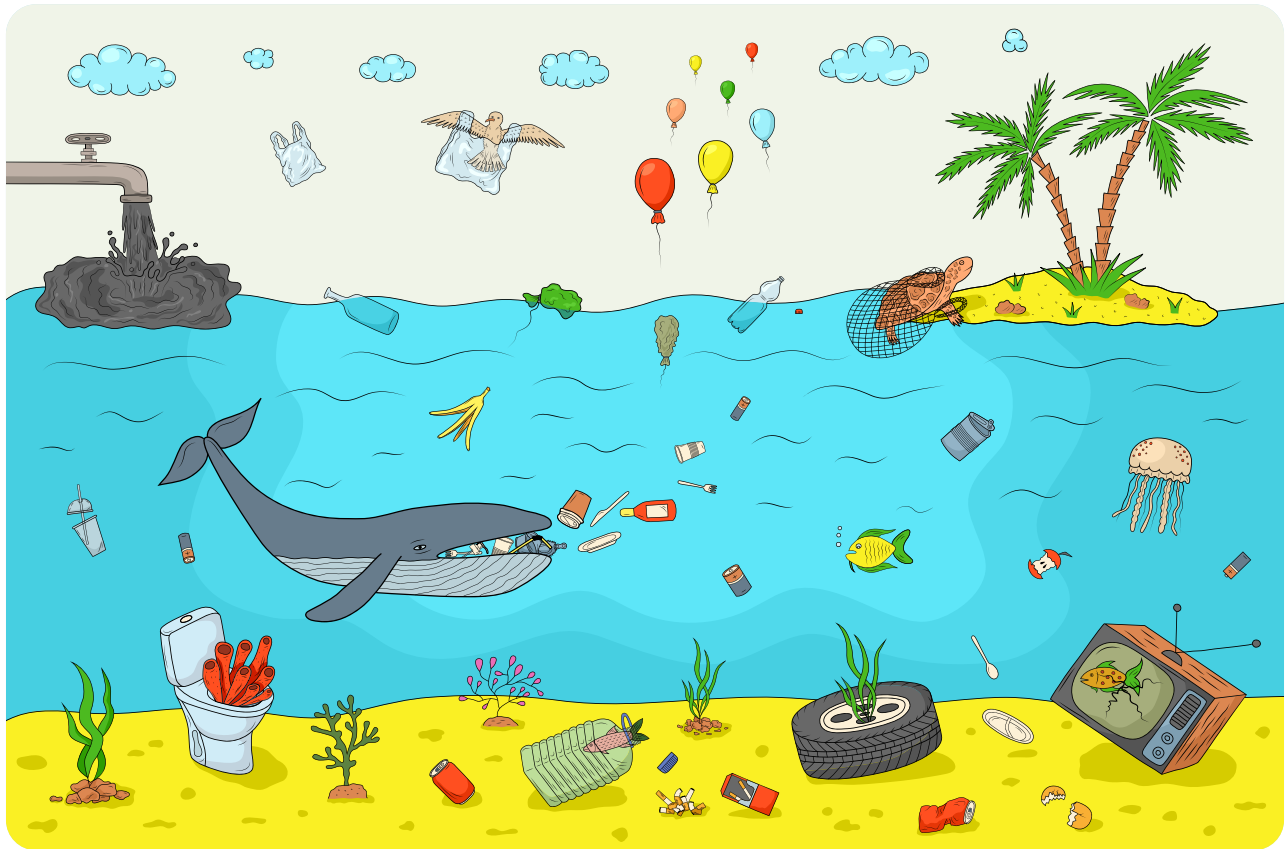# Water Pollution and Prevention

# ● Warm-up

Circle all the things that don't belong in the water.



Here are some things that don't belong in the water and can cause pollution: Plastic (bags, bottles, straws), Styrofoam cups or containers, cigarette butts, toxic or harmful substances (oil or chemical spills, industrial waste, sewage or waste water), and trash or litter.

# ⬤ Keywords

## Look and Say

**1** **sewage**



**2** **factory**



**3** **release**



**4** **plastic**



**5** **pollution**



**6** **straw**



**7** **protect**



**8** **report**

# ● Class Activity: Vocabulary Practice

Fill in the missing words.

| sewage | factory | release | plastic |
|--------|---------|---------|---------|
| pollution | straw | protect | report |

1. The heavy rain last night made the ___sewage___ flow into the river.

2. Henry works in a clothing ___factory___ in his hometown.

3. We need to try our best to ___protect___ our environment from being polluted.

4. After the laptop in Linda's room was ◆stolen, we called the police to ___report___ the ◆theft.

5. Peter found thousands of fish dead in the river because of water ___pollution___ .

6. The children collected lots of ___plastic___ bags at the beach last week.

認識字彙　◆ stolen (steal 的過去分詞 ) 偷　◆ theft 偷竊行為

# ● Language in Use

## Conjunctions

Conjunctions are words that ◆ connect words, ◆ phrases, ◆ clauses, or sentences.

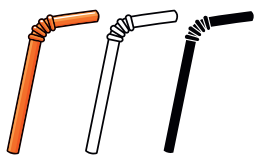| and | or | so | because |
|---|---|---|---|

# ● Class Activity: Language in Use

**Example**

The water becomes dirty __because__ the factory releases sewage into the river.
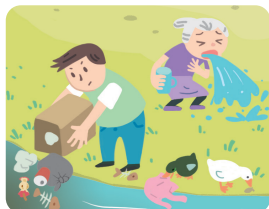
1. The pollution in the riverbanks is getting worse, _____so_____ people organize a cleaning group to protect the environment.

2. They made colorful posters _____and_____ wrote a song.

3. A: Do you need two _____or_____ three straws for your drinks?

   B: Three, please.

4. People get sick _____because_____ the dirty water pollutes the river.

5. Andy needs to report the case, _____so_____ he calls the police.

認識字彙 ◆ connect 連接 ◆ phrase 片語 ◆ clause 子句

# ● Reading Passage

## Pre-Reading

Look at the pictures and answer the questions.









## Questions:

生字 | pollution 汙染

認識字彙 ◆ cause 造成 ◆ affect 影響

1. What have people done to ◆cause this problem?
   The factory in the picture is causing pollution by releasing harmful substances into the air and water. Some factories don't follow environmental rules or manage their waste properly. These actions contribute to the problem of industrial pollution.

2. What garbage have you seen in the river or on the beach?
   I have seen various types of garbage in the river and on the beach, including plastic lids, bottles, bags, food wrappers, cigarette butts, Styrofoam, fishing gear, and glass bottles.

3. How does water **pollution** ◆affect the environment and humans?
   - Pollutants like chemicals can harm aquatic life. The pollution reduces oxygen levels in the water, making it difficult for fish to breathe and survive.
   - Contaminated water can enter our drinking water sources, posing health risks to people.

4. How can we keep our environment clean?
   - Reduce, reuse, and recycle: Minimize waste, reuse things, and recycle to keep the environment clean.
   - Conserve water and energy.
   - Avoid littering.
   - Plant trees and protect green spaces.

# Angela's Fight for a Clean River: The Story of the Clean Water ◆Heroes

**1** Angela is a 7th-grade student living in a small village called Sunshine Village. She loved her hometown dearly, ◆especially the beautiful river that ◆provided fresh water and was home to many colorful fish and ducks.

**2** Sadly, something terrible happened recently. A new ◆chemical **factory** nearby **release**d **sewage** into the river. The once-clear water started turning dark, and a terrible smell filled the air. It polluted the water and air, ◆causing problems in their area.

**3** To make things worse, the villagers had been throwing their trash into the river, not ◆realizing it was ◆harming the water and the animals living there. People in the village were getting sick because of the polluted water.

**4** One day, Angela felt ill with an upset stomach, so she had to miss school. The doctor told Angela's mom that Angela was sick because of the sewage in the water, and many villagers went to the doctor for the same ◆reason.

---

生字　factory 工廠　release 排放　sewage 汙水

認識字彙　◆hero 英雄　◆especially 特別；格外的　◆provide 提供　◆chemical 化學的
◆cause 造成　◆realize 意識到　◆harm 傷害　◆reason 理由

33

**5** After Angela recovered, she decided to do something to save their river. She formed a group called "The Clean Water Heroes" with her school friends and began to take action.

**6** They ◆organized clean-up days where everyone would get together to pick up trash along the riverbanks.

**7** They collected **plastic** bottles, **straw**s, and other litter.

**8** To raise ◆awareness, they made colorful posters and wrote a song about **protect**ing the river.

**9** They also **report**ed the case of the chemical factory to the Minister of the ◆EPA to stop the factory from polluting the river.

**10** With everyone's ◆efforts, the river in Sunshine Village became cleaner and healthier. Fish and ducks returned, and the villagers could enjoy the river again. The children of Sunshine Village felt proud of what they had done and knew they had made a difference.

生字　plastic 塑料；塑膠的　straw 吸管　protect 保護　report 報告；舉報

認識字彙　◆organize 組織　◆awareness 意識
◆EPA (Environmental Protection Agency) 環保局　◆effort 努力

## Post-Reading Questions

1. What problem did Angela face?
   (A) No water to drink.
   (B) Pollution of the water in her area.
   (C) People released sewage into the river.
   (B) Pollution of the water in her area.

2. What could be a possible ◆solution to Angela's problem?
   (A) If the factory cleans the waste water, the pollution problem can be ◆solved.
   (B) If everyone in the village moves away, the pollution problem can be solved.
   (C) If the villagers start throwing trash into the river, the pollution problem can be solved.
   (A) If the factory cleans the waste water, the pollution problem can be solved.

3. What actions did Angela take to protect the environment? Please list at least three actions.
   ① She formed a group with her school friends to pick up trash alongside the riverbanks.
   ② She made colorful posters and wrote a song about protecting the river.
   ③ She also reported the case of the chemical factory to the Minister of EPA (Environmental Protection Agency).

4. Read the sentences below and put them into ◆causes, ◆effects, and ◆solutions of water pollution.

   A. Oil ◆spills and ◆leaks
   B. Leaking sewage ◆pipes
   C. Polluted drinking water
   D. Destroying river ◆habitats
   E. Animal waste washing into rivers
   F. Using ◆renewable energy
   G. Too much ◆fertilizer on crops
   H. Collecting **plastic** waste
   I. Stopping **factor**ies from **releas**ing waste in rivers
   J. Humans getting sick

| Causes | Effects | Solutions |
|---|---|---|
| A. Oil spills and leaks<br>B. Leaking sewage pipes<br>E. Animal waste washing into rivers<br>G. Too much fertilizer on crops | C. Polluted drinking water<br>D. Destroying river habitats<br>J. Humans getting sick | F. Using renewable energy<br>H. Collecting plastic waste<br>I. Stopping factories from releasing waste in rivers |

生字　plastic 塑料；塑膠的　factory 工廠　release 排放

認識字彙　◆solution 解決方案　◆solve 解決　◆cause 原因　◆effect 影響
◆spill 撒出　◆leak 漏　◆pipe 管路　◆contaminate 汙染　35
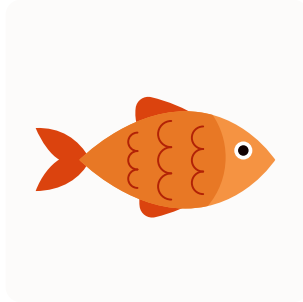◆habitat 棲息地　◆renewable 再生　◆fertilizer 肥料

# ● Class Activity: Worksheet

◆ Sort the ◆ items (below) that can cause water **pollution** from the items that can't, and ◆ place them in the correct ◆ category.

**①** **plastic bags**

**②** **fish**

**③** **starfish**

**④** **oil spill**

**⑤** **shark**

**⑥** **drinking straw**

**⑦** **plastic bottle**

**⑧** **dolphin**
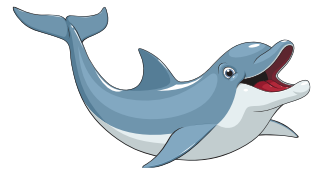
| ◆ Harmful | Non-harmful |
|---|---|
| 1. plastic bags | 2. fish |
| 4. oil spill | 3. starfish |
| 6. drinking straw | 5. shark |
| 7. plastic bottle | 8. dolphin |

生字　pollution 汙染

認識字彙　◆ sort 把…分類　◆ item 項目　◆ place 放置　◆ category 類別　◆ harmful 有害的

# ● Discuss and Share

## Collaborative Storytelling

Create a story together that highlights the importance of clean water, proper ◆ sanitation (SDG 6), and protecting marine life (SDG 14). Each person in your group will take turns adding one sentence or paragraph to make a ◆ coherent and ◆ engaging story.
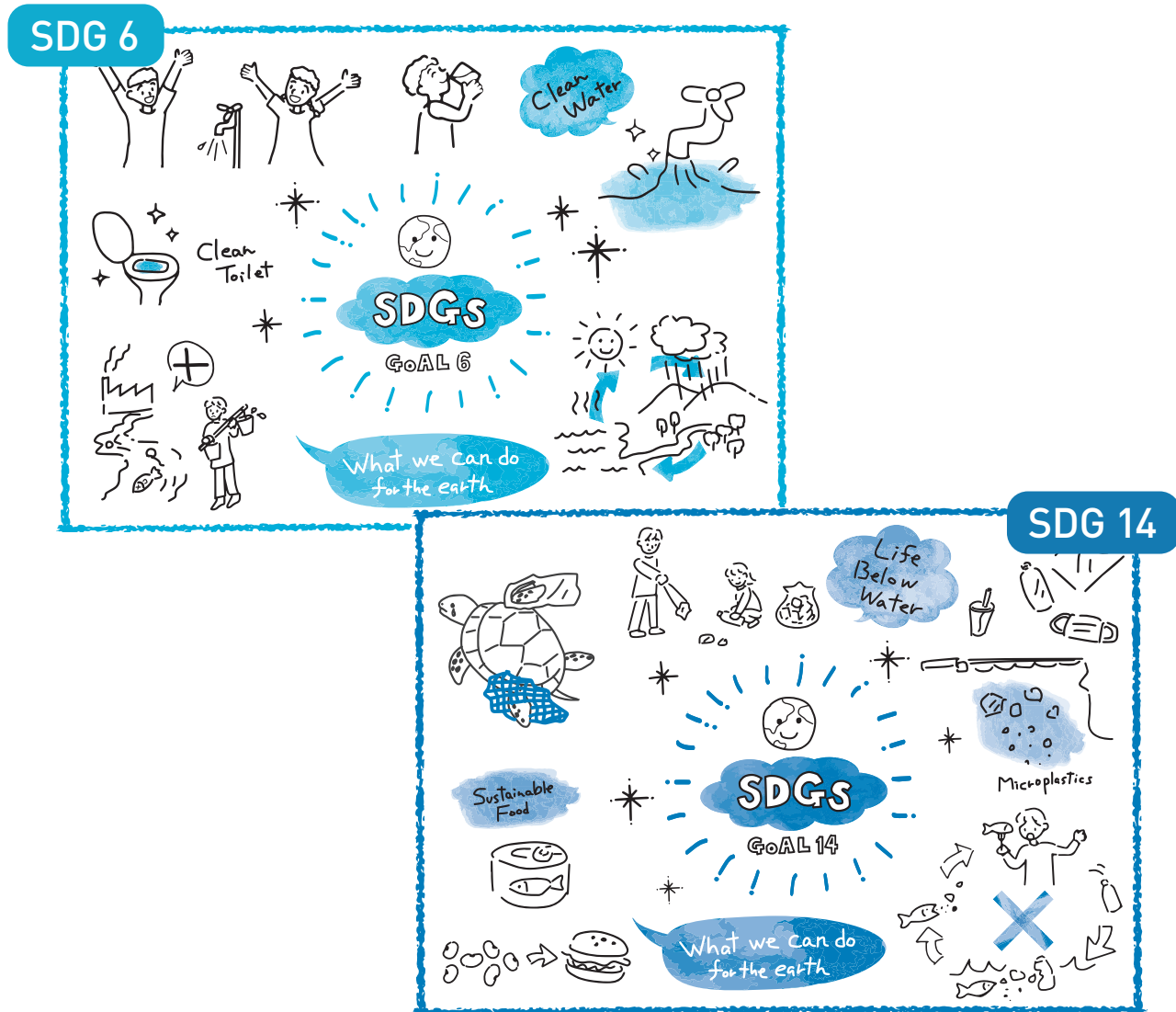


Before you start, let's brainstorm and discuss the following ideas and fill in the answers as a group.

1. The topic and title of your story.
2. The problems that the ◆characters will face and their causes.
3. The challenges that they will ◆encounter.
4. What is important in the story.
5. Possible solutions and the roles we can play.

Finally, make a ◆pledge related to the story's theme (as below).

認識字彙

◆ sanitation 衛生設備

◆ coherent 連貫的

◆ engaging 有吸引力的

◆ character 人物

◆ encounter 遭遇

◆ pledge 承諾

## Collaborative Storytelling

Topic: _____

Title of the story: _____

Authors: _____

Illustrators: _____
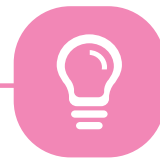
### Problems

### Challenge

### What's impotant?

### Solutions and Our Roles

## Your Story

**1**



Your story:

**2** Draw a picture.

Your story:

**3** Draw a picture.

Your story:

**4** Draw a picture.

Your story:

**5** Draw a picture.

Your story:

**6** Draw a picture.

Your story:

# ● Claim Your Climate Action Hero Certificate

## Make a pledge and get your Climate Action Hero Certificate.

Congratulations! You are now a Climate Action Hero!

Your creative story has helped everyone understand why we need to act for the climate and use resources wisely. Well done!



### ◆Certificate of Climate Action Hero

Presented to

(your name)

_____

For successfully

taking actions to stop climate change and protect our precious bodies of water and marine ecosystems.

🌍 the Earth
_____

**I pledge** to say NO to plastic bottles and plastic bags .

認識字彙  ◆ certificate 證書

# ● Wrap-up: Let's take action!
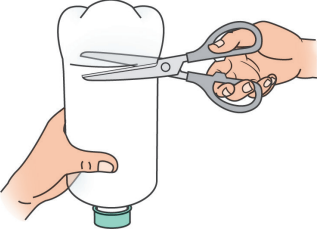
## Title: Simple Water ◆Filter Experiment

Supplies you will need:

- Plastic bottle or food-safe ◆container
- Another container for clean water
- Clean cotton or cheesecloth
- Coffee filter or ◆porous cloth
- Charcoal
- Fine sand
- ◆Coarse sand
- ◆Gravel or pebbles
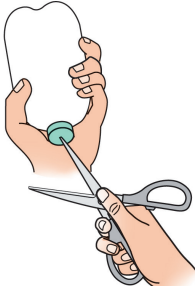
**Steps on how to do the water filter experiment:**

**1**

**Cut off the bottom.**

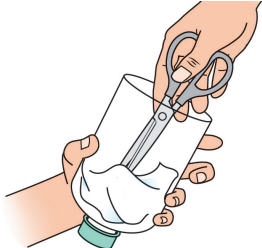Use scissors or a knife to cut off the bottom part of the bottle.

**2**

**Make a drain hole.**

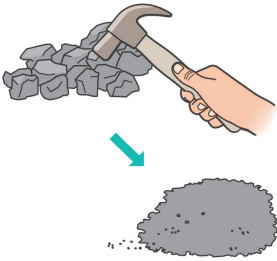Use scissors or a knife to ◆poke a small hole in the cap.

**3**

**First layer: Straining fabric.**

Stuff the bottom of the bottle with a clean cotton or cheesecloth.

**4**

**Break up the charcoal.**

Break the charcoal into the smallest pieces you can.

**5**

**Second Layer: Charcoal.**

Pour about 3 inches of charcoal into the bottle.

**6**

**Third Layer: Fine sand.**

Add a layer of fine sand, about 2-3 inches deep.

認識字彙 ◆filter 過濾器 ◆container 容器 ◆porous 多孔的 ◆coarse 粗大的
◆gravel 礫石 ◆poke 戳

## 7 Fourth Layer: Coarse sand.

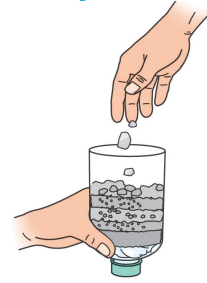Add another layer of coarse sand, about 2-3 inches deep.

## 8 Fifth Layer: Fine sand.

Add an ◆additional layer of fine sand, about 2-3 inches deep.

## 9 Sixth Layer: Gravel.

Add a layer of gravel or small rocks, about 2-3 inches deep to prevent the water from ◆displacing the sand.
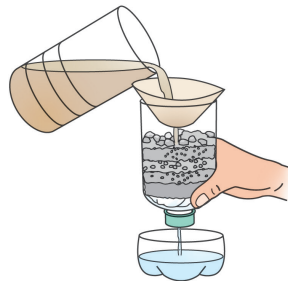
## 10 Top strainer.

Cover the top of the filter with a piece of coffee filter or porous cloth. (Optional)

## 11 Pouring and collecting.

Slowly pour water into the filter while holding it over the second container

## 12 The experiment is now done!

◆Observe the difference between the water before and after ◆filtration. What did you ◆discover?

* Clean the bottle and try again. Change the order of the filter materials in each experiment and record the time for each trial. What did you discover?

認識字彙　　◆ additional 額外的　　◆ displace 迫使離開　　◆ observe 觀察
　　　　　　◆ filtration 過濾　　◆ discover 發現

## Write and Share

Observe the difference in the water before and after ◆ filtration. What did you discover? Take pictures and paste them below.

| | before | after |
|---|---|---|
| pictures | | |
| descriptions | | After filtering, the water becomes clearer and you won't see any floating particles. Filtering water not only makes it taste better but also improves its smell. This happens because it removes harmful things like chemicals, pesticides, germs, and heavy metals from the water. |

認識字彙  ◆ filtration 過濾

## Discussion

1. Is your ♦purified water clean enough for us to drink? Explain your answer.

   Yes, the purified water is safe to drink because it went through many layers

   of filtering, like straining fabric, powdered charcoal, sand, and gravel. These

   layers help remove harmful things from the water, making it cleaner and safer

   for us to drink.

   　　or

   No, the purified water might not be clean enough for us to drink because

   there could still be some contaminants left after the filtration process. To

   make sure the water is safe, we might need to use other methods like boiling

   or adding chemicals to further purify it.

   We need to do more tests to know if the purified water is safe for people to

   drink. Scientists can analyze the water in a laboratory or we can use water

   testing kits to check for specific things that could be harmful. This way, we can

   make sure the water is clean and won't make us sick.

2. Based on your observations, please answer the following questions.

   a. Which layers of the filter do you think were most effective in removing

   contaminants? Why?

   The powdered charcoal and fine sand layers were the most effective at

   removing contaminants. Charcoal absorbs harmful things, and fine sand

   catches smaller particles, making the water cleaner.

   b. What factors might affect the ♦efficiency of the water filter? (e.g., size of

   particles)

   Factors that might affect the filter's efficiency include particle size and the

   amount of filtering material. If the particle size is larger,  small particles

   may pass through. Insufficient filtering material may not effectively remove

   contaminants.

c. How can you improve the design of the water filter to make it more effective?

Add more layers of different materials and increase the amount of filtering

material in each layer. This makes the filter larger for better water purification.

With enough layers, it may be able to make water that we can drink.

3. What actions can you take to promote clean water awareness and conservation in your school or community?

- Share what we've learned about clean water with our classmates, teachers, and family. Encourage them to use water wisely and not waste it.

- Organize a campaign or presentation about the importance of clean water. Teach others simple ways to save water, like turning off taps when not in use.

- Start a recycling program at school to reduce pollution and keep our water sources clean.

- Participate in community clean-up events near rivers, lakes, and beaches to protect water ecosystems.

- Raise funds or volunteer for organizations that work to provide clean water to communities in need.

- Spread the word on social media about the importance of clean water and how everyone can make a difference.

認識字彙　◆ purified 淨化的　◆ efficiency 效率

# NOTES

# NOTES

# NOTES