



# POLLUTION SOLUTION

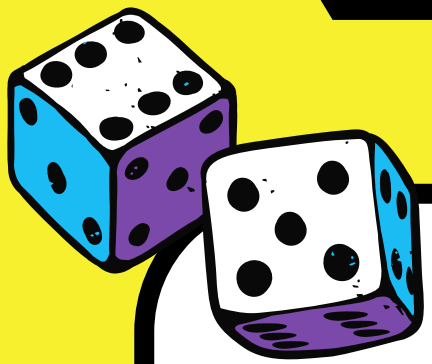


# Pollution Solution

**Game Theme**  
Air Pollution

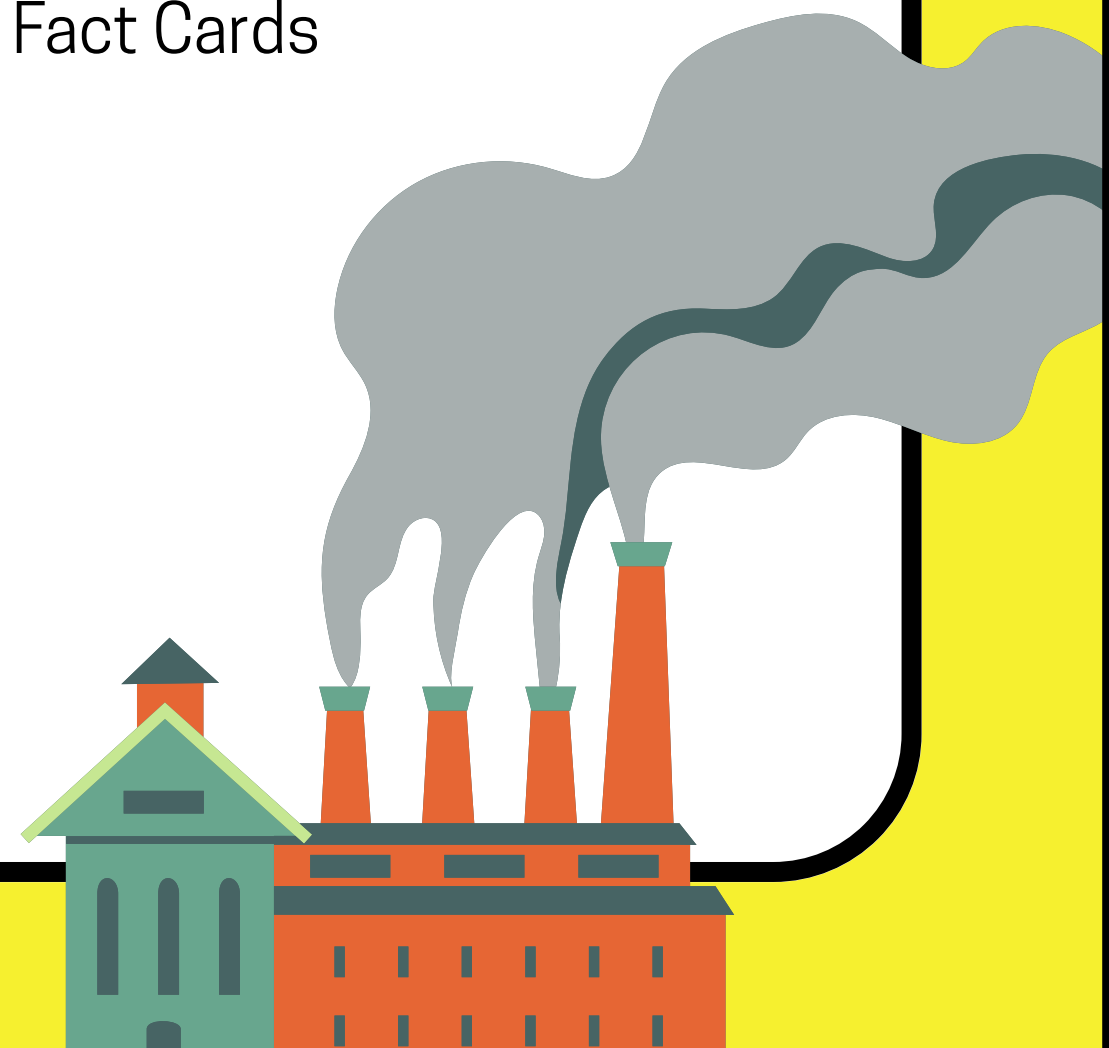
**Grade Level**  
V-VII

**Game Type**  
Board Game



## Game Overview

- Pollution Solution is a board game designed to assess and reinforce students' understanding of air pollution. Framed as a 'call to action' during a time of environmental crisis, the game encourages players to apply their knowledge of air pollution by analysing its causes, identifying its effects, and considering real-world actions to address it. As a formative assessment tool, the game is intended for use after students have been introduced to the topic of air pollution through classroom instruction.
- The game combines elements of competition, strategy, and reflection, requiring students to respond to various prompts while progressing along a game board. It also promotes collaborative thinking and self-monitoring, as one student in each group takes on the role of scorekeeper and guide.
- By the end of the gameplay, players will be able to recall key facts about air pollution, critically engage with real-life scenarios, and explain both causes and effects of air pollution in local and global contexts.
- A complete game set, for one group, includes the following materials:
  - 1 game board
  - 1 dice and 4-5 coloured counters
  - 11 Question Cards, 5 Scenario Cards and 3 Scientific Fact Cards
  - Gold coins (for scoring) – each coin equals 20 points
  - Game Guide (includes answer key and scoring sheet)
  - Score sheet (maintained by group monitor)
  - Stars



## Gameplay Instructions

- Divide students into groups of 4–5.
- Assign one student in each group as the monitor. The monitor is responsible for checking answers using the Game Guide and recording scores.
- Distribute one full game set to each group.
- Each player selects a counter and places it on the Start space of the board.
- Shuffle and arrange all three types of cards into separate decks: Question Cards, Scenario Cards, and Scientific Fact Cards.
- Players take turns rolling the dice in a clockwise direction.
- The number rolled determines the movement:
  - Roll of 1 or 3: Move forward 1 space.
  - Roll of 2 or 4: Move forward 2 spaces.
  - Roll of 5 or 6: No move.
- Each space on the board corresponds to a card type (question, scenario, or scientific fact). When a player lands on a space, they must draw a card from the specified deck. The player reads the card aloud and responds based on their understanding.
- The monitor checks the response using the Game Guide. If the answer is correct or meaningful (for scenario/fact cards), the player earns a gold coin (20 points).
- The turn passes to the next player. The first player to reach the Finish space is the winner. In case of a tie, the player with the highest score (based on gold coins) wins.



## Debriefing and Reflection

After the game ends, facilitate a class discussion to consolidate learning and address misconceptions. Suggested prompts include:

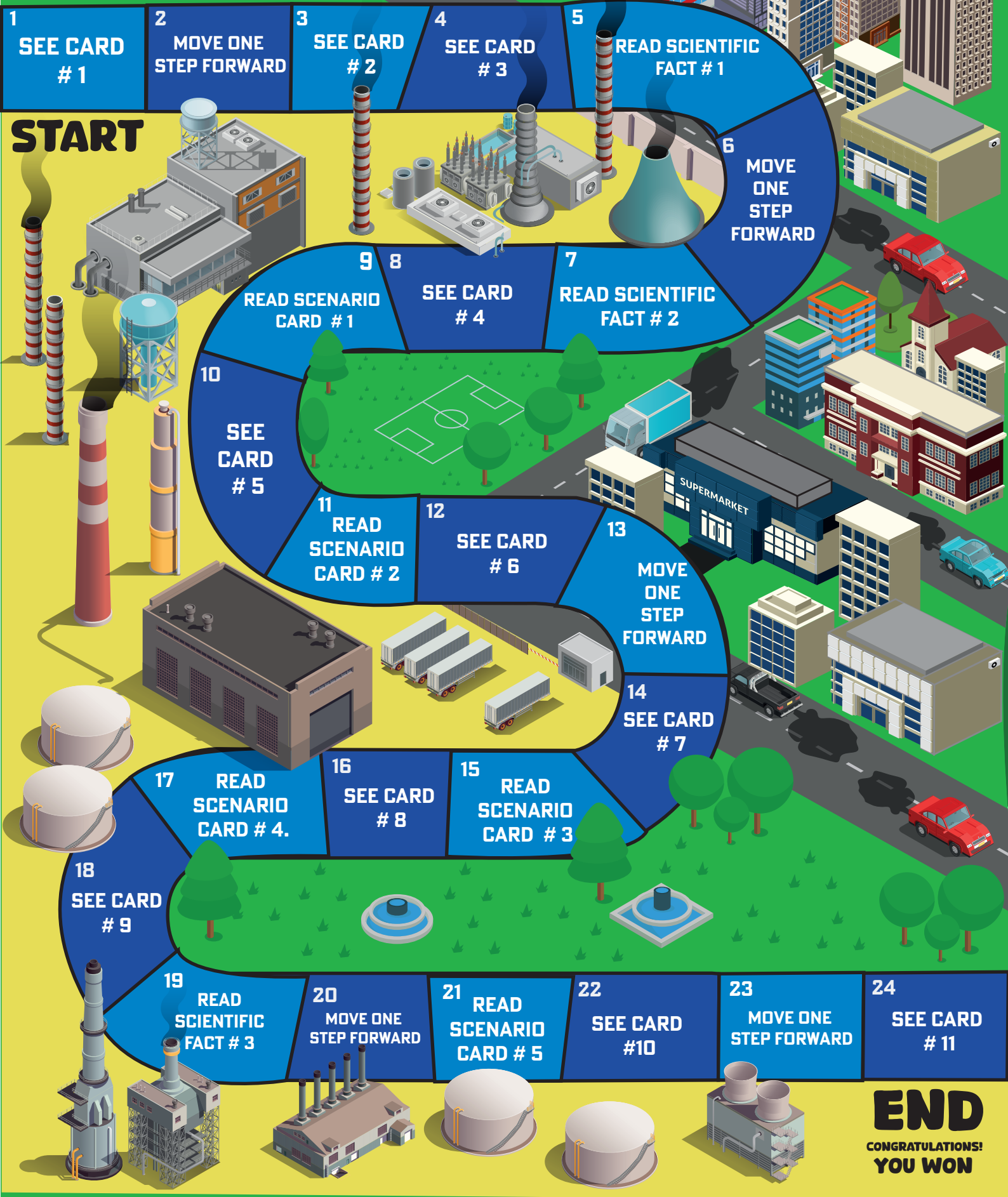
- Ask students to summarise the causes and effects of air pollution they encountered during the game.
- Discuss the do's and don'ts related to reducing air pollution. Focus on practices such as reducing vehicle emissions, avoiding burning waste, planting trees, and promoting clean energy use. Highlight how these actions, when practiced at individual and community levels, can improve air quality and contribute to a healthier environment.
- Invite students to reflect on which questions or scenarios were difficult, and why they found them challenging.

## Adaptations for Gamplay

- **For Lower Grades:** Simplify the cards to focus on basic pollution facts and preventive actions, such as not burning garbage, planting trees, or using public transport. Use fewer cards and reduce the board complexity to keep the game manageable.
- **For Higher Grades:** Include more detailed questions about sources of air pollution, health impacts, and long-term environmental consequences. Add advanced scenario cards that require critical thinking and problem-solving. Introduce bonus or penalty spaces to increase strategic challenge.



# POLLUTION SOLUTION GAME



# GAME CARDS

**CARD# 1    10 POINT**

What is air pollution?

**CARD# 2    10 POINT**

What are the main causes of air pollution?

**CARD# 3    10 POINT**

How does air pollution affect our health?

**CARD# 4    10 POINT**

How does air pollution affect our health?

- a) Improves respiratory function
- b) Causes skin diseases
- c) Makes us sick, leading to issues like coughing and asthma
- d) Enhances overall well-being

**CARD# 5    10 POINT**

Why is reducing emissions from factories and vehicles important in controlling air pollution?

**CARD# 6    10 POINT**

Explain if there are natural causes of air pollution.



## CARD# 7 10 POINT

How can cutting down on using plastic contribute to controlling air pollution?

- a) Plastic improves air quality
- b) Plastic absorbs harmful substances in the air
- c) Making plastic creates pollution, and using less can help keep the air cleaner

## CARD# 8 10 POINT

How can cutting down on using plastic help in controlling air pollution?

## CARD# 9 10 POINT

Suggest two ways you can personally help control air pollution.

## CARD# 10 10 POINT

Why is enforcing laws mentioned as important in controlling air pollution?

- a) Laws ensure factories and businesses harm the air
- b) Laws help everyone work together to keep the air clean
- c) Laws create pollution-free environments

## CARD# 11 10 POINT

What three steps would you recommend to control air pollution in your area?

**SCIENTIFIC  
FACT# 1**

**10 POINT**

Certain pollutants, like carbon dioxide (CO<sub>2</sub>) and methane (CH<sub>4</sub>), contribute to the greenhouse effect.

Question: How can cutting down on using plastic help in controlling air pollution?



**SCIENTIFIC  
FACT# 2**

**10 POINT**

Tiny particles in the air, known as particulate matter (PM), These particles can carry harmful substances and penetrate deep into our lungs, causing health issues.



**SCIENTIFIC  
FACT# 3**

**10 POINT**

Ground-level ozone, a key component of smog, forms when pollutants from vehicles and industrial sources react with sunlight, causing respiratory irritation and breathing difficulties, particularly affecting vulnerable populations like children and the elderly.



**SCENARIO  
CRAD# 1**

**20 POINT  
2 COINS**

Imagine you live in a city where many factories release smoke into the air. Describe how this could contribute to air pollution and its effects on your surroundings.



**SCENARIO  
CRAD# 2**

**20 POINT  
2 COINS**

Ahmed's school is near a busy road, and he often sees many cars stuck in traffic emitting exhaust fumes. Tell how vehicle emissions can lead to air pollution and suggest ways to minimize it.



**SCENARIO  
CRAD# 3**

**20 POINT  
2 COINS**


Ali Cleaned his street yesterday and burnt all the garbage. What are the pros and cons of his action?



**SCENARIO**  
**CRAD# 4**

**20 POINT**  
**2 COINS**


Shan's family is considering buying a new car, and you want to suggest an eco-friendly vehicle. Explain what 2 features make a car environmentally friendly and how it can help reduce air pollution.



**SCENARIO**  
**CRAD# 5**

**20 POINT**  
**2 COINS**

If you were the custodian of a park that has not been maintained properly, what measures could you take to reduce air pollution in that area?



# ANSWER KEYS

Box	Question	Answer	Points
1	<b>Card #1</b> What is air pollution?	Air pollution is when harmful substances, like gases and particles, get into the air and make it dirty. This can happen from things we do every day.	10 Points
3	<b>Card #2</b> What are the main causes of air pollution?	Air pollution is caused by burning fossil fuels (like coal and oil), factories releasing chemicals, and vehicles emitting smoke and gases.	10 Points
4	<b>Card# 3</b> How does air pollution affect our health?	Breathing in dirty air can make us sick. It can cause problems like coughing, asthma, and other serious health issues.	10 Points
5	<b>Scientific Fact #1</b>	Certain pollutants, like carbon dioxide (CO <sub>2</sub> ) and methane (CH <sub>4</sub> ), contribute to the greenhouse effect.	10 Points
7	<b>Scientific Fact# 2</b>	Tiny particles in the air, known as particulate matter (PM), can carry harmful substances and penetrate deep into our lungs, causing health issues.	10 Points.
8	<b>Card# 4</b> Question: How does air pollution affect our health? Choose the right option A, B, C, or D	a) Improves respiratory function b) Causes skin diseases <b>c) Makes us sick, leading to issues like coughing and asthma</b> d) Enhances overall well-being	10 Points
9	<b>Scenario Card# 1</b> Imagine you live in a city where many factories release smoke into the air. Describe how this could contribute to air pollution and its effects on your surroundings.	These factories may release smoke and other waste materials/ gases that may pollute and disturb the atmosphere/air. It can make us sick, leading to issues like coughing and asthma. Breathing problems and various disorders related to the lungs can happen. Wearing masks, avoiding going to such places	20 Points & 2 Gold Coins
10	<b>Card# 5</b> Why is reducing emissions from factories and vehicles important in controlling air pollution?	Reducing emissions from factories and vehicles helps keep the air cleaner, which is important for our health. Pollution from factories and vehicles can make it hard to breathe and can cause sickness. When we reduce these emissions, we protect the environment and animals too. It also helps prevent climate change and keeps our planet healthy.	10 Points
11	<b>Scenario Card# 2</b> Ahmed's school is near a busy road, and he often sees many cars stuck in traffic emitting exhaust fumes. Tell how vehicle emissions can lead to air pollution and suggest ways to minimize it.	Vehicle emissions from cars stuck in traffic can contribute to air pollution in several ways. The exhaust fumes released contain harmful pollutants like nitrogen oxides and carbon monoxide, which can worsen air quality and pose health risks. To minimize this, Ahmed and others can encourage using public transportation, walking, or biking instead of driving alone.	20 Points & 2 Gold Coins
12	<b>Card# 6</b> Explain if there are natural causes of air pollution.	<b>Answer:</b> Sometimes, nature can cause air pollution, like when there are wildfires. The smoke from these fires releases harmful substances into the air	10 Points
14	<b>Card# 7</b> Question: How can plastic contribute to air pollution?	<b>A) By releasing toxic chemicals when burned.</b> B) By emitting harmful microplastics into the air. C) By blocking airflow and causing overheating in landfills.	10 Points
15	<b>Scenario Card# 3</b> Ali Cleaned his street yesterday and burnt all the garbage. What are the pros and cons of his action?		20 Points & 2 Golds Coins
16	<b>Card# 8 Question</b> Question: How can reducing the use of plastic help in controlling air pollution?	Making plastic creates pollution, and when plastic is burned, it releases harmful gases. Using less plastic can help keep the air cleaner.	10 Points
17	<b>Scenario Card#4</b> Shan's family is considering buying a new car, and you want to suggest an eco-friendly vehicle. Explain what 2 features make a car		20 Points & 2 Golds Coins

<b>18</b>	<b>Card# 9</b> Suggest two ways you can personally help control air pollution.	We can walk, use cycle or public transport instead of cars, and we can also recycle to reduce the amount of waste that creates pollution.	10 Points
<b>19</b>	<b>Scientific Fact#3</b> Ground-level ozone, a key component of smog, forms when pollutants from vehicles and industrial sources react with sunlight, causing respiratory irritation and breathing difficulties, particularly affecting vulnerable populations like children and the elderly		10 Points
<b>21</b>	<b>Scenario Card# 5</b> If you were the custodian of a park that has not been maintained properly, what measures could you take to reduce air pollution in that area?	I would plant more trees and bushes to help clean the air. We can also encourage people to walk or bike instead of using cars. And maybe we can use eco-friendly cleaning products to keep the park clean!	20 Points & 2 Golds Coins
<b>22</b>	<b>Card# 10</b> Why is Law enforcement important in controlling air pollution?	a) Laws ensure factories and businesses harm the air b) <b>Laws help everyone work together to keep the air clean</b> c) Laws create pollution-free environments	10 Points
<b>24</b>	<b>Card# 11</b> What two steps would you recommend to control air pollution in your area? (5 marks for each correct step)		10 Points
<b>25</b>	<b>Congratulations you have completed the game.</b>		

# SCORE SHEET

		Players/ Teams					
Box #	Points		A	B	C	D	
1	10						
3	10						
4	10						
5	10						
7	10						
8	10						
9	20+2 Gold Coins						
10	10						
11	20+2 Gold Coins						
12	10						
14	10						
15	20+2 Gold Coins						
16	10						
17	20+2 Gold Coins						
18	10						
19	10						
21	20+2 Gold Coins						
22	10						
24	10						
Overall points	/340						