 1950's, then became popular in local sports clubs and schools. (2 marks) A lot of teenagers and students were attracted to participate in Trampoline training courses or competitions. (2 marks) And the Hong Kong Trampoline squad was formed in 1980's. (2 marks) In 2000, individual Trampoline became a competitive Olympic sport. (2 marks)

2. What are the most difficult skills of playing Trampoline? And what can we learn when we are participating in Gymnasts? (5 marks)

The most difficult skill of Trampoline are to control and display elegant body shapes. (3 marks) Gymnasts are able to learn how to overcome challenges and chase for perfection through intensive training. (2 marks)

3. How do people judge Trampoline Routines? Please explain them in three aspects and give examples. (15 marks)

(15 marks)

Good Form and Execution: In all positions, the feet and legs should be together, and the toes should be pointed. (2 marks) The body should be in one of three positions at all times: tucked (knees bent), piked (legs are straight and hip angle is less than 135 degrees), or straight (legs are straight and the angle of the hips is greater than 135 degrees). (3 marks) Arms should be straight and close to the body as much as possible. (2 marks)

A High Degree of Difficulty: In general, the more flips and twists a gymnast performs before hitting the trampoline, the more difficult his/her routine is. (2 marks)

Variety of Elements: No skill may be repeated during a routine. (1 mark) Performing a skill in the straight position and in the pike position counts as two different skills. (2 marks) (e.g. A full-in straight and a full-in piked are two different elements). In the qualifying rounds of the Olympics, this carries over to both of the routines a gymnast performs. S/he may not repeat the same element in either of his/her routines in that competition. (3 marks)

Part B: Score : _____/30

Cycle 7 - Chinese History

Self-Strengthening Movement

The Self-Strengthening Movement 洋務運動

Key Learning Points

- 1 Background of the Self-Strengthening Movement
- 2 Objectives of the Self-Strengthening Movement
- 3 Key measures of the Self-Strengthening Movement
- 4 Effects of the Self-Strengthening Movement

Background of the Self-Strengthening Movement

1. The defeat of the First and Second Opium Wars
2. The period of quelling the Taiping Uprising.

→ Zeng Guofan, Zuo Zongtang, Li Hongzhang, and other officials noticed the power of foreign ships and cannons. They advocated learning the military technology of the West to raise national strength.



▲ Zeng Guofan



▲ Zuo Zongtang



▲ Li Hongzhang

Objectives of the Self-Strengthening Movement

1. Strengthen the army and defend against the enemies:
The goal of the early stage was to strengthen the army, learn from the western countries to be well-equipped with strong ships and powerful cannons.
- 1.1 Focused on the development of the military power. Introduced advanced military equipment and technology. Produced guns, cannons and warships of new styles → Strengthened the

military power.

1.2 Focused on the **nurture** of talents with western knowledge.

2. Wealth and Strength both:

The goal was changed to 'wealth and strength both' in the later stage. Introduced Western mechanical equipment and founded various industries →

2.1 Strengthened the economy and support the military development.

2.2 Resist the economic **invasion** of the Powers.

Key measures of the Self-Strengthening Movement

1. **Diplomacy:**

1.1 In 1861, the Qing court set up the Office for the General Management of Affairs Concerning the Various Countries (Zongli Yamen) to handle **diplomatic** and trade affairs, and promote the Self-Strengthening Movement.

1.2 Sent **envoys** to visit and station in foreign countries → To strengthen the relation between China and foreign countries.

2. **Military:**

2.1 Purchased Western mechanical equipment and founded various military industries → To produce guns and cannons, warships, **ammunition**, etc.

2.2 Established new-style ground and navy forces such as the Beiyang Fleet.

2.3 Hired foreign instructors → To train the military forces using Western methods.

3. **Economy:**

3.1 Set up new types of industries and developed mining, railway, posts and communications, etc.

3.2 Started **civilian enterprises** such as weaving, printing, shipping, etc. These were run in the 'Government Supervision and Merchant Management' way.

4. **Education:**

4.1 Established **institutions** such as the Tongwenguan to teach foreign languages and Western knowledge → To nurture talents in translation and diplomacy.

4.2 Established Naval College, Military Academy, etc. → To train military talents.

4.3 Sent young boys to study in the US.



◀ Jinling Arsenal

Effects of the Self-Strengthening Movement

1. Promoted the exchanges of China and foreign countries:
 - 1.1 Set up diplomatic organization in modern China
 - 1.2 Sent envoys to each other with foreign countries } Promoted the exchanges between China and foreign countries.

2. Laid the foundation for the national defense:
 - 2.1 Founded **arsenals** to produce Western weapons
 - 2.2 Set up new style ground and **navy** force } Laid the foundation of modernized national defense in China.

3. Laid the foundation of modern enterprises:
 - 3.1 Introduced advanced Western technology and set up the first enterprises in modern China
→ Founded the modern industries in China.
 - 3.2 Set up **modernized** railway, posts and communications systems in China → **Boosted** the development of China's economy.

4. Nurtured talents with Western knowledge:
 - 4.1 Set up various new types of colleges
 - 4.2 Translated Western books
 - 4.3 Sent students to study abroad } Nurtured talents with Western knowledge who contributed to the **reform** later.



Key Learning Points

1. Background of the Self-Strengthening Movement
2. Objectives of the Self-Strengthening Movement
3. Key measures of the Self-Strengthening Movement
4. Effects of the Self-Strengthening Movement

Part A Language

1. Glossary (20 items, 20 marks)

Please fill in the meanings and Parts of Speech. Then, read the phrases in the last column aloud.

No.	Vocabulary	Meanings	Parts of Speech	Collocations/Phrases
1.1	Defeat (p.1)	打敗	n. v.	to win against someone in a fight, war, or competition, or when someone or something is made to fail
1.2	quelling (p.1)			to stop something, especially by using force
1.3	advocated (p.1)			to publicly support or suggest an idea, development, or way of doing something
1.4	National nation (p.1)			relating to a whole country and its people a country, especially when thought of as a large group of people living in one area with their own government, language, traditions, etc.
1.5	strengthen (p.1)			to make something stronger or more effective
1.6	Well-equipped (p.1)			having the skills needed to do something
1.7	Military (p.1)			relating to or belonging to the armed forces
1.8	nurture (p.2)			to take care of, feed, and protect someone or something, especially young children or plants, and help him, her, or it to develop
1.9	invasion (p.2)			when an army or country uses force to enter and take control of another country
1.10	Diplomacy diplomatic (p.2)			the management of relationships between countries
1.11	envoys (p.2)			someone who is sent as a representative from one government or organization to another

1.12	ammunition (p.2)			objects that can be shot from a weapon, such as bullets or bombs
1.13	civilian (p.2)			a person who is not a member of the police or the armed forces
1.14	enterprise (p.2)			an organization, especially a business, or a difficult and important plan, especially one that will earn money
1.15	institutions (p.2)			a large and important organization, such as a university or bank
1.16	arsenals (p.3)			a building where weapons and military equipment are stored
1.17	navy (p.3)			the part of a country's armed forces that is trained to operate at sea
1.18	modernized (p.3)			to make something more modern
1.19	boosted (p.3)			to improve or increase something
1.20	reform (p.3)			to make an improvement, especially by changing a person's behaviour or the structure of something

2. Fill in the blank (17 items, 2 marks each, 34 marks)

Please fill in the blank with **correct form of the word**. The blanks marked with a (*) require more attention to the word forms.

The Self-Strengthening Movement	
Background	After the (2.1) _____ of the Opium Wars and (2.2) _____ of the Taiping Uprising, many Qing officials realized that learning the (2.3) _____ technology of the west was the only way to raise the (2.4) _____ power. Therefore, they decided to (2.5) _____ (*) the (2.6) _____ for defending the enemies.
Objectives	The goal was to (2.7) _____ the army. It was hoped to learn from western countries to become the (2.8) _____ with strong ships and powerful cannons. It also focused on the (2.9) _____ of talents with western knowledge.

Key measures	<p><u>Diplomacy</u></p> <ol style="list-style-type: none"> 1. The Qing court set up the Office to handle (2.10) _____ and trade affairs. 2. Sent (2.11) _____ to visit and station in foreign countries. <p><u>Military</u></p> <ol style="list-style-type: none"> 1. Produced some weapons, such as guns, cannons, warships and (2.12) _____ locally. 2. Hired foreign instructors to train military force. 3. Established new style ground and (2.13) _____ force. <p><u>Economy</u></p> <ol style="list-style-type: none"> 1. Set up new type of industries and developed mining to build the infrastructure in China. 2. Encouraged the civilian (2.14) _____ to run their own businesses. <p><u>Education</u></p> <ol style="list-style-type: none"> 1. Set up (2.15) _____ to learn foreign languages and western knowledge.
Effects	<p>Built the (2.16) _____ (*) communication systems for (2.17) _____ (*) the development of China's economy, such as railways and posts.</p>

3. True (T), False (F) and Not Given (NG) (8 items, 2 marks each, 16 marks)

- 3.1 The Qing won in the Opium War. ()
- 3.2 Only young men were allowed to study overseas. ()
- 3.3 U.S was the most popular country for studying at that time. ()
- 3.4 Only rich people could allow to own their businesses. ()
- 3.5 The Qing government founded arsenals to produce western weapons locally. ()
- 3.6 Women were allowed to study in the institutions. ()
- 3.7 The talents mainly learned the foreign languages for translation work only. ()
- 3.8 Economic invasion was the main cause of advocating the movement. ()

Part A: Score : _____/70

Part B Knowledge & Skills

Please answer the following questions. Q & A (Answers)

Chapter 3: The Self-Strengthening Movement (p.112-116)

1. Why did Prince Gong, Li Hongzhang, and other leaders start the Self-Strengthening Movement? (6 marks)
 - They noticed (1 mark) the power of foreign ships (1 mark) after the defeat (1 mark) of the First and Second Opium Wars (1 mark) and the period of quelling the Taiping Uprising. They advocated (1 mark) learning the military technology (1 mark) of the West to raise national strength.
2. What was the objective of The Self-Strengthening Movement? (4 marks)
 - To strengthen the Armed Forces (2 marks) and Enrich the country. (2 marks)
3. How did the Qing court enhance military power during the Self-Strengthening Movement? (any 2 points, 4 marks each point) (8 marks)
 - The Qing court purchased Western mechanical equipment (2 marks) and founded various military industries (2 marks).
 - It also established new-style ground and navy forces (2 marks) such as Beiyang Fleet (1 mark), and built forts and navy bases (1 mark).
 - Moreover, foreign instructors were hired (2 marks) to train the military forces using Western methods. (2 marks)
4. What were the functions of “Tongwenguan”? (4 marks)
 - To nurture talents (1 mark) in translation and diplomacy (1 mark) by teaching foreign languages and Western knowledge. (2 mark)
5. What historical event represents the failure of the Self-Strengthening Movement? (2 marks)
 - The defeat (1 mark) of the First Sino-Japanese War. (1 mark)
6. Why did the Self-Strengthening Movement fail? (6 marks)
 - The Self-Strengthening Movement focused on upgrading the hardware (1 mark) and ignored the need to reform politics, society, culture, etc (2 mark).
 - Some officials were corrupt (1 mark) and the conservative power continued to obstruct (1 mark), therefore the movement was not effective (1 mark).

Part B:

Score : _____ /30

Cycle 8 - Chemistry

Pollutants

UNIT 25 Fossil fuels

25

25.11 Polluting the atmosphere

Humans rely on fossil fuels for heating, transport (Fig. 25.28) and electricity generation (Fig. 25.29). But there is a drawback — burning fossil fuels produces harmful substances.



Fig. 25.28 Motor vehicles cause air pollution



Fig. 25.29 Pollutants from fossil fuel power stations, especially old coal-fired power stations

Formation of pollutants

Carbon monoxide

Incomplete combustion of fuels that contain carbon produces carbon monoxide (CO). This can happen when coal or natural gas are burnt in a poor supply of air or oxygen. It also happens in vehicle engines.

Chemistry Lens

Carbon monoxide

Carbon monoxide is a **colourless** and odourless toxic gas. It attaches to the haemoglobin in red blood cells more strongly than oxygen, reducing the amount of oxygen transported in the bloodstream. Carbon monoxide poisoning causes headaches, nausea and fainting, and even death.

One way to prevent excessive exposure to carbon monoxide is to install a carbon monoxide detector (Fig. 25.30). A carbon monoxide detector sounds an alarm when it senses a certain amount of carbon monoxide in the air over time.



Fig. 25.30 An electronic carbon monoxide detector



Fig. 25.31 Vehicles with poor maintenance release black smoke

Particulates

Besides carbon monoxide, small carbon particles are also produced during the incomplete combustion of fuels that contain carbon. The carbon is often noticeable as black smoke from diesel-powered vehicles with poor maintenance (Fig. 25.31).

Small particles that remain suspended in the air for a long time are called **suspended particulates**.

Unburnt hydrocarbons

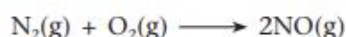
Unburnt hydrocarbons represent another source of atmospheric pollution associated with the use of fossil fuels, even though they are not a result of combustion. Unburnt hydrocarbons may enter the atmosphere as a result of leaks or spills.

Also, volatile hydrocarbons, a kind of **volatile organic compounds** (VOCs), may evaporate from the petrol tank of a vehicle and enter the atmosphere.

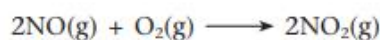
Oxides of nitrogen

In normal combustion, nitrogen gas in the air does not get oxidised. However, at the very high temperatures in furnaces or engines, nitrogen combines with oxygen to produce various oxides of nitrogen. They are represented by the formula NO_x . There are several of these oxides, but the main ones are nitrogen monoxide (NO) and nitrogen dioxide (NO_2).

At very high temperatures, the main reaction is:

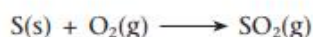


Nitrogen monoxide then reacts with more oxygen in the atmosphere to form nitrogen dioxide.



Sulphur dioxide

Fossil fuels often contain small amounts of sulphur. When the fuel burns, the sulphur is oxidised to form sulphur dioxide gas.



suspended particulate 懸浮粒子

volatile organic compound 揮發性有機化合物

Effects of pollutants

Table 25.4 lists the major sources and polluting effects of pollutants.

Pollutant	Major source(s)	Major polluting effect(s)
Carbon monoxide	<ul style="list-style-type: none"> incomplete combustion of fossil fuels 	<ul style="list-style-type: none"> a very poisonous gas
Suspended particulates (mainly carbon particles)	<ul style="list-style-type: none"> burning fuels (such as coal) 	<ul style="list-style-type: none"> can be breathed into the lungs to cause breathing problems and worsen asthma reduce visibility
Volatile organic compounds	<ul style="list-style-type: none"> unburnt fuel from petrol engines 	<ul style="list-style-type: none"> some hydrocarbons (e.g. benzene) may cause cancer
Oxides of nitrogen	<ul style="list-style-type: none"> combustion of fuels in power plants and vehicles 	<ul style="list-style-type: none"> can cause breathing problems and worsen asthma form acid rain give photochemical smog with unburnt hydrocarbons
Sulphur dioxide	<ul style="list-style-type: none"> volcanoes burning of fuels containing sulphur 	<ul style="list-style-type: none"> irritates the eyes and throat causes breathing problems forms acid rain

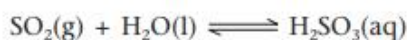
Acid rain

Both oxides of nitrogen and sulphur dioxide cause acid rain if they escape into the atmosphere.

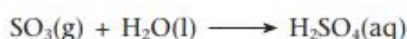
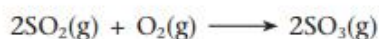
Nitrogen dioxide dissolves in the rain, snow, fog, hail or moisture in clouds, forming nitrous acid and nitric acid:



Sulphur dioxide dissolves in the rain, snow, fog, hail or moisture in clouds, forming sulphurous acid:



Sulphur dioxide can react with oxygen in the atmosphere to form sulphur trioxide, which then dissolves in the rain, snow, fog, hail or moisture in clouds to form sulphuric acid:



photochemical smog 光化煙霧

The mixture of acids in the atmosphere causes problems when it falls as acid rain.

Acid rain **attacks** stonework in buildings — especially limestone and marble, which are calcium carbonate (Fig. 25.32). It **lowers** the pH in rivers and lakes, killing fish and other **aquatic life**. It also causes **damage to** crops and forests (Fig. 25.33).



Fig. 25.32 The effects of acid rain on a statue



Fig. 25.33 These trees have been badly damaged by acid rain

Practice

25.4

In recent years, there has been worldwide interest in the possible extraction of 'shale gas' (a form of natural gas).

The table below shows a comparison of the relative amounts of pollutants released when 'shale gas', fuel oil and coal are burnt to produce the same amount of energy.

Pollutant	Shale gas	Fuel oil	Coal
CO	0.040	0.033	0.208
NO ₂	0.092	0.548	0.457
SO ₂	0.001	1.12	2.59
Particulates	0.007	0.84	2.74

- Which of the three fuels is the largest contributor to acid rain? Explain your answer.
- Suggest a reason why **burning fuel** oil and coal will produce more NO₂ than burning shale gas.
- State ONE harmful effect of particulates on health.

Key Learning Points

1. Formation of pollutants
2. Effects of pollutants
3. Acid rain

Part A Language

1. Glossary (30 marks, 2 marks@)

Please fill in the meanings and Parts of Speech. Then, read the phrases in the last column aloud.

No.	Vocabulary	Meanings	Parts of Speech	Collocations/Phrases
1.1	Poisonous gas (p.21)		n.	...a poisonous gas
1.2	Reduce (p.21)		v.	...reduce visibility
1.3	Lower (p.22)		v.	It lowers the pH in rivers and lakes.
1.4	Aquatic life (p.22)		n.	...killing fish and other aquatic life.
1.5	Incomplete combustion (p.21)			Incomplete combustion of fuels that contain carbon...
1.6	Unburnt (p.20)			...unburnt fuel from petrol engines
1.7	Colourless (p.19)			Carbon monoxide is a colourless gas.
1.8	Noticeable (p.20)			The carbon is often noticeable as black smoke...
1.9	Damage to (p.22)		v.	It also causes damage to crops and forests.
1.10	Attack (p.22)			Acid rain attacks stonework in building.
1.11	Burning fuels (p.22)			Burning of fuels containing sulphur
1.12	Breath into (p.21)			...can be breathed into the lungs to cause breathing problems...
1.13	volcanoes (p.21)			...volcanoes
1.14	cancer (p.21)			...may cause cancer
1.15	breathing problems (p.21)			...can be breathed into the lungs to cause breathing problems...
1.16	acid rain (p.21)			...forms acid rain

2. Synonym (6 marks, 2 marks @)

Please find words or phrases from the text which means the same as the given one.

Given	Synonym
Toxic	
Lowers	
Living in the water	

3. Antonym (8 marks, 2 marks@)

Please find words from the text which means the opposite of the given one.

Given	Antonym
complete	
burnt	
colourful	
Unnoticed	

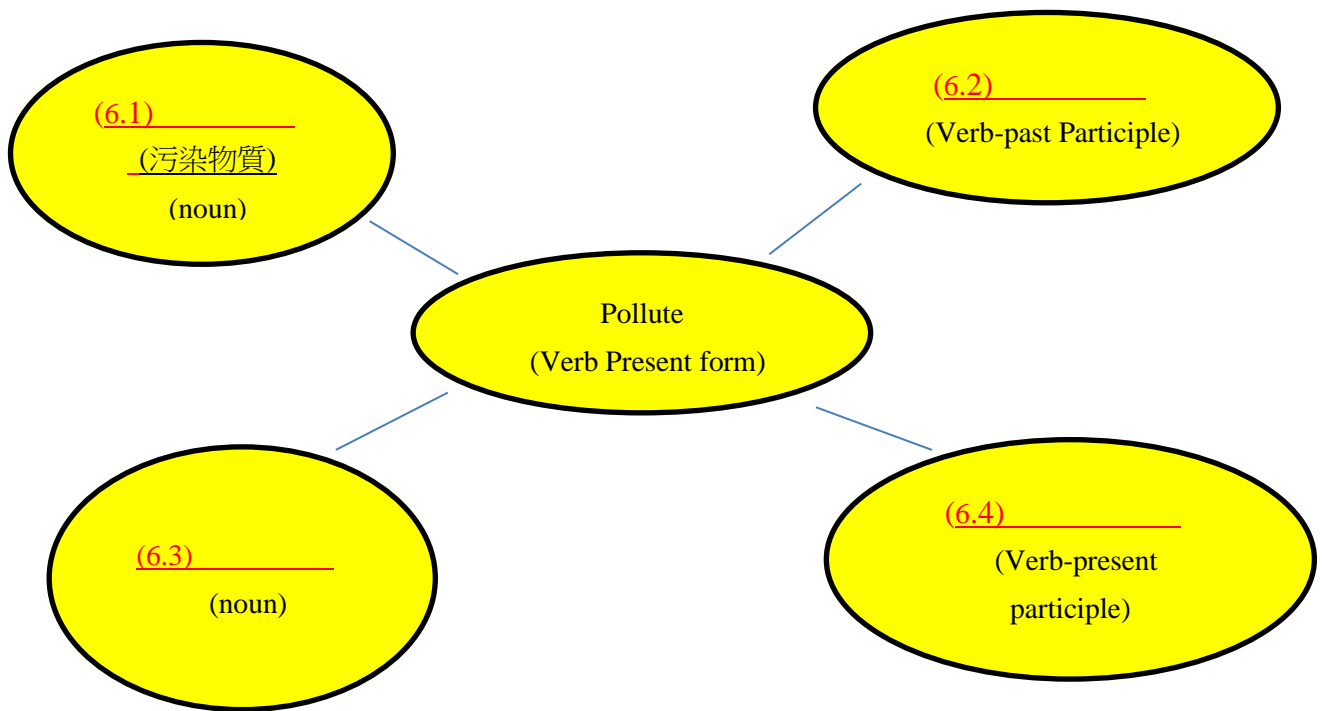
4. Effects of pollutants (18 marks, 2 marks@)

Pollutant	Major source	Major polluting effect(s)
Carbon monoxide	-- (4.1) _____ of fossil fuels	-- a very (4.2) _____
Volatile organic compounds	-- (4.3) _____ from petrol engines	-- some hydrocarbons (e.g. benzene) may cause (4.4) _____
Sulphur dioxide	-- (4.5) _____ -- (4.6) _____ containing sulphur	-- (4.7) _____ the eyes and throat -- causes (4.8) _____ -- (4.9) _____

5. Fill in each blank with an appropriate word. (4 marks, 1 marks@)

Acid rain (5.1) _____ stonework in buildings especially limestone and marble, which are calcium carbonate. It (5.2) _____ the pH in rivers and lakes, killing fish and other (5.3) _____. It also causes (5.4) _____ crops and forests.

6. Word formation and parts of speech. (4 marks, 1 marks@)



Part A: Score : _____/70

Part B Knowledge & Skills

1. Carbon dioxide and methane are two major greenhouse gases. There were large increases in the average concentrations of the two gases in the atmosphere in the past ten decades.
 - (a) Suggest ONE reason why there was a large increase in the concentration of each gas in the atmosphere in the past ten decades.
 - (i) Carbon dioxide
 - (ii) Methane
 - (b) How greenhouse gases cause global warming?
 - (c) Too much greenhouse gases in the atmosphere can cause global warming. State TWO severe environmental consequence associated with global warming.
 - (d) Suggest ONE possible way to prevent further increase in the concentration of each gas in the atmosphere.
 - (i) Carbon dioxide
 - (ii) Methane

2. Petrol-driven cars emit air pollutants such as nitrogen monoxide and carbon monoxide.
 - (a) Under what condition would pollutants be formed during the combustion of petrol?
 - (i) Nitrogen monoxide
 - (ii) Carbon monoxide
 - (b) List one of polluting effects of following pollutants.
 - (i) Nitrogen monoxide
 - (ii) Carbon monoxide
 - (c) Name a device that can be installed in a petrol-driven car so as to reduce the emissions of nitrogen monoxide and carbon monoxide.

3. Hong Kong tend to generate electricity more by natural gas but less by coal. Give TWO reasons from environmental protection consideration.

4. Renewable energy can reduce emission of greenhouse gases into atmosphere.
 - (a) What is renewable energy.
 - (b) List two examples of renewable energy.

Part B: Score : _____/30

Suggested Answer:

1. (a) (iii) Any one of the following:
- Burning a large amount of petrol / diesel / fossil fuel.
 - Growth in population leads to deforestation for housing or farming. 2
- (iv) Any one of the following:
- Use of landfills which emit methane.
 - Increase in the number of cattle / rice paddies. 2
- (b) Greenhouse gases absorb some of the infrared radiation emitted from the Earth 1
- and re-emit them in all directions. 1
- This prevents the infrared radiation from being re-radiated into space. 1 + 1
- (c) Any two of the following or reasonable answer:
- Causing polar ice caps to melt
 - Flooding
 - Change in rainfall pattern 2 + 2
- (d) (i) Any one of the following:
- Use alternative energy sources (e.g. wind energy, solar energy etc.) to generate electricity.
 - Stop cutting down or burning forests.
 - Plant more trees. 1
- (ii) Collect and use methane fromed as fuel. 1
2. (a) (i) High temperature in engine cause reaction between nitrogen and oxygen 1 + 1
- (ii) Incomplete combustion of fuel will form carbon monoxide. 2
- (b) (i) Any one of the following:
- can cause breathing problems
 - form acid rain
 - give photochemical smog with unburnt hydrocarbons 1
- (ii) Carbon monoxide is a very poisonous / toxic gas. 1
- (c) Catalytic converters 2
3. ● Natural gas is easier to be complete combustion and hence emit less pollutants. 1
- Natural gas does not contain sulphur and will not emit sulphur dioxide. 1 + 1
4. (a) Renewable energy is energy that is collected from renewable resources that are naturally replenished on a human timescale. 1
- (b) Sunlight(Solar), wind, movement of water and geothermal heat. 1 + 1

Cycle 9 – VA

What Visual Arts are

What Visual Arts are

Visual Arts, also known as ‘art’ or ‘art forms’, refer to objects which are made with material by formative **means** and which have spatial and **aesthetic** value.

Visual arts are wide ranging. They can be divided into two major categories – ‘fine arts’(Fig. 1.1) and ‘design’.



Fig. 1.1 A painting can light up a room and fill it with an artistic atmosphere.

Fine Arts

Fine arts include **two-dimensional** and **three-dimensional** works (Fig. 1.2). Two-dimensional works are categorized by the material and tools employed by their creators. These for example include drawing, pastel drawing, watercolour painting, oil painting, ink painting, and print. Three-dimensional works can take the form of relief, sculpture and environmental installation.



Fig. 1.2 The Forever Blooming Bauhinia sculpture is not only the focus of the square. It also records the historic moment of the return of Hong Kong to the motherland.

Design

Design includes **craft**, industrial design, commercial design and **architecture**.

Examples of traditional crafts are ceramics (Fig. 1.3), lacquer ware and metal crafts.



Fig. 1.3 Though all teapots have the same function and basic components parts, they come in very different shapes.

Commercial design mainly refers to logo design, packaging, poster design and advertising (Fig. 1.4).

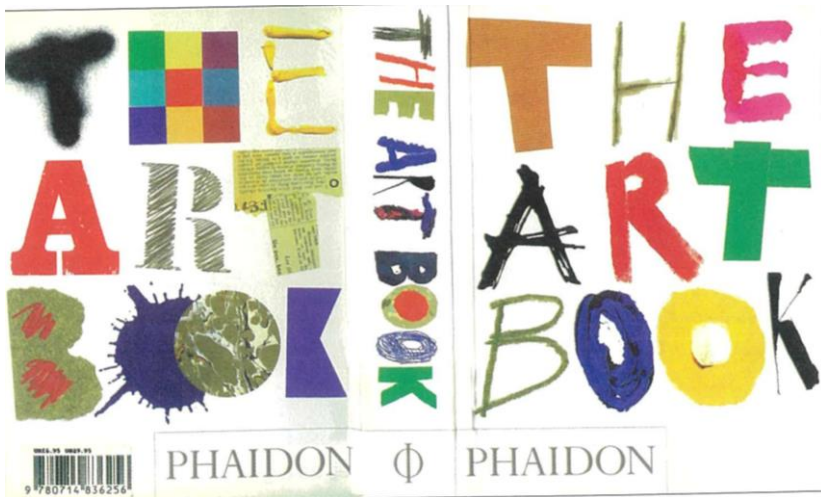


Fig. 1.4 Book covers are an important link in commercial design. The cover design of this art book gives prominence to the theme. Its lively lettering is eye-catching.

Industrial design includes all articles of practical use which both meet our needs and are beautiful (Fig. 1.5).



Fig. 1.5 This table lamp, designed by Karl J. Jucker(卓加) and Wilhelm Wagenfeld(華根輝), is a 1920's industrial product, but its design still looks very modern and won the 'Gute Form' prize in 1982.

Architecture has **spatial** form and is like a giant artwork (Fig. 1.6). Besides solving scientific and technical problems, architects must also pay attention to the formative design of the structure.



Fig. 1.6 The Tsimshatsui Clock Tower is a piece of architecture as well as a giant three-dimensional artwork. It is a favourite spot for tourists to have their pictures taken.

You are Not a Stranger to Visual Arts

The creation of visual arts involves a wide range of matters. Its rich contents are often frightening and intimidating for beginners. But consider whether you have had these experiences:

- wondered at the rich colours of a sunset;
- been spellbound by a poster while waiting on an MTR platform for the train;
- drawn your favourite cartoon character, thinking you are no less skillful than the original cartoonist.

If these feelings are not strange to you, you are not a stranger to visual arts. All you need is some study and practice – **observation** with the eye, feeling with the heart, and bold attempts at creation.

You may not choose **artistic** creation or design as a career, but when you have learned basic artistic knowledge, you will be better able to **appreciate** artworks and commercial designs. Life will be so much richer for you.

Creating Visual Arts

The work of the artist is often called ‘creating’. We can get a glimpse of how this **concept** was formed through an understanding of the nature of the visual artist’s work – visual artists use various kinds of material to produce different forms of work which are not entirely **imitations** of the real world. That is why people regard artworks as creations (Fig. 2.1).

For example, sculptor George Fullard took discarded waste material such as old chairs, tables, door and picture frames and **re-assembled** them into a female figure that has ‘life’ (Fig.2.2).

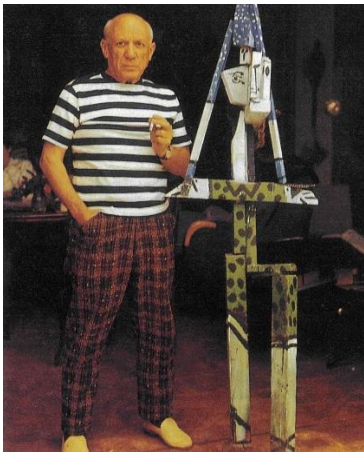


Fig. 2.1 Pablo Picasso (畢加索) with one of his works.



Fig. 2.2 George Fullard (佛勒), *Woman* (女人), 1959, Sculpture of assembled waste wood, 229.2 x 43.2 x 81.3 cm.

Artistic Creations Which Originate from Life

Artworks may seem to come from ‘nothing’. But everything has its **origin**. Artistic creations are portrayals of people’s lives, thoughts, words and actions. In other words, the sources of creative **inspiration** are closely linked to people’s feelings, experiences and views of things around them.

Georges Seurat’s *A Sunday Afternoon on the Island of La Grande Jatte* (Fig. 2.3) portrays people spending a leisurely weekend at a lakeside. The lovely landscape bathed in sunshine forms a picture overflowing with warmth and enjoyment.

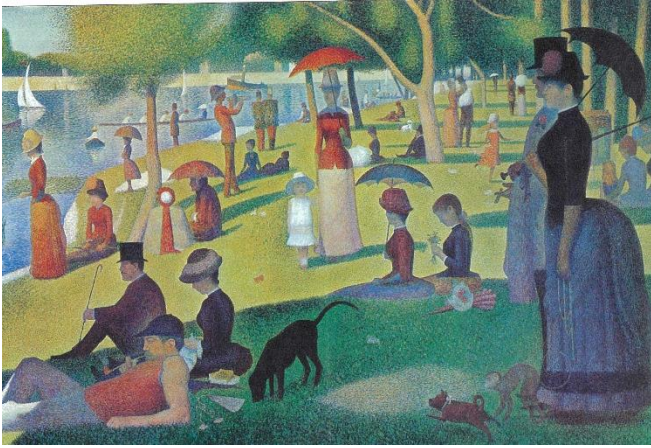


Fig. 2.3 Georges Suratt (秀拉), *A Sunday Afternoon on the Island of La Grande Jatte* (星期日午後的大碗島), 1884-1895, Oil on canvas, 207.5 x 308.1 cm.

Artistic Creations which Sublimate Reality

Artistic creation is not always an activity that merely represents real life as it is. As a result of the artist's participation, a work which reflects real life is injected with their personal thoughts and feelings. While creating, artists often use their imagination to **extract**, **process** and **reform** raw materials taken from life in order to create artistic meaning beyond the **objective** phenomena.

Are you swept off your feet when your loved one presents you with flowers on your birthday? Look at Marc Chagall's *Birthday* (Fig. 2.4). See how he uses colours and forms to express the strong affection between this pair of lovers.



Fig. 2.4 Marc Chagall (夏卡爾), *Birthday* (生辰), 1915, Oil on canvas, 80.6 x 99.7 cm.

Key Learning Points

1. What Visual Arts are
2. Forms of design
3. Creating Visual Arts

Part A Language

1. Glossary (20 items, 20 marks)

Please fill in the meanings and Parts of Speech. Then, read the phrases in the last column aloud.

No.	Vocabulary	Meanings	Parts of Speech	Collocations/Phrases
1.1	Means (p.28)			Different means of solving the problem...
1.2	aesthetic (p.28)			The new building has little aesthetic value.
1.3a	two-dimensional (p.28)			two-dimensional drawing
1.3b	three-dimensional (p.28)			three-dimensional installation
1.4	craft (p.29)			the craft of furniture making/ sewing/glassblowing
1.5	architecture (p.29)			Roman architecture
1.6	commercial (p.29)			The commercial future of the company looks very promising.
1.7	industrial (p.30)			The fund provides money to clean up chemically polluted industrial sites.
1.8	spatial (p.30)			This task is designed to test children's spatial awareness.
1.9	observation (p.31)			She has remarkable powers of observation .
1.10	artistic (p.31)			the artistic director of the theatre
1.11	appreciate (p.31)			There's no point buying him expensive wines -he doesn't appreciate them.
1.12	concept (p.32)			It is very difficult to define the concept of beauty.

1.13	imitation (p.32)			She can do a wonderful imitation of a blackbird's song.
1.14	reassemble (p.32)			Investigators have been reassembling the wreckage of the plane.
1.15	origin (p.32)			It's a book about the origin of the universe.
1.16	inspiration (p.32)			The artist took his inspiration from African art.
1.17	extract (p.33)			... extract the information from a witness
1.18	process (p.33)			a waste processing plant
1.19	reform (p.33)			He was credited with having reformed the education system.
1.20	objective (p.33)			I can't really be objective when I'm judging my daughter's work.

2. Fill in each blank with suitable word(s). (10 items, 20 marks)

Visual Arts refer to objects which are made with material by formative (2.1) _____ and which have spatial and (2.1) _____ value. _

Fine arts include (2.3) _____ and (2.4) _____ works.

Design includes (2.5) _____, (2.6) _____ design, (2.7) _____ design and (2.8) _____.

To create visual arts, all you need is some (2.9) _____ and practice – (2.10) _____ with the eye, feeling with the heart, and bold attempts at creation.

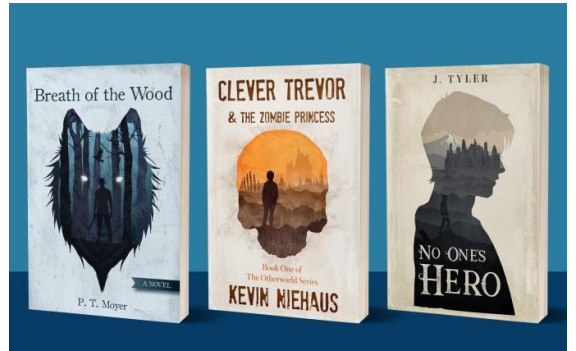
3. True (T or False (F) and Not Given (NG) (6 items, 6 marks)

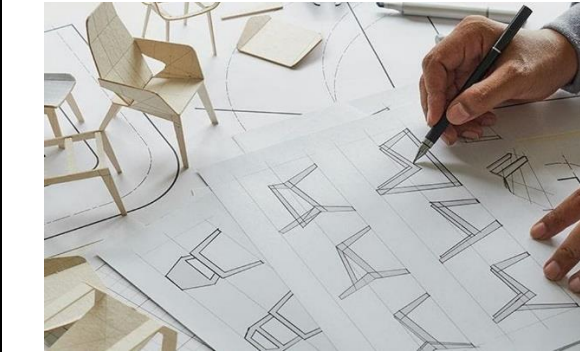
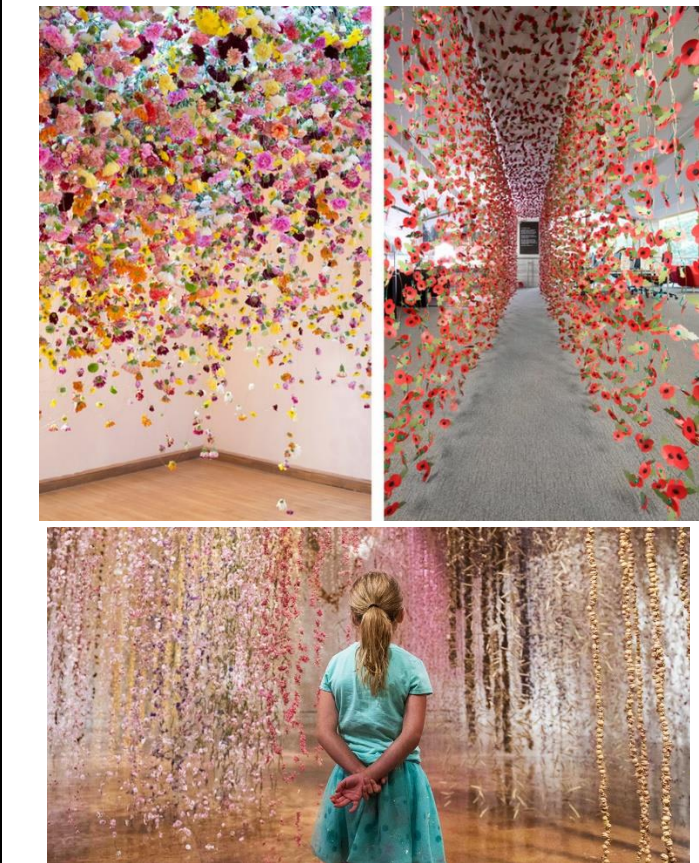
3.1	Watercolour painting is an example is three-dimensional works. ()
3.2	Design includes craft, industrial design, commercial design and architecture. ()
3.3	Packaging is an example of industrial design. ()
3.4	Georges Seurat's <i>A Sunday Afternoon on the Island of La Grande Jatte</i> portrays people spending a leisurely school day at the library. ()
3.5	Artistic creation merely represents real life without personal thoughts and feelings. ()
3.6	Marc Chagall's <i>Birthday</i> expresses the love between a pair of lovers. ()

4. Matching: Please match the types of arts by writing the letter from a to m. (12 items, 24 marks)

a.	pastel drawing	e.	ink painting	h.	sculpture	k.	commercial design
b.	watercolour painting	f.	print	i.	environmental installation	l.	industrial design
c.	oil painting	g.	relief	j.	craft	m.	architecture







Part A: Score: _____/70

Part B Knowledge & Skills

Please answer the following questions. Q&A (Answers)

1. What are the two major categories of visual arts? (2 marks)

The two major categories of visual arts are fine arts and design.

2. Name four forms of design? (4 marks)

They are craft, industrial design, commercial design and architecture.

3. What is the difference between two-dimensional and three-dimensional works? (6 marks)

Two-dimensional works are categorized by the material and tools employed by their creators.

These for example include drawing, pastel drawing, watercolour painting, oil painting, ink painting and print.

Three-dimensional works can take the form of relief, sculpture and environmental installation.

4. Refer to the article, what should the people do to get the feelings of visual arts? (3 marks)

The people should do some study and practice – observation with the eye, feeling with the heart, and bold attempts at creation.

5. Why people regard artworks as creations? (3 marks)

People regard artworks as creations because visual artists use various kinds of material to produce different forms of work which are not entirely imitations of the real world.

6. What are the artistic creations? What are the sources? (4 marks)

Artistic creations are portrayals of people's lives, thoughts, words and actions.





The sources of creative inspiration are closely linked to people's feelings, experiences and views of things around them.



7. What should the artists do when they are creating their work? (3 marks)

The artists often use their imagination to extract, process and reform raw materials taken from life in order to create artistic meaning beyond the objective phenomena.

8. Fill in the blanks. (5 marks)

Design, logo design	Fine arts, oil painting / painting	Design, architecture
Fine arts, sculpture	Design, craft / ceramics	

	Examples of Visual Arts	Art form
Example		Fine arts, oil painting
a.		Design, logo design
b.		Fine arts, oil painting / painting
c.		Design, architecture

d.		Fine arts, sculpture
e.		Design, craft / ceramics

Part B: Score : _____/30